Executive Diploma in

Cost & Management Accounting for Engineers

Board of Advanced Studies & Research

ICMAI

The Institute of Cost Accountants of India

Statutory Body under an Act of Parliament

www.icmai.in

Behind Every Successful Business Decision, there is always a CMA

About the Institute

The Institute of Cost Accountants of India (ICMAI) is a Statutory Body set up under an Act of Parliament in the year 1959. The Institute as a part of its obligation, regulates the profession of Cost and Management Accountancy, enrolls students for its courses, provides coaching facilities to the students, organizes professional development programmes for the members and undertakes research programmes in the field of Cost and Management Accountancy. The Institute pursues the vision of cost competitiveness, cost management, efficient use of resources and structured approach to cost accounting as the key drivers of the profession.

With the current emphasis on management of resources, the specialized knowledge of evaluating operating efficiency and strategic management the professionals are known as "Cost and Management Accountants (CMAs)". The Institute is the 2nd largest Cost & Management Accounting body in the world and the largest in Asia, having more than 5,00,000 students and 90,000 members all over the globe. The Institute operates through four regional councils at Kolkata, Delhi, Mumbai and Chennai and 117 Chapters situated at important cities in the country as well as 11 Overseas Centres, headquartered at New Delhi. It is under the administrative control of the Ministry of Corporate Affairs, Government of India.

MISSION STATEMENT

"The CMA Professionals would ethically drive enterprises globally by creating value to stakeholders in the socio-economic context through competencies drawn from the integration of strategy, management and accounting."

VISION STATEMENT

"The Institute of Cost Accountants of India would be the preferred source of resources and professionals for the financial leadership of enterprises globally."

Institute Motto

असतोमा सद्गमय
तमसोमा ज्योतिर् गमय
मृत्योर्मामृतं गमय
ॐ शान्तिं शान्तिं शान्तिः

From ignorance, lead me to truth
From darkness, lead me to light
From death, lead me to immortality
Peace, Peace, Peace

Board of Advanced Studies & Research

The Board of Advanced Studies & Research has been constituted by the Institute in order to provide advanced knowledge and specialized training on various areas of Cost & Management Accountancy, including finance and other allied subjects.

The Board shall design, develop and deliver advanced courses that are of interest to Management Accountants and other professionals. It will also take up research in the area of Management Accounting and allied field of study.

Advanced courses are designed for up-gradation of existing knowledge and skills and for acquiring new knowledge and skills. The courses aim to prepare practicing members and professionals to take up new areas of practice and consultancy and for members/professionals in industry to shoulder higher responsibilities.

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PART A: : FINANCIAL ACCOUNTING (50 MARKS)

1. **Introduction (5 marks)**
   a. Meaning and Objectives of Financial Accounting, Meaning of different types of accounting, users of accounting information and their information needs
   b. Accounting Concepts and Conventions
   c. Accounting Standard (Basic concepts & issues)
   d. Accounting in ERP Environment
2. **Double Entry Book Keeping (15 marks)**
   a. Framework for preparation and presentation of Financial Statements
   b. Basic Accounting Equation
   c. Accounting Cycle - Journal, Ledger, Cash Book, Trial Balance and Financial Statements
3. **Finalisation of Accounts (15 marks)**
   a. Basic Principles of preparing Final Accounts
      i. Meaning and recognition of Assets, Liabilities, Equity, Income and Expenses
      ii. Depreciation-Various methods of calculating depreciation
      iii. Reserve and Provision and Other Adjustments (Basic concept only)
   b. Final Accounts of Companies (Basic concept)
4. **Interpretation of Financial Statement – Ratio Analysis (10 marks)**
   a. Theoretical underpinnings
   b. Analysis and Interpretation
5. **Cash Flow Statement – Basic Concept (5 marks)**

PART B: COST ACCOUNTING (50 MARKS)

1. **Introduction (10 marks)**
   a. Introduction to cost accounting, Various Cost terms, Classification of Cost [with special reference to CAS]
   b. Material, Labour, Overhead
   c. Ascertainment of Cost (Cost Sheet)
2. **Methods of Costing (10 marks)**
   a. Job/Batch/Contract
   b. Process Accounts (Basic concept of simple process, Equivalent Production, Inter process profit)
   c. Joint Product and By Product
   d. Operating/Service Costing
3. **Techniques of Costing (30 marks)**
   a. Contribution and Break-Even Analysis (Marginal Costing)
   b. Cost-Volume-Profit Analysis
   c. Standard Costing (Basic Concept, Material Variance and Labour Variance)
   d. Budgeting and Budgetary Control
   e. Activity Based Costing

CONTENT

PART - A

Financial Accounting

Introduction 1

This Unit Includes the Following Topics:

a. **Meaning and objectives of Financial Accounting, Meaning of different types of accounting, users of accounting information and their information needs**

b. **Accounting Concepts and Conventions**

c. **Accounting Standard (Basic concepts & issues)**

d. **Accounting in ERP environment**

Unit Learning Objectives:

After studying this unit, students will be able to:

- **Understand the meaning of financial accounting and its relationship with the other branches of accounting.**
- **Understand the objectives of financial accounting.**
- **Know the underlying accounting concepts and conventions.**
- **Have a basic understanding of accounting standards and related issues.**
- **Have preliminary knowledge on accounting in an ERP environment.**

a. Meaning and objectives of Financial Accounting, Meaning of different types of accounting, users of accounting information and their information needs

- **Introduction to Financial Accounting**

A business is an economic activity undertaken with the objective of earning profits and to maximize the wealth of the owners. A business cannot run in isolation. Largely, the business activities are carried out by people coming together with a purpose to serve a common cause. This team is often referred to as an organization, which could be in different forms such as sole proprietorship, partnership, body corporate etc. The rules of business are based on general principles of trade, social values, and statutory

framework encompassing national or international boundaries. While these variables could be different for different businesses, different countries etc., the basic purpose is to add value to a product or service in order to satisfy customer demand.

The business activities require resources (which are limited & have multiple uses) primarily in terms of material, labour, machineries, factories and other services. The success of business depends on how efficiently and effectively these resources are managed. Therefore, there is a need to ensure the businessman tracks the use of these resources. The resources are not free and thus one must be careful to keep an eye on cost of acquiring them as well. As the basic purpose of business is to make profit, one must keep an ongoing track of the activities undertaken in course of business. Two basic questions would have to be answered:

(a) What is the result of business operations? This will be answered by finding out whether it has made profit or loss.

(b) What is the position of the resources acquired and used for business purpose? How are these resources financed? Where the funds come from?

The answers to these questions are to be found continuously and the best way to find them is to record all the business activities. However, recording of business activities has to be done in a scientific manner so that they reveal correct outcome. The science of book-keeping and accounting provides an effective solution in this respect. It is basically a branch of social science.

- Definition of Accounting

  According to the American Institute of Certified Public Accountants (Year 1961), accounting is the "art of recording, classifying and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least, of a financial character, and interpreting the result thereof".

  According to the American Accounting Association (Year 1966), accounting is "the process of identifying, measuring and communicating economic information to permit informed judgments and decisions by the users of accounting".

- Objectives of Accounting

  (i) Systematic Recording of Transactions

  To ensure reliability and precision for the accounting measurements, it is necessary to keep a systematic record of all financial transactions of a business enterprise which is ensured by bookkeeping. These financial records are classified, summarized and reported in the form of accounting measurements to the users of accounting information i.e., stakeholders.

  (ii) Ascertainment of Results of above Transactions

  'Profit/loss' is the core accounting measurement. It is measured by preparing Profit and Loss Account for a particular period. Various other accounting measurements such as different types of revenue expenses and revenue incomes are considered for preparing this Profit and Loss

Account. Difference between these revenue incomes and revenue expenses is known as result of business transactions identified as profit/loss. As this measure is used very frequently by stockholders for rational decision making, it has become the objective of accounting to provide such information. For example, Income Tax Act requires that every business should have an accounting system that can measure taxable income of business and also explain nature and source of every item reported in Income Tax Return.

(iii) Ascertainment of Financial Position of Business

'Financial position' is another core accounting measurement. Financial position is identified by preparing a statement of ownership i.e., Assets and Owings i.e., liabilities of the business as on a certain date. This statement is popularly known as Balance Sheet. Various other accounting measurements such as different types of assets and different types of liabilities as existed at a particular date are considered for preparing the balance sheet. This statement may be used by various stakeholders for financing and investment decision.

(iv) Providing Information to the Users for Rational Decision-making

The primary objective of accounting is to provide useful information for decision-making to stakeholders such as owners, management, creditors, investors, etc. Various outcomes of business activities such as costs, prices, sales volume, value under ownership, return of investment, etc. are measured in the accounting process. All these accounting measurements are used by stakeholders (owners, investors, creditors/bankers, etc.) in course of business operation. Hence, accounting is identified as 'language of businesses.

- Functions of Accounting

  The functions of accounting are as follows:

  a. Identification of monetary transactions and events;

  b. Measurement of the identified transactions and events;

  c. Recording of such transactions;

  d. Classifying and summarizing of the recorded transactions;

  e. Obtaining the results of operations and determination of financial state of affairs;

  f. Analysing and interpreting the results and position to help in decision-making;

  g. Communicating such information to the users (both internal and external).

- Book Keeping

  As defined by Carter, 'Book-keeping is a science and art of correctly recording in books of accounts all those business transactions that result in transfer of money or money's worth'.

  It is an activity concerned with recording and classifying financial data related to business operation in order of its occurrence. Its primary objective is to maintain systematic recording of transactions on a regular basis. It is a concept narrower than accounting.

- Accountancy

  Accountancy is the discipline that incorporates certain principles or rules of accounting. It refers to the entire body of the theory and practice of accounting. It is a concept wider than accounting.

  Thus, while Book-keeping is a subset of accounting, Accounting, in turn, is a part of Accountancy.

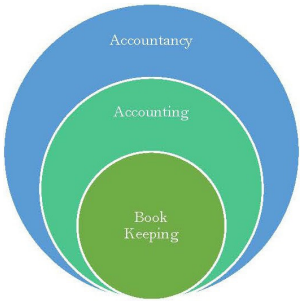


Figure 1.1.1 Relation between Book Keeping, Accounting and Accountancy

- Various Branches of Accounting

  Though the journey of accounting began in form of financial accounting, over the years accounting has been evolved into many new branches, such as,

  a. Cost Accounting
  b. Management Accounting
  c. Human Resource Accounting
  d. Tax Accounting
  e. Forensic Accounting
  f. Social Accounting

  In addition to the above major classes of accounting, there certain objective-led accounting, such as,

  a. Project Accounting
  b. Not-for-profit Accounting
  c. International Accounting
  d. Government Accounting

- Cost Accounting

  CIMA Official Terminology defines cost accounting as the process of gathering of cost information and its attachment to cost objects, the establishment of budgets, standard costs and actual costs of operations, processes, activities or products; and the analysis of variances, profitability or the social use of funds.

Thus, cost accounting encompasses the following;

(i) One of the main purposes of cost accounting is gathering of cost information related to cost objects. This cost information is then suitably presented to the management which aides them in their decision-making process.

(ii) Nuances of cost accounting includes the process of cost accumulation through which the cost of operations, processes or activities or products is calculated.

(iii) Computation profitability which pivots around fixation of selling price is an important aspect of cost accounting.

- Management Accounting

Managerial accounting involves the presentation of financial information for internal purposes to be used by management in making key business decisions.

According to the Institute of Management Accountants (IMA): "Management accounting is a profession that involves partnering in management decision making, devising planning and performance management systems, and providing expertise in financial reporting and control to assist management in the formulation and implementation of an organization's strategy".

Management accountants (also called managerial accountants) look at the events that happen in and around a business while considering the needs of the business. From this, data and estimates emerge. Cost accounting is the process of translating these estimates and data into knowledge that will ultimately be used to guide decision-making.

- Difference Between Financial, Cost and Management Accounting

Basis	Financial Accounting	Cost Accounting	Management Accounting
Objectives	Record transactions and determine financial profit or loss and financial position.	Ascertainment, allocation, accumulation and accounting for cost.	To assist management in decision-making and policy formulation.
Nature	Concerned with historical data.	Concerned with both past and present records.	Deals with projection of data for future (futuristic in nature)
Data Type	Qualitative aspects are not recorded.	Only quantitative aspect is recorded.	Uses both quantitative and qualitative aspects.

Users of Accounting Information and Their Information Needs

There are primarily two types of users of accounting information;

A. Internal users (primary users) – If a user of the information is part of the business itself then he/she is considered as one of the internal or primary users of accounting information. For example, management, owners, employees, etc.

B. External users (secondary users) – If a user of the information is an external party and is not

related to the business then he/she is considered as one of the external or secondary users of accounting information. For example, potential investors, lenders, vendors, customers, legal and tax authorities, etc.

The different users and information need of these users are discussed below:

1. Management: Organization's internal management includes all junior and senior business managers. They use it for -
   a) Budgeting, forecasting, analysis & take important financial decisions.
   b) Investment decisions, identification of warning and opportunity signals.
   c) Taking informed & evaluated decisions.
   d) Compliance with all statutory, regulatory, and any other external body.
2. Owners or Partners or Shareholders: They use it for -
   a) Tracking their investment and monitoring their return on investment.
   b) Observing their capital invested and evaluating its upward or downward move.
   c) Keeping an eye on the overall well-being of the business.
3. Employees: Full-time & part-time workers. They are essentially on the company's payroll. They use it for -
   a) Checking the overall financial health of the company as it affects their remuneration and job security.
   b) Decision making in case of shares-based payment such as ESOPs offered by the employers.
   c) Examining if the employer is depositing all required funds to the appropriate authorities such as the provident fund, ESI premium etc.
4. Investors: They use it for -
   a) Checking how the management is utilizing the equity invested in the business.
   b) Decisions related to an increase in investment or to divest from the business.
   c) Analyzing their present investment in the business or the overall financial health in case of a potential investor.
5. Lenders: Banks and Non-banking financial companies which provide loans in the form of cash or credit are termed as lenders. They use it for -
   a) Evaluation of short-term and long-term financial stability of a business.
   b) An insight into the liquidity, profitability, etc. with the help of ratio analysis
   c) Assessment of the creditworthiness with the help of financial ratios and scrutiny of the three main financial statements in accounting.

6. Regulatory and Tax Authorities: Regulatory bodies such as the stock exchange & authorities include the govt. along with various statutory and tax departments. They use it for-

   a) To keep a check and ensure that the firm is following all required accounting principles, standards, rules & regulations.

   b) The ultimate intent is to protect business integrity & safeguard investors.

   c) Tax department as one of the users of accounting information assures accurate tax calculation by the companies.

7. Customers: Are buyers of goods or services and may exist at any stage of a business cycle. They may be producers, manufacturers, retailers, etc. They use it for -

   a) Checking the continuous inflow of stock and the pace of overall production.

   b) Assessing the financial position of its suppliers which is essential to maintain a stable source of supply.

   c) Efforts to maintain and improve the quality of products and services.

8. Suppliers: Are the sellers of goods and services. They use it for -

   a) Inspecting the credibility of their customers by evaluating their repayment ability.

   b) Setting up a credit limit & payment terms with their customers.

9. Public: The general public is also among users of accounting information. They are keen to know the financial health of a business to get a fair idea of the firm's niche market, business environment, and economic atmosphere of the country.

b. Accounting Concepts and Conventions

- **Accounting Principles – Accounting Concepts and Accounting Conventions**

Accounting principles refer to those rules of action that are universally adopted by the accountants for recording accounting transactions. They provide the guidelines for recording and reporting transactions and as such provide explanations to the current accounting practices.

Accounting principles can be further classified into (A) Accounting Concepts and (B) Accounting Conventions.

A. Accounting Concepts: Accounting concepts refer to the assumptions and conditions that define the parameters and constraints within which the accounting operates. They lay down the foundation for accounting principles, and ensure recording of financial facts on sound bases and logical considerations. The common accounting concepts include:

   a) Entity concept

   b) Going concern concept

   c) Periodicity concept

d) Money measurement concept

e) Accrual concept

f) Dual aspect concept

g) Matching concept

h) Realisation concept

i) Cost concept

B. Accounting Conventions: Accounting conventions are customs and traditions associated with the practical application of accounting principles. These are widely accepted, and are the common practices which are used as guidelines when transactions are recorded. These have evolved over time out of different accounting practices. These conventions are also known as doctrine. The different accounting conventions include the following:

a) Convention of Conservatism

b) Convention of Consistency

c) Convention of Materiality

d) Convention of Full disclosure.

These accounting concepts and conventions are discussed in the following section.

A. Accounting Concepts

a) Business entity concept: This concept assumes that, for accounting purposes, the business enterprise and its owners are two separate independent entities. Thus, the business and personal transactions of its owner are separate. For example, when the owner invests money in the business, it is recorded as liability of the business to the owner. Similarly, when the owner takes away from the business cash/goods for his/her personal use, it is not treated as business expense.

b) Going concern concept: Accounting assumes that business will continue to operate for a longer period of time in future. In other words, it is assumed that neither there is any intention nor necessity to curtail the business operations of entity. It is on this basis that financial statements of a business entity are prepared and referring to which investors agree upon their decision to invest in the business.

c) Periodicity or Accounting Period Concept: Accounting period concepts assumes that the infinite life of an organisation can be split into smaller periods of equal duration (viz. a quarter, half-year or year). Due to this concept, the operating results are ascertained for a specific period, the financial position is reflected (through the balance sheet) at regular intervals.

d) Money Measurement Concept: A business transaction will always be recoded if it can be expressed in terms of money. The advantage of this concept is that different types of

transactions could be recorded as homogenous entries with money as common denominator. A business may own ₹3 Lacs cash, 1500 kg of raw material, 10 vehicles, 3 computers etc. Unless each of these is expressed in terms of money, we cannot find out the assets owned by the business. When expressed in the common measure of money, transactions could be added or subtracted to find out the combined effect. In the above example, we could add values of different assets to find the total assets owned.

e) The Accrual Concept: The accrual concept is based on recognition of both cash and credit transactions. In case of a cash transaction, owner's equity is instantly affected as cash either is received or paid. In a credit transaction, however, a mere obligation towards or by the business is created. When credit transactions exist (which is generally the case), revenues are not the same as cash receipts and expenses are not same as cash paid during the period.

f) Dual Aspect Concept: Dual aspect is the foundation or basic principle of accounting. It provides the very basis of recording business transactions in the books of accounts. This concept assumes that every transaction has a dual effect, i.e., it affects two accounts in their respective opposite sides. Therefore, the transaction should be recorded at two places. It means, both the aspects of the transaction must be recorded in the books of accounts. For example, goods purchased for cash has two aspects which are (i) Giving of cash (ii) Receiving of goods. These two aspects are to be recorded. Thus, the duality concept is commonly expressed in terms of fundamental accounting equation:

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

g) Matching Concept: This concept states that the revenues and expenses must be recorded at the same time at which they are incurred. In general, the revenues earned should be with the expenses incurred during the accounting period. For the application of this concept several adjustments are made for prepaid expenses, accrued incomes, etc. The operating result of an accounting period can be measured only when incomes are compared with the related expenses incurred.

h) Realisation Concept: This concept states that revenue from any business transaction should be included in the accounting records only when it is realised. The term realisation means creation of legal right to receive money. Selling goods is realisation, receiving order is not. Accordingly, revenue is said to have been realised when cash has been received or right to receive cash on the sale of goods or services or both has been created.

i) Cost Concept: Accounting cost concept states that all assets are recorded in the books of accounts at their purchase price, which includes cost of acquisition, transportation and installation and not at its market price. It means that fixed assets like building, plant and machinery, furniture, etc are recorded in the books of accounts at a price paid for them. For example, a machine was purchased by XYZ Limited for ₹5,00,000, for manufacturing shoes. An amount of ₹1,000 were spent on transporting the machine to the factory site. In addition, ₹2,000 were spent on its installation. The total amount at which the machine will be recorded in the books of accounts

would be the sum of all these items i.e., ₹5,03,000. This cost is also known as historical cost. The effect of cost concept is that if the business entity does not pay anything for acquiring an asset this item would not appear in the books of accounts.

B. Accounting Conventions

a) Convention of Conservatism: This convention is based on the principle that "Anticipate no profit, but provide for all possible losses". It provides guidance for recording transactions in the books of accounts. It is based on the policy of playing safe in regard to showing profit. The main objective of this convention is to show minimum profit. Profit should not be overstated. If profit shows more than actual, it may lead to distribution of dividend out of capital. This is not a fair policy and it will lead to the reduction in the capital of the enterprise.

b) Convention of Consistency: The convention of consistency means that same accounting principles should be used for preparing financial statements year after year. A meaningful conclusion can be drawn from financial statements of the same enterprise when there is comparison between them over a period of time. But this can be possible only when accounting policies and practices followed by the enterprise are uniform and consistent over a period of time. If different accounting procedures and practices are used for preparing financial statements of different years, then the result will not be comparable.

c) Convention of Materiality: The convention of materiality states that, to make financial statements meaningful, only material fact i.e., important and relevant information should be supplied to the users of accounting information. The question that arises here is what is a material fact. The materiality of a fact depends on its nature and the amount involved. Material fact means the information of which will influence the decision of its user.

d) Convention of Full Disclosure: Convention of full disclosure requires that all material and relevant facts concerning financial statements should be fully disclosed. Full disclosure means that there should be full, fair and adequate disclosure of accounting information. Adequate means sufficient set of information to be disclosed. Fair indicates an equitable treatment of users. Full refers to complete and detailed presentation of information. Thus, the convention of full disclosure suggests that every financial statement should fully disclose all relevant information.

Accounting principles - concepts and conventions – lie at the core of accounting profession as they bring about the much sought-after uniformity in the process of recording transactions. Such uniformity makes it possible to reliably compare the financial performance, financial position, and cash flows across entities and also across the reporting periods. They contribute a lot in standardising the financial reporting process.

c. Accounting Standards (Basic Concepts and Issues)

Accounting Standards are written policy documents which discuss the aspects of recognition, measurement and treatment of specific accounting transactions, along with the presentation and disclosure thereof in the financial statements of an entity. These are usually issued by specified

professional accounting bodies, or by the government, or other regulatory bodies. In India, accounting standards are governed by The Institute of Chartered Accountants of India (ICAI). In the US, the American Institute of Certified Public Accountants (AICPA) is responsible to lay down the standards. These standards basically deal with accounting treatment of business transactions and disclosing the same in financial statements.

In India, the Accounting Standards for non-corporate entities including Small and Medium sized Enterprises, are issued by the Accounting Standards Board (ASB) of Institute of Chartered Accountants of India (ICAI), to establish uniform standards for preparation of financial statements, in accordance with the Indian GAAP (Generally Accepted Accounting Practices), for better understanding of the users. However, in the case of corporate entities, the Accounting Standards notified by the MCA are applicable. These standards are mandatory on and from the dates specified either in the respective document or as may be notified by the ICAI/ MCA.

It may be noted that MCA also issues the Accounting Standards for companies, based on recommendations made by the ICAI. Accordingly, MCA notifies such Accounting Standards vide Companies (Accounting Standards) Rules and amendments thereto, applicable for companies including Small and Medium Sized Companies to whom Indian Accounting Standards (Ind AS) are not applicable.

- Accounting Standards and Indian Accounting Standards

  Accounting Standards were indigenously developed by Indian Regulators.

  Indian Accounting Standards are the converged accounting standards with International Financial Reporting Standards by IFRS Foundation.

- Applicability and Scope of Ind AS

  Ind AS are the Indian version of IFRS which are global standards governing the accounting aspects. These are basically standards that have been harmonised with the IFRS to make reporting by Indian companies more globally accessible. The Ministry of Corporate Affairs (MCA), in 2015, had notified the Companies (Indian Accounting Standards) Rules 2015, which stipulated the adoption and applicability of IND AS in a phased manner beginning from the accounting period 2016-17. The MCA has since issued seven Amendment Rules, one each in year 2016, 2017, 2018, 2019, 2020, 2021 and 2022 to amend the original 2015 rules. On the other hands companies covered by Companies (Accounting Standards) Rules, 2021 require to follow old accounting standards and not Ind AS.

d. Accounting in an ERP Environment

Enterprise Resource Planning (ERP) is a type of software that organizations use to manage and integrate the core aspects of their business operations. An ERP system consolidates various functions—such as accounting, finance, human resources, manufacturing, supply chain, procurement, and sales—into a unified platform, facilitating real-time data sharing and streamlined processes across departments.

- Core Accounting Functions in ERP

  a) Accounts Payable and Receivable Automation: ERP systems streamline the management of payables and receivables by automating invoice generation, payment tracking, and reminders for overdue accounts. This automation reduces manual errors and improves cash flow management.

  b) Bank Reconciliation: ERP software can automatically match internal records with bank statements, identifying discrepancies and facilitating quicker reconciliations. This ensures accurate cash balances and reduces the time spent on manual reconciliation processes.

  c) Fixed Asset Management: ERP systems assist in tracking and managing fixed assets by automating depreciation calculations, recording asset acquisitions or disposals, and generating necessary accounting entries. This ensures compliance with accounting standards and accurate financial reporting.

  d) Tax Compliance: ERP platforms can automate tax calculations and reporting, ensuring that sales tax, VAT, and other tax obligations are accurately computed and documented. This reduces the risk of non-compliance and simplifies the preparation of tax returns.

- Strategic Benefits of ERP in Accounting

  a) Real-Time Financial Visibility: ERP systems provide up-to-date financial data, enabling businesses to monitor their financial health continuously and make informed decisions promptly.

  b) Enhanced Reporting and Analytics: With integrated data, ERP systems offer robust reporting tools that help in generating financial statements, performance dashboards, and ad-hoc reports, facilitating better financial analysis and strategic planning.

  c) Improved Compliance and Audit Readiness: ERP systems maintain detailed audit trails of all financial transactions, aiding in compliance with regulatory standards and simplifying the audit process.

  d) Cost Efficiency: By automating routine accounting tasks, ERP systems reduce the need for manual labour, minimize errors, and lower administrative costs, leading to overall cost savings.

  e) Enhanced Data Security: With ERP systems, all financial data is stored in a centralized and secure environment. Advanced security features protect sensitive information from unauthorized access and cyber threats, ensuring the integrity of financial data.

  f) Comprehensive Financial Insights: ERP systems offer powerful analytics and reporting tools that provide comprehensive insights into financial performance. These insights help businesses identify trends, forecast future performance, and make strategic decisions that drive growth and profitability.

  In summary, ERP systems revolutionize accounting by automating key processes, enhancing data accuracy, and providing comprehensive financial insights, thereby supporting better financial management and strategic decision-making.

- Popular ERP Solutions for Accounting

  Here are some of the most popular ERP systems used in accounting, ranging from enterprise-grade platforms to open-source and small business solutions:

I. Enterprise-Grade ERP Systems

a. Oracle NetSuite

A cloud-based ERP platform offering comprehensive accounting features such as general ledger, accounts payable/receivable, tax management, and multi-entity consolidation. Its One World module supports global operations with multi-currency and multi-language capabilities.

b. SAP Business One

Designed for small and medium-sized enterprises, this ERP system includes modules for financials, sales, purchasing, inventory, and more. It supports multiple languages and currencies, making it suitable for international operations.

c. Microsoft Dynamics 365 Business Central

A flexible ERP solution that integrates seamlessly with other Microsoft products. It offers robust accounting features, including general ledger, budgeting, and financial reporting, tailored for small to mid-sized businesses.

II. Cloud-Based & Mid-Market ERP Solutions

a. Sage Intacct

A cloud-native financial management system known for its strong accounting capabilities, including accounts payable/receivable, cash management, and financial reporting. It also offers advanced features like multi-entity consolidation and project accounting.

b. Sage 300

Formerly known as Sage ACCPAC, this ERP solution caters to small and medium-sized businesses. It provides modules for financial management, operations, and inventory control, supporting multiple languages and currencies.

c. JD Edwards EnterpriseOne

Now under Oracle, JD Edwards offers a comprehensive suite of applications, including financial management, project accounting, and asset lifecycle management, suitable for medium to large enterprises.

III. Open-Source & Small Business ERP Solutions

a. Odoo

An open-source ERP platform that includes a suite of business applications such as accounting, CRM, inventory, and project management. Its accounting module features bank synchronization, invoicing, and expense management.

b. ERP Next

A free and open-source ERP system designed for small and medium-sized businesses. It offers modules for accounting, HR, manufacturing, and more, with features like real-time accounting dashboards and multi-currency support.

These ERP systems cater to various business sizes and industries, offering a range of accounting features to streamline financial operations. When selecting an ERP solution, consider factors like company size, industry requirements, budget, and scalability to find the best fit for your organization's accounting needs.

Double Entry Book Keeping 2

This Unit Includes the Following Topics:

a. **Framework for preparation and presentation of Financial Statements**

b. **Basic Accounting Equation**

c. **Accounting Cycle - Journal, Ledger, Cash Book, Trial Balance and Financial Statements**

Unit Learning Objectives:

After studying this unit, students will be able to:

- **Understand the basic framework of financial accounting.**
- **Know the basic accounting equation, the core of financial accounting.**
- **Have an understanding of accounting cycle.**
- **Have working knowledge of various components of accounting cycle.**

a. Framework for preparation and presentation of Financial Statements

➢ **Understanding of Four Frameworks of Accounting (Conceptual, Legal, Institutional and Regulatory)**

- **Framework of Accounting**

  According to Collins Dictionary, the term 'framework' refers to 'a structure that forms a support or frame for something'. In the context of any system, it is 'a particular set of rules, ideas, or beliefs which you use in order to deal with problems or to decide what to do'.

In accounting, 'framework' provides a common set of rules and guidelines that is used to measure, recognize, present, and disclose the information appearing in an entity's financial statements.

- **Four Frameworks of Accounting**

The framework of accounting has four pillars – Conceptual, Legal, Institutional and Regulatory. These are discussed below.

a. Conceptual Framework

The Conceptual Framework is a body of interrelated objectives and fundamentals. The objectives identify the goals and purposes of financial reporting and the fundamentals are the underlying concepts that help achieve those objectives. Those concepts provide guidance in selecting transactions, events and circumstances to be accounted for, how they should be recognized and measured, and how they should be summarized and reported. It states the objectives of General-Purpose Financial Reporting and the information provided by it. Conceptual Framework also guides on the qualitative characteristics that the financial statements must possess.

Conceptual Framework often plays an important role in the development of Institutional Framework and assists preparers to develop consistent accounting policies when no accounting standard applies to a particular transaction or other event, or when a standard allows a choice of accounting policy.

b. Legal Framework

Businesses are often controlled by various statutes under which they are formed. For example, in India, partnership organisations are governed by Indian Partnership Act, 1932 or Limited Liability Partnership Act, 2008, co-operatives are controlled by the Co-operative Societies Act, 1912, companies are governed by the Companies Act, 2013. In addition, banks are controlled by Banking Regulation Act, 1949, insurance companies are under the Insurance Act, 1938, electricity companies are also governed by the Central Electricity Act, 2003. All these statutes (including various Rules framed under them) not only govern the administrative set up of these organisations, but also provide important guidelines regarding use of resources, financing and also on the maintenance of books of accounts and treatment of specified transactions. For example, the Companies Act, 2013 and Companies (Accounts) Rules, 2014 provide useful provisions on maintenance of accounting records, accounting for issue and redemption of securities, investments to be done, consolidation and even winding up of the company. Companies (Corporate Social Responsibility) Rules, 2014 provides the guidelines regarding accounting of CSR expenses as well as carry forward and set-off of excess amount spent. Thus, legal framework plays an important role in accounting. The Schedules of this Act also provide important guidelines on the form and contents of financial statements.

c. Institutional Framework

Institutional framework refers to the guidelines issued in form of certain pronouncements by institutions entrusted by the sovereign authorities to oversee the development of the respective field. In India, the Institute of Chartered Accountants of India has been entrusted to develop standards in the field of accounting to ensure comparability and consistency in accounting information. The Indian Accounting Standard Board of ICAI thus develops quality accounting standards on different areas of accounting. Currently, there are two sets of accounting standards in India – Accounting Standards as per Companies (Accounting Standards) Rules, 2021 and Ind ASs under Companies (Indian Accounting Standards) Rules, 2015. In addition, the Cost Accounting Standards Board (CASB) of the Institute of Cost Accountants of India has, so far, developed 24 Cost Accounting Standards to facilitate cost accounting and reporting.

d. Regulatory Framework

The activities of organisations often come under the regulatory ambit of various regulators. In India, there are different regulatory authorities in different segments of financial market, such as RBI in money market operations, SEBI in capital market operations, IRDAI in insurance sector, PFRDA in pension funds. In addition, there are Telecom Regulatory Authority of India (TRAI), Competition Commission etc. The regulations imposed by these authorities may also have important bearing on accounting of a concerned entity. For example, regulations issued by SEBI largely shape the accounting and, more importantly, reporting by a listed firm in India. Similarly, regulations framed by IRDAI affect the accounting and reporting in insurance companies. In banking, BASEL Norms and other guidelines issued by RBI largely determine the accounting of NPA (Non-Performing Assets). Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 affect the determination of tariff and accounting in an electricity company in India.

The above four frameworks provide the foundation on which accounting and more specifically corporate accounting is based in India. They help to streamline the accounting process and help to improve the quality of the reports generated and thereby contribute in the overall development of accounting.

➢ **Events and Transactions**

A transaction is an event between two contracting parties, which can be expressed in terms of money and which leads to change in the financial position of a business unit. A transaction may be an exchange in which each party receives as well as sacrifices value. Examples include sale and purchase of goods, purchase of assets etc.

An event is an occurrence, happening, change or incident, which may or may not bring any change in the financial position of a business unit. Thus, appointment of a manger, launch of a new product are events but not transactions. Hence, all transactions are events but all events are not transactions.

In accounting, transactions are recorded systematically based on some source documents. Source documents include sales order, invoices and credit notes, petty cash vouchers etc.

➢ Recording of Transactions - Double Entry System

- **Concept of Double Entry System**

Double entry system of book keeping is an accounting system which recognizes the fact that every transaction has two aspects - 'Debit' and 'Credit' and both aspects of the transaction are recorded in the books of accounts.

The term 'Debit' is derived from the Latin word 'debitum' which means 'what is due'. It is abbreviated by 'Dr.'

The term 'Credit' is derived from the Latin word 'credere' which means 'what is trusted. It is abbreviated by 'Cr.'

Double entry system records the transactions by understanding them as a Debit item or Credit item. A debit entry in one account gives the opposite effect in another account by credit entry. This means that the sum of all Debit accounts must be equal to the sum of Credit accounts.

- **Features of Double Entry System**

(i) Every transaction has two-fold aspects, i.e., one party giving the benefit and the other receiving the benefit.

(ii) Every transaction is divided into two aspects, Debit and Credit. One account is to be debited and the other account is to be credited.

(iii) Every debit must have its corresponding and equal credit.

- **Concept of Account**

An account is defined as a summarized record of transactions related to a person or a thing e.g., when the business deals with customers and suppliers, each of the customers and supplier will be a separate account. The account is also related to inanimate objects – both tangible and intangible. e.g., land, building, equipment, brand value, trademarks etc. are some of the things. When a business transaction occurs, one has to identify the 'account' that will be affected by it and then apply the rules to decide the accounting treatment. Only then the transactions can be recorded in accounting.

Typically, an account is expressed as a statement in form of English letter 'T'. It has two sides. The left-hand side is called as "Debit' side and the right-hand side is called as "Credit' side. The debit side is indicated by 'Dr' and the credit side by 'Cr'. Following is the general format of an Account.

Page 5 "Purchase A/c debited

To Cash A/c"

Dr. Purchase Account Cr.

Date	Particulars	J.F	Amount (₹)	Date	Particulars	J.F	Amount (₹)
10.05.23	To Cash A/c	10	50,000				

Page 17 "Cash A/c credited by Purchase A/c"

Dr. Cash Account Cr.

Date	Particulars	J.F	Amount (₹)	Date	Particulars	J.F	Amount (₹)
				10.05.23	By Purchase A/c	10	50,000

Accounts are classified as follows:

(a) Personal Account: As the name suggests, these are accounts related to persons. Personal Accounts can again be of three types as follows.

(i) *Natural Personal Account*: These represents natural persons like Suresh's A/c, Anil's a/c, Rani's A/c etc.

(ii) *Artificial Personal Account*: The persons could also be artificial persons like companies, bodies corporate or association of persons or partnerships etc. For example, M/s ABC Ltd, M/s PQR Industries etc.

(iii) *Representative Personal Account*: They represent the person collectively. For example, Outstanding Rent A/c, Prepaid Insurance A/c etc.

(b) Real Accounts: These are accounts related to assets or properties or possessions. Depending on their physical existence or otherwise, they are further classified as -

(i) *Tangible Real Account* – They represent assets that have physical existence and can be seen, and touched. e.g., Machinery A/c, Stock A/c, Cash A/c, Vehicle A/c, and the like.

(ii) *Intangible Real Account* – These represent possession of properties that have no physical existence but can be measured in terms of money and have value attached to them. e.g., Goodwill A/c, Trade mark A/c, Patents & Copy Rights A/c, Intellectual Property Rights A/c and the like.

(c) Nominal Account: These accounts are related to expenses or losses and incomes or gains e.g., Salary and Wages A/c, Rent and Rates A/c, Travelling Expenses A/c, Commission received A/c, Loss by fire A/c etc.

- **Analysing Debit and Credit of a Transaction**

The double entry system has specific rules for determining the Debit Account and Credit Account in any transaction. The rules can broadly be discussed as follows:

A. Golden Rule Approach

This method is based on the conventional classification of accounts. Conventionally, accounts are classified into three types – Nominal Account, Real Account and Personal Account. The rules of Debit and Credit under this approach are described below.

Nature of Account	Rule of Debit and Credit	
Nominal Account	Debit	Expenses and Losses
	Credit	Incomes and Gains
Real Account	Debit	What comes in
	Credit	What goes out
Personal Account	Debit	The receiver
	Credit	The giver

B. Accounting Equation Approach

This is an alternative to Golden Rule Approach. It will be discussed after the introduction of *Basic Accounting Equation.*

Consider the following illustration to analyse transactions.

Illustration 1

Ascertain the debit and credit from the following particulars under Golden Rule Approach.

(a) Started business with capital.

(b) Bought goods for cash.

(c) Sold goods for cash.

(d) Paid salary.

(e) Received interest on investment.

(f) Bought goods on credit from Mr. Y

(g) Sold goods on credit to Mr. Z

(h) Paid Rent out of personal cash.

Solution:

Step I	Step II	Step III	Step IV
(a) Cash A/c	Real	Comes in	Debit
Capital A/c	Personal	Giver	Credit
(b) Purchase A/c	Nominal	Expenses	Debit
Cash A/c	Real	Goes out	Credit
(c) Cash A/c	Real	Comes in	Debit
Sales A/c	Nominal	Incomes	Credit
(d) Salary A/c	Nominal	Expenses	Debit
Cash A/c	Real	Goes out	Credit
(e) Cash A/c	Real	Comes in	Debit
Interest A/c	Nominal	Incomes	Credit

(f) Purchase A/c	Nominal	Expenses	Debit
Y' A/c	Personal	Giver	Credit
(g) Mr. Z	Personal	Receiver	Debit
Sales	Nominal	Income	Credit
(h) Rent	Nominal	Expenses	Debit
Capital	Personal	Giver	Credit

- Advantages of Double Entry System

  (i). It ensures arithmetical accuracy of the books of accounts as, for every debit, there is a corresponding and equal credit. This is ascertained by preparing a trial balance periodically or at the end of the financial year.

  (ii). It prevents and minimizes frauds. Moreover, frauds can be detected early.

  (iii). Errors can be checked and rectified easily.

- Limitations of Double Entry System

  (i). The system does not disclose all the errors committed in the books accounts.

  (ii). The trial balance prepared under this system does not disclose certain types of errors.

  (iii). It is costly as it involves maintenance of a number of books of accounts.

b. Basic Accounting Equation

The accounting equation is a representation of the interrelationship among three important components of accounting namely Assets, Liabilities and Equity.

In the most simplistic form, the accounting equation is presented as:

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

Assets represent the valuable resources owned and controlled by the company with the purpose of using it for generating future profits, such as cash, accounts receivable, fixed assets, inventory etc. Liabilities represent obligations of an organisation to its external stakeholders to be settled at a future date. It represents amount of money that the business owes to the other parties. Equity represents owners net claim on the assets.

The above equation can be further expanded by incorporating the various elements of the Equity component as under:

Assets = Liabilities + Equity

or, Assets = Liabilities + [Capital + (Revenue – Expenses) – Drawings]

or, Assets + Expenses + Drawings = Liabilities + Capital + Revenue

Accounting equation lies at the core of the double-entry accounting system. Whatever be the transaction to be recorded, the accounting equation before and after the entry of the transaction always remains in balance.

Consider the following illustrations.

Transaction	Assets + Expenses + Drawings	Liabilities + Capital + Revenue
Capital introduced by the owner in cash	Cash (Assets) increases	Capital increases
Purchase of goods in credit	Inventory (Asset) increases	Creditors/ Payables (Liabilities) increases
Sale of goods in credit	Debtors/ Receivables (Assets) increases; Inventory (Assets) decreases	N.A.
Wages paid	Wages (Expenses) increases; Cash/ Bank (Assets) decreases	N.A.
Commission received	Cash/ Bank (Assets) increases	Commission received (Revenue) increases
Cash withdrawn by proprietor	Cash (Assets) decreases	Capital decreases

The rules of debit and credit under this method are presented as follows:

Types of Account	To be Debited	To be Credited
Assets Account	Increase	Decrease
Liabilities Account	Decrease	Increase
Capital Account	Decrease	Increase
Revenue Account	Decrease	Increase
Expense Account	Increase	Decrease
Withdrawal Account	Increase	Decrease

Illustration 2:

Refer to Illustration 1 and analyse the transactions under Accounting Equation approach.

Solution:

	Effect of transactions	Accounts	To be debited/credited
(a)	Increase in Cash	Cash A/c	Debit
	Increase in Capital	Capital A/c	Credit
(b)	Increase in Stock/Expenditure	Purchase A/c	Debit
	Decrease in Cash	Cash A/c	Credit
(c)	Increase in Cash	Cash A/c	Debit
	Decrease in Stock/Earning Revenue	Sale A/c	Credit

(d)	Increase in Expense Decrease in Cash	Salary A/c Cash A/c	Debit Credit
(e)	Increase in Cash Increase in Income	Cash A/c Interest A/c	Debit Credit
(f)	Increase in Stock/ Expenditure Increase in Liability	Purchase A/c Y A/c	Debit Credit
(g)	Increase in asset Decrease in Stock/Earning Revenue	Mr. Z A/c Sales A/c	Debit Credit
(h)	Increase in Expense Increase in Liability/Equity	Rent A/c Capital A/c	Debit Credit

Illustration 3:

Prepare an Accounting Equation from the following transactions in the books of Mr. X for January, 2013:

1 Invested Capital in the firm ₹ 20,000

2 Purchased goods on credit from Das & Co. for ₹ 2,000

4 Bought plant for cash ₹ 8,000

8 Purchased goods for cash ₹ 4,000

12 Sold goods for cash (cost ₹ 4,000 + Profit ₹ 2,000) ₹ 6,000.

18 Paid to Das & Co. in cash ₹ 1,000

22 Received from B. Banerjee ₹ 300 (being a debtor)

25 Paid salary ₹ 6,000

30 Received interest ₹ 5,000

31 Paid wages ₹ 3,000

Solution:

Effect of Transaction on Assets, Liabilities and Capital

Date	Transaction	Assets =	Liabilities +	Capital
January, 2013 1	Invested Capital in the firm, ₹ 20,000	20,000	-	20,000
2	Purchased goods on credit from Das & Co. ₹ 2,000	+2,000	+2,000	-
	Revised Equation	**22,000 =**	**2,000 +**	**20,000**
4	Bought Plant for cash ₹ 8,000	+8,000 -8,000	-	-
	Revised Equation	**22,000 =**	**2,000 +**	**20,000**

8	Purchased goods for cash ₹ 4,000	+4,000 -4,000	- -	- -
	Revised Equation	**22,000 =**	**2,000 +**	**20,000**
12	Sold Goods for cash (Cost ₹ 4,000 + Profit ₹ 2,000)	+6,000 -4,000		 +2,000
	Revised Equation	**24,000**	**2,000 +**	**22,000**
18	Paid to Das & Co. for ₹ 1,000	-1,000	-1,000	
	Revised Equation	**23,000 =**	**1,000 +**	**22,000**
22	Received from B. Banerjee for ₹ 300	+300 -300		
	Revised Equation	**23,000 =**	**1,000 +**	**22,000**
25	Paid salary for ₹ 6,000	- 6,000		-6,000
	Revised Equation	**17,000 =**	**1,000 +**	**16,000**
30	Received Interest for ₹ 5,000	+5,000		+5,000
	Revised Equation	**22,000 =**	**1,000 +**	**21,000**
31	Paid Wages for ₹3,000	-3,000		-3,000
	Revised Equation	**19,000 =**	**1,000 +**	**18,000**

- **Accrual Basis and Cash Basis of Accounting**

(i) Accrual Basis of Accounting

Accrual Basis of Accounting is a method of recording transactions by which revenue, costs, assets and liabilities are reflected in the accounts for the period in which they accrue. This basis includes consideration relating to deferrals, allocations, depreciation and amortization. This basis is also referred to as mercantile basis of accounting. Under the Companies Act 1956, all companies are required to maintain the books of accounts according to accrual basis of accounting

(ii) Cash Basis of Accounting

Cash Basis of Accounting is a method of recording transactions by which revenues, costs, assets and liabilities are reflected in the accounts for the period in which actual receipts or actual payments are made.

Illustration 4:

Mr. Anil Roy, a junior lawyer, provides the following particulars for the year ended 31st December, 2012:

	₹
Fees received in cash in 2013	60,000
Salary paid to Staff in 2013	8,000
Rent of office in 2013	14,000
Magazine and Journal for 2013	1,000
Travelling and Conveyance paid in 2013	3,000
Membership Fees paid in 2013	1,600
Office Expenses paid in 2013	10,000

Additional Information:-

Fees include ₹ 3,000 in respect of 2012 and fees not yet received is ₹ 7,000. Office rent includes ₹ 4,000 for previous year and rent of ₹ 2,000 not yet paid. Membership fees is paid for 2 years.

Compute his net income for the year 2013, under – (a) Cash Basis, (b) Accrual Basis and (c) Mixed or Hybrid Basis.

Solution:

Statement of Income (Cash Basis)

For the year ended 31st December, 2013

Particulars	Amount (₹)	Amount (₹)
Fees received		60,000
Less :		
Salary	8,000	
Office Rent	14,000	
Magazine & Journal	1,000	
Travelling & Conveyance	3,000	
Membership Fees	1,600	
Office Expenses	10,000	37,600
Net Income		22,400

(ii) **Mr. Anil Roy**

Statement of Income (Accrual Basis) For the year ended 31st December, 2013

Particulars		Amount (₹)	Amount (₹)
Fees received		60,000	
Add: Accrued fees for 2012		7,000	
		67,000	
Less: Fees for 2011 received in 2012		3,000	64,000
Less :			
Salary		8,000	
Office Rent	14,000		
Add: Outstanding rent	2,000		
	16,000		
Less: Rent for 2011 paid in 2012	4,000	12,000	
Magazine & Journal		1,000	
Travelling & Conveyance		3,000	
Membership Fees	1,600		34,800
Less: Advance fee paid for 2013 (½ x 1600)	800	800	
Office Expenses		10,000	
Net Income			29,200

Mr. Anil Roy

Statement of Income (Mixed or Hybrid Basis) For the year ended 31st December, 2013

Particulars	Amount (₹)	Amount (₹)	Amount (₹)
Fees received			60,000
Less :			
Salary		8,000	
Office Rent	14,000		
Add: Outstanding rent	2,000		
	16,000		
Less: Fees for 2011	4,000	12,000	
Magazine & Journal		1,000	
Travelling & Conveyance		3,000	
Membership Fees	1,600		
Less: Advance	800	800	
Office Expenses		10,000	34,800
Net Income			25,200

- **Capital and Revenue Expenditure**

Capital expenditure is the outflow of funds to acquire an asset that will benefit the business for more than one accounting period. A capital expenditure takes place when an asset or service is acquired or improvement of a fixed asset is affected. These assets are expected to provide benefits to the business in more than one accounting period and are not intended for resale in the ordinary course of business.

Revenue expenditure is the outflow of funds to meet the running expenses of a business and it will be of benefit for the current period only. A revenue expenditure is incurred to carry on the normal course of business or maintain the capital assets in a good condition.

Revenue expenditures are charged as an expense against profit in the year they are incurred or recognised. Capital Expenditures are capitalised and added to an Asset Account.

Rules for Determining Capital Expenditure

An expenditure can be recognised as capital if it is incurred for the following purposes:

An expenditure incurred for the purpose of acquiring long term assets (useful life is at least more than one accounting period) for use in business to earn profits and not meant for resale, will be treated as a capital expenditure. For example, if a second-hand motor car dealer buys a piece of furniture with a view to use it in business; it will be a capital expenditure. But if he buys second hand motor cars, for re-sale, then it will be a revenue expenditure because he deals in second hand motor cars.

When an expenditure is incurred to improve the present condition of a machine or putting an old asset into working condition, it is recognised as a capital expenditure. The expenditure is capitalised and added to the cost of the asset. Likewise, any expenditure incurred to put an asset into working condition is also a capital expenditure.

For example, if one buys a machine for ₹5,00,000 and pays ₹20,000 as transportation charges and ₹40,000 as installation charges, the total cost of the machine comes up to ₹5,60,000. Similarly, if a building is purchased for ₹1,00,000 and ₹5,000 is spent on registration and stamp duty, the capital expenditure on the building stands at ₹1,05,000.

If an expenditure is incurred, to increase earning capacity of a business that will be considered as of capital nature. For example, expenditure incurred for shifting the factory for easy supply of raw materials. Here, the cost of such shifting will be a capital expenditure.

Preliminary expenses incurred before the commencement of business is considered capital expenditure. For example, legal charges paid for drafting the memorandum and articles of association of a company or brokerage paid to brokers, or commission paid to underwriters for raising capital.

Thus, one useful way of recognising an expenditure as capital is to see that the business will own something which qualifies as an asset at the end of the accounting period

Some examples of Revenue Expenditure

(i) Salaries and wages paid to the employees;

(ii) Rent and rates for the factory or office premises;

(iii)Depreciation on plant and machinery;

(iv)Consumable stores;

(v) Inventory of raw materials, work-in-progress and finished goods;

(vi)Insurance premium;

(vii)Taxes and legal expenses; and

(viii)Miscellaneous expenses.

• Capital and Revenue Receipts

A receipt of money may be of a capital or revenue nature. A clear distinction, therefore, should be made between capital receipts and revenue receipts.

A receipt of money is considered as capital receipt when a contribution is made by the proprietor towards the capital of the business or a contribution of capital to the business by someone outside the business. Capital receipts do not have any effect on the profits earned or losses incurred during the course of a year.

Additional capital introduced by the proprietor; by partners, in case of partnership firm, by issuing fresh shares, in case of a company; and, by selling assets, previously not intended for resale.

A receipt of money is considered as revenue receipt when it is received from customers for goods supplied or fees received for services rendered in the ordinary course of business, which is a result of the firm's activity in the current period. Receipts of money in the revenue nature increase the profits or decrease the losses of a business and must be set against the revenue expenses in order to ascertain the profit for the period.

Illustration 5

State whether the following are capital, revenue or deferred revenue expenditure.

(i) Carriage of ₹7,500 spent on machinery purchased and installed.

(ii) Heavy advertising costs of ₹20,000 spent on the launching of a company's new product.

(iii)₹200 paid for servicing the company vehicle, including ₹50 paid for changing the oil.

(iv)Construction of basement costing ₹1,95,000 at the factory premises.

Solution:

(i) Carriage of ₹7,500 paid for machinery purchased and installed should be treated as a Capital Expenditure.

(ii) Advertising expenses for launching a new product of the company should be treated as a Revenue Expenditure. (As per AS-26)

(iii)₹ 200 paid for servicing and oil change should be treated as a Revenue Expenditure.

(iv)Construction cost of basement should be treated as a Capital Expenditure.

Illustration 6

Classify the following items as capital or revenue expenditure:

(i) An extension of railway tracks in the factory area;

(ii) Wages paid to machine operators;

(iii)Installation costs of new production machine;

(iv)Materials for extension to foremen's offices in the factory;

(v) Rent paid for the factory;

(vi)Payment for computer time to operate a new stores control system,

(vii)Wages paid to own employees for building the foremen's offices. Give reasons for your classification.

Solution:

(i) Expenses incurred for extension of railway tracks in the factory area should be treated as a Capital Expenditure because it will yield benefit for more than one accounting period.

(ii) Wages paid to machine operators should be treated as a Revenue Expenditure as it will yield benefit for the current period only.

(iii)Installation costs of new production machine should be treated as a Capital Expenditure because it will benefit the business for more than one accounting period.

(iv)Materials for extension to foremen's offices in the factory should be treated as a Capital Expenditure because it will benefit the business for more than one accounting period.

(v) Rent paid for the factory should be treated as a Revenue Expenditure because it will benefit only the current period.

(vi)Payment for computer time to operate a new stores control system should be treated as Revenue Expenditure because it has been incurred to carry on the normal business.

(vii)Wages paid for building foremen's offices should be treated as a Capital Expenditure because it will benefit the business for more than one accounting period

c. Accounting Cycle - Journal, Ledger, Cash Book, Trial Balance and Financial Statements

➢ Concept of Accounting Cycle

An accountant follows a sequence of activities to record and finally report transactions of an entity during an accounting period. This sequence of activities starts with identifying an event to be a transaction worth of recording in the books to their presentation in the financial statements after proper process of summarising, classifying and finalising. To keep track of the full accounting cycle from start to finish is one of the main duties of a bookkeeper.

Thus, accounting cycle is defined as the holistic process of recording and processing all financial transactions of a company, from when the transaction occurs, to its representation on the financial statements, to closing the accounts.

Accounting cycle consists of the following sequential steps.

a. **Identifying the Transactions:** The first step in the accounting cycle is to analyse the events to determine if they are 'transactions'. Only events that leads to change in the financial position of the accounting unit is called transactions.

b. **Recording transaction in the Journal:** The second step in the accounting cycle is to record the transactions in the books of original entry i.e., Journal after identifying the Debit and the Credit element.

c. **Posting to Ledger:** In the next step, the transaction is posted in a summarised and classified manner to different accounts of the ledger.

d. **Drafting of Unadjusted Trial Balance:** At the next step, the ledger balances are compiled in the trial balance to check whether there is any error during the recording stage. This stage is, however, not mandatory.

e. **Passing of adjustment entries:** Identification of necessary adjustments and passing of adjusting entries make up the fifth step in the cycle.

f. **Drafting of Adjusted Trial Balance:** Once all adjusting entries are completed, an Adjusted Trail Balance can be prepared. This happens to be the last step before the preparation of the financial statements.

g. **Closing of books**: In this stage of the accounting cycle, the ledger accounts are closed and balanced (also referred to as "zeroed out") at the end of every accounting period.

h. **Drafting the Financial Statements:** In the last stage of the accounting cycle, the Income Statement is prepared with the closing balances of the nominal accounts, while the balances of real and personal accounts get reflected in the Balance Sheet. Financial statements are prepared in the following order: Income Statement, Statement of Retained Earnings, Balance Sheet and Statement of Cash Flows.

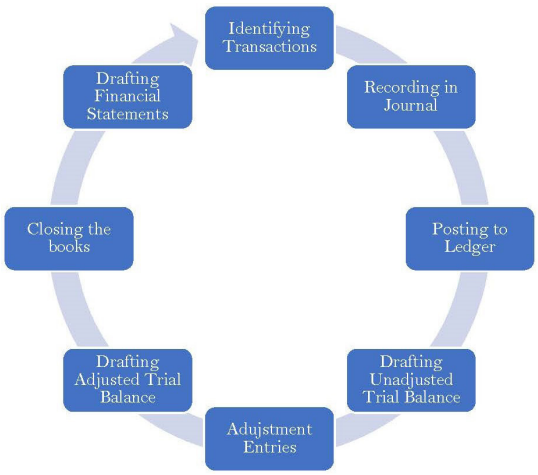


Figure 1.2: Accounting Cycle

These steps and their related components have been explained in greater detail in the following sections of this module.

1. Journal

- **Concept of Journal**

  The word "journal" has been derived from the French word "jour". Jour means day. So, journal means daily.

  Transactions are recorded daily in journal and hence it has been named so. It is a book of original entry to record transactions chronologically (i.e., in order of date) and in detail the various transactions of a trader. The process of recording transaction in a journal is called as 'journalisation'. The entry made in this book is called a 'journal entry'.

- **Functions of Journal**

  (a) Historical Function: It contains a chronological record of the transactions for future references.

  (b) Analytical Function: While recording in journal, each transaction is analysed into the debit aspect and the credit aspect. This helps to find out how each transaction will financially affect the business.

  (c) Recording Function: Accountancy is a business language which helps to record the transactions based on the principles. Each such recording entry is supported by a narration, which explain, the transaction in simple language.

- **Advantages of Journal**

  The following are the advantages of journal:

  (a) Each transaction is recorded as soon as it takes place. So, there is no possibility of any transaction being omitted from the books of account.

  (b) Since the transactions are kept recorded in journal, chronologically with narration, it can be easily ascertained when and why a transaction has taken place.

  (c) Journal facilitates ledger posting.

  (d) Journal shows the complete story of a transaction in one entry.

  (e) Any mistake in ledger can be easily detected with the help of journal.

- **Format of Journal**

Journal

Date	Particulars	Voucher No.	Ledger Folio	Debit (Rs.)	Credit (Rs.)
dd-mm-yy	Debit A/c.....Dr. To Credit A/c	--	--	***	 ***

(i) **Date Column:** This column contains the date of the transaction.

(ii) **Particulars:** This column contains which account is to be debited and which account is to be credited. It is also supported by an explanation called narration.

(iii) **Voucher Number:** This Column contains the number written on the voucher of the respective transaction.

(iv) **Ledger Folio (L.F.):** This column contains the folio (i.e., page no.) of the ledger, where the transaction is posted.

(v) **Dr. Amount and Cr. Amount:** This column shows the financial value of each transaction. The amount is recorded in both the columns, since for every debit there is a corresponding and equal credit.

Note: All the columns are filled in at the time of entering the transaction except for the column of ledger folio. This is filled at the time of posting of the transaction to 'ledger'.

- **Source Documents**

Source documents are the basis on which transactions are recorded in subsidiary books i.e. source documents are the evidence and proof of transactions. For example, Vouchers are the documentary evidence of the transactions so happened.

Name of the Book	Source document
(a) Cash Book	Cash Memos, Cash Receipts and issue vouchers
(b) Purchase Books	Inward invoice received from the creditors of goods
(c) Sales Book	Outward Invoice issued to Debtors
(d) Return Inward Book	Credit Note issued to Debtors and Debit Notes received from Debtors
(e) Returns Outward Book	Debit Note issued to creditors and Credit Note received from creditors.

- **Example of a Journal Entry:**

As per voucher no. 31 of Roy Brothers, on 10.05.2021 goods of Rs.50,000 were purchased. Cash was paid immediately. Ledger Folios of the Purchase A/c and Cash A/c are 5 and 17 respectively. Journal entry of the above transaction is given bellow:

Date	Particulars	Voucher No.	Ledger Folio	Debit (₹)	Credit (₹)
10.05.2021	Purchase A/c ..... Dr. To Cash A/c (Being goods purchased for cash)	31	5 17	50,000	 50,000

Illustration 7

Journalize the following transactions in the books of Gaurav, post them into ledger and prepare the trial balance for June 2021:

June 1: Gaurav started business with ₹10,00,000 of which 25% amount was borrowed from wife.

June 4: Purchased goods from Aniket worth ₹40,000 at 20% trade discount and 1/5th amount paid in cash.

June 7: Cash purchases ₹ 25,000.

June 10: Sold goods to Vishakha ₹ 30,000 at 30% trade discount and received 30% amount in cash.

June 12: Deposited cash into bank ₹20,000.

June 15: Uninsured goods destroyed by fire ₹ 5,500.

June 19: Received commission ₹ 3,500.

June 22: Paid to Aniket ₹25,500 in full settlement of A/c.

June 25: Cash stolen from cash box ₹1,000.

June 27: Received from Vishakha ₹14,500 and discount allowed ₹200.

June 30: Interest received ₹2,400 directly added in our bank account.

Solution:

In the books of Gourav

Journal

Date 2021	Particulars	L.F.	Dr. (₹)	Cr. (₹)
1-Jun	Cash A/c Dr.	L1	1,000,000	
	To Capital A/c	L2		750,000
	To Loan from Wife A/c	L3		250,000
	(Being capital brought into business)			
4-Jun	Purchases A/c Dr.	L4	32,000	
	To Cash A/c	L1		6,400
	To Aniket's A/c	L5		25,600
	(Being goods purchased at 20% TD & 1/5th amount paid in cash)			

Date 2021	Particulars		L.F.	Dr. (₹)	Cr. (₹)
7-Jun	Purchases A/c To Cash A/c	Dr.	L4	25,000	
	(Being cash purchases)		L1		25,000
10-Jun	Cash A/c	Dr.	L1	6,300	
	Vishakha's A/c	Dr.	L6	14,700	
	To Sales A/c		L7		21,000
	(Being goods sold at 30% TD & 30% amount received in cash)				
12-Jun	Bank A/c	Dr.	L8	20,000	
	To Cash A/c		L1		20,000
	(Being cash deposited in bank)				
15-Jun	Loss by Fire A/c	Dr.	L9	5,500	
	To Purchases A/c		L4		5,500
	(Being uninsured goods lost by fire)				
19-Jun	Cash A/c	Dr.		3,500	
	To Commission A/c (Being commission received)				3,500
22-Jun	Aniket's A/c To Cash A/c	Dr.		25,600	
	To Discount Received A/c				25,500
	(Being paid to Aniket in full settlement & discount received)				100
25-Jun	Loss by Theft A/c	Dr.		1,000	
	To Cash A/c (Being cash stolen)				1,000
27-Jun	Cash A/c	Dr.		14,500	
	Discount Allowed A/c	Dr.		200	
	To Vishakha's A/c				14,700
	(Being amount received from Vishakha & discount allowed)				
30-Jun	Bank A/c	Dr.		2,400	
	To Interest Received A/c				2,400
	(Being interest received directly added into bank account)				

Illustration 8:

Let us illustrate the journal entries for the following transactions: 2012

April

1 Mr. Vikas and Mrs. Vaibhavi who are husband and wife start consulting business by bringing in their personal cash of ₹ 5,00,000 and ₹ 2,50,000 respectively.

10 Bought office furniture of ₹ 25,000 for cash. Bill No. - 2013/F/3

11 Opened a current account with Punjab National Bank by depositing ₹ 1,00,000

15 Paid office rent of ₹ 15,000 for the month by cheque to M/s Realtors Properties. Voucher No. 3

20 Bought a motor car worth ₹ 4,50,000 from Millennium Motors by making a down payment of ₹50,000 by cheque and the balance by taking a loan from HDFC Bank. Voucher No. M/13/7

25 Vikas and Vaibhavi carried out a consulting assignment for Avon Pharmaceuticals and raised a bill for ₹ 10,00,000 as consultancy fees. Bill No. B13/4/1 raised. Avon Pharmaceuticals have immediately settled ₹ 2,50,000 by way of cheque and the balance will be paid after 30 days. The cheque received is deposited into Bank.

30 Salary of one receptionist @ ₹ 5,000 per month and one officer @ ₹ 10,000 per month. The salary for the current month is payable to them.

Solution:

The entries for these transactions in a journal will look like:

In the Books of Vikash & Vaibhavi

Journal Entries

Date	Particulars	Voucher number	L.F	Journal Folio-1	
				Dr.	Cr.
01-04-2013	Cash A/c Dr. To Vikas's Capital A/c To Vaibhavi's Capital A/c (Being capital brought in by the partners)		1 2 3	7,50,000	 5,00,000 2,50,000
10-04-2013	Furniture A/c Dr. To Cash A/c (Being furniture purchased in cash)	2013/F/3	4 1	25,000	 25,000
11-04-2013	Punjab National Bank A/c Dr. To Cash A/c (Being current account opened with Punjab National Bank by depositing cash)		5 1	1,00,000	 1,00,000
15-04-2013	Rent A/c Dr. To Punjab National Bank A/c (being rent paid to Realtors Properties for the month)	3	6 5	15,000	 15,000
20-04-2013	Motor Car A/c Dr. To Punjab National Bank A/c To Loan from HDFC Bank A/c (Being car purchased from Millennium Motors by paying down payment and loan arrangement)	M/13/7	7 5 8	4,50,000	 50,000 4,00,000

25-04-2013	Punjab National Bank A/c	Dr.	B13/4/1	5	2,50,000	
	Avon Pharmaceuticals A/c	Dr.		9	7,50,000	
	To Consultancy Fees A/c			10		10,00,000
	(Being amount received and revenue recognized for fees charged)					
30-04-2013	Salary A/c	Dr.		11	15,000	
	To Salary payable A/c			12		15,000
	(Being the entry to record salary obligation for the month)					

- **Subsidiary Books**

Although once understood, the entries are easy to be written, but if transactions are too many, it may become difficult to manage them and retrieve. Imagine there are 25 purchase transactions in a day. Because the journal will record all transaction chronologically, it may be possible that the purchase transactions could be scattered i.e. they may not all come together one after the other. Now, at the end of the day if the owner wants to know the total purchases made during the day, the accountant will spend time first to retrieve all purchase transactions from journal and then take total. This involves time.

This being the greatest limitation of journal, it is generally sub-divided into more than one journal. On what logic is such a sub-division made? It is done on the basis of similar transactions which are clubbed in a single book e.g. purchase transactions, sales transaction etc. The sub-division of journal is done as follows:

Transaction	Subsidiary Book
All cash and bank transactions	Cash Book - has columns for cash, bank and cash discount
All credit purchase of goods – only those Goods that are purchased for resale are covered here.	Purchase Day Book or Purchase register
All credit sale of goods	Sales Day Book or sales register
All purchase returns – i.e. return of goods back to suppliers due to defects	Purchase Return Book or Return Outward Book
All sales returns – i.e. return of goods back from customers	Sales Return Book or Return Inward Book
All bill receivables – these are bills accepted by customers to be honoured at an agreed date. This is dealt with in depth later in the study note	Bills Receivable Book
All bills payable - these are bills accepted by the business to be honoured by paying to suppliers at an agreed date.	Bills Payable Book
For all other transactions not covered in any of the above categories – i.e. purchase or sale of assets, expense accruals, rectification entries, adjusting entries, opening entries and closing entries.	Journal Proper

2. Ledger

- **Concept of Ledger**

  After recording each transaction in the books of original entry i.e., Journal, the next thing is to classify them according to the accounts affected. All similar transactions must be brought together. For instance, all transactions relating to credit purchase must be put in one place. Similarly, all transactions with a customer or a supplier must be assembled at one place. The book in which this classification is done is called the ledger.

  A ledger is a book which contains a condensed and classified record of all the pecuniary transactions of the business posted from the books of original entry i.e., Journal. It is the final destination of all the accounts, and hence, it is also called the Book of Final Entry. The process of recording the entry in the ledger is technically known as Posting.

  It should be noted that journal contains a chronological detail record while ledger contains a classified record of all transactions.

- **Ledger Account**

  An 'Account' is the structural unit of a ledger. A ledger contains numerous accounts depending upon the number of transactions and the parties involved therein.

Following is the format is a ledger account.

Dr. **..... Account** **Cr.**

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

(i) Date Column: This column contains the date of the transaction.

(ii). Particulars: This column contains which account is to be credited and which account is to be debited.

(iii).Journal Folio (J.F.): This column contains the folio (i.e., page no.) of the Journal, where the transaction is recorded.

(iv).Dr. Amount and Cr. Amount: These columns show the financial value of each transaction.

Note:

1. The posting in the account which is debited, is done on the debit side by writing the name of the account or accounts that are credited with the prefix 'To'.
2. The posting in the account which is credited, is done on the credit side by writing the name of the account or accounts that are debited with the prefix 'By'.

Illustration 7 (Continued)

Dr. Cash Account Cr.

Date	Particulars	J.F.	(₹)	Date	Particulars	J.F.	(₹)
1/6/21	To Capital A/c	J1	7,50,000	4/6/21	By Purchases A/c	J1	6,400
1/6/21	To Loan from Wife A/c	J1	2,50,000	7/6/21	By Purchases A/c	J1	25,000
10/6/21	To Sales A/c	J1	6,300	12/6/21	By Bank A/c	J1	20,000
19/6/21	To Commission A/c		3,500	22/6/21	By Aniket's A/c		25,500
27/6/21	To Vishakha's A/c		14,500	25/6/21	By Loss by Theft A/c		1,000
				30/6/21	By Balance c/d		9,46,400
			10,24,300				10,24,300
1/7/21	To Balance b/d		9,46,400				

Dr. Capital Account Cr.

Date	Particulars	J.F.	(₹)	Date	Particulars	J.F.	(₹)
30/6/21	To Balance c/d		7,50,000	1/6/21	By Cash A/c	J1	7,50,000
			7,50,000				7,50,000
				1/7/21	By Balance b/d		7,50,000

Dr. Loan from Wife Account Cr.

Date	Particulars	J.F.	(₹)	Date	Particulars	J.F.	(₹)
30/6/21	To Balance c/d		2,50,000	1/6/21	By Cash A/c	J1	2,50,000
			2,50,000				2,50,000
				1/7/21	By Balance b/d		2,50,000

Dr. Purchases Account Cr.

Date	Particulars	J.F.	(₹)	Date	Particulars	J.F.	(₹)
4/6/21	To Cash A/c	J1	6,400	15/6/21	By Loss by Fire		5,500
4/6/21	To Aniket's A/c	J1	25,600	30/6/21	By Balance c/d		51,500
7/6/21	To Cash A/c	J1	25,000				
			57,000				57,000
1/7/21	To Balance b/d		51,500				

Dr. Aniket Account Cr.

Date	Particulars	J.F.	(₹)	Date	Particulars	J.F.	(₹)
22/6/21	To Cash A/c		25,500	4/6/21	By Purchases A/c	J1	25,600
22/6/21	To Discount A/c		100				
			25,600				25,600

Dr. **Vishakha Account** **Cr.**

Date	Particulars	J.F.	(₹)	Date	Particulars	J.F.	(₹)
10/6/21	To Sales A/c	J1	14,700	27/6/21	By Cash A/c		14,500
				27/6/21	By Discount A/c		200
			14,700				14,700

Dr. **Sales Account** **Cr.**

Date	Particulars	J.F.	(₹)	Date	Particulars	J.F.	(₹)
30/6/21	To Balance c/d		21,000	10/6/21	By Cash A/c	J1	6,300
				10/6/21	By Vishakha's A/c	J1	14,700
			21,000				21,000
				1/7/21	By Balance b/d		21,000

Dr. **Bank Account** **Cr.**

Date	Particulars	J.F.	(₹)	Date	Particulars	J.F.	(₹)
12/6/21	To Cash A/c	J1	20,000	30/6/21	By Balance c/d		22,400
30/6/21	To Interest A/c		2,400				
			22,400				22,400
1/7/21	To Balance b/d		22,400				

Dr. **Loss by Fire Account** **Cr.**

Date	Particulars	J.F.	(₹)	Date	Particulars	J.F.	(₹)
15/6/21	To Purchases A/c		5,500	30/6/21	By Balance c/d		5,500
			5,500				5,500
1/7/21	To Balance b/d		5,500				

Dr. **Commission Account** **Cr.**

Date	Particulars	J.F.	(₹)	Date	Particulars	J.F.	(₹)
30/6/21	To Balance c/d		3,500	19/6/21	By Cash A/c		3,500
			3,500				3,500
				1/7/21	By Balance b/d		3,500

Dr. **Discount Account** **Cr.**

Date	Particulars	J.F.	(₹)	Date	Particulars	J.F.	(₹)
27/6/21	To Vishakha's A/c		200	22/6/21	By Aniket's A/c		100
				30/6/21	By Balance c/d		100
			200				200
1/7/21	To Balance b/d		100				

Dr. **Loss by Theft Account** **Cr.**

Date	Particulars	J.F.	(₹)	Date	Particulars	J.F.	(₹)
25/6/21	To Cash A/c		1,000	30/6/21	By Balance c/d		1,000
			1,000				1,000
1/7/21	To Balance b/d		1,000				

Dr. **Interest Account** **Cr.**

Date	Particulars	J.F.	(₹)	Date	Particulars	J.F.	(₹)
30/6/21	To Balance c/d		2,400	30/6/21	By Bank A/c		2,400
			2,400				2,400
				1/7/21	By Balance b/d		2,400

- **Typical Ledger Account Balances**

We have seen how to balance various ledger accounts. It can be seen that while some accounts will show debit balance, while the other will show credit balance. Is there any relationship between the type of account (whether it is the account of asset, liability, capital, owner's equity, incomes or gain, expenses or losses) and the kind of balance (debit or credit) it should show?

The answer is generally 'Yes'. You may test to find the following are typical relationships.

Type of Account	Type of balance
All asset accounts	Debit balance
All liability accounts	Credit balance
Capital & Owner's equity account	Credit balance
Expenses or loss accounts	Debit balance
Incomes or gain accounts	Credit balance

Subdivisions of Ledger

Practically, the Ledger may be divided into two groups -

(a) Personal Ledger & (b) Impersonal Ledger. They are again sub-divided as:

(a) Personal Ledger: The ledger where the details of all transactions about the persons who are related to the accounting unit, are recorded, is called the Personal Ledger.

(b) Impersonal Ledger: The Ledger where details of all transactions about assets, incomes & expenses etc. are recorded, is called Impersonal Ledger.

Again, Personal Ledger may be divided into two groups:

viz. (i) Debtors' Ledger, & (ii) Creditors' Ledger.

(i) Debtors' Ledger: The ledger where the details of transactions about the persons to whom goods are sold, cash is received, etc. are recorded, is called Debtors' Ledger.

(ii) Creditors' Ledger: The ledger where the details of transactions about the persons from whom goods are purchased on credit, pay to them etc. are recorded, is called Creditors' Ledger.

3. Trial Balance

After the transactions are posted to various ledger accounts (either from journal or from subsidiary books) and they are balanced, the next stage is to draw up the list of all balances. We know that some ledger accounts will show 'debit balance' (debit side greater than the credit side), while the other will reflect a 'credit balance' (credit side being higher than debit side). All account balances are listed to ensure that the total of all debit balances equals the total of all credit balances. Why does this happen? Remember the dual aspect concept studied earlier in this study note? According to this concept, every debit has equal corresponding credit. This list of balances is called Trial Balance.

According to the Dictionary for Accountants by Eric. L. Kohler, Trial Balance is defined as "a list or abstract of the balances or of total debits and total credits of the accounts in a ledger, the purpose being to determine the equality of posted debits and credits and to establish a basic summary for financial statements". According to Rolland, "The final list of balances, totalled and combined, is called Trial Balance".

As this is merely a listing of balances, this will always be as on a particular date. Further it must be understood that Trial Balance does not form part of books of account, but it is a report prepared by extracting balances of accounts maintained in the books of accounts.

When this list with tallied debit and credit balances is drawn up, the arithmetical accuracy of basic entries, ledger posting and balancing is ensured. However, it does not guarantee that the entries are correct in all respect. This will be explained later in this chapter.

Although it is supposed to be prepared at the end of accounting period, computerized accounting packages are capable of providing instant Trial Balance reports even on daily basis, as the transactions are recorded almost on line.

- **Features of a Trial Balance**

  a) It is a list of debit and credit balances which are extracted from various ledger accounts.

  b) It is a statement of debit and credit balances.

  c) The purpose is to establish arithmetical accuracy of the transactions recorded in the Books of Accounts.

  d) It does not prove arithmetical accuracy which can be determined by audit.

  e) It is not an account. It is only a statement of account.

  f) It is not a part of the final statements.

  g) It is usually prepared at the end of the accounting year but it can also be prepared anytime as and when required like weekly, monthly, quarterly or half-yearly.

  h) It is a link between books of accounts and the Profit and Loss Account and Balance Sheet.

- **Purpose of a Trial Balance**

  It serves the following purposes:

  a) To check the arithmetical accuracy of the recorded transactions.

  b) To ascertain the balance of any Ledger Account.

  c) To serve as evidence of fact that the double entry has been completed in respect of every transaction.

  d) To facilitate the preparation of final accounts promptly.

- **Errors which are not disclosed by a Trial Balance**

  The following errors cannot be detected by a Trial Balance:

  a) Errors of Omission: When the transaction is not at all recorded in the books of accounts, i.e. neither in the debit sider nor in the credit side of the account – trial balance will agree.

  b) Errors of Commission: Where there is any variation in figure/amount, e.g. instead of ₹ 800 either ₹ 80 or ₹ 8,000 is recorded, in both sides of ledger accounts – trial balance will agree.

  c) Errors of Principal: When accounts are prepared not according to double entry principle e.g. Purchase of a Plant wrongly debited to Purchase Account – Trial balance will agree.

  d) Errors of Mis-posting: When wrong posting is made to a wrong account instead of a correct one although amount is correctly recorded, e.g., sold goods to B but wrongly debited to D's Account – trial balance will agree.

  e) Compensating Errors: When one error is compensated by another error e.g. Discount Allowed Rs.100 not debited to Discount Allowed Account, whereas interest received Rs.100, but not credit to Interest Account – trial balance will agree

Refer to Illustration 7.

Trial Balance as on 30.6.2022

Name of Account	Debit (₹)	Credit (₹)
Cash A/c	9,46,400	-----
Capital A/c	-----	7,50,000
Loan from Wife A/c	-----	2,50,000
Purchases A/c	51,500	-----
Aniket's A/c	-----	-----
Vishakha's A/c	-----	-----
Sales A/c	-----	21000
Bank A/c	22,400	-----
Loss by Fire A/c	5,500	-----
Commission A/c	-----	3500

Name of Account	Debit (₹)	Credit (₹)
Discount A/c	100	-----
Loss by Theft A/c	1,000	-----
Interest A/c	-----	2,400
Total	**10,26,900**	**10,26,900**

Illustration 9:

From the following ledger account balances, prepare a Trial Balance of Mr. Sen for the year ended 31st March, 2013.

Capital ₹ 80,000; Sales ₹10,00,000; Adjusted Purchase ₹ 8,00,000; Current A/c(Cr) ₹ 10,000; Petty Cash ₹ 10,000; Sales Ledger Balance ₹ 1,20,000; Purchase Ledger Balance ₹ 60,000; Salaries ₹24,000; Carriage Inwards ₹ 4,000; Carriage Outward ₹ 6,000; Discount Allowed ₹ 10,000; Building ₹ 80,000; Outstanding Expenses ₹ 10,000; Prepaid Insurance ₹ 2,000; Depreciation ₹ 4,000; Cash at Bank ₹80,000 ; Loan A/c (Cr) ₹ 66,000; Profit & Loss A/c(Cr) ₹ 20,000; Bad Debts Recovered ₹ 2,000; Stock at 31.03.2013 ₹ 1,20,000; Interest Received ₹ 10,000; Accrued Interest ₹ 4,000; Investment ₹ 20,000; Provision for Bad Debts (01.04.2012) ₹ 6,000 ; General Reserve ₹ 20,000.

Solution:

Trial Balance of Mr. Sen
as on 31st March, 2013

Dr.		Cr.	
Heads of Accounts	Amount (₹)	Heads of Accounts	Amount (₹)
Adjusted Purchase	8,00,000	Capital	80,000
Petty Cash	10,000	Sales	10,00,000
Sales Ledger Balance	1,20,000	Current A/c	10,000
Salaries	24,000	Purchase Ledger Balance	60,000
Carriage Inward	4,000	Outstanding Expenses	10,000
Discount Allowed	10,000	Loan A/c	66,000
Building	80,000	Profit & Loss A/c(cr)	20,000
Prepaid Insurance	2,000	Bad Debts Recovered	2,000
Depreciation	4,000	Interest Received	10,000
Cash at Bank	80,000	Provision for Bad debts	6,000
Stock (31.03.2013)	1,20,000	General Reserve	20,000
Accrued Interest	4,000		
Investment	20,000		
Carriage outward	6,000		
	12,84,000		12,84,000

Note: Closing Stock will appear in Trial Balance since there is adjusted purchase.

Adjusted purchase = Opening Stock + Purchase - Closing Stock.

It may be noted that if only adjusted purchase is considered then the matching concept is affected. Hence, to satisfy the matching concept, closing stock is also considered in Trial Balance.

4. Finalisation of Accounts and Preparation of Financial Statements

The ultimate objective of accounting is to determine the financial performance and financial state of affairs of an organisation. Thus, after recording the transactions systematically in a summarised form, accounts are to be finalised for the above two purposes. Accordingly, an organisation needs to prepare financial statements. Financial statements are formally defined as certain written reports created by an entity to summarize the businessRs.s financial performance and financial condition over a certain period.

- **Components of Financial Statements**

Organisations differ according to nature, objectives and ownership structure. Accordingly, the components of financial statements also vary.

I. Components of Financial Statements based on the type of organizations classified according to nature:

Manufacturing Organizations	Trading Organization
a. Manufacturing Account	a. Trading Account
b. Trading Account	b. Profit and Loss Account
c. Profit and Loss Account	c. Balance Sheet
d. Balance Sheet	

II. Components of Financial Statements based on the type of Organizations classified according to objective

Profit oriented organizations	Not for profit organizations
a. Manufacturing Account or Trading Account (as the case may be)	a. Receipts and Payments Account
b. Profit and Loss Account	b. Income and Expenditure Account
c. Balance Sheet	c. Balance Sheet

III. Components of Financial Statements based on the type of Organizations classified according to ownership structure

Sole Proprietorship	Partnership	Company
a. Manufacturing Account or Trading Account (as the case may be)	a. Manufacturing or TradingAccount (as the case may be)	a. Statement of Profit and Loss
b. Profit and Loss Account	b. Profit and Loss Account	b. Balance Sheet
c. Balance Sheet	c. Profit and Loss Appropriation Account	
	d. Balance Sheet	

Finalisation of Accounts 3

This Unit Includes the Following Topics:

a. Basic Principles of preparing Final Accounts

(i) Meaning and recognition of Assets, Liabilities, Equity, Income and Expenses

(ii) Depreciation-Various methods of calculating depreciation

(iii)Reserve and Provision and Other Adjustments (Basic concept only)

b. Final Accounts of Companies (Basic concept)

Unit Learning Objectives:

After studying this unit, students will be able to understand:

- **Basic principles in preparation of financial statements**
- **Computation of depreciation under various methods**
- **Adjustment of reserves and provisions**
- **Basic concepts relating to final accounts of companies**

a. Basic Principles of preparing Final Accounts

(i) Meaning and recognition of Assets, Liabilities, Equity, Income and Expenses

- **Preparation of Final Accounts**

Preparing final accounts is a fundamental aspect of financial accounting, providing stakeholders with a clear picture of a business's financial performance and position at the end of an accounting period. This process is guided by several key accounting principles and involves the preparation of specific financial statements.

- **Definitions of Key Financial Elements**

  a) **Asset**

  An asset is a present economic resource controlled by the entity as a result of past events, expected to generate future economic benefits.

  b) **Liability**

  A liability is a present obligation of the entity to transfer an economic resource as a result of past events.

  c) **Equity**

  Equity represents the residual interest in the assets of the entity after deducting all its liabilities. It reflects the ownership interest held by shareholders.

  d) **Income**

  Income encompasses increases in economic benefits during the accounting period in the form of inflows or enhancements of assets, or decreases of liabilities, that result in increases in equity, excluding contributions from equity participants.

  e) **Expenses**

  Expenses are decreases in economic benefits during the accounting period in the form of outflows or depletions of assets, or incurrences of liabilities, that result in decreases in equity, excluding distributions to equity participants.

- **Components of Final Accounts**

  a) **Trading Account**: Calculates the gross profit or loss by comparing sales revenue with the cost of goods sold. It focuses on direct trading activities. A manufacturing organisation, however, prepares Manufacturing Account before Trading Account to find out the cost of goods produced.

  b) **Profit and Loss Account**: Determines the net profit or loss by accounting for all indirect expenses and incomes. It reflects the overall profitability of the business. A partnership concern additionally prepares Profit and Loss Appreciation A/c to distribute the profit and other charges to partners.

  c) **Balance Sheet**: Provides a snapshot of the company's financial position at a specific point in time, listing assets, liabilities, and equity.

- **Steps in Preparing Final Accounts**

  a) **Record Transactions**: All financial transactions are initially recorded in journals and then posted to ledger accounts.

  b) **Prepare Trial Balance**: Summarize all ledger balances to ensure that total debits equal total credits, indicating arithmetic accuracy.

c) **Adjusting Entries**: Make necessary adjustments for accrued or prepaid items to reflect the true financial position.

d) **Prepare Trading Account**: Calculate gross profit or loss by comparing sales with the cost of goods sold.

e) **Prepare Profit and Loss Account**: Account for all indirect expenses and incomes to determine net profit or loss.

f) **Prepare Balance Sheet**: List all assets, liabilities, and equity to present the financial position as of the accounting period's end.

- **Adjustment Entries in Preparing Final Accounts**

1. **Closing Stock**

We know when goods are purchased for resale, we include them in Purchases A/c, while goods sold are shown in Sales A/c. At the end of accounting period, some of these goods may remain unsold. If we show the entire cost of purchases in income statement, it will not be as per the matching concept. We should only show the cost of those goods that are sold during the period. The balance cost should be carried forward to the next accounting period through the balance sheet. How should the closing stock be valued? According to the conservative principle, the stock is valued at lower of cost or market price. If cost of stock is ₹ 125000 and its realizable market price is only ₹ 115000, then the value considered is ₹ 115000 only. What it means is the difference of ₹ 10000 is charged off to the current period's profits.

Students are advised to refer to Accounting Standard 2 - 'Valuation of Inventories' (or Ind AS 2, Inventories) to get thorough knowledge.

Please remember the closing stock figure does not appear in the trial balance, but is valued and directly taken to the P & L A/c. The entry passed for this is:

Closing Stock A/c Dr.

To Trading and P&L A/c

In solving the examination problem, this entry is not actually passed, but the effect of its outcome is given. Here, one effect is "show closing stock as asset in Balance Sheet" and second effect is "show it on the credit side of Trading A/c".

Note: But, if the closing stock appears in the debit side of Trial Balance, it means it has already been adjusted against purchases. In that case, the closing stock will appear only in the asset side of the Balance Sheet.

2. **Depreciation**

When the business uses its assets to earn income, there is wear and tear of the asset life. Assets will have limited life and as we go on using it, the value diminishes. Again the question to be asked is – at what value should the asset be shown in the balance sheet? Consider a machine was bought on

1st April 2021 for ₹ 2,00,000. It's used for production activity throughout the year. When the final accounts are being prepared, at what value should it be shown in Balance Sheet as on 31st March 2023?

Well, according to cost principle initial entry for purchase of machine is shown at cost paid for it e.g. ₹ 2,00,000 in this case. But the fact that the machine is used must be recognized in financials. Hence the value in the Balance sheet must be brought down to the extent of its use. This is called as Depreciation. How is it calculated? While there are different methods of calculating depreciation (explained in subsequently), the simple idea is to spread it over the useful life of the asset, so that at the end of its life the value is zero. In our example, if useful life of the machine is taken as 10 years, the depreciation will be simply ₹ 2,00,000 x 10% i.e. ₹ 20,000 every year.

So a depreciation of ₹ 20,000 will be charged to the profit of every year and value of asset will be brought down by the same value.

The entry passed for this is:

Depreciation A/c Dr.

To Fixed Asset A/c

The effect given is one – include in the P & L A/c as expense for the period and two – reduce from asset value in the Balance Sheet.

Depreciation will be further discussed separately in this chapter.

3. **Accrued Expenses or Outstanding Expenses**

There may be expenses incurred for the current accounting period, but not actually paid for. The matching concept, however, necessitates that this expense must be recognized as expense for the current year and should not be deferred till its actual payment. Typically, we know salary for the month is normally paid in the 1st week of the next month. Imagine the accounting period close on 31st March. The salary for the month of March is not paid till 31st March. But is it is related to this month, it must be booked as expense for the current month and also as a liability payable in the next month (which is in next accounting period). This can be shown as follows

The entry for this is:

Expense A/c Dr.

To Outstanding Expense A/c or Expense payable A/c

The two effects when preparing the final accounts are:

One – add in respective expense in P & L A/c and two – show as a liability in the Balance Sheet.

4. **Prepaid Expenses**

At times we may pay for certain expenses which are period related. For example, the business has taken an insurance policy against fire on which the annual premium payable is ₹ 75,000. The policy

is taken on 1st January 2023 valid till 31st December 2023. But the company's accounting period ends on 31st March 2023. When considering the insurance expense for the accounting year, what amount should be considered? See the following.

As can be seen, out of the total premium period of 12 months, only 3 months are related to the current accounting period and the remaining 9 months' premium is related to the next accounting period. Hence only 3 months' premium is to be considered as expense for the current year i.e. ₹ 18750 (75000 x ¼).

The entry for this is:

Prepaid Insurance A/c Dr.

To Insurance A/c

The two effects while preparing final accounts are:

One – Reduce from respective expense in P & L A/c and two – show as an asset in the Balance Sheet.

5. **Accrued Incomes**

Just as expenses accrue, there are instances of income getting accrued at the end of accounting period. The extent to which it accrues, it must be booked as income for the current accounting period. Consider, the business has put a one-year fixed deposit of ₹ 1,00,000 with Citi Bank at a fixed interest of 9 % p.a. on 1st February 2023 and the interest is credited by the bank on a semi-annual basis. Also, consider that the accounting period ends on 31st March 2023. The Citi bank will credit the 1st semi-annual interest on 31st July 2023 and the next on 31st January 2024.

It can be noticed that interest for the 2 months will be considered as accrued as on 31st of March 2023 and must be taken as income for the current accounting year.

The entry for this is:

Accrued Interest A/c Dr.

To Interest A/c

The two effects while preparing final accounts are:

One – Show as income in the P&L A/c and two – show as an asset in the Balance Sheet.

6. **Income Received in Advance**

If an income is received which is not related to the current accounting period, it cannot be included in the current year's P & L A/c. So, if it's already included as income it must be reduced.

The entry for this is:

Respective Income A/c Dr.

To Income received in advance A/c

The effects while preparing final account are:

One – Reduce from respective income and two – show it as liability in Balance Sheet

Topic: (ii) Depreciation-Various methods of calculating depreciation

ACCOUNTING FOR DEPRECIATION

A business or concern holds fixed assets for regular use and not for resale. The capability of a fixed asset to render service cannot be unlimited. Except land, all other fixed assets have a limited useful life. The benefit of a fixed asset is received throughout its useful life. So its cost is the price paid for the 'Series of Services' to be received or enjoyed from it over a number of years and it should be spread over such years.

Depreciation means gradual decrease in the value of an asset due to normal wear and tear, obsolescence etc. In short, depreciation means the gradual diminution, loss or shrinkage in the utility value of an asset due to wear and tear in use, effluxion of time or introduction of technology in the market. A certain percentage of total cost of fixed assets which has expired and as such turned into expense during the process of its use in a particular accounting period.

Accounting Standard (AS-10) states that, Depreciation is allocated so as to charge a fair proportion of the depreciable amount in each accounting period during the expected useful life of the asset.

"Depreciation accounting is a system of accounting which aims to distribute the cost or other basic value of tangible capital assets, less salvage (if any), over the estimated useful life of the unit (which may be a group of assets) in a systematic and rational manner. It is a process of allocation, not of valuation. Depreciation for the year is the portion of the total charge under such a system that is allocated to the year. Although the allocation may properly take into account occurrences during the year, it is not intended to be the measurement of the effect of all such occurrences."

The above definition may be criticized as under:

(i) It does not classify properly what is meant by systematic and rational manner. The word 'rational' may mean that it should reasonably be related to the expected benefits in any case.

(ii) Historical cost and any other kind of cost should be allocated or not does not defined by this definition.

(iii) Some Accountants are in a belief that depreciation is nothing but an arbitrary allocation of cost. According to them, all the conventional methods say allocation of historical cost over a number of years is arbitrary.

Certain Useful Terms

Amortization - Intangible assets such as goodwill, trademarks and patents are written off over a number of accounting periods covering their estimated useful lives. This periodic write off is known as *Amortization* and that is quite similar to depreciation of tangible assets. The term amortization is also used for writing off leasehold premises. Amortization is normally recorded as a credit to the asset account directly or to a distinct provision for depreciation account. Though the write off of intangibles that have no limited life is not approved by some Accountants, some concerns do amortize such assets on the ground of conservatism.

Depletion - This method is specially suited to mines, oil wells, quarries, sandpits and similar assets of a wasting character. In this method, the cost of the asset is divided by the total workable deposits of the mine etc. And by following the above manner rate of depreciation can be ascertained. Depletion can be distinguishable from depreciation in physical shrinkage or lessening of an estimated available quantity and the latter implying a reduction in the service capacity of an asset.

Obsolescence – The term 'Obsolescence' refers to loss of usefulness arising from such factors as technological changes, improvement in production methods, change in market demand for the product output of the asset or service or legal or medical or other restrictions. It is different from depreciation or exhaustion, wear and tear and deterioration in that these terms refer to functional loss arising out of a change in physical condition.

Dilapidation - In one sentence Dilapidation means a state of deterioration due to old age or long use. This term refers to damage done to a building or other property during tenancy.

Nature of Depreciation

Depreciation is a term applicable in case of plant, building, equipment, machinery, furniture, fixtures, vehicles, tools etc. These long-term or fixed assets have a limited useful life, i.e. they will provide service to the entity (in the form of helping in the generation of revenue) over a limited number of future accounting periods. Depreciation implies gradual decrease in the value of an asset due to normal wear and tear, obsolescence etc. In short, depreciation means the gradual diminution, loss or shrinkage in the utility value of an asset due to wear and tear in use, effluxion of time or introduction of technology in the market. It makes a part of the cost of assets chargeable as an expense in profit and loss account of the accounting periods in which the assets helped in earning revenue.

Thus, **International Accounting Standard** (IAS)-4 provides that "Depreciation is the allocation of the depreciable amount of an asset over its estimated useful life."

In Accounting Research Bulletin No. 22, **AICPA** observed that "Depreciation for the year is the portion of the total charge under such a system that is allocated to the year. Although the allocation may properly take into account occurrences during the year, it is not intended to be the measurement of the effect of all such occurrences."

Causes of Depreciation

A. **Internal Causes**

(i) **Wear and tear :** Plant & machinery, furniture, motor vehicles etc. suffer from loss of utility due to vibration, chemical reaction, negligent handling, rusting etc.

(ii) **Depletion (or exhaustion)** : The utility or resources of wasting assets (like mines etc.) decreases with regular extractions.

B. **External or Economic Causes**

(i) **Obsolescence** : Innovation of better substitutes, change in market demand, imposition of legal restrictions may result into discarding an asset.

(ii) **Inadequacy :** Changes in the scale of production or volume of activities may lead to discarding an asset.

C. **Time element :** With the passage of time some intangible fixed assets like lease, patents, copy-rights etc., lose their value or effectiveness, whether used or not. The word "amortization" is a better term to speak for the gradual fall in their values.

D. **Abnormal occurrences** : An accident, fire or natural calamity can damage the service potential of an asset partly or fully. As a result the effectiveness of the asset is affected and reduced.

Characteristics of Depreciation

The Characteristics of Depreciation are:

(i) It is a **charge against profit**.

(ii) It indicates **diminution in service potential**.

(iii) It is an **estimated loss** of the value of an asset. It is not an **actual loss**.

(iv) It depends upon different **assumptions**, like effective life and residual value of an asset.

(v) It is a process of allocation and not of valuation.

(vi) It arises mainly from an **internal cause** like wear and tear or depletion of an asset. But it is treated as any expense charged against profit like rent, salary, etc., which arise due to an **external transaction**.

(vii) Depreciation on any particular asset is **restricted** to the working life of the asset.

(viii) It is charged on **tangible fixed assets**. It is not charged on any current asset. For allocating the costs of intangible fixed assets like goodwill. etc, a certain amount of their total costs may be charged against periodic revenues. This is known as **amortization**.

Objective and Necessity for Providing Depreciation

Eric Kohler defined depreciation as "the lost usefulness, expired utility, the diminution in service yield." Its measurement and charging are necessary for cost recovery. It is treated as a part of the expired cost for an asset. For determination of revenue, that part or cost should be matched against revenue. The objects or necessities of charging depreciation are:

(i) **Correct calculation of cost of production:** Depreciation is an allocated cost of a fixed asset. It is to be calculated and charged correctly against the revenue of an accounting period. It must be correctly included within the cost of production.

(ii) **Correct calculation of profits:** Costs incurred for earning revenues must be charged properly for correct calculation of profits. The consumed cost of assets (depreciation) has to be provided for correct matching of revenues with expenses.

(iii) **Correct disclosure of fixed assets at reasonable value:** Unless depreciation is charged, the depreciable asset cannot be correctly valued and presented in the Balance Sheet. Depreciation is charged so that the Balance Sheet exhibits a true and fair view of the affairs of the business.

(iv) **Provision of replacement cost:** Depreciation is a non-cash expense. But net profit is calculated after charging it. Through annual depreciation cash resources are saved and accumulated to provide replacement cost at the end of the useful life of an asset.

(v) **Maintenance of capital:** A significant portion of capital has to be invested for purchasing fixed assets. The values of such assets are gradually reduced due to their regular use and passage of time. Depreciation on the assets is treated as an expired cost and it is matched against revenue. It is charged against profits. If it is not charged the profits will remain inflated. This will cause capital erosion.

(vi) **Compliance with technical and legal requirements:** Depreciation has to be charged to comply with the relevant provisions of the Companies Act and Income Tax Act.

Note: As per Companies Act 1956, a company have to provide for depreciation on fixed assets before declaration of dividends.

Methods of Charging Depreciation

There are different concepts about the nature of depreciation. Moreover, the nature of all fixed assets cannot be the same. As a result, different methods are found to exist for charging depreciation. A broad classification of the methods may be summarized as follows:

Capital/Source of Fund

(i) Sinking Fund Method

(ii) Annuity Method

(iii) Insurance Policy Method

Time Base

(i) Fixed Installment Method

(ii) Reducing Balance Method

(iii) Sum of Years' Digit Method

(iv) Double Declining Method

Use Base

(i) Working Hours Method

(ii) Mileage Method

(iii) Depletion Service Hours Method

(iv) Unit method

Price Base

(i) Revaluation Method

(ii) Repairs Provision Method

Some important Methods of Charging Depreciation are discussed as below :

I. Fixed/Equal Instalment OR Straight Line Method

Features:

(i) A fixed portion of the cost of a fixed asset is allocated and charged as periodic depreciation.

(ii) Such depreciation becomes an equal amount in each period.

(iii) The formula for calculation of depreciation is : Depreciation = (V-S)/n

Where,

V = Cost of the asset

S = Residual value or the expected scrap value of the asset n = Estimated life of the asset

Illustration: 16

Machine No.	Cost of Machine (₹)	Expenses incurred at the time of purchase to be capitalized (₹)	Estimated Residual Value (₹)	Expected Useful Life in years
1	90,000	10,000	20,000	8
2	24,000	7,000	3,100	6
3	1,05,000	20,000	12,500	3
4	2,50,000	30,000	56,000	5

Solution:

Machine No	Cost of Machine (₹)	Expenses incurred at the time of purchase to be capitalize (₹)	Total Cost of Asset = (b+c) (₹)	Estimated Residual Value (₹)	Expected Useful Life in years	Depreciation = (d-e)/f (₹)	Rate of Depreciation under SLM = (g/d)×100
a	b	c	d	e	f	g	h
1	90,000	10,000	1,00,000	20,000	8	10,000	10%
2	24,000	7,000	31,000	3,100	6	4,650	15%
3	1,05,000	20,000	1,25,000	12,500	5	22,500	18%
4	2,50,000	30,000	2,80,000	56,000	10	22,400	8%

Illustration 17.

A machine is purchased for ₹ 7,00,000. Expenses incurred on its cartage and installation ₹ 3,00,000. Calculate the amount of depreciation @ 20% p.a. according to Straight Line Method for the first year ending on 31st March, 2014 if this machine is purchased on:

(a) 1st April, 2013

(b) 1st July, 2013

(c) 1st October, 2013

(d) 1st January, 2014

Solution:

Here, Total Cost of Asset = Purchased Price + Cost of Cartage and Installation

= ₹ 7,00,000 + ₹ 3,00,000

= ₹ 10,00,000

Amount of Depreciation:

$$= \text{Total Cost of Asset} \times \text{Rate of Depreciation} \times \frac{\text{Period from the date of purchase to date of closing accounts}}{12}$$

(a) The machine was purchased on 1st April, 2013:

Amount of Depreciation = ₹ 10,00,000 × 20% × $\frac{12}{12}$ = ₹ 2,00,000

(b) 1st July, 2013

Amount of Depreciation = ₹ 10,00,000 × 20% × $\frac{9}{12}$ = ₹ 1,50,000

(c) 1st October, 2013

Amount of Depreciation = ₹ 10,00,000 × 20% × $\frac{6}{12}$ = ₹ 1,00,000

(d) 1st January, 2014

Amount of Depreciation = ₹ 10,00,000 × 20% × $\frac{3}{12}$ = ₹ 50,000

II. **Reducing / Diminishing Balance Method or Written Down Value Method**

Features:

(i) Depreciation is calculated at a fixed percentage on the original cost in the first year. But in subsequent years it is calculated at the same percentage on the written down values gradually reducing during the expected working life of the asset.

(ii) The rate of allocation is constant (usually a fixed percentage) but the amount allocated for every year gradually decreases.

Illustration 18.

On 1.1.2011 a machine was purchased for ₹ 1,00,000 and ₹ 50,000 was paid for installation. Assuming that the rate of depreciation was 10% on Reducing Balance Method, calculate amount of depreciation upto 31.12.2013.

Solution:

Year	Opening Book Value (₹)	Rate	Depreciation (₹)	Closing Book Value (₹)
2011	1,50,000	10%	15,000	1,35,000
2012	1,35,000	10%	13,500	1,21,500
2013	1,21,500	10%	12,150	1,09,350

Note: Cost of the machine (i.e. Opening Book Value for the year 2011)

= Cost of Purchase + Cost of Installation

= ₹ 1,00,000 + ₹ 50,000

= ₹ 1,50,000

- **Provision for Depreciation Account**

  Provision of depreciation is the collected value of all depreciation. Provision of depreciation account is the account of provision of depreciation. With making of this account we are not credited depreciation in asset account, but transfer every year depreciation to provision of depreciation account. Every year we adopt this procedure and when assets are sold we will transfer sold asset's 'total depreciation' to credit side of asset account, for calculating correct profit or loss on fixed asset. This provision uses with any method of calculating depreciation.

- **Features of Provision for Depreciation Account**

  a) Fixed asset is made on its original cost and every year depreciation is not transfer to fixed asset account.

  b) Provision of depreciation account is Conglomerated value of all old depreciation.

  c) This system can be used both in straight line and diminishing method of providing depreciation.

  The journal entries will be:

  (i) For purchase of asset

  Asset's A/c Dr.

  To Cash/Bank A/c

  (ii) For providing depreciation at end of year

  Depreciation A/c Dr.

  To Provision for depreciation A/c

  (iii) For sale of assets

  Cash/Bank A/c Dr.

  To Asset Sales A/c

(iv) Cost of assets sold transferred from Assets Account to Sale of Assets Account.

Assets Sales A/c Dr.

To Asset's A/c.

(v) Total depreciation on asset sold transferred from provision for depreciation account.

Provision for depreciation A/c Dr.

To Asset Sales A/c

(vi) Profit or loss on sale of assets will be transferred from asset sale account to Profit or Loss Account.

Disposal of an Asset

When an asset is sold because of obsolescence or inadequacy or any other reason, the cost of the asset is transferred to a separate account called "Asset Disposal Account". The following entries are to be made:

(i) When the cost of the asset is transferred:

Asset Disposal A/c Dr.

To, Asset A/c (original cost)

(ii) When depreciation provided on the asset is transferred:

Provision for Depreciation A/c Dr.

To, Asset Disposal A/c

(iii) For charging depreciation for the year of sale:

Depreciation A/c Dr.

To, Asset Disposal A/c

(iv) When cash received on sale of asset:

Bank/Cash A/c Dr.

To, Asset Disposal A/c

(v) When loss on disposal is transferred to Profit & Loss A/c:

Profit & Loss A/c Dr.

To, Asset Disposal A/c

(vi) When profit on disposal is transferred to Profit & Loss A/c:

Asset Disposal A/c Dr.

To, Profit & Loss A/c

Illustration 20.

S&Co. purchased a machine for ₹ 1,00,000 on 1.1.2011. Another machine costing ₹ 1,50,000 was purchased on 1.7.2012. On 31.12.2013, the machine purchased on 1.1.2011 was sold for ₹ 50,000. The company provides depreciation at 15% on Straight Line Method. The company closes its accounts on 31st December every year. Prepare – (i) Machinery A/c, (ii) Machinery Disposal A/c and (iii) Provision for Depreciation A/c.

Solution:

S & Co.

Dr. **Machinery Account** **Cr.**

Date	Particulars	Amount (₹)	Date	Particulars	Amount (₹)
1.1.2011	To, Bank A/c	1,00,000	31.12.2011	By, Balance c/d	1,00,000
		1,00,000			1,00,000
1.1.2012	To, Balance b/d	1,00,000			
1.7.2012	To, Bank A/c	1,50,000	31.12.2012	By, Balance c/d	2,50,000
		2,50,000			2,50,000
1.1.2013	To, Balance b/d	2,50,000	31.12.2013	By, Machinery Disposal A/c	1,00,000
			31.12.2013	By, Balance c/d	1,50,000
		2,50,000			2,50,000
1.1.2014	To, Balance b/d	1,50,000			

Dr. **Provision for Depreciation Account** **Cr.**

Date	Particulars	Amount (₹)	Date	Particulars	Amount (₹)
31.12.2011	To, Balance c/d	15,000	31.12.2011	By, Depreciation A/c	15,000
		15,000			15,000
31.12.2012	To, Balance c/d	41,250	1.1.2012	By, Balance b/d	15,000
			31.12.2012	By, Depreciation A/c (₹ 15,000 + ₹ 11,250)	26,250
		41,250			41,250
31.12.2013	To, Machinery Disposal A/c	30,000	1.1.2013	By, Balance b/d	41,250
31.12.2013	To, Balance c/d	33,750	31.12.2013	By, Depreciation A/c	22,500
		63,750			63,750
			1.1.2014	By, Balance b/d	33,750

Dr. **Machinery Disposal Account** **Cr.**

Date	Particulars	Amount (₹)	Date	Particulars	Amount (₹)
31.12.2013	To, Machinery A/c	1,00,000	31.12.2013	By, Provision for Depreciation A/c	30,000
				By, Depreciation A/c	15,000
				By, Bank A/c	50,000
				By, Profit & Loss A/c (Loss on Sale)	5,000
		1,00,000			1,00,000

Working Notes

1. Depreciation for the machine purchased on 1.7.2012

For the year 2012 (used for 6 months) = ₹ 1,50,000 × 15% × 6/12 = ₹ 11,250

For the year 2013 (used for full year) = ₹ 1,50,000 × 15% = ₹ 22,500

2. Depreciation for the machine purchased on 1.1.2011

Depreciation = ₹ 1,00,000 × 15% = ₹ 15,000

So, Depreciation for 2 years = ₹ 15,000 × 2 = ₹ 30,000

Topic: (iii) Reserve and Provision and Other Adjustments (Basic concept only)

- **Different Types of Debts**

For any business, purchase and sales are the most regular and main activity. This attracts business connection with lots of people either giving or taking benefits of credit. Debtors refer to those entities who take the benefit of delayed payment and creditors allow credit period to pay later. That means in each case there is a time gap between the date of sale or purchase and the date of recovery of cash or payment of cash.

The amount which is receivable from a person or a concern for supplying goods or services is called Debt. On the basis of the chances of collection from the debtors, debts may be classified into the following three categories: Good debts, Doubtful debts and Bad debts.

Good Debts: The debts which are not bad i.e., there is neither any possibility of bad debts nor any doubts about its realization, is called good debts. As such, no provision is necessary for it.

Doubtful Debts: The debts which will be receivable or cannot be ascertainable at the date of preparing the final accounts (i.e., the debts which are doubtful to realise) is known as doubtful debts. Practically it cannot be treated as a loss on that particular date, as such, it cannot be written off. But, it should be charged against Profit and Loss Account on the basis of past experience of the firm.

Bad Debts: Bad debts are uncollectable or irrecoverable debt or debts which are impossible to collect is called Bad Debts. If it is definitely known that amount recoverable from a customer cannot be

realized at all, it should be treated as a business loss and should be adjusted against profit. In short, the amount of bad debt should be transferred to Profit and Loss Account for the current year to confirm the principles of matching.

Bad Debts Account is by nature a nominal account. For recording the bad debt in the journal, Bad Debts A/c is debited and Debtors A/c is credited. At the end of an accounting period the total amount of bad debts may be either transferred to Profit & Loss Account or Provision for Doubtful debts A/c as the case may be.

- **Provisions for Doubtful Debts**

The amount charged against the profit by an entity to provide for the possible collection loss from customers is known as Provision for Doubtful Debts. Provision for Doubtful debts account is a credit balance account and it reflected in the Balance Sheet by deduction from the balance of Debtors/ Accounts Receivable.

- **Accounting for Bad Debts and Provision for Doubtful Debt**

The accounting for bad debts and provision for doubtful debts is done as under:

In the 1st year

(a) For Bad Debts

Bad Debts A/c .....Dr.

To Sundry Debtors A/c

(b) For creating provision for Doubtful Debts

Profit and Loss A/c Dr.

To Provision for Doubtful Debts A/c

(c) For Transferring Bad Debts

Profit and Loss A/c Dr.

To Bad Debts A/c

In Second/ Subsequent Year

(a) For Bad Debts

(i) Bad Debts A/c Dr.

To Sundry Debtors A/c

(ii) Profit and Loss A/c Dr.

To Bad Debts A/c

(b) For provision of Doubtful Debts

(i) If closing provision is more than the opening provision-

Profit and Loss A/c Dr.

To Provision for Doubtful debts A/c

(ii) If Closing Balance is less than opening provision –

Provision for Doubtful Debts A/c Dr.

To Profit and Loss A/c

Illustration 1

M/s Adhuna & Co. had a provision for bad debts of ₹13,000 against their book debts on 1st April, 2021. During the year ended 31st March, 2022, ₹8,500 proved irrecoverable and it was desired to maintain the provision for bad debts @ 5% on Debtors which stood at ₹3,90,000 before writing off Bad Debts.

Prepare the provision for Bad Debt Account for the year ended March 31, 2022.

Solution:

Books of M/s Adhuna & Co.

Dr. Bad Debt Account Cr.

Date	Particulars	₹	Date	Particulars	₹
31.03.22	To S. Debtors A/c	8,500	31.03.22	By P/L A/c	8,500
		8,500			8,500

Dr. Provision for Bad Debt Account Cr.

Date	Particulars	₹	Date	Particulars	₹
			01.04.21	By Balance b/d	13,000
31.03.22	To Balance c/d 5% of (3,90,000-8,500)	19,075	31.03.22	By Profit& Loss A/c (further provision. required) – bal. fig	6,075
		19075			19075

- **Provision for Discount on Debtors**

  Discount Allowed Policies may be shown as 2/10, Net 30 which means though the credit period is 30 days, the customer is allowed a discount of 2% if the amount is paid within 10 days.

- **Accounting for Provision for Discount on Debtors**

a. **Discount Allowed on Payment**

(i) Discount Allowed A/c……Dr.

To Debtors A/c

b. **For Provision**

(ii) Profit & Loss A/c……..Dr.

To Provision for Discount on Debtors A/c

Illustration 2

M/s Adhuna & Co. had a provision for bad debts of ₹13,000 against their book debts on 1st April, 2021 and a Provision for Discount on Debtors ₹2,000. During the year ended 31st March, 2022, ₹8,500 proved irrecoverable and it was desired to maintain the provision for bad debts @ 5% on Debtors which stood at ₹3,90,000 before writing off Bad Debts. In addition, there were Discount Allowed still to be recorded ₹4,500 and the firm wants to maintain a provision for discount on debtors @ 2%.

Prepare the provision for Bad Debt Account for the year ended March 31, 2022.

Solution:

Books of M/s Adhuna & Co.					
Dr.	Bad Debt Account				Cr.
Date	**Particulars**	**₹**	**Date**	**Particulars**	**₹**
31.03.22	To S. Debtors A/c	8,500	31.03.22	By P/L A/c	8,500
		8,500			8,500

Dr. Provision for Bad Debt Account Cr.

Date	**Particulars**	**₹**	**Date**	**Particulars**	**₹**
			01.04.21	By Balance b/d	13,000
31.03.22	To Balance c/d 5% of (3,90,000-8,500)	19,075	31.03.22	By Profit & Loss A/c (further provision. required) – bal. fig	6,075
		19075			19075

Dr.	Discount Allowed Account				Cr.
Date	**Particulars**	**₹**	**Date**	**Particulars**	**₹**
31.03.22	To S Debtors A/c	4,500	31.03.22	By P/L A/c	4,500
		4,500			4,500

Dr. Provision for Discount on Debtors Account Cr.

Date	**Particulars**	**₹**	**Date**	**Particulars**	**₹**
			01.04.2021	By Balance b/d	2,000
31.03.22	To balance c/d	7,159		By P/L A/c (b.f)	5,159
		7,159			7,159

Note: Calculation for P/Disc./Debtors

Balance of Debtors		= 3,90,000
Less: B Debt		= 8,500
		3,81,500
Less: P/B/D	@5%	19,075
		3,62,425
Less: Disc. Allowed		4,500
		3,57925
P/D/D	@ 2%	7,159

Topic: Final Accounts of Non-Corporate Entities

Introduction

Preparation of final accounts is the final destination of the accounting process. As discussed earlier these final accounts include two statements – Income statement which reflects the outcome of business activities during an accounting period (i.e. profit or loss) and the balance sheet which show the position of the business at the end of the accounting period (i.e. resources owned as assets and sources of funds as liabilities plus capital). The objective of financial statements is to provide information about the financial strength, performance and changes in financial position of an enterprise that is useful to a wide range of users in making economic decisions. Financial statements should be understandable, relevant, reliable and comparable. Reported assets, liabilities and equity are directly related to an organization's financial position. Reported income and expenses are directly related to an organization's financial performance.

Financial statements are intended to be understandable by readers who have "a reasonable knowledge of business and economic activities and accounting and who are willing to study the information diligently".

In this chapter, we will see how conceptually these statements are prepared and what each of them contains.

Preparation of Financial Statements

Profitability Statement – This statement is related to a complete accounting period. It shows the outcome of business activities during that period in a summarized form. The activities of any business will include purchase, manufacture, and sell.

Balance Sheet – Business needs some resources which have longer life (say more than a year).

Such resources are, therefore, not related to any particular accounting period, but are to be used over the useful life thereof. The resources do not come free. One requires finance to acquire them. This funding is provided by owners through their investment, bank & other through loans, suppliers by

way of credit terms. The Balance Sheet shows the list of resources and the funding of the resources i.e. assets and liabilities (towards owners and outsiders). It is also referred as sources of funds (i.e. liabilities & capital) and application of funds (i.e. assets). Let us discuss these statements in depth.

Trading Account: It is an account which is prepared by a merchandising concern which purchases goods and sells the same during a particular period. The purpose of it to find out the gross profit or gross loss which is an important indicator of business efficiency.

The following items will appear in the debit side of the Trading Account:

(i) **Opening Stock**: In case of trading concern, the opening stock means the finished goods only. The amount of opening stock should be taken from Trial Balance.

(ii) **Purchases**: The amount of purchases made during the year. Purchases include cash as well as credit purchase. The deductions can be made from purchases, such as, purchase return, goods withdrawn by the proprietor, goods distributed as free sample etc.

(iii) **Direct expenses**: It means all those expenses which are incurred from the time of purchases to making the goods in suitable condition. This expenses includes freight inward, octroi, wages etc.

(iv) **Gross profit**: If the credit side of trading A/c is greater than debit side of trading A/c gross profit will arise.

The following items will appear in the credit side of Trading Account:

(i) **Sales Revenue:** The sales revenue denotes income earned from the main business activity or activities. The income is earned when goods or services are sold to customers. If there is any return, it should be deducted from the sales value. As per the accrual concept, income should be recognized as soon as it is accrued and not necessarily only when the cash is paid for. The Accounting standard 7 (in case of contracting business) and Accounting standard 9 (in other cases) define the guidelines for revenue recognition. The essence of the provisions of both standards is that revenue should be recognized only when significant risks and rewards (vaguely referred to as ownership in goods) are transferred to the customer. For example, if an invoice is made for sale of goods and the term of sale is door delivery; then sale can be recognized only on getting the proof of delivery of goods at the door of customer. If such proof is pending at the end of accounting period, then this transaction cannot be taken as sales, but will be treated as unearned income.

(ii) **Closing Stocks:** In case of trading business, there will be closing stocks of finished goods only. According to convention of conservatism, stock is valued at cost or net realizable value whichever is lower.

(iii) **Gross Loss**: When debit side of trading account is greater than credit side of trading account, gross loss will appear.

Dr **Trading Account for the year ended** **Cr**

Particulars	Amount	Particulars	Amount
Opening stock:		Sales	
Finished goods		less sales returns	
Purchases		Closing stock	
Less: purchase returns		Finished goods	
Gross Profit (transferred to P&L A/c)		Gross Loss (transferred to P&L A/c)	
Total		Total	

Preparation of Trading Account

Illustration 1.

Following are the ledger balances presented by M/s. P. Sen as on 31st March 2013.

Particulars	Amount (₹)	Particulars	Amount (₹)
Stock (1.4.2012)	10,000	Sales	3,00,000
Purchase	1,60,000	Return Inward	16,000
Carriage Inwards	10,000	Return Outward	10,000
Wages	30,000	Royalty on Production	6,000
Freight	8,000	Gas and Fuel	2,000

Additional Information:

(1) Stock on 31.3.2013: (i) Market Price ₹ 24,000; (ii) Cost Price ₹ 20,000;

(2) Stock valued ₹ 10,000 were destroyed by fire and insurance company admitted the claim to the extent of ₹ 6,000.

(3) Goods purchased for ₹ 6,000 on 29th March, 2013, but still lying in-transit, not at all recorded in the books.

(4) Goods taken for the proprietor for his own use for ₹ 3,000.

(5) Outstanding wages amounted to ₹ 4,000.

(6) Freight was paid in advance for ₹ 1,000.

Solution:

In the books of M/s. P. Sen Trading Account

Dr. **For the year ended 31st March, 2013.** Cr.

Particulars	Amount (₹)	Amount (₹)	Particulars	Amount (₹)	Amount (₹)
To Openign Stock		10,000	By, Sales	3,00,000	
To Purchase	1,60,000		Less: Return Inward	16,000	2,84,000
Less: Return Outward	10,000				
	1,50,000		By, Closing Stock	20,000	
Less: Goods taken by Pro-prietor	3,000		Add: Stock Destroyed	10,000	
Add: Goods-in-transit	1,47,000		Add: Goods-in-Transit	30,000	
To Wages	6,000	1,53,000		6,000	36,000
Add: Outstanding					
	30,000				
To, Carriage Inwards	4,000	34,000			
To, Freight		10,000			
Less: Prepaid					
To, Royalty on production	8,000				
To, Gas & fuel	1,000	7,000			
To, Profit & Loss A/c.		6,000			
- Gross profit transferred		2,000			
		98,000			
		3,20,000			3,20,000

Note:

(a) Stock should be valued as per cost price or market price whichever is lower.

(b) The claim which was admitted by insurance company and the loss of stock, will not appear in Trading Account.

Profit and Loss Account:

The following items will appear in the debit side of the Profit & Loss A/c:

(i) **Cost of Sales:** This term refers to the cost of goods sold. The goods could be manufactured and sold or can be directly identified with goods.

(ii) **Other Expenses:** All expenses which are not directly related to main business activity will be reflected in the P & L component. These are mainly the Administrative, Selling and distribution expenses. Examples are salary to office staff, salesmen commission, insurance, legal charges, audit fees, advertising, free samples, bad debts etc. It will also include items like loss on sale of fixed assets, interest and provisions. Students should be careful to include accrued expenses as well.

(iii) **Abnormal Losses**: All abnormal losses are charged against Profit & Loss Account. It includes stock destroyed by fire, goods lost in transit etc.

The following items will appear in the credit side of Profit & Loss A/c:

(i) **Revenue Incomes**: These incomes arise in the ordinary course of business, which includes commission received, discount received etc.

(ii) **Other Incomes:** The business will generate incomes other than from its main activity. These are purely incidental. It will include items like interest received, dividend received, etc .The end result of one component of the P & L A/c is transferred over to the next component and the net result will be transferred to the balance sheet as addition in owners' equity. The profits actually belong to owners of business. In case of company organizations, where ownership is widely distributed, the profit figure is separately shown in balance sheet.

Dr **Profit and Loss Account for the year ended** **Cr**

Particulars	Amount	Particulars	Amount
Gross Loss (transferred from Trading A/c)		Gross Profit (transferred from Trading A/c)	
Administrative expenses		Other Income	
Office salaries		Interest received	
Communication		Commission received	
Travel & Conveyance		Profit on sale of assets	
Office rent		Rent received	
Depreciation of office assets		Net loss	
Audit fees			
Insurance			
Repairs & maintenance			
Selling & Distribution expenses			
Advertising			
Salesmen commission			
Delivery van expenses/Depreciation on delivery vans/Bad debts			
Financial expenses			
Bank charges			
Interest on loans			
Loss on sale of assets			
Net profit			
Total		**Total**	

Preparations of Profit & Loss Account

Illustration 2.

From the following particulars presented by Sri Tirlhankar for the year ended 31st March 2013, Prepare Profit and Loss Account. Gross Profit ₹ 1,00,000, Rent ₹ 22,000; Salaries, ₹ 10,000; Commission (Cr.) ₹ 12,000; Insurance ₹ 8,000; Interest (Cr.) ₹ 6,000; Bad Debts ₹ 2,000; Provision for Bad Debts (1.4.2012) ₹ 4,000; Sundry Debtors ₹40,000; Discount Received ₹ 2,000; Plant & Machinery ₹ 80,000. Adjustments:

(a) Outstanding salaries amounted to ₹ 4,000;

(b) Rent paid for 11 months;

(c) Interest due but not received amounted to ₹ 2,000

(d) Prepaid Insurance amounted to ₹ 2,000;

(e) Depreciate Plant and Machinery by 10% p.a.

(f) Further Bad Debts amounted to ₹ 2,000 and make a provision for Bad Debts @5% on Sundry Debtors.

(g) Commissions received in advance amounted to ₹ 2,000.

Solution

In the Books of Sri Tirlhankar
Profit and Loss Account
for the year ended 31st March 2013

Dr. Cr.

Particulars	Amount (₹)	Amount (₹)	Particulars	Amount (₹)	Amount (₹)
To Rent	22,000		By Trading A/c.		1,00,000
Add: Outstanding	2,000	24,000	-Gross Profit		
" Salaries	10,000		" Commission	12,000	
Add: Outstanding	4,000	14,000	Less: Received in advance	2,000	10,000
" Insurance	8,000		" Interest	6,000	
Less: Prepaid	2,000	6,000	Add: Accrued Interest	2,000	8,000
" Bad Debts	2,000		" Discount received		
Add: further Bad Debts	2,000	4,000	" Provisions for Bad Debts		2,000
" Depreciation on Plant & Machinery @10% on ₹ 80,000		8,000	Less: New Provision @ 5% on (₹ 40,000 – ₹ 2,000)	4,000	
" Capital A/c. (Net Profit Transferred)		66,100		1,900	2,100
		1,22,100			**1,22,100**

Profit and Loss Appropriation Account

We know that the net profit or loss is added to or deducted from owner's equity. The net profit may be used by the business to distribute dividends, to create reserves etc. In order to show these adjustments, a P & L Appropriation A/c is maintained. Distribution of profits is only appropriation and does not mean expenses. After passing such distribution entries, the remaining surplus is added in owner's equity.

The format of P&L Appropriation A/c is given below

Dr. Profit and Loss Appropriation Account for the year ended ———————— Cr.

Particulars	Amount	Particulars	Amount
To Proposed dividend To Transfer to General Reserve To Surplus carried to Capital A/c		By Net profit transferred from P&L A/c	
Total		Total	

Illustration 3.

X,Y and Z are three Partners sharing profit and Losses equally. Their capital as on 01.04.2012 were: X ₹ 80,000 ; Y ₹ 60,000 and Z ₹ 50,000.

They mutually agreed on the following points (as per partnership deed)

(a) Interest on capital to be allowed @ 5% P.a.

(b) X to be received a salary @ ₹ 500 p.m.

(c) Y to be received a commission @ 4% on net profit after charging such commission.

(d) After charging all other items 10% of the net profit to be transferred General Reserve.

Profit from Profit and Loss Account amounted to ₹ 66,720. Prepare a Profit and Loss Appropriation Account for the year ended 31st March, 2013.

Solution:

In the books of X,Y and Z

Profit and Loss Appropriation Account

Dr. **For the year ended 31st March, 2013** **Cr.**

Particulars	Amount (₹)	Amount (₹)	Particulars	Amount (₹)	Amount (₹)
To, Interest on Capital:			By, Profit and Loss A/c		66,720
X Y Z	4,000				
" Salaries	3,000				
X : (₹500 x 12)	2,500	9,500			
" Commission Y					
" General Reserve		6,000			
" Net Divisible Profit		19701			
		4,9252			
X	14,775				
Y					
Z	14,775				
	14,775	44,325			
		66,720			66,720

Workings:

1. **Net Profit before charging Y's Commission** = ₹ (66,720 – 15,500) = ₹ 51,220
   Less: Y's Commission @ 4% i.e.- (4/104 X ₹ 51,220) = ₹ 1,970
   ₹ 49,250

2. **Transfer to General Reserve** = ₹ 49,250 x 10% = ₹ 4,925

Balance Sheet: Horizontal format of Balance Sheet is also used by the business other than company

A. **Liabilities**

(a) **Capital:** This indicates the initial amount the owner or owners of the business contributed. This contribution could be at the time of starting business or even at a later stage to satisfy requirements of funds for expansion, diversification etc. As per business entity concept, owners and business are distinct entities, and thus, any contribution by owners by way of capital is liability.

(b) **Reserves and Surplus:** The business is a going concern and will keep making profit or loss year by year. The accumulation of these profit or loss figures (called as surpluses) will keep on increasing or decreasing owners' equity. In case of non-corporate forms of business, the profits or losses are added to the capital A/c and not shown separately in the balance sheet of the business.

(c) **Long Term or Non-Current Liabilities:** These are obligations which are to be settled over a longer period of time say 5-10 years. These funds are raised by way of loans from banks and

financial institutions. Such borrowed funds are to be repaid in installments during the tenure of the loan as agreed. Such funds are usually raised to meet financial requirements to procure fixed assets. These funds should not be generally used for day-to-day business activities. Such loan are normally given on the basis of some security from the business e.g. against a charge on the fixed assets. So, long term loan are called as "Secured Loan" also.

(d) **Short Term or Current Liabilities:** A liability shall be classified as Current when it satisfies any of the following :

- It is expected to be settled in the organisation's normal Operating Cycle,
- It is held primarily for the purpose of being traded,
- It is due to be settled within 12 months after the Reporting Date, or
- The organization does not have an unconditional right to defer settlement of the liability for at least 12 months after the reporting date (Terms of a Liability that could, at the option of the counterparty, result in its settlement by the issue of Equity Instruments do not affect its classification)

Current liabilities comprise of:

(i) **Sundry Creditors -** Amounts payable to suppliers against purchase of goods. This is usually settled within 30-180 days.

(ii) **Advances from customers –** At times customer may pay advance i.e. before they get delivery of goods. Till the business supplies goods to them, it has an obligation to pay back the advance in case of failure to supply. Hence, such advances are treated as liability till the time they get converted to sales.

(iii) **Outstanding Expenses:** These represent services procured but not paid for. These are usually settled within 30–60 days e.g. phone bill of Sept is normally paid in Oct.

(iv) **Bills Payable:** There are times when suppliers do not give clean credit. They supply goods against a promissory note to be signed as a promise to pay after or on a particular date.

These are called as bills payable or notes payable.

(v) **Bank Overdrafts:** Banks may give fund facilities like overdraft whereby, business is permitted to issue cheques up to a certain limit. The bank will honour these cheques and will recover this money from business. This is a short term obligation.

B. **Assets**

In accounting language, all debit balances in personal and real accounts are called as assets. Assets are broadly classified into fixed assets and current assets.

(a) **Fixed Assets**: These represent the facilities or resources owned by the business for a longer period of time. The basic purpose of these resources is not to buy and sell them, but to use for future earnings. The benefit from use of these assets is spread over a very long period. The fixed assets could be in tangible form such as buildings, machinery, vehicles, computers etc, whereas some could be in intangible form viz. patents, trademarks, goodwill etc. The fixed assets are subject to wear and

tear which is called as depreciation. In the balance sheet, fixed assets are always shown as "original cost less depreciation".

(b) **Investments:** These are funds invested outside the business on a temporary basis. At times, when the business has surplus funds, and they are not immediately required for business purpose, it is prudent to invest it outside business e.g. in mutual funds or fixed deposit. The purpose if to earn a reasonable return on this money instead of keeping them idle. These are assets shown separately in balance sheet.

Investments can be classified into Current Investments and Non-current Investments.

Non-current Investments are investments which are restricted beyond the current period as to sale or disposal.

Whereas, current investments are investments that are by their nature readily realizable and is intended to be held for not more than one year from the date on which such investment is made.

(c) **Current Assets**: An asset shall be classified as Current when it satisfies any of the following :

- It is expected to be realised in, or is intended for sale or consumption in the organisation's normal Operating Cycle,
- It is held primarily for the purpose of being traded,
- It is due to be realised within 12 months after the Reporting Date, or
- It is Cash or Cash Equivalent unless it is restricted from being exchanged or used to settle a Liability for at least 12 months after the Reporting Date.

Current assets comprise of:

(i) **Stocks:** This includes stock of raw material, semi-finished goods or WIP, and finished goods.

Stocks are shown at lesser of the cost or market price. Provision for obsolescence, if any, is also reduced. Generally, stocks are physically counted and compared with book stocks to ensure that there are no discrepancies. In case of discrepancies, the same are adjusted to P & L A/c and stock figures are shown as net of this adjustment.

(ii) **Debtors:** They represent customer balances which are not paid. The bad debts or a provision for bad debt is reduced from debtors and net figure is shown in balance sheet.

(iii) **Bills receivables:** Credit to customers may be given based on a bill to be signed by them payable to the business at an agreed date in future. At the end of accounting period, the bills accepted but not yet paid are shown as bills receivables.

(iv) **Cash in Hand:** This represents cash actually held by the business on the balance sheet date. This cash may be held at various offices, locations or sites from where the business activity is carried out. Cash at all locations is physically counted and verified with the book balance. Discrepancies if any are adjusted.

(v) **Cash at Bank:** Dealing through banks is quite common. Funds held as balances with bank are also treated as current asset, as it is to be applied for paying to suppliers. The balance at bank as per books of accounts is always reconciled with the balance as per bank statement, the reasons for differences are identified and required entries are passed.

(vi) **Prepaid Expenses:** They represent payments made against which services are expected to be received in a very short period.

(vii) **Advances to suppliers:** When amounts are paid to suppliers in advance and goods or services are not received till the balance sheet date, they are to be shown as current assets. This is because advances paid are like right to claim the business gets.

Please note that both current assets and current liabilities are used in day-to-day business activities. The current assets minus current liabilities are called as working capital or net current assets. The following report is usual horizontal form of balance sheet. Please note that the assets are normally shown in descending order of their liquidity. Also, capital, long term liabilities and short term liabilities are shown in that order.

In case other than Company :

Liabilities	Amount	Assets	Amount
Capital		Fixed Assets:	
(separate figures are shown for		Land less depreciation	
each owner)		Building less depreciation	
Long term Liabilities:		Plant and Machinery	
Loans from banks or financial		less depreciation	
Institutions		Vehicles less depreciation	
Current Liabilities:		Computer systems less depreciation	
Sundry creditors		Office equipments less depreciation	
Bills payable		Current Assets:	
Advances from customers		Stocks	
Outstanding expenses		Sundry debtors less provisions	
		Bills receivables	
		Cash in hand	
		Cash at bank	
		Prepaid expenses	
		Advances to suppliers	
Total		**Total**	

Illustrations 4.

Following is the Trial Balance of M/s Brijesh and Sons. Prepare final accounts for the year ended on 31st March 2013.

Particulars	Debit (₹)	Credit (₹)
Stock as on 01.04.2012: Finished goods	2,00,000	
Purchases and Sales	22,00,000	35,00,000
B ills receivables	50,000	
Returns	1,00,000	50,000
Carriage Inwards	50,000	
Debtors and Creditors	2,00,000	4,00,000
Carriage Outwards	40,000	
Discounts	5,000	5,000
Salaries and wages	2,20,000	
Insurance	60,000	
R ent	60,000	
Wages and salaries	80,000	
Bad deb ts	10,000	
Furniture	4,00,000	
Brijesh's capital		5,00,000
Brijesh's drawing	70,000	
Loose tools	1,00,000	
Printing & stationery	30,000	
Advertising	50,000	
Cash in hand	45,000	
Cash at b ank	2,00,000	
Petty Cash	5,000	
Machinery	3,00,000	
Commis sion	10,000	30,000
Total	**44,85,000**	**44,85,000**

Adjustments:

(i) Finished goods stock. Stock on 31st March was valued at Cost price ₹ 4,20,000 and market price ₹ 400,000. (ii) Depreciate furniture @ 10% p.a. and machinery @ 20% p.a. on reducing balance method. (iii) Rent of ₹ 5,000 was paid in advance. (iv) Salaries & wages due but not paid ₹ 30,000. (v)Make a provision for doubtful debts @ 5% on debtors. (vi) Commission receivable ₹ 5,000.

Solution :

Dr. Trading Account for the year ended 31st March 2013 Cr.

Particulars	Amount (₹)	Amount (₹)	Particulars	Amount (₹)	Amount (₹)
Opening stock :			Sales	35,00,000	
Finished goods		2,00,000	*Less:* Sales Returns	1,00,000	34,00,000
Purchases	22,00,000				
Less: Purchases returns	50,000	21,50,000	Closing stock		
Carriage inwards		50,000	Finished goods		4,00,000
Wages & salaries		80,000			
Gross Profit c/d		**13,20,000**			
		38,00,000			38,00,000

Dr. Profit & Loss Account for the year ended 31st March 2013 Cr.

Particulars	Amount (₹)	Amount (₹)	Particulars	Amount (₹)	Amount (₹)
Administrative expenses	- 2,20,000		Gross Profit b/d		13,20,000
Salaries & wages	30,000		Discount received		5,000
Add: Not paid		2,50,000	Commission received Add : receivable	30,000	
Depreciation on furniture		40,000		5,000	35,000
Depreciation of Machinery		60,000			
Insurance		60,000			
Rent	60,000				
Less: Paid in advance	5,000	55,000			
Printing & Stationery		30,000			
Selling & Distribution expenses:		50,000			
Advertising		40,000			
Carriage Outwards		5,000			
Discounts		10,000			
Bad debts		10,000			
Commission		10,000			
Provision for doubtful debts		10,000			
Net profit		740,000			
		13,60,000			13,60,000

Dr. **Balance Sheet as on 31st March 2013** **Cr.**

Liabilities	Amount (₹)	Amount (₹)	Assets	Amount (₹)	Amount (₹)
Brijesh's Capital	5,00,000		Fixed Assets:		
Less : Drawings	70,000		Furniture	400,000	
Add : Net Profit for the year	7,40,000	11,70,000	Less: Depreciation	40,000	3,60,000
Long term Liabilities:		-	Machinery	300,000	
			Less: Depreciation	60,000	2,40,000
			Loose tools		1,00,000
Current Liabilities:					
Sundry creditors		4,00,000			
Outstanding salaries & wages		30,000	Current Assets:		
			Stocks		4,00,000
			Sundry debtors	200,000	
			Less: Provision for doubtful		
			debts	10,000	1,90,000
			Bills receivables		50,000
			Cash in hand		45,000
			Cash at bank		2,00,000
			Petty cash		5,000
			Prepaid Rent		5,000
			Commission receivable		5,000
		16,00,000			16,00,000

Notes :

(1) Closing stock is valued at market price here as it is less than cost price (conservatism concept)

(2) Returns in debit column mean sales return, while that in credit column means purchase returns

(3) Discounts in debit column mean allowed (expense) and that in credit means received (income)

(4) Commission in debit column mean allowed (expense) and that in credit means received (income)

(5) There are two peculiar items given in the TB. One is Salaries & wages and the other is Wages and salaries. The interpretation is – where first reference is made to wages, it's assumed to be directly for goods and taken to Trading A/c. If the first reference is to salaries, it's assumed to be related to office and taken to P&L.

Illustrations 5.

Mr. Arvindkumar had a small business enterprise. He has given the trial balance as at 31st March 2013

Particulars	Debit (₹)	Credit (₹)
Mr. Arvinkumar's Capital		1,00,000
Machinery	36,000	
Depreciation on machinery	4,000	
Repairs to machinery	5,200	
Wages	54,000	
Salaries	21,000	
Income tax of Mr. Arvindkumar	1,000	
Cash in had	4,000	
Land & Building	1,49,000	
Depreciation on building	5,000	
Purchases	2,50,000	
Purchase returns		3,000
Sales		4,98,000
Citi Bank		7,600
Accrued Income	3,000	
Salaries outstanding		4,000
Bills receivables	30,000	
Provision for doubtful debts		10,000
Bills payable		16,000
Bad debts	2,000	
Discount on purchases		7,080
Debtors	70,000	
Creditors		62,520
Opening stock	74,000	
Total	7,08,200	7,08,200

Additional information:

(1) Stock as on 31st March 2013 was valued at ₹ 60,000

(2) Write off further ₹ 6,000 as bad debt and maintain a provision of 5% on doubtful debt.

(3) Goods costing ₹ 10,000 were sent on approval basis to a customer for ₹ 12,000 on 30th March, 2013. This was recorded as actual sales.

(4) ₹ 2,400 paid as rent for office was debited to Landlord's A/c and was included in debtors.

(5) General Manager is to be given commission at 10% of net profits after charging his commission.

(6) Works manager is to be given a commission at 12% of net profit before charging General Manager's commission and his own.

You are required to prepare final accounts in the books of Mr. Arvindkumar.

Solution :

In the books of Mr. Arvindkumar

Dr. Trading Account for the year ended 31st March 2013 Cr.

Particulars	Amount (₹)	Amount (₹)	Particulars	Amount (₹)	Amount (₹)
Opening stock: Finished goods			Sales	4,98,000	
Purchases		74,000	Less: Sent on approval	(12,000)	4,86,000
Less: Purchases returns					
	2,50,000		Closing stock: Finished goods	60,000	
Wages	(3,000)	2,47,000			
Gross Profit c/d		54,000	Add sent on approval	10,000	70,000
		181,000			
		5,56,000			5,56,000

Dr. Profit and Loss Account for the year ended 31st March 2013 Cr.

Particulars	Amount (₹)	Amount (₹)	Particulars	Amount (₹)	Amount (₹)
Administrative expenses:			Gross Profit b/d		1,81,000
Salaries		21,000	Discount received		7,080
Repairs to machinery		5,200			
Depreciation of Machinery		4,000			
Depreciation of Building		5,000			
Rent		2,400			
Selling & Distribution expenses:					
Bad debts	2,000				
Additional bad debts	6,000				
Provision for doubtful debts	2,480				
Less: Provision opening	(10,000)	480			
Commission to works manager		18,000			
Commission to General Manager		12,000			
Net profit		1,20,000			
		1,88,080			1,88,080

Balance Sheet as on 31st March 2013

Liabilities	Amount (₹)	Amount (₹)	Assets	Amount (₹)	Amount (₹)
Arvind kumar's Capital	1,00,000		Fixed Assets:		
Less: drawings (income tax)	(1,000)		Land & building		1,49,000
Add: Net Profit for the year	1,20,000	2,19,000	Machinery		36,000
Long term Liabilities:		-	Current Assets: Stocks	60,000	
Current Liabilities:			Add: Sent on approval	10,000	
Sundry creditors		62,520	Sundry debtors		
Outstanding salaries		4,000		70,000	70,000
			Less: Goods on approval	(12,000)	
Citi Bank		7,600	Less: Bad debts	(6,000)	
Overdraft Bills payable		16,000	Less: Related to landlord		
Commission payable		30,000		(2,400)	47,120
			Less: Provision for doubtful debts		30,000
			Bills receivable	(2,480)	4,000
			Cash in hand		3,000
			Accrued Income		
		3,39,120			3,39,120

Notes:

(1) The closing entries are passed for the items: depreciation, accrued income, outstanding salary. Hence, they are directly taken to the respective places in Balance sheet and P & L A/c.

(2) Income tax paid for Mr. Arvindkumar will be treated as drawings.

(3) Commission payable to works manager & general manager is computed as below:

Profit before charging any commission	1,50,000
Commission to works manager @ 12% on 1,50,000	18,000
Profit after works manager's commission	1,32,000
Commission to General Manager (1,32,000/110 x 100)	12,000

Illustrations 6.

Abhay runs a small shop and deals in various goods. He has not been able to tally his trial balance and has closed it by taking the difference to Suspense A/c. It is given below.

Particulars (as on 31st March 2013)	Debit (₹)	Credit (₹)
Abhay's capital		1,50,000
Drawings	75,000	
Fixed assets	1,35,000	
Opening stock	36,500	
Purchases & returns	6,75,000	13,500
Sales & returns	34,000	8,50,000
Due from customer & to creditors	95,000	3,25,000
Expenses	45,750	
Cash		3,000
Bank deposits & interest earned	55,000	5,750
Suspense A/c		4,000
Advertising	2,00,000	
Total	**13,51,250**	**13,51,250**

Mr. Abhay has requested you to help him in tallying his trial balance and also prepare his final accounts. On investigation of his books you get the following information:

(i) Closing Stock on 31st March 2013 was ₹ 45,000 at cost and could sell over this value.

(ii) Depreciation of ₹ 13,500 needs to be provided for the year.

(iii) A withdrawal slip indicated a cash withdrawal of ₹ 15,000 which was charged as drawing. However, it was noticed that ₹ 11,000 was used for business purpose only and was entered as expenses in cash book.

(iv) Goods worth ₹ 19,000 were purchased on 24th March 2013 and sold on 29th March 2013 for ₹23,750. Sales were recorded correctly, but purchase invoice was missed out.

(v) Purchase returns of ₹ 1,500 were routed through sales return. Party's A/c was correctly posted.

(vi) Expenses include ₹ 3,750 related to the period after 31st March 2013.

(vii) Purchase book was over-cast by ₹ 1,000. Posting to suppliers' A/c is correct.

(viii) Advertising will be useful for generating revenue for 5 years.

Solution: (a)	Rectification of errors: Cash withdrawn was recorded as	
	Cash A/c Dr	15,000
	To Bank	15,000

But it was charged to drawing and ₹ 11,000 was recorded as expenses as well i.e.

Drawings A/c	Dr	15,000	
Expenses A/c	Dr	11,000	
To Cash			26,000

This resulted in negative cash of ₹ 11,000. The rectification entry to be passed is

Cash A/c	Dr	11,000	
To Drawings			11,000
(b) Omitted transaction to be recorded			
Purchases A/c	Dr	19,000	
To Suppliers' A/c			19,000
(c) Incorrect recording of purchase returns corrected by			
Suspense A/c	Dr	3,000	
To Purchase return A/c			1,500
To sales return A/c		1,500	
(d) Incorrect expenses rectified by			
Prepaid expenses A/c	Dr	3,750	
To Expenses A/c			3,750
(e) Over-casting of purchase book rectified by			
Suspense A/c	Dr	1,000	
To Purchases			1,000

Based on these rectifications we can now proceed to complete the final accounts.

Dr. Trading Account for the year ended 31st March, 2013 Cr.

Particulars	Amount (₹)	Amount (₹)	Particulars	Amount (₹)	Amount (₹)
To Opening stock	-	36,500	By Sales	8,50,000	
To Purchases	6,75,000		Less: Returns	(34,000)	
Less: Returns	(13,500)		Add: Rectification	1,500	8,17,500
Less: Additional returns	(1,500)		By Closing stock		45,000
Add: Purchases missed out	19,000				
Less: Over-casting rectified	(1,000)	6,78,000			
To Gross Profit c/d		1,48,000			
		8,62,500			8,62,500

Dr. Profit and Loss Account for the year ended 31st March, 2013 Cr.

Particulars	Amount (₹)	Amount (₹)	Particulars	Amount (₹)	Amount (₹)
To, Expenses	45,750		By, Gross Profit b/d		1,48,000
Less : Prepaid	3,750	42,000	By, Interest on Bank deposits		5,750
To. Depreciation		13,500			
To, Advertising		2,00,000	By, Net Loss		1,01,750
		2,55,500			2,55,500

Balance Sheet as on 31st March, 2013

Liabilities	Amount (₹)	Amount (₹)	Assets	Amount (₹)	Amount (₹)
Abhay's Capital	1,50,000		Fixed Assets Gross Block		
Add: Wrong charge to drawing	11,000		Less: Depreciation	1,35,000 13,500	
	1,61,000				1,21,500
Less: Drawings	75,000	86,000	Current Assets:		
			Stocks		45,000
Current Liabilities:			Sundry Debtors		
Sundry Creditors	3,25,000		Cash in hand		95,000
Add: Missed out purchase	19,000	3,44,000	Add: Rectification	(3,000)	
			Fixed deposit with Bank	11,000	8,000
			Prepaid expenses		55,000
			Miscellaneous Expenditure: Profit & Loss (Dr.)		3,750 1,01,750
		4,30,000			4,30,000

Note :

The expenditure incurred on intangible items after the date AS 26 became/becomes mandatory (01.04.2003 or 01.04.2004, as the case may be) would have to be expensed when incurred since these do not meet the definition of an 'asset' as per AS 26. Hence, full amount of Advertisement expense is charged to Profit & Loss Account.

Topic: Final Accounts of Companies (Basic Concepts)

- **An Introduction to Division II of Schedule III**

Since its inception, the Companies Act, 2013 has been undergoing changes from time to time through various amendments to the Act, Rules and through notifications and circulars of the Ministry of Corporate Affairs which aim to keep the law at commensurate with various developments in the economic and regulatory environment and policy requirements. Moreover, the Government of India also decided to converge Indian Accounting Standards with certain carve outs from International Financial Reporting Standards, in a phased manner to accomplish its commitment in G-20 summit with the objective of achieving high quality global accounting and reporting standards.

At this backdrop, the Ministry of Corporate Affairs vide its notification dated 6th April, 2016 notified amendments to Schedule III of the Companies Act, 2013, thereby inserting Division II to Schedule

III for preparation of financial statements by those entities who are covered under Companies (Indian Accounting Standards) Rules, 2015.

Similar to Division I, this also comprises of two parts – Part I explaining the general instructions for preparation of Balance Sheet and Part II explaining the general instructions for preparation of the Statement of Profit and Loss.

The formats for the Statement of Profit and Loss and Balance Sheet as per Division II are described below.

• **Format of the Statement of Profit and Loss**

Name of the Company.....

Statement of Profit and Loss for the period ended.....

	Particulars	Note No.	Figures as at the end of current reporting period	Figures for the previous reporting period
I	Revenue From operations			
II	Other Income			
III	Total Income (I + II)			
IV	Expenses:			
	Cost of materials consumed			
	Purchases of Stock-in-Trade			
	Changes in inventories of finished goods, Stock-in -Trade and work-in-progress			
	Employee benefits expense			
	Finance costs			
	Depreciation and amortization expenses			
	Other expenses			
	Total expenses (IV)			
V	Profit/(loss) before exceptional items and tax (I-IV)			
VI	Exceptional Items			
VII	Profit/ (loss) before exceptions items and tax(V-VI)			

	Particulars	Note No.	Figures as at the end of current reporting period	Figures for the previous reporting period
VIII	Tax expense: (1) Current tax (2) Deferred tax			
IX	Profit (Loss) for the period from continuing operations (VII-VIII)			
X	Profit/(loss) from discontinued operations			
XI	Tax expenses of discontinued operations			
XII	Profit/(loss) from Discontinued operations (after tax) (X-XI)			
XIII	Profit/(loss) for the period (IX+XII)			
XIV	Other Comprehensive Income A. (i) Items that will not be reclassified to profit or loss (ii) Income tax relating to items that will not be reclassified to profit or loss B. (i) Items that will be reclassified to profit or loss (ii) Income tax relating to items that will be reclassified to profit or loss			
XV	Total Comprehensive Income for the period (XIII+XIV) comprising Profit (Loss) and Other comprehensive Income for the period			
XVI	Earnings per equity share (for continuing operation): (1) Basic (2) Diluted			
XVII	Earnings per equity share (for discontinued operation): (1) Basic (2) Diluted			
XVIII	Earning per equity share (for discontinued & continuing operation) (1) Basic (2) Diluted			

- **Format of the Balance Sheet**

Name of the Company.....

Balance Sheet as at ..... **(Rupees in.....)**

Particulars	Note No.	Figures as at the end of current reporting period	Figures as at the end of the previous reporting period
ASSETS			
Non-current assets			
(a) Property, Plant and Equipment			
(b) Capital work-in-progress			
(c) Investment Property			
(d) Goodwill			
(e) Other Intangible assets			
(f) Intangible assets under development			
(g) Biological Assets other than bearer plants			
(h) Financial Assets			
(i) Investments			
(ii) Trade receivables			
(iii) Loans			
(i) Deferred tax assets (net)			
(j) Other non-current assets			
Current assets			
(a) Inventories			
(b) Financial Assets			
(i) Investments			
(ii) Trade receivables			
(iii) Cash and cash equivalents			
(iv) Bank balances other than(iii) above			
(v) Loans			
(vi) Others (to be specified)			
(c) Current Tax Assets (Net)			
(d) Other current assets			
Total Assets			

EQUITY AND LIABILITIES			
EQUITY			
(a) Equity Share capital			
(b) Other Equity			
LIABILITIES			
Non-current liabilities			
(a) Financial Liabilities			
(i) Borrowings			
(ii) Trade Payables:			
(A) total outstanding dues of micro enterprises and small enterprises; and			
(B) total outstanding dues of creditors other than micro enterprises and small enterprises.			
(iii) Other financial liabilities (other than those specified in item (b), to be specified)			
(b) Provisions			
(c) Deferred tax liabilities (Net)			
(d) Other non-current liabilities			
Current liabilities			
(a) Financial Liabilities			
(i) Borrowings			
(ii) Trade Payables:			
(A) total outstanding dues of micro enterprises and small enterprises; and			
(B) total outstanding dues of creditors other than micro enterprises and small enterprises.			
(iii) Other financial liabilities (other than those specified in item (c)			
(b) Other current liabilities			
(c) Provisions			
(d) Current Tax Liabilities (Net)			
Total Equity and Liabilities			

A comprehensive Problem

XYZ Pharmaceuticals is a pharma start-up established in 2017. The company has registered significant growth over the last two years. To further expand its business, the company wants to mop up additional capital. Motivated by the recent success of a number of IPOs, the BOD has decided to go for a public issue rather than accessing institutional loan.

In order to apply for the IPO to SEBI, the company requires to submit, along with all other documents, its restated financial statements in prescribed format. The company, therefore, has hired you as an expert to assist its accountant in preparing the financial statements so that the statements conform, in all respect, to the relevant legislation and can be used to prepare restated financial statements for the purpose of filing for an IPO.

You have been given the following information for the financial year 2020-2021.

Particulars	Dr. (₹)	Cr. (₹)
Stock on 1st April, 2020	1,60,000	-
Purchases & Sales	5,00,000	8,00,000
Purchase returns	-	10,000
Carriage inward	2,100	-
Wages	50,000	-
Salaries	20,000	-
Discount Received	-	8,000
Furniture & Fittings	40,000	-
Rent	10,000	-
Sundry expenses	16,500	-
Balance of Profit & Loss (1.4.2020)	-	50,000
Share Capital (Subscribed & Paid-up; ₹ 10 each)	-	2,00,000
Interim Dividend	16,000	-
Debtors & Creditors	52,400	31,000
Plant & Machinery	2,46,000	-
General Reserve	-	20,000
Cash at bank	8,000	-
Bills Receivable & Bills Payable	6,000	8,000
Total	11,27,000	11,27,000

Additional information:

(i) Stock on March 31, 2021 was valued at ₹ 98,000

(ii) Depreciate: Plant & Machinery @ 15%, Furniture & Fitting @ 10%.

(iii) On 31st March, 2021 outstanding rent amounted to ₹800 while outstanding salaries totalled ₹ 1,200.

(iv) Make a provision for doubtful debts @ 5%.

(v) Provision for tax is to be made @ 30%.

(vi) The directors proposed a dividend @ 10% for the year ended March 31, 2021 excluding interim dividend and decided to transfer ₹ 10,000 to General Reserve.

a. You are required to prepare the Notes to Accounts to support preparation of the Statement of Profit and Loss for the year ended on 31.03.2021.

b. You are required to prepare the Statement of Profit and Loss for the year ended on 31.03.2021.

c. You are required to prepare the Notes to Accounts to support preparation of the Balance Sheet as on 31.03.2021.

d. You are required to prepare the Balance Sheet as on 31.03.2021.

Solution:

a. Notes to Accounts supporting the Statement of Profit and Loss:

(1) Cost of purchase

Purchase less. Returns (500000-10000)	490000
Add: carriage inward	2100
	492100

(2) Employee benefit expenses

Wages		50000
Salaries	20000	
Add: Outstanding	1200	
		21200
		71200

(3) Depreciation and Amortization

On Plant and Machinery (246000 x 15%)	36900
On Furniture and Fittings (40000 x 10%)	4000
	40900

(4) Other expenses

Rent	10000	
Add: Outstanding	800	
		10800
Sundry expenses		16500
Provision for doubtful debt (52400 x 5%)		2620
		29920

b.

XYZ Pharmaceuticals Ltd.

Profit and Loss Statement for the year ended 31st March, 2021

Particulars		Amount (₹)
I. Revenue from operations		800000
II. Other income (Discount received)		8000
III. Total Revenue [I + II]		808000
IV. Expenses:		
Cost of purchase	1	492100
Changes in inventories [160000-98000]		62000
Employee Benefits Expense	2	71200
Finance Costs		Nil
Depreciation and Amortization Expenses	3	40900
Other Expenses	4	29920
Total Expenses		696120
V. Profit before Tax (III-IV)		111880
VI. Tax Expenses @ 30%		33564
VII. Profit for the period		78316

c. Notes to Accounts supporting Balance Sheet:

1.	Share Capital		₹
	Subscribed and Paid-up Capital		
	20000 Equity Shares of ₹ 10 each		200000
2.	Reserve and Surplus		
	General Reserve (20000+10000)		30000
	Balance of Statement of Profit & Loss Account		
	Opening Balance	50000	

	Add: Profit for the period	78316	
		128316	
	Appropriations		
	Interim dividend	(16000)	
	Transfer to General Reserve	(10000)	
	Closing balance		102316
			132316
3.	Trade payables		
	Creditors		31000
	Bills payables		8000
			39000
4.	Other Current Liabilities		
	Outstanding Salaries		1200
	Outstanding rent		800
			2000
5.	Tangible Assets		
	Plant and Machinery	246000	
	Less: Depreciation	36900	
			209100
	Furniture and Fittings	40000	
	Less: Depreciation	4000	
			36000
			245100
6.	Trade Receivables		
	Bills receivable		6000
	Sundry Debtors	52400	
	Less: Provision for Doubtful Debts	2620	
			49780
			55780

d.

XYZ Pharmaceuticals Ltd.

Balance Sheet as on 31.03.2021

I EQUITY AND LIABILITIES	Note	Amount (₹)
(1) Shareholders' Funds		
Share Capital	1	200000
Reserves and Surplus	2	132316
(2) Non-Current Liabilities		
(3) Current Liabilities		
Trade Payable	3	39000
Other Current Liabilities	4	2000
Short term provisions (Provision for tax)		33564
Total		406880
II ASSETS		
(1) Non-Current Assets		
(a) PPE and Intangible Assets		
PPE	5	245100
(b) Non-current Investments		
(2) Current Assets		
Inventories		98000
Trade Receivables	6	55780
Cash and Cash Equivalent (Bank balance)		8000
Total		406880

Foot Note:

Contingent Liabilities for Proposed Dividend = 200000 x 10% = ₹20000

Interpretation of Financial Statement – Ratio Analysis

4

This Unit Includes the Following Topics:

a. **Theoretical underpinnings**

b. **Analysis and interpretation**

Unit Learning Objectives:

After studying this unit, students will be able to:

- **Understand the meaning of ratio analysis and its objectives**
- **Know the various ratios used to assess profitability, liquidity, solvency and efficiency**
- **Interpret the results of ratio analysis on the above-mentioned aspects.**

Financial Ratio Analysis

Ratio analysis is the process of determining and interpreting numerical relationships based on financial state- ments. A ratio is a statistical yard stick that provides a measure of the relationship between variables or figures. This relationship can be expressed as percent (cost of goods sold as a percent of sales) or as a quotient (current assets as a certain number of times the current liabilities).

As ratios are simple to calculate and easy to understand there is a tendency to employ them profusely. While such statistical calculations stimulate thinking and develop understanding there is a danger of accumulation of a mass of data that obscures rather than clarifies relationships. The financial analyst

has to steer a careful course. His experience and objectives of analysis help him in determining which of the ratios are more meaningful in a given situation.

The Parties Interested: The persons interested in the analysis of financial statements can be grouped under three heads:

(i) Owners or investors; (ii) Creditors; and (iii) Financial executives. Although all these three groups are interested in the financial conditions and operating results of an enterprise the primary information that each seeks to ob- tain from these statements is to serve. Investors desire a primary basis for estimating earning capacity. Creditors (trade and financial) are concerned primarily with liquidity and ability to pay interest and redeem loan within a specific period. Management is interested in evolving analytical tools that will measure costs, efficiency, liquidity and profitability with a view to making intelligent decisions.

Significance:

(i) Commercial bankers and trade creditors and the institutional lenders are mostly concerned with the ability of a borrowing enterprise to meet its financial obligations timely. As a result they are most interested in ratios like the current ratio, acid test ratio, turnover of receivables, inventory turnover, coverage of interest by level of earnings, etc.

(ii) Long-term creditors would be interested in the working capital position of the borrower as an indication of ability to pay interest and principle in case earnings decline. So, they are interested in the ratios of total debt to equity, net worth to total assets, long-term debt to equity, long term debt to net working capital, fixed assets to networth, fixed assets to long term debt, fixed debt to capitalization etc. The number of times fixed charges are covered by earnings before interested and taxes will be of particular interest for such long-term creditors.

(iii) Investors in shares are primarily interested in per share ratio like earnings per share, book value per share, market price per share, dividends per share, etc. They would also be interested in knowing the capitalization rate (E/P Ratio = Earnings per share/ Price per share ratio) which is the reciprocal of P/E Ratio (Price/ Earnings ratio) and also the dividend yield, i.e.; D/P Ratio.

Advantages of Ratio Analysis

Ratio Analysis is (useful) relevant in assessing the performance of a firm in respect of the following purposes:

(i) To measure the liquidity position: The purpose of ratio analysis to measure the liquidity position of a firm.

Whether the firm is able to meet its current obligations when they become due or not? A firm can be said to be liquid, if it has sufficient liquid funds to pay the interest charges on short-term debt within a year. The liquidity ratio are useful in credit analysis by banks and other financial institutions.

(ii) To know the solvency position: Ratio analysis is helpful for assessing the long-term financial liability of the firm. The long term solvency is measured through the leverage, and profitability

ratios. These ratios reveal the strengths and weaknesses of a firm in respect of the solvency position. The leverage ratios indicates the proportion of various sources of finance in the firms capital structure, particularly the ratio of debt and equity share capital.

(iii) **Operating efficiency or turnover of the firm:** The ratios are helpful in measuring the operating efficiency or the turnover of the firm. These ratios indicate the efficiency in utilizing the assets of the firm such as fixed as- sets turnover ratio, total resources turnover ratio etc.

(iv) **To assess the profitability position of the firm:** The ratios are useful to assess and measure the profitability of the firm in respect of sales and the investments. These ratios are concerned about the over -all profitability of the firm.

(v) **Inter - firm and intra – firm comparison:** Ratios are not only reflects the financial position of a firm, but also serves as a tool for remedial actions. This is made possible only due to inter-firm comparison. This would dem- onstrate the relative position of the firm vis-à-vis its competitors. If there is any variance in the ratios either with the industry average or with, those of competitors, the firm has to identify the reasons and would take remedial measures.

(vi) **Trend Analysis:** The trend analysis of ratios indicates whether the financial position of a firm is improving or deteriorating over the years. The significance of a trend analysis of ratio lies in the fact that the analysis can know the direction of movement whether the movement is favourable or unfavourable.

Thus, ratio analysis is considered better than a mere comparison of figures in carrying out an over - all appraisal of a company's business.

Standards for Comparison:

For making a proper use of ratios, it is essential to have fixed standards for comparison. A ratio by itself has very little meaning unless it is compared to some appropriate standard. Selection of proper standards of comparison is most important element in ratio analysis. The four most common standards used in ratio analysis in Financial Management are: absolute, historical, horizontal and budgeted.

Absolute: Absolute standards are those which become generally recognized as being desirable regardless of the type of company, the time, stage of business cycle and the objectives of the analyst.

Historical: Historical (also known as internal) standards involves comparing a company's own past performance as a standard for the present or future. But this standard may not provide a sound basis for judgment as the historical figure may not have represented an acceptable standard. It is also called as intra firm comparison.

Horizontal: In case of horizontal (external) standards, one company is compared with another or with the aver- age of other companies of the same nature. It is also called as inter-firm comparison.

Budgeted: The budgeted standard is arrived at after preparing the budget for a period. Ratio developed from actual performance are compared to the planned ratios in the budget in order to examine the degree of ac- complishment of the anticipated targets of the firm.

Limitations of Ratio Analysis:

(i) It is always a challenging job to find an adequate standard. The conclusions drawn from the ratios can be no better than the standards against which they are compared.

(ii) It is difficult to evaluate the differences in the factors that affect the company's performance in a particular year as compared with that of another year and that of another company. The task becomes more difficult when comparison is made of one company with another when they are of substantially different size, age and diversified products.

(iii) While making comparisons of ratios, due allowance should be made for changes in price level. A change in price level can seriously affect the validity of comparisons of ratios computed for different time periods and particularly in case of ratios whose numerator and denominator are expressed in different units of currency.

(iv) Comparisons are also become difficult due to differences in definition. The terms like gross profit, operating profit, net profit etc. have not got precise definitions and there is considerable diversity in practice as to how they should be measured.

(v) A Balance Sheet may fail to reflect the average or typical situation, as it is prepared as of one moment of time. It ignores short-term fluctuations in assets and equities that may occur within the period covered by the two Balance Sheet dates.

(vi) Various differences are found among the accounting methods used by different companies which variously affect the comparability of financial statements. Methods of recording and valuing assets, write-offs, costs, expenses etc differ from company to company.

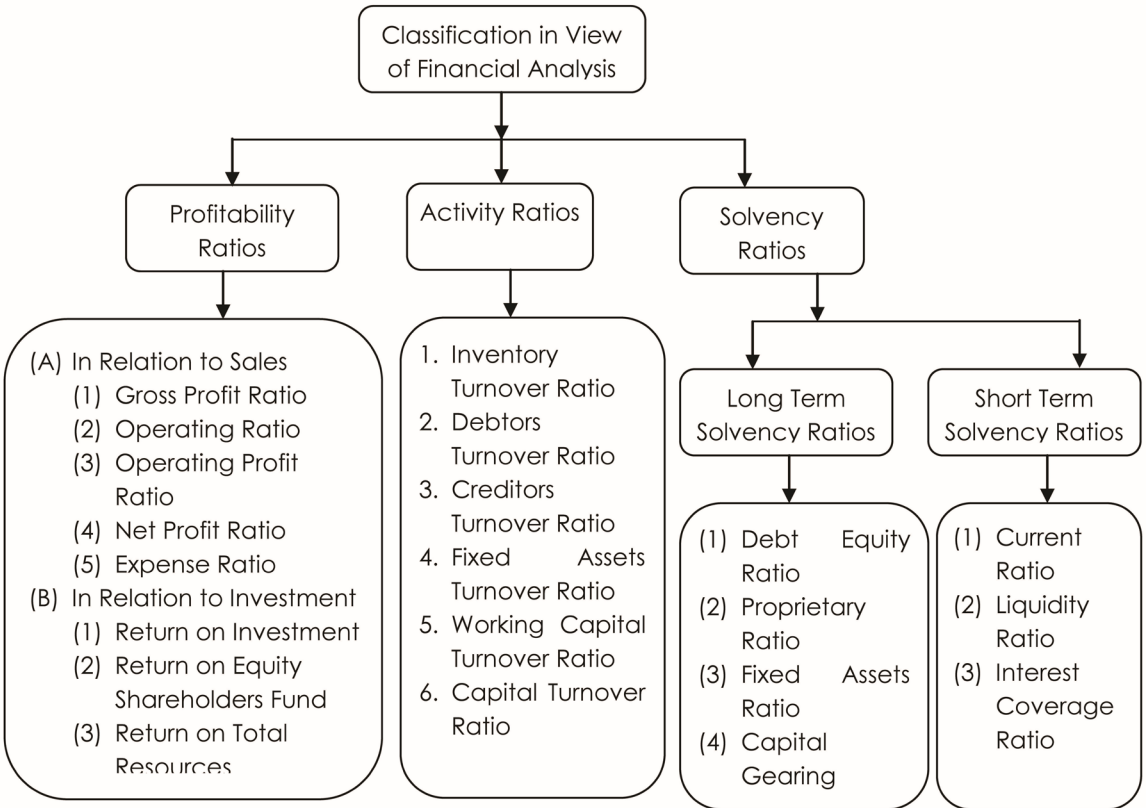
(vii) As ratios are simple to calculate and easy to understand, there is a tendency to over-employ them. While such statistical approach stimulates thinking, it is also likely to lead to the accumulation of a mass of data; if due care is not taken, that might obscure rather than clarify relationships.

Window Dressing:

The term window dressing means manipulation of accounts in a way so as to conceal vital facts and present the financial statements in a way to show a better position than what it actually is. On account of such a situation, presence of a particular ratio may not be a definite indicator of good or bad management. For example, a high stock turnover ratio is generally considered to be an indication of operational efficiency of the business. But this might have been achieved by unwarranted price reductions or failure to maintain proper stock of goods.

Similarly, the current ratio may be improved just before the Balance Sheet date by postponing replenishment of inventory. For example, if a company has got current assets of ₹ 4,000 and current liabilities of ₹ 2,000 the current ratio is 2, which is quite satisfactory. In case the company purchases goods of ₹ 2,000 on credit, the current assets would go up to ₹ 6,000 and current liabilities to ₹ 4,000. Thus reducing the current ratio to 1.5. The company may, therefore. Postpone the purchases for the early next year so that its current ratio continues to remain at 2 on the Balance Sheet date. Similarly, in order to improve the current ratio, the company may pay off certain pressing current liabilities before the Balance Sheet date. For example, if in the above case the company pays current liabilities of ₹ 1,000, the current liabilities would stand reduced to ₹ 1,000, current assets would stand reduced to ₹ 3,000 but the current ratio would go up to 3.

Classification of Ratios:



Profitability Ratios

These ratios give an indication of the efficiency with which the operations of business are carried on. The follow- ing are the important profitability ratios:

(i) **Overall Profitability Ratio:**

This is also called as Return on Investment (ROI) or Return on Capital Employed (ROCE) ratio. It indicates the percentage of return on the total capital employed in the business. It is calculated as follows:

ROI = Operating Profit/Capital Employed

The term 'Operating Profit' means "profit before interest and tax while the term 'capital employed' refer to the sum-total of long-term funds employed in the business.

Significance. ROI measures the profit which a firm earns by investing a unit of capital. It is desirable to ascertain this periodically. The profit being the net result of all operations, ROI, expresses all efficiencies or inefficiencies of a business collectively. Thus, it is a dependable measure for judging the overall efficiency or inefficiency of the business.

(ii) **Price Earning Ratio (P/E Ratio):**

This ratio indicates the number of times the earning per share is covered by its market price. It is calculated as follows:

$$\text{P/E Ratio} = \frac{\text{Market Price Per Equity Share}}{\text{Earning Per Share}}$$

For example, if the market price of an equity share is ₹ 20 and earnings per share is ₹ 5, the price earnings ratio will be 4 (i.e., 20 ÷ 5). This means for every one rupee of earning people are prepared to pay ₹ 4. In other words, the rate of return expected by the investors is 25%

Significance. P/E Ratio helps the investors in deciding whether to buy or not to buy the shares of a company at a particular price. For Instance, in the example given, if the EPS falls to ₹ 3, the market price of the share should be ₹ 12 (i.e. 3 x 4). In case the market price of the share is ₹ 15, it will not be advisable to purchase the company's shares at that price.

(iii) **Gross Profit Ratio (GPR):**

This ratio expresses the relationship between Gross Profit and Net Sales. It can be computed as follows:

$$\text{GPR} = \frac{\text{Gross Profit}}{\text{Net Sales (i.e., Sales less returns)}} \times 100$$

Significance: The ratio indicates the overall limit within which a business must manage its operating expenses. It also helps in ascertaining whether the average percentage of mark-up on the goods is maintained.

(iv) **Net Profit Ratio (NPR):**

The ratio indicates net margin earned on a sale of ₹ 100. It is calculated as follows:

$$\text{NPR} = \frac{\text{Net Profit}}{\text{Net Sales}} \times 100$$

Significance: The ratio helps in determining the efficiency with which the affairs of a business are being man- aged. Constant increase in the above ratio year after year is a definite indication of improving conditions of the business.

(v) **Operating Ratio:**

This ratio is a complementary of net profit ratio. In case the net profit ratio is 20%, the operating ratio will be 80%. It is calculated as follows:

$$\text{Operating Ratio} = \frac{\text{Operating Cost}}{\text{Net Sales}} \times 100$$

Operating cost includes cost of direct materials, direct labour, direct expenses and all overheads. Financial charges such as interest, provision for taxation, etc. are not to be included in operating cost.

Significance: The ratio is the test of the operational efficiency with which the business has carried on. The operating ratio should be low enough to leave a portion of sales for giving a fair return to the investor.

(vi) **Fixed Charges Cover Ratio (FCCR):**

The ratio indicates the number of times the fixed financial charges are covered by income before interest and tax. This ratio is calculated as follows:

$$\text{FCCR} = \frac{\text{Income before Interest and Tax}}{\text{Interest}}$$

Significance: The ratio is significant from the lender's point of view. It indicates whether the business would earn sufficient profits to pay periodically the interest charges. Higher the ratio, better it is.

(vii) **Pay-out Ratio:**

The ratio indicates what proportion of earning per share has been used for paying dividend. It can be calcu- lated as follows:

$$\text{Pay-Out Ratio} = \frac{\text{Dividend per equity share}}{\text{Earning per equity share}}$$

Significance: The ratio is an indicator of the amount of earnings that have ploughed back in the business. The lower the pay-out ratio, the higher will be the amount of earnings ploughed back in the business. A lower pay- out ratio means a stronger financial position of the company.

(viii) **Dividend Yield Ratio (DYR):**

The ratio is calculated by comparing the rate of dividend per share with its market value. It is calculated as follows:

$$\text{DYR} = \frac{\text{Dividend Per Share}}{\text{Market Price Per Share}} \times 100$$

Significance: The ratio helps an intending investor in knowing the effective return he is going to get on his in- vestment. For example, if the market price of a share is ₹ 25, paid-up value is ₹ 10 and dividend rate is 20%. The dividend yield ratio is 8% (i.e. 100 x 2/25). The intending investor can now decide whether it will be advisable for him to go for purchasing the shares of the company or not at the price prevailing in the market.

(ix) **Return on Shareholders funds or Return or Net Worth:**

This ratio expresses the net profit in terms of the equity shareholders funds. This ratio calculated as follows:

$$\text{Net Worth} = \frac{\text{Net Profit after Interest \& Tax}}{\text{Net Worth}} 100 \quad [\text{Net Worth=Equity Capital+Reserves \& Surplus}]$$

Significance: This ratio is an important yardstick of performance for equity shareholders since it indicates the return or the funds employed by them.

Turnover Ratios / Activity Ratio

These ratios indicate the efficiency with which capital employed is rotated in the business. The various turnover ratios are as follows:

(i) **Over-all Turnover Ratio:**

The ratio indicates the number of times the capital employed has been rotated in the process of doing a busi- ness. The ratio is computed as follows:

$$\text{Overall Turnover Ratio} = \frac{\text{Net Sales}}{\text{Capital Employed}}$$

Significance: The overall profitability of a business depends on two factors, viz., (a) the profit margin, and (b) turnover. The profit margin is disclosed by the net profit ratio while the turnover is indicated by the overall turn- over ratio. A business with a lower profit margin can achieve a higher ROI if its turnover is high. This is the reason for wholesalers earning a larger return on their investment even when they have a lower profit margin. A business should not, therefore, increase its profit margin to an extent that it results in reduced turn-over resulting in reduc- tion of overall profit.

(ii) **Fixed Assets Turnover Ratio:**

The ratio indicates the extent to which the investment in fixed assets has contributed towards sales. The ratio can be calculated as follows:

$$\text{Fixed Assets Turnover Ratio} = \frac{\text{Net Sales}}{\text{Net Fixed Assets}}$$

Significance: The comparison of fixed assets turnover ratio over a period of time indicates whether the invest- ment in fixed assets has been judicious or not. Of course, investment in fixed assets does not push up sales im- mediately but the trend of increasing sales should be visible. If such trend is not visible or increase in sales has not been achieved after the expiry of a reasonable time it can be very well said that increased investments in fixed assets has not been judicious.

(iii) **Debtors' Turnover Ratio:**

The ratio indicates the speed with which money is collected from the debtor. It is computed as follows:

$$\text{Debtors Turnover Ratio} = \frac{\text{Credit Sales}}{\text{Average Accounts Receivable}}$$

The term average account receivable includes trade debtors and bills receivable. Average accounts receiv- able are computed by taking the average receivables in the beginning and at the end of the accounting year. The higher the ratio, better it is.

Debtors turnover ratio is used for computing the debt collection period. The formula for its computation is as follows:

$$\text{Debt Collection Period} = \frac{\text{Months or days in a year}}{\text{Debtors turnover ratio}} = \frac{\text{Average Debtors}}{\text{Credit Sales}} \times 365$$

For example, if the credit sales are ₹ 80,000, average accounts receivable ₹ 20,000, the debtors' turnover ratio and debt collection period will be computed as follows:

$$\text{Debtors Turnover Ratio} = \frac{80{,}000}{20{,}000} = 4$$

$$\text{Debts Collection Period} = \frac{12 \text{ months}}{4} = 3 \text{ months}$$

This means on an average three months credit is allowed to the debtor. An increase in the credit period would result in unnecessary blockage of funds and with increased possibility of losing money due to debts becoming bad.

Significance: Debtors Turnover Ratio or Debt Collection Period Ratio measures the quality of debtors since it indicates the speed with which money is collected from the debtor. A shorter collection period implies prompt payment by debtors. A longer collection period implies too liberal and inefficient credit collection performance. The credit policy should neither be too liberal nor too restrictive. The former will result in more blockage of funds and bad debts while the latter will cause lower sales which will reduce profits.

(iv) **Creditors Turnover Ratio:**

This is similar to Debtors Turnover Ratio. It indicates the speed with which payments for credit purchases are made to creditor it can be computed as follows:

$$\text{Creditors Turnover Period} = \frac{\text{Credit Purchases}}{\text{Average Accounts Payable}}$$

The term 'accounts payable' include trade creditors and bills payable.

From the creditors turnover, ratio, creditors payment period can be computed as follows:

$$\text{Credit Period Enjoyed} = \frac{\text{Months or days in a year}}{\text{Creditors Turnover}}$$

For example, if the credit purchases during a year are ₹1,00,000, Average accounts payable ₹ 25,000, the Creditors Turnover Ratio will be '4' (i.e., 1,00,000 / 25,000) while the creditors payment period would be 3 months (i.e., 12 months/4).

Significance: The creditors turnover ratio and the creditors payment period indicate about the promptness or otherwise in making payment for credit purchases. A higher creditors turnover ratio or a lower creditors payment period signifies that the creditors are being paid promptly thus enhancing the credit-worthiness of the company. However, a very favourable ratio to this effect also shows that the business is not taking full advantage of credit facilities which can be allowed by the creditors.

(v) **Stock Turnover Ratio**

The ratio indicates whether the investment in inventory is efficiently used and whether it is within proper limits. It is calculated as follows:

$$\text{Stock Turnover Ratio} = \frac{\text{Cost of Goods Sold during the year}}{\text{Average Inventory}}$$

Average inventory is calculated by taking the average of inventory at the beginning and at the end of the accounting year.

Significance: The ratio signifies the liquidity of inventory. A high inventory turnover ratio indicates brisk sales and vice-versa. The ratio is therefore a measure to discover possible trouble in the form of overstocking or over- valuation of inventory.

Financial Ratios:

They are also termed as 'Solvency Ratios'. These ratios indicate about the financial position of the company. A company is considered to be financially sound if it is in a position to carry on its business smoothly and meet all its obligations both short-term and long-term without strain. The Financial or Solvency Ratios can therefore be classified into following categories:

(i) Long-term Solvency Ratios, which include fixed assets ratio, debt equity ratio and proprietary ratio;

(ii) Short-term Solvency Ratios, which include current ratio, liquidity ratio, super-quick ratio and defensive inter- val ratio & debt service coverage ratio.

Each of these ratios are now being discussed in detail in the following pages:

Long-term Solvency Ratios

(i) **Fixed Assets Ratio:**

The ratio indicates the extent to which fixed assets have been acquired by use of long-term funds. The ratio is expressed as follows:

$$\text{Fixed Assets Ratio} = \frac{\text{Net Fixed Assets}}{\text{Long - term Funds}}$$

The term 'Net Fixed Assets' means original cost of fixed assets less depreciation to date. The ratio should not be more than '1'. The ideal ratio is 0.67.

Significance: It is sound principle that fixed assets should be financed out of long-term funds. As a matter of fact a part of working capital termed as core-working capital, should also be financed by long-term funds. The ratio is therefore an indication of the fact whether the company has followed sound financial policy or not. In case the ratio is more than '1', it shows that a part of working capital has also been used to acquire fixed assets, which may prove quite troublesome for the company.

(ii) **Debt-Equity Ratio:**

The ratio is determined to ascertain the proportion between the 'outsiders' 'funds and share-holders funds' in the capital structure of an enterprise. The term outsiders', funds is generally used to represent total long-term debt. The ratio can be computed as follows:

$$\text{Debit - Equity Ratio} = \frac{\text{Total Long - term Debt}}{\text{Shareholder's Funds}}$$

The ratio may also be calculated for ascertaining proportion of long-term debt in the total long-term funds. In such a case the ratio will be computed as follows:

$$\frac{\text{Total Long - term Debt}}{\text{Total Long - term Funds}}$$

The ratio is considered to be ideal if the shareholders' funds are equal to total long-term debt. However, these days the ratio is also acceptable if the total long-term debt does not exceed twice of shareholders' funds.

Significance: The ratio is an indication of the soundness of the long-term financial policies pursued

by the busi- ness enterprise. The excessive dependence on outsiders' funds may cause insolvency of the business. The ratio provides the margin of safety to the creditors. It tells the owners the extent to which they can gain by maintain- ing control with a limited investment.

(iii) **Proprietary Ratio**

It is a variant of Debt-Equity Ratio. It establishes relationship between the proprietors' or shareholders' funds and the total tangible assets. It may be expressed as follows:

$$\text{Proprietary Ratio} = \frac{\text{Shareholder's Funds}}{\text{Total Tangible Assets}}$$

Significance: The ratio focuses attention on the general financial strength of the business enterprise. The ratio is of particular importance to the creditors who can find out the proportion of shareholders funds in the total assets employed in the business. A high proprietary ratio will indicate a relatively little danger to the creditors or vise- versa in the event of forced reorganization or winding up of the company.

Short-term Solvency Ratios

(i) **Current Ratio**

The ratio is an indicator of the firm's commitment to meet its short-term liabilities. It is expressed as follows:

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

An ideal current ratio is '2'. However, a ratio of 1.5 is also acceptable if the firm has adequate arrangements with its bankers to meet its short-term requirements of funds.

Significance: The ratio is an index of the concern's financial stability, since, it shows the extent to which the cur- rent assets exceed its current liabilities. A higher current ratio would indicate inadequate employment of funds, while a poor current ratio is a danger signal to the management.

(ii) **Liquidity Ratio / Quick Ratio / Acid Test Ratio:**

The ratio is also termed as Acid Test Ratio or Quick Ratio. The ratio is ascertained by comparing the liquid assets i.e., current assets (excluding stock and prepaid expenses) to current liabilities. The ratio may be expressed as follows:

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

Liquid Assets = Current Assets – Inventory – Prepaid Expenses

Some accountants prefer the term liquid liabilities for current liabilities. The term 'liquid liabilities' means liabilities payable within a short period. Bank overdraft and cash credit facilities (if they become permanent modes of financing) are excluded from current liabilities for this purpose. The ratio may be expressed as follows:

$$\text{Liquidity Ratio} = \frac{\text{Liquid Assets}}{\text{Liquid Liabilities}}$$

Liquid Liability = Current Liability – Bank Overdraft – Cash Credit

The ideal ratio is '1'.

Significance: The ratio is an indicator of short-term solvency of the company. A comparison of the current ratio to quick ratio should also indicate the inventory hold-ups. For instance, if two units have the same current ratio but different liquidity ratios, it indicates over-stocking by the concern having low liquidity ratio as compared to the firm which has a higher liquidity ratio.

(iii) **Super-quick Ratio:**

It is a slight variation of quick ratio. It is calculated by comparing the super quick assets with the current liabilities (or liquid liabilities) of a firm. The ratio may be expressed as follows:

$$\text{Super-quick Ratio} = \frac{\text{Super Quick Assets}}{\text{Current Liabilities}}$$

The term 'Super-Quick Assets' means current assets excluding stock, prepaid expenses and debtors Thus, super- quick assets comprise mainly cash, bank balance and marketable securities.

Significance: This ratio is the most rigorous test of a firm's liquidity position. In case the ratio is '1', it means the firm can meet its current liabilities any time.

The ratio is a conservation test and not widely used in practice.

(iv) **Defensive-Interval Ratio (DIR)**

This ratio denotes the liquidity of a firm in relation to its ability to meet projected daily expenditure from opera- tions. It can be expressed as follows:

$$\text{Defensive Interval Ratio} = \frac{\text{Liquid Assets (quick assets)}}{\text{Daily Cash requirements (Projected)}}$$

Daily cash requirements (projected) = Projected cash operating expenditure/Number of days in a year.

Significance: The DIR is thought by many people to be a better liquidity measure than the quick and current ratios. Because these ratios compare assets to liabilities rather than comparing assets to expenses, the DIR and current/quick ratios would give quite different results if the company hand allot of expenses, but no debt.

(v) **Debt Service Coverage Ratio (DSCR)**

This ratio indicates whether the business is earning sufficient profits to pay not only the interest charged, but also whether due of the principal amount. The ratio is calculated as follows:

$$\text{Debt Service Coverage Ratio} = \frac{\text{Profit after Taxes + Depreciation + Interest on Loan}}{\text{Interest on Loan+Loan repayment in a year}}$$

Significance: The ratio is the key indicator to the lender to assess the extent of ability of the borrower to service the loan in regard to timely payment of interest and repayment of loan instalment. A ratio of 2 is considered satisfactory by the financial institutions the greater debt service coverage ratio indicates the better debt servic- ing capacity of the organization.

Ratios in Different Industries:

1) **Ratios used in hotel industry:**

The variety of ratios used by hotel industry which are:

1) Room Occupancy Ratio
2) Bed Occupancy Ratio
3) Double Occupancy Ratio
4) Seat Occupancy Ratios etc.

2) **Ratios used in transport industry:**

The following important ratios are used in transport industry:

1) Passenger Kilometers
2) Seat occupancy Ratios
3) Operating cost per kilometer

3) **Bank Industry:**

The following important ratios are used in Bank Industry:

1) Operating expenses ratios for various periods
2) Loans to deposits ratios
3) Operating income ratios for various periods

4) Telecom Industry:

The following important ratios are used in telecom Industry.

1) Average duration of the outgoing call
2) Number of outgoing calls per connection
3) Revenue per customer

Illustration 1:

Following is the Profit and Loss Account and Balance Sheet of PKJ Ltd. Redraft them for the purpose of analysis and calculate the following ratios:

1) Gross Profit Ratio
2) Overall Profitability Ratio
3) Current Ratio
4) Debt-Equity Ratio
5) Stock-Turnover Ratio
6) Finished goods Turnover Ratio
7) Liquidity ratio

Dr. **Profit and Loss A/c** Cr.

Particulars	Amount (₹)	Particulars	Amount (₹)
Opening stock of finished goods	1,00,000	Sales	10,00,000
Opening stock of raw material	50,000	Closing stock of raw material	1,50,000
Purchase of raw material	3,00,000	Closing stock of finished goods	1,00,000
Direct wages	2,00,000	Profit on sale of shares	50,000
Manufacturing Exp	1,00,000		
Administration Exp	50,000		
Selling & distribution Exp	50,000		
Loss on sale of Plant	55,000		
Interest on debentures	10,000		
Net Profit	3,85,000		
	13,00,000		**13,00,000**

Balance Sheet

Liabilities	Amount (₹)	Assets	Amount (₹)
Equity share capital	1,00,000	Fixed assets	2,50,000
Preference share capital	1,00,000	Stock of raw material	1,50,000
Reserves	1,00,000	Stock of finished goods	1,00,000
Debentures	2,00,000	Bank balance	50,000
Sundry Creditors	1,00,000	Debtors	1,00,000
Bills Payable	50,000		
	6,50,000		**6,50,000**

Solution:

PKJ Ltd.

Income Statement

		(₹)
Sales		1,000,000
(-) Cost of goods sold:		
Raw material consumed (50,000 + 3,00,000 – 1,50,000)	2,00,000	
Wages	2,00,000	
Manufacturing expenses	1,00,000	
Cost of production	5,00,000	
(+) Opening stock of finished goods	1,00,000	
(-) Closing stock of finished goods	(1,00,000)	(5,00,000)
Gross profit		5,00,000
(-) Operating expenses:		
Administrative expenses	50,000	
Selling and distribution	50,000	(1,00,000)
Operating profit		4,00,000
(+) Non operating income (Profit on Sale of Shares)		50,000

(-) Loss on sale of plant		(55,000)
EBIT		3,95,000
(-) Interest		(10,000)
EBT / Net Profit		3,85,000

Position Statement

	(₹)
Bank	50,000
Debtors	1,00,000
Liquid Assets	1,50,000
(+) Stock (R.M.+F.G.)	2,50,000
Current Assets	4,00,000
(-) Current liabilities (S.C.B.P.)	(1,50,000)
Working capital	2,50,000
(+) Fixed assets	2,50,000
Capital employed in business	5,00,000
(-) External liabilities	(2,00,000)
Shareholders funds	3,00,000
(-) Preference share capital	(1,00,000)
Equity share capital	**2,00,000**

Represented by

Equity share capital	1,00,000
(+) Reserves	1,00,000
	2,00,000

(1) Gross Profit Ratio $= \frac{\text{Gross Profit}}{\text{Sales}} \times 100 = \frac{5,00,000}{10,00,000} \times 100 = 50\%$

(2) Overall Profitability Ratio $= \frac{\text{Operating Profit}}{\text{Capital Employed}} \times 100 = \frac{4,00,000}{5,00,000} \times 100 = 80\%$

(3) Current Ratio $= \frac{4,00,000}{1,50,000} = 2.67$ times

(4) Debt equity Ratio $= \frac{\text{Long term debt}}{\text{Long term fund}} \times 100 = \frac{2,00,000}{5,00,000} = 0.4$

(5) Stock Turnover Ratio $= \frac{\text{Raw Material Consumed}}{\text{Average Stock of raw material}} = \frac{2,00,000}{1,00,000} = 2$

[Average stock of Raw Material $= \frac{50,000 + 1,50,000}{2} = 1,00,000$]

(6) Finished Goods Turnover Ratio $= \dfrac{\text{COGS}}{\text{Average Stock of finished goods}} = \dfrac{5,00,000}{1,00,000} = 5$

Average Stock of finished goods $= \dfrac{1,00,000 + 1,00,000}{2} = 1,00,000$

(7) Liquidity Ratio $= \dfrac{\text{Liquid Assets}}{\text{Liquid Liabilities}} = \dfrac{1,50,000}{1,50,000} = 1$

Liquid Assets = Current Assets – Inventories – Prepaid Expenses

= 4,00,000 – 1,50,000 – 1,00,000

Liquid Liability = Current Liability – Bank Overdraft – Cash Credit

= 1,50,000 – 0

= ₹ 1,50,000

Illustration 2:

A company has a profit margin of 20% and asset turnover of 3 times. What is the company's return on invest- ment? How will this return on investment vary if?

(i) Profit margin is increased by 5%?

(ii) Asset turnover is decreased to 2 times?

(iii) Profit margin is decreased by 5% and asset turnover is increase to 4 times?

Solution:

Net profit ratio = 20% (given)

Assets turnover ratio = 3 times (given)

Return on Investment (ROI) = Net Profit ratio x Assets turnover ratio

= 20% × 3 times = 60%

(i) **If net profit ratio is increased by 5%:**

Then Revised Net Profit Ratio = 20 + 5 = 25%

Asset Turnover Ratio (as before) = 3 times

ROI = 25 % x 3 times = 75%

(ii) **If assets turnover ratio is decreased to 2 times:**

NP Ratio (as before) = 20%

Revised Asset Turnover Ratio = 2 times

ROI = 20% × 2 times = 40%

(iii) **If net profit ratio falls by 5% and assets turnover ratio raises to 4 times:**

Then Revised NP Ratio = 20 - 5 = 15%

Revised Asset Turnover Ratio = 4 times

ROI = 15% x 4 = 60%

Illustration 3:

The following is the Balance Sheet of M/S Yamuna Enterprise for the year ended 31-12-2015:

Balance Sheet as on 31st December, 2015

Liabilities	Amount (₹)	Assets	Amount (₹)
Equity share capital	1,00,000	Cash in hand	2,000
12% Preference share capital	1,00,000	Cash in bank	10,000
16% Debentures	40,000	Bills Receivable	30,000
18% Public debts	20,000	Investment	20,000
Bank overdraft	40,000	Debtors	70,000
Creditors	60,000	Stock	40,000
Outstanding Creditors	7,000	Furniture	30,000
Proposed dividends	10,000	Machinery	1,00,000
Reserves	1,50,000	Land & Building	2,20,000
Provision for taxation	20,000	Goodwill	35,000
Profit & Loss Account	20,000	Preliminary expenses	10,000
	5,67,000		**5,67,000**

During the year provision for taxation was ₹ 20,000. Dividend was proposed at ₹ 10,000. Profit carried forward from the last year was ₹ 15,000. You are required to calculate:

a) Short term solvency ratios, and

b) Long term solvency ratios.

Solution:

Short term solvency ratios:

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{1,52,000}{1,37,000} = 1.109 \text{ times}$$

Current Assets = 2,000 + 10,000 + 30,000 + 70,000 + 40,000 = 1,52,000

Current Liabilities = 40,000 + 60,000 + 7,000 + 10,000 + 20,000 = 1,37,000

The ideal ratio is 2 but in the instant case it is only 1.109. hence, it is not satisfactory.

$$\text{Liquid Ratio} = \frac{\text{Liquid Assets}}{\text{Liquid Liabilities}} = \frac{1,12,000}{97,000} = 1.155 \text{ times}$$

Liquid Assets = Current Assets - Inventory

= 1,52,000 – 40,000

= 1,12,000

Liquid Liability = Current Liability – Bank Overdraft – Cash Credit

= 1,37,000 – 40,000

= 97,000.

This indicates that the company's EBIT covers 4.5 times of its interest expenses, which is quite satisfactory.

Calculation of EBIT

	(₹)
Profit retained	5,000
(+) Proposed dividend	10,000
PAT	15,000
(+) Tax	20,000
PBT	35,000
(+) Interest [6400 + 3600]	10,000
EBIT	**45,000**

Interest = 16% of 40,000 + 18% of 20,000 = 6400 + 3600 = 10,000

Long term solvency ratios:

$$\text{Debt Equity Ratio} = \frac{\text{Long Term Debt}}{\text{Long Term Fund}} = \frac{60,000}{3,85,000} = 0.156 \text{ times}$$

Long term debt:

	(₹)
Debentures	40,000
Public debt	20,000
	60,000

Long term fund

	(₹)
Equity Share Capital	1,00,000
Preference Share Capital	1,00,000
Debentures	40,000
Public Debts	20,000
Reserves	1,50,000
Profit and Loss Account	20,000
	4,30,000
Less: Goodwill	35,000
Preliminary Expenses	10,000
	3,85,000

Share holder funds:	(₹)
Equity capital	1,00,000
Preference capital	1,00,000
Reserves	1,50,000
P & L A/c	20,000
(-) Good will	35,000
(-) Preliminary exp	10,000
	3,25,000

Long term debt/ share holders funds = 60,000 / 3,25,000 = 0.18 times.

Both are quite satisfactory.

It seems the company has adopted a conservative policy for raising finance. Under such policy the equity share holders may not avail the benefit of trading on equity.

→ Fixed Assets Ratio = Fixed Assets / Long Term Funds = 3,50,000 / 3,85,000 = 0.91 times

The ratio is satisfactory.

→ Proprietary Ratio Share holder Funds / Total Tangible Assets

= [3,25,000 / (5,67,000 - 4,50,00)] = 0.6226 times

Ratio is ideal. And long term position is quite satisfactory, it is advised to improve short term solvency.

Illustration 4:

Following is the Balance Sheet of Sun Ltd., as on December 31, 2015.

Liabilities		Amount (₹)	Assets	Amount (₹)
Equity Share Capital		20,000	Goodwill	12,000
Capital Reserves		4,000	Fixed Assets	28,000
8% Loan on mortgage		16,000	Stocks	6,000
Trade creditors		8,000	Debtors	6,000
Bank over draft		2,000	Investments	2,000
Taxation:			Cash in hand	6,000
Current		2,000		
Future		2,000		
Profit & Loss A/c:				
PAT for the year				
Less: Transfer to:	12,000			
Reserves	4,000			
Dividend	2,000	6,000		
		60,000		60,000

Sales amounted to ₹1,20,000. Calculate ratio for (a) testing liquidity, and (b) testing solvency.

Solution:

Ratios for testing liquidity

1. Current Ratio = Current Assets/ Current Liabilities = 20,000/12,000 = 1.67 times
2. Liquidity Ratio = Liquid Assets/ Current Liabilities = 14,000/12,000 = 1.17 times

The liquid position of the company is satisfactory. Both the current ratio and liquidity ratio are satisfactory.

Ratios for testing solvency

1. Debt- equity Ratio = Share holders Funds/ Total Long Term Funds = 18,000/36,000 = 0.5 times
2. Fixed Assets Ratio = Net profit before interest and tax/ Interest = 14,000/1,280 = 10.94 times

All solvency ratios are very much favorable to the company judged from the above, the company has satisfactory position both from liquidity and solvency viewpoints.

Working notes:

1. **Current Assets**

	(₹)
Stock	6,000
Debtors	6,000
Investments*	2,000
Cash in hand	6,000
	20,000

* presumed to be short- term.

2. **Current Liabilities**

	(₹)
Trade creditors	8,000
Bank overdraft	2,000
Taxation*	2,000
	12,000

* excluding future taxation presumed to be payable after a year.

3. **Liquid Assets**

	(₹)
Current Assets	20,000
Less: Stock	6,000
	14,000

4. **Liquid Liability**

	(₹)
Current Liability	12,000
Less: Bank Overdraft	2,000
	10,000

5. **Share holders' Funds**

Equity share capital	20000	
Capital reserves	4000	
P & L accounts balance	6000	30000
Less: Goodwill		12000
		18000

6. **Long Terms Funds**

	(₹)
Share holders' funds	18,000
Mortgage loan	16,000
Future taxation	2,000
	36,000

7. **Interest Calculation:** 8% of 16,000 = 1,280

Illustration 5:

With the help of the following information complete the Balance Sheet of PKJ Ltd.

Equity share capital	₹ 1,00,000
The relevant ratios of the company are as follows:	
Current debt to total debt	40
Total debt to owner's equity	60
Fixed assets to owner's equity	60
Total assets turnover	2 Times
Inventory turnover	8 Times

Solution:

In the Books of PKJ Ltd.
Balance Sheet

Liabilities	Amount (₹)	Assets	Amount (₹)
Owners equity	1,00,000	Fixed Assets	60,000
Current debt	24,000	Cash	60,000
Long term debt	36,000	Inventory	40,000
	1,60,000		1,60,000

Working Notes:

1. Fixed assets = 0.60 x Owners equity = 0.60 x ₹ 1,00,000 = ₹ 60,000.
2. Total debt = 0.60 x Owners equity = 0.60 x ₹ 1,00,000 = ₹ 60,000.
3. Total assets consisting of fixed assets and current assets must be equal to ₹ 1,60,000 (Assets = Liabilities + Owners equity). Since fixed assets are ₹ 60,000 hence, current assets should be ₹ 1,00,000.
4. Total equity = Total debt + Owners equity = ₹ 60,000 + ₹ 1,00,000 = ₹ 1,60,000.
5. Total assets turnover = 2 Times; Inventory turnover = 8 Times. Therefore, Inventory/Total assets = 2/8 = 1/4 ; Total assets = ₹ 1,60,000. Therefore, Inventory = 1,60,000 / 4 = 40,000.
6. Cash = ₹ 1,00,000 – ₹ 40,000 = ₹ 60,000.

Illustration 6:

Using the following data, prepare the Balance Sheet:

Gross profits	₹ 54,000
Shareholders Funds	₹ 6,00,000
Gross Profit Margin	20%
Credit Sales to Total Sales	80%
Total Assets turnover	0.3 times
Inventory turnover	4 times
Average collection period (a 360 days year)	20 days
Current ratio	1.8
Long-term Debt to Equity	40%

Solution:

Balance Sheet

Liabilities	Amount (₹)	Assets	Amount (₹)
Creditors (bal. Fig.)	60,000	Cash	42,000
Long Term Debts	2,40,000	Debtors	12,000
Share Holders Fund	6,00,000	Inventory	54,000
		Fixed Assets (bal. fig).	7,92,000
	9,00,000		9,00,000

Working Notes:

1. Gross Profit:

   GP Margin = 20%

   GP = ₹ 54,000

   Sales = 54,000/20% = ₹ 2,70,000

2. Credit Sales:

   Credit Sales = 80% of Total Sales = 2,70,000 × 80% = ₹ 2,16,000

3. Total Assets:

   Total Assets Turnover = Sales/Total Assets = 0.3 Times Total Assets

   = 2,70,000 / 0.3 = ₹ 9,00,000

4. Inventory Turnover:

   Inventory Turnover = Cost of Goods Sold / Inventory × 100

   = 2,70,000 – 54,000 / Inventory

   Inventory = 2,16,000/4 = ₹ 54,000

5. Debtors:

   Debtors = Credit Sales × 20 / 360 days = ₹ 12,000

6. Creditors:

   Total Assets = 9,00,000

   Total of Balance Sheet = 9,00,000

   Now, Long Term Debt = Long Term Debt / Equity

   = 40% Long Term Debt

   = 40% of equity

   = 6,00,000 × 40%

   = ₹ 2,40,000

   Now Balancing figure of Liability side is creditors:

   = 9,00,000 - 6,00,000 (Equity) - 2,40,000 (Long Term Debt) = ₹ 60,000

   Creditors = ₹ 60,000

7. **Current Ratio – Cash:**

   Current ratio = Current Assets / Current Liabilities

   1.8 = Debtors + Inventory + Cash / Creditors

   1.8 = 12,000 + 54,000 + Cash / 60,000

   1,08,000 = 66,000 + Cash

   Cash = ₹ 42,000

8. **Fixed Assets:**

   Balancing figure on Assets Side is Fixed Assets.

9. **Sales**

   COGS = Sales - G.P.

   COGS = ₹ 2,70,000 - 54,000 = ₹ 2,16,000

Illustration 7:

PKJ Limited has the following Balance Sheets as on March 31, 2016 and March 31, 2015:

Balance Sheet

(₹ in Lakhs)

Particulars	March 31, 2015	March 31, 2016
Source of Funds		
Shareholders Funds	2,377	1,472
Loan Funds	3,570	3,083
	5,947	**4,555**
Application of Funds		
Fixed Assets	3,466	2,900
Cash and bank	489	470
Debtors	1,495	1,168
Stock	2,867	2,407
Other Current Assets	1,567	1,404
Less: Current Liabilities	(3,937)	(3,794)
	5,947	**4,555**

The Income Statement of the PKJ Ltd. for the year ended is as follows:

(₹ in Lakhs)

	March 31, 2015	March 31, 2016
Sales	22,165	13,882
Less: Cost of Goods sold	20,860	12,544
Gross Profit	1,305	1,338
Less: Selling, General and Administrative expenses	1,135	752
Earning before Interest and Tax (EBIT)	170	586
Less: Interest Expenses	113	105
Profits before Tax	57	481
Less: Tax	23	192
Profits after Tax (PAT)	34	289

Required:

1. Calculate for the year 2015-16:
   a) Inventory Turnover Ratio
   b) Financial Leverage
   c) Return on Investment (ROI)

d) Return on Equity (ROE)

e) Average Collection period.

2. Give a brief comment on the Financial Position of PKJ Limited.

Solution:

1. **Ratios for the year 2015-16**

(a) Inventory Turnover Ratio

= Cost of goods sold / Average Inventory

= 20,860 / (2,867 + 2,407) / 2)

= 20,860 / 2,637 = 7.910

(b) Financial Leverage

	2015-2016	2014 - 2015
= EBIT / EBT	= 170 / 57	= 586 / 481
	= 2.98	= 1.22

(c) Return on Investment

ROI = (NOPAT / Sales) x (Sales / Average Capital employed)

$$= \frac{57 \times (1 - 0.4)}{22{,}165} \times \frac{22{,}165}{(5{,}947+4{,}555)/2} = \frac{57 \times (0.6)}{22{,}165} \times \frac{22{,}165}{5{,}251} = 34.2/5{,}251 = 0.65\%$$

(d) Return on Equity

ROE	=	PAT / Average share holders fund
	=	34 / [(2,377 + 1,472)] / 2)
	=	34 / 1,924.5
	=	1.77%

(e) Average Collection Period

Average Collection Period = Average Debtors / Average Sales per day

= [(1,495 + 1,168) / 2] / [22,165 / 365 days]

= 1,331.5 / 60.73

= 22 days.

Financial position of PKJ Limited

A careful analysis of above Balance Sheet shows that current ratio of company is 1.5 which is less than the stan- dard (i.e. 2) and short-term solvency ratio is therefore not satisfactory. At the same time lot of capital is blocked in inventory as compared to previous year. This affects liquidity of the firm.

As regards utilization of Debt Capital, the percentage of debts to total assets is not high, but as compared to equity, debt content is more in capital structure. Company is said to be levered with higher proportion of debt in its capital structure. This situation involves considerable risk to shareholders in capital structuring, the company should ensure that cost of debt remains lower than return on investment.

Illustration 8:

The following figures and ratios are related to a company:

(a) Sales for the year (all credit)	₹ 30,00,000
(b) Gross Profit ratio	25 per cent
(c) Fixed assets turnover (basis on cost of goods sold)	1.5
(d) Stock turnover (basis on cost of goods sold)	6
(e) Liquid ratio	1:1
(f) Current ratio 1.5 :	1
(g) Debtors collection period	2 months
(h) Reserve and surplus to share capital	0.6 : 1
(i) Capital gearing ratio	0.5
(j) Fixed assets to net worth 1.20 :	1

You are required to prepare Balance Sheet of the company on the basis of above details.

Solution:

Preparation of Balance Sheet of a Company

Working Notes:

1. Cost of Goods Sold = Sales – Gross Profit (=25% of Sales)

= ₹ 30,00,000 – ₹ 7,50,000 = ₹ 22,50,000

2. Closing Stock = Cost of Goods sold/Stock Turnover

= ₹ 22,50,000 / 6 = ₹ 3,75,000

3. Fixed Assets = Cost of Goods Sold / Fixed Assets Turnover

= ₹ 22,50,000 / 1.5 = ₹ 15,00,000

4. Current Assets: = 1.5 and Liquid Ratio = 1 Current Ratio Stock = 1.5 – 1 = 0.5

Current Assets = Amount of Stock x 1.5 / 0.5 = ₹ 3,75,000 x 1.5/0.5 = ₹ 11,25,000

5. Liquid Assets (Debtors and Cash) = Current Assets – Stock

= ₹ 11,25,000 – ₹ 3,75,000

= ₹ 7,50,000

6. Debtors = Sales x Debtors Collection Period / 12

= ₹ 30,00,000 x 2 / 12 = ₹ 5,00,000

7. Cash = Liquid Assets – Debtors

= ₹ 7,50,000 – ₹ 5,00,000 = ₹ 2,50,000

8. Net worth = Fixed Assets / 1.2

= ₹ 15,00,000 / 1.2 = ₹ 12,50,000

9. Reserves and Surplus

Reserves and Share Capital = 0.6 + 1 = 1.6

Reserves and Surplus = ₹ 12,50,000 x 0.6 /1.6 = ₹ 4,68,750

10. Share capital = Net worth – Reserves and Surplus

= ₹ 12,50,000 – ₹ 4,68,750 = ₹ 7,81,250

11. Current Liabilities = Current Assets / Current Ratio

= ₹ 11,25,000 / 1.5 = ₹ 7,50,000

12. Long-Term Debts

Capital Gearing Ratio = Long-term Debts/Equity shareholder's Fund Long – Term Debts

= ₹ 12,50,000 × 0.5 = ₹ 6,25,000

Balance Sheet of a Company

Liabilities	Amount (₹)	Assets	Amount (₹)
Equity Share Capital	7,81,250	Fixed Assets	15,00,000
Reserves and Surplus	4,68,750	Current Assets	

Long-term Debts	6,25,000	Stock	3,75,000
Current Liabilities	7,50,000	Debtors	5,00,000
		Cash	2,50,000
	26,25,000		26,25,000

Illustration 9:

PKJ Limited has made plans for the next year 2015-16. It is estimated that the company will employ total assets of ₹ 25,00,000; 30% of assets being financed by debt at an interest cost of 9% p.a. The direct costs for the year are estimated at ₹ 15,00,000 and all other operating expenses are estimated at ₹ 2,40,000. The sales revenue are estimated at ₹ 22,50,000. Tax rate is assumed to be 40%.

Required to calculate:

(a) Net profit margin

(b) Return on Assets

(c) Asset turnover

(d) Return on equity

Solution:

The net profit is computed as follows:

Particulars	(₹)
Sales Revenue	22,50,000
Less: Direct Costs	15,00,000
Gross Profits	7,50,000
Less: Operating Expense	2,40,000
EBIT	5,10,000
Less: Interest (9% x 7,50,000)	67,500
EBT	4,42,500
Less: Taxes (@ 40%)	1,77,000
PAT	2,65,500

(a) Net Profit Margin

Net Profit Margin = EBIT (1-t) / Sales x 100

= 5,10,000 x (1 – 0.4) / 22,50,000 = 13.6%

(b) Return on Assets (ROA)

ROA = EBIT (1-t) / Total Assets = 5,10,000 (1 – 0.4) / 25,00,000

= 3,06,000 / 25,00,000 = 0.1224 = 12.24%

(c) Asset Turnover

Asset Turnover = Sales / Assets

= 22,50,000 / 25,00,000 = 0.9

(d) Return on Equity (ROE) ROE = PAT / Equity

= 2,65,500 / 17,50,000 = 15.17%

Illustration 10:

With the help of the following ratios regarding Indu Films draw the Balance Sheet of the company for the year 2015:

Current Ratio	2.5
Liquidity ratio	1.5
Net working capital	₹ 3,00,000
Stock turnover ratio (cost of sales /closing stock)	6 times
Gross profit ratio	20%
Fixed Assets turnover ratio (on cost of sales)	2 times
Debt collection period	2 months
Fixed Assets to share holders net worth	0.80
Reserve and surplus to capital	0.5

Solution:

Balance Sheet of Indu Films for the year 2015

Liabilities	Amount (₹)	Assets	Amount (₹)
Share capital	5,00,000	Fixed assets	6,00,000
Reserve and surplus	2,50,000	Stock	2,00,000
Long-term borrowings (Bal. Fig.)	1,50,000	Debtors	2,50,000
Current liabilities	2,00,000	Bank	50,000
	11,00,000		11,00,000

Working notes:

If Current Liabilities	1
Current Assets	2.5
It means difference on Working Capital	1.5
Working Capital is 1.5	₹ 3,00,000

Therefore, Current Assets	₹ 5,00,000
Current Liabilities	₹ 2,00,000

As Liquidity Ratio	1.5
And Current Liabilities	₹ 2,00,000
(Bank and Debtors) (2,00,000 x 1.5)	₹ 3,00,000
Stock (5,00,000-3,00,000) i.e., Current Assets- Liquid Assets	₹ 2,00,000
Cost of sales (as stock turnover ratio is 6)	₹ 12,00,000
Sales (as G.P. ratio is 20%, 1,200,000+20/80 x 1,200,000	₹ 15,00,000
Fixed Assets are ₹ 1,200,000/2, since Debtors collection	
Fixed Assets Turnover Ratio is 2 times	₹ 6,00,000
Debtors are ₹ 1,500,000/6 since debtors collection period Is 2 months	₹ 2,50,000
Shareholders' net worth 600,000 x 1/0.80	₹ 7,50,000
Out of shareholders' net worth Reserves and Surplus (7,50,000 x 0.5/1.5)	₹ 2,50,000
Therefore, Share capital	₹ 5,00,000

Cash Flow Statement – Basic Concept

5

This Unit Includes the Following Topics:

a. Cash Flow Statement – Basic concept

Module Learning Objectives:

After studying this Module, the students will be able to –

- **Learn basic concepts associated with preparation of Cash Flow Statement**
- **Learn to prepare and interpret Cash Flow Statement**

- **Introduction**

In addition to the Statement of Profit and Loss and Balance Sheet, companies also prepare a Cash Flow Statement as a part of its complete set of financial statements. Cash flow statement is an additional information source to the users of financial statements. This statement exhibits the flow of incoming and outgoing cash and cash equivalents. It assesses the ability of the enterprise to generate and utilize cash. In other words, this statement is an important tool for assessing the liquidity position and the sources of liquidity.

As per SFAS 95, *Statement of Cash Flows*, issued by Financial Accounting Standards Board (FASB) of USA, the information provided in a statement of cash flows, if used with related disclosures and information in the other financial statements, should help investors, creditors, and others to –

(a) assess the enterprise's ability to generate positive future net cash flows;

(b) assess the enterprise's ability to meet its obligations, its ability to pay dividends, and its needs for external financing;

(c) assess the reasons for differences between net income and associated cash receipts and payments; and

(d) assess the effects on an enterprise's financial position of both its cash and non-cash investing and financing transactions during the period.

In India, the preparation and presentation of Cash Flow Statements for eligible entities is guided by Ind AS 7, *Statement of Cash Flows* (and by AS 3 for companies to which Ind AS is still not applicable).

- **Important Terminology**

  (i) Cash: This includes cash on hand and demand deposits with banks.

  (ii) Cash equivalents: This includes purely short term and highly liquid investments which are readily convertible into cash and which are subject to an insignificant risk of changes in value. Therefore an investment normally qualifies as a cash equivalent only when it has a short maturity, of say three months or less.

  (iii) Cash flows: This includes inflows and outflows of cash and cash equivalents. If the effect of transaction results in the increase of cash and its equivalents, it is called an inflow (source) and if it results in the decrease of total cash, it is known as outflow (use of cash).

- **Benefits of Cash Flow Information**

  A statement of cash flows, when used in conjunction with the rest of the financial statements, provides information that enables users to evaluate the changes in net assets of an entity, its financial structure (including its liquidity and solvency) and its ability to affect the amounts and timing of cash flows in order to adapt to changing circumstances and opportunities. Cash flow information is useful in assessing the ability of the entity to generate cash and cash equivalents and enables users to develop models to assess and compare the present value of the future cash flows of different entities. It also enhances the comparability of the reporting of operating performance by different entities because it eliminates the effects of using different accounting treatments for the same transactions and events.

  Historical cash flow information is often used as an indicator of the amount, timing and certainty of future cash flows. It is also useful in checking the accuracy of past assessments of future cash flows and in examining the relationship between profitability and net cash flow and the impact of changing prices.

- **Presentation of a Statement of Cash Flows**

  The statement of cash flows shall report cash flows during the period classified under the following three categories –

  a. Cash flow from operating activities;

  b. Cash flow from investing activities; and

  c. Cash flow from financing activities.

  Sum of these three types of cash flows reflects the net change in cash and cash equivalent of the entity.

- **Elements of operating cash flow**

Given below are elements of operating cash flow:

Description of elements of operating cash flow
• Cash receipts from sale of goods and rendering services.
• Cash receipts from royalty, fees, commissions and other revenue.
• Cash payments to suppliers for goods and services.
• Cash payments to and on behalf of employees.
• Cash receipts and cash payments by an insurance enterprise for premiums and claims, annuities and other policy benefits.
• Cash payments and refunds of income taxes unless these are specifically identified as cash flow from financing or investment.
• Cash receipts and payments relating to contracts held for dealing or trading purposes.
• Cash flow arising from dealing in securities when an enterprise holds securities for such purpose.
• Cash advances and loans made by financial institutions including all contracts held for trading purposes which may range from sale licence, export-import quota, any other operating contract. This may not necessarily be a contract relating to derivative instruments.

- **Elements of Cash flow from investment activities**

Given below are eight elements of investment cash flow:

Elements of cash flow from investment activities:
1. Cash payments for acquisition of fixed assets including intangibles.
2. Cash receipts from disposal of fixed assets.
3. Cash payments to acquire shares, warrants or debt instruments of other enterprises and interests in joint venture.

This does not include an item covered in cash equivalents and items held for dealing or trading purposes.
4. Cash receipts from disposal of shares, warrants or debt instruments of other enterprises and interests in joint venture.
This does not include an item covered in cash equivalents and items held for dealing or trading purposes.
5. Cash advances and loans made to third parties.
This does not include loans and advances made by financial institutions as these fall under operating cash flow.
6. Cash receipts from repayments of advances and loans made to third parties. This does not include loans and advances made by financial institutions as these fall under operating cash flow.
7. Cash payments for future, forward, option and swap contracts.
This does not include contracts held for dealing or trading purposes or contracts which are classified as financing activities.
8. Cash receipts from future, forward, option and swap contracts.
This does not include contracts held for dealing or trading purposes or contracts which are classified as financing activities.

- **Elements of cash flow from financing activities**

Given below are five elements illustrated cash flow from financing activities:

Elements of cash flow from financing activities	
1.	Cash proceeds from issuing shares or other equity instruments.
2.	Cash payments to owners to acquire or redeem the enterprise's shares.
3.	Cash proceeds from issuing debentures, loans, notes, bonds, mortgages, and other short term and long-term borrowings.
4.	Cash repayments of amounts borrowed.
5.	Cash payments by a lease for the reduction of the outstanding liability relating to a finance lease.

Treatment of Some Typical Items

1. **Interest and Dividends:** Cash flows from interest and dividends received and paid should be disclosed separately. Further, the total amount of interest paid during the period should be disclosed in the Cash Flow Statement whether it has been recognised as an expense in the statement of profit and loss or capitalised. The treatment of interest and dividends received and paid depends upon the nature of the enterprise. For this purpose, the enterprises are classified as (i) Financial enterprises, and (ii) Other enterprises.

   (i) Financial enterprises: In the case of financial enterprises, cash flows arising from interest paid and interest and dividend received should be classified as cash flows arising from operating activities.

(ii) Other enterprises: In the case of other enterprises, cash flows arising from interest paid should be classified as cash flows from financing activities while interest and dividends received should be classified as cash flows from investing activities. Dividends paid should be classified as cash flows from financing activities.

2. **Taxes on income:** Cash flows arising from taxes on income should be separately disclosed and should be classified as cash flows from operating activities unless they can be specifically identified with financing and investing activities.

3. **Non-cash transactions:** Many investing and financing activities do not have a direct impact on current cash flows although they do affect the capital and asset structure of an enterprise.

Examples of non-cash transactions are:

(i) The acquisition of assets by assuming directly related activities.

(ii) The acquisition of an enterprise by means of issue of shares; and

(iii) The conversion of debt to equity.

Investing and financing transactions that do not require the use of cash or cash equivalents should be excluded from a Cash Flow Statement. Such transactions should be disclosed elsewhere in the financial statements in a way that provides all the relevant information about these investing and financing activities.

Illustration 1:

Classify the following cash receipts and payments of a furniture company into cash from operating, investing and financing activities:

a. Receipt from sale of furniture
b. Purchases of furniture from various suppliers
c. Wages paid
d. Advertisement expenses paid
e. Credit sales of furniture
f. Misc. charges received from customers for repairs of furniture
g. Warranty claims received from the suppliers
h. Loss due to decrease in market value of the closing stock of furniture
i. Payment to suppliers of furniture
j. Depreciation on furniture of sales showrooms
k. Interest paid on bank loan
l. Profit on sale of equipment, in exchange of new equipment
m. Advance received from customers
n. GST paid
o. Equity dividend paid for the current financial year

Solution:

Classification of cash received and paid

Transaction	Nature of Cash Flow	Inflow/Outflow
a. Receipt from sale of furniture	C/F from operating activities	Inflow
b. Purchases of furniture from various suppliers	C/F from operating activities	Outflow
c. Wages paid	C/F from operating activities	Outflow
d. Advertisement expenses paid	C/F from operating activities	Outflow
e. Credit sales of furniture	Not a cash flow	N. A
f. Misc. charges received from customers for repairs of furniture	C/F from operating activities (supplementary revenue)	Inflow
g. Loss due to decrease in market value of the closing stock of furniture	Not a cash flow	N. A
h. Payment to suppliers of furniture	C/F from operating activities	Outflow
i. Depreciation on furniture of sales showrooms	Not a cash flow	N. A
j. Interest paid on bank loan	C/F from financing activities	Outflow
k. Profit on sale of equipment, in exchange of new equipment	Not a cash flow	N. A
l. Advance received from customers	C/F from operating activities	Inflow
m. GST paid	C/F from operating activities	Outflow
n. Equity dividend paid for the current financial year	C/F from financing activities	Outflow

Illustration 2:

Classify the following transactions into cash flow from operating, investing and financing activities in respect of a pharmaceutical company:

a. Issued equity shares

b. Bonus shares issued

c. Right shares issued

d. Purchased 90% shares of subsidiary company

e. Dividend received from subsidiaries

f. Dividend received from investment in other companies

g. Payment of license fees

h. Royalty received from the goods patented

i. Rent received from the letting out of free space

j. Interest received on loans to Y Ltd.

k. Preference Dividend paid

l. Interest paid on security deposits

m. Acquired the assets of a company through issue of equity shares

n. Purchased goodwill

o. Interim dividends paid

p. Sale of investment in subsidiary

Solution:

Classification of cash received and paid

Transaction	Nature of Cash Flow	Inflow/Outflow
a. Issued equity shares	a. C/F from financing activities	Inflow
b. Bonus shares issued	b. Not a Cash flow at all.	N. A
c. Right shares issued	c. C/F from financing activities	Inflow
d. Purchased 90% shares of subsidiary company	d. C/F from investing activities	Outflow
e. Dividend received from subsidiaries	e. C/F from investing activities	Inflow
f. Dividend received from investment in other companies	f. C/F from investing activities	Inflow
g. Payment of license fees	g. C/F from investing activities	Outflow
h. Royalty received from the goods patented	h. C/F from operating activities	Inflow
i. Rent received from the letting out of free space	i. C/F from investing activities	Inflow
j. Interest received on loans to Y Ltd.	j. C/F from investing activities	Inflow
k. Preference Dividend paid	k. C/F from financing activities	Outflow
l. Interest paid on security deposits	l. C/F from financing activities	Outflow
m. Acquired the assets of a company through issue of equity shares	m. No cash flow	N. A
n. Purchased goodwill	n. C/F from investing activities	Outflow
o. Interim dividends paid	o. C/F from financing activities	Outflow
p. Sale of investment in subsidiary	p. C/F from investing activities	Inflow

Illustration 3:

X Ltd. provides you the following information of its cash inflow and outflow for the financial year 2021-22:

a. Dividend paid to equity and preference shareholders ₹50000

b. Interest paid ₹10000

c. Interest received on loan ₹ 20000

d. Dividend received from Y Ltd. ₹15000

How will you classify the above in the Cash Flow Statement of X Ltd. if –

(i) X Ltd. is a financial institution and (ii) X Ltd. is a manufacturing concern.

Solution:

The treatment of the items has been shown below:

Cash Receipt/ Payment	If X Ltd. is a financial institution	If X Ltd. is a manufacturing concern
Dividend paid to equity and preference shareholders ₹50000	C/F from financing activities	C/F from financing activities
Interest paid ₹10000	C/F from operating activities	C/F from financing activities
Interest received on loan ₹ 20000	C/F from operating activities	C/F from investing activities
Dividend received from Y Ltd. ₹15000	C/F from operating activities	C/F from investing activities

Proforma for Cash Flow Statement under Ind AS 7

- **Proforma of Cash Flow Statement under Direct Method**

Cash Flow Statement of _____for the period ended on ___

Particulars	₹	₹	₹
A. Cash Flows from Operating Activities:			
Cash receipts from Customers		– –	
Less: Cash paid to Suppliers and Employees and for other expenses		– –	
Cash Generated from Operation		– –	
Less: Income Tax Paid		– –	
Cash Flows from Operation before Extraordinary Items		– –	
Add: Proceeds from any Disaster Settlement		– –	
Net Cash Flow from Operating Activities			– –
B. Cash Flows from Investing Activities:			
Proceeds from Sale of Fixed assets including Investments		– –	
Less: Purchase of Fixed assets including Investments		– –	
		– –	
Add: Interest Received		– –	
Dividends Received		– –	
Net Cash Flow from Investing Activities			– –
C. Cash Flows from Financing Activities:			
Proceeds from issuance of share capital		– –	
Proceeds from Long-term Borrowings		– –	
		– –	

Less: Repayment of Long-term Borrowings including Redemption of Preference Shares		––	
		––	
Less: Interest Paid	––		
Dividend Paid	––	––	
Net Cash Flow from Financing Activity			––
Net Increase in Cash and cash Equivalents			––
Add: **Cash and Cash Equivalents at the beginning of the period**			––
Cash and Cash Equivalents at the end of the period			––

Notes:

1) Figures of cash sales may be directly available from cash book. Then Cash collection can be derived taking Credit sales + Opening balance of debtors - closing balance of debtors.

2) Similarly figures of cash purchases can also be obtained from cash books.

3) Interest and dividend are investment cash inflow and, therefore, to be excluded.

4) Interest expense is financing cash outflow.

5) Tax provision is not cash expense, advance tax paid should be treated as tax cash outflow.

- **Proforma of Cash Flow Statement under Indirect Method**

Cash Flow Statement of _____for the period ended on ____

Particulars		₹	₹	₹
A.	**Cash Flows from Operating Activities:**			
	Net Profit for the Period before Taxation & Extraordinary Items		––	
Add:	Adjustment for Non-current and Non-operating Items charged to Profit & Loss A/c	––		
	Depreciation	–		
	Interest paid	–		
	Foreign Exchange Loss	–		
	Loss on Sale of Fixed Assets & Investments	–	–	
Less:	Adjustment for Non-current and Non-operating Items	–		
	Charged to Profit & Loss A/c	–		
	Interest Earned	–		
	Dividend Earned	–		
	Profit on Sale of Fixed Assets & Investments	–		
	Operating Profit before Working Capital Changes	–		
		–	–	

Add:	Increase in Current Liabilities	–	–	
	Decrease in Current Assets	–		
Less:	Increase in Operating Current Assets	–		
	Decrease in Operating Current Liabilities	–		
	Cash Generated from Operation	–	–	
			–	
Less:	Income Tax Paid		–	
Add:	Proceeds from any Disaster Settlement		–	
	Net Cash Flow from Operating Activities			–
B.	**Cash Flows from Investing Activities:**			
	Proceeds from Sale Fixed assets including Investments		–	
Less:	Purchase of Fixed assets including Investments		–	
			–	
Add:	Interest Received		–	
	Dividends Received		–	
	Net Cash Flow from Investing Activities			–
C.	**Cash Flows from Financing Activities:**			
	Proceeds from issuance of Share Capital		–	
	Proceeds from Long-term Borrowings		–	
			–	
Less:	Repayment of Long-term Borrowings including Redemption of Preference Shares		–	
			–	
Less:	Interest Paid	–		
	Dividend Paid	—	–	
	Net Cash Flow from Financing Activity			–
	Net Increase in Cash and cash Equivalents			–
Add:	Cash and Cash Equivalents at the beginning of the period			–
	Cash and Cash Equivalents at the end of the period			–

Illustration 1

The following information has been provided by B Ltd. for the year ended on 31.03.2021.

(i) Sales for the year ₹9600000 entirely made in cash.

(ii) Cost of goods sold was 75% of the sales.

(iii) Trade payables on 31.03.2021 was ₹200000 more than the balance on 31.03.2020.

(iv) Closing inventory was higher than the opening inventory by ₹75000

(v) Suppliers were paid ₹7100000 during the year

(vi) Operating expense of ₹ 720000 were paid during the year.

(vii)Taxes paid during the year were ₹300000

(viii)The company paid equity dividend of ₹240000 during the year.

(ix) The company acquired a land for ₹800000 and bought a new machinery for ₹400000 during the year.

(x) Interest was received on investment for ₹20000

(xi) Cash and cash equivalent on 01.04.2020 was ₹80000

(xii)Cash and cash equivalent on 31.03.2021 was ₹140000

You are required to prepare a Cash Flow Statement for the year ended on 31.03.2021.

Solution:

Cash Flow Statement for the year ended on 31.03.2021

Particulars	₹	₹
I. Cash flow from operating activities:		
Sales (all in cash)	9600000	
Less: Payment to suppliers	7100000	
	2500000	
Less: Operating expenses	720000	
	1780000	
Less: Taxes paid	300000	
		1480000
II. Cash flow from investing activities:		
Purchase of land	(800000)	
Purchase of Machinery	(400000)	
Interest received on investment	20000	(1180000)
III. Cash flow from financing activities:		
Equity Dividend paid		(240000)
		60000
Add: Opening cash and cash equivalent		80000
Closing cash and cash equivalent		140000

Illustration 2

Calculate Cash Flow from Operating Activities from the following:

Net Profit before tax	₹6,80,000
Items considered in determining the above Net Profit:	
Interest on long term borrowings	₹80,000
Depreciation and Amortization	₹1,70,000
Transfer to Reserves	₹1,00,000
Gain on sale of machinery	₹60,000

Balances of Current Assets and Current Liabilities were as follows:

Particulars	Opening Balance (₹)	Closing Balance (₹)
Trade Receivables	5,50,000	4,80,000
Trade Payables	3,80,000	4,00,000
Inventories	2,80,000	3,20,000
Prepaid Expense	40,000	50,000
Income received in advance	10,000	30,000

Solution:

Cash Flow Statement

For the year ended on 31.03.2023

Particulars	₹	₹
Net Profit before tax		6,80,000
Add: Depreciation and amortization		1,70,000
Add: Interest on long term borrowings		80,000
Add: Transfer to Reserves		1,00,000
Less: Gain on sale of machinery		(60,000)
Operating profit before working capital changes		9,70,000
Add: Decrease in trade receivables		70,000
Add: Increase in trade payables		20,000
Add: Increase in income received in advance		20,000
		10,80,000
Less: Increase in inventory		(40,000)
Less: Increase in prepaid expense		(10,000)
Cash Flow from Operating Activities		10,30,000

Illustration 3

The Balance Sheets of a company as on 31st March, 2015 and 2016 are given below: (₹)

Liabilities	31.03.15	31.03.16	Assets	31.03.15	31.03.16
Equity Share Capital	14,40,000	19,20,000	Fixed Assets	38,40,000	45,60,000
Capital Reserve	--	48,000	Less: Depreciation	(11,04,000)	(13,92,000)
General Reserve	8,16,000	9,60,000		27,36,000	31,68,000
Profit & Loss A/c	2,88,000	3,60,000	Investment	4,80,000	3,84,000
9% Debentures	9,60,000	6,72,000	Sundry Debtors	12,00,000	14,00,000
Sundry Creditors	5,50,000	5,90,000	Stock	1,40,000	1,84,000
Bills Payable	26,000	34,000	Cash in hand	4,000	--
Proposed Dividend	1,44,000	1,72,800	Preliminary Expenses	96,000	48,000
Provision for tax	4,32,000	4,08,000			
Unpaid dividend	--	19,200			
	46,56,000	51,84,000		46,56,000	51,84,000

Additional Information:

During the year ended 31st March, 2016 the company:

1. Sold a machine for ₹ 1,20,000; the cost of machine was ₹ 2,40,000 and depreciation provided on it was ₹ 84,000.
2. Provided ₹ 4,20,000 as depreciation on fixed assets.
3. Sold some investment and profit credited to capital reserve.
4. Redeemed 30% of the debenture @ 105.
5. Decided to write off fixed assets costing ₹ 60,000 on which depreciation amounting to ₹ 48,000 has been provided.

You are required to prepare Cash Flow Statement as per AS-3.

Solution:

Cash Flow Statement for the year ending 31st March, 2016

	Particulars	Amount (₹)	Amount (₹)
A	**Cash flow from Operating Activities**		
	Profit and Loss A/c (3,60,000 – 2,88,000)		72,000
	Adjustments:		
	Increase in General Reserve	1,44,000	
	Depreciation	4,20,000	
	Provision for Tax	4,08,000	
	Loss on Sale of Machine	36,000	
	Premium on Redemption of Debentures	14,400	
	Proposed Dividend	1,72,800	

	Preliminary Expenses written off	48,000	
	Fixed Assets written of	12,000	
	Interest on Debentures	60,480	13,15,680
	Funds from Operations		13,87,680
	Increase in Sundry Creditors	40,000	
	Increase in Bills Payable	8,000	48,000
	Increase in Sundry Debtors	(2,00,000)	
	Increase in Stock	(44,000)	(1,96,000)
	Cash before tax		11,91,680
	Less: Tax paid		4,32,000
	Cash in flows from Operating Activities		**7,59,680**
B	**Cash in flows from Investing Activities**		
	Purchase of Fixed Assets	(10,20,000)	
	Sale of Investment	1,44,000	
	Sale of Fixed Assets	1,20,000	
	Cash out flows from Investing Activities		**(7,56,000)**
C	**Cash Flows from Financing Activities**		
	Issue of share capital	4,80,000	
	Redemption of Debentures	(3,02,400)	
	Dividend Paid (1,44,000 – 19,200)	(1,24,800)	
	Interest on Debentures	(60,480)	
	Cash outflow from Financing Activities		(7,680)
	Net Increase in Cash and Cash Equivalents		(4,000)
	Cash and Cash Equivalents at the beginning of the year		4,000
	Cash and Cash Equivalents at the end of the year		Nil

Working Note:

(1) It is presumed that the 30 percent debentures have been redeemed at the beginning of the year.

(2)

Dr **Fixed Assets Account** **Cr.**

Particulars	Amount (₹)	Particulars	Amount (₹)
To Balance b/d	27,36,000	By Cash	1,20,000
To Purchases (balance figure)	10,20,000	By Loss on sales	36,000
		By Depreciation	4,20,000
		By Assets written off	12,000
		By Balance c/d	31,68,000
	37,56,000		**37,56,000**

Illustration 4

The summarized Balance Sheet of XYZ Limited as at 31st March, 2015 and 2016 are given below:

Liabilities	2015 (₹)	2016 (₹)	Assets	2015 (₹)	2016 (₹)
Preference share capital	4,00,000	2,00,000	Plant and Machinery	7,00,000	8,20,000
Equity share capital	4,00,000	6,60,000	Long term investment	3,20,000	4,00,000
Share Premium A/c	40,000	30,000	Goodwill	---	30,000
Capital Redemption Reserve	---	1,00,000	Current Assets	9,10,000	11,41,000
General Reserve	2,00,000	1,20,000	Short term investment (less than 2 months)	50,000	84,000
P & L A/c	1,30,000	1,75,000	Cash and Bank	1,00,000	80,000
Current Liabilities	6,40,000	9,00,000	Preliminary Expenses	40,000	20,000
Proposed Dividend	1,60,000	2,10,000			
Provision for tax	1,50,000	1,80,000			
	21,20,000	25,75,000		21,20,000	25,75,000

Additional Information:

During the year 2016 the company:

1. Preference share capital was redeemed at a premium of 10% partly out of proceeds issue of 10,000 equity shares of ₹10 each issued at 10% premium and partly out of profits otherwise available for dividends.
2. The company purchased plant and machinery for ₹95,000. It also acquired another company stock ₹25,000 and plant and machinery ₹1,05,000 and paid ₹1,60,000 in Equity share capital for the acquisition.
3. Foreign exchange loss of ₹1,600 represents loss in value of short term investment.
4. The company paid tax of ₹1,40,000.

You are required to prepare Cash Flow Statement.

Solution:

Cash Flow Statement as per AS 3 for the year ending 31st March, 2016

	Particulars	Amount (₹)	Amount (₹)
A	**Cash flow from Operating Activities**		
	Profit before tax (2,75,000 + 1,70,000)	4,45,000	
	Add: Depreciation on machinery	80,000	
	Foreign exchange loss	1,600	
	Preliminary expenses written off	20,000	
	Cash flow before working capital adjustment	5,46,600	
	Add: Stock acquired from other company	25,000	
	Increase in Current Liabilities	2,60,000	
	Less: Increase in Current Assets	(2,31,000)	
	Cash flow before tax paid	6,00,600	

	Less: Tax paid	(1,40,000)	
	Cash flow from operating activities		4,60,600
B	**Cash flow from Investing Activities**		
	Purchase of Machinery	(95,000)	
	Purchase of Investment	(80,000)	(1,75,000)
C	**Cash flow from Financing Activities**		
	Issue of shares at premium	1,10,000	
	Payment of Dividend	(1,60,000)	
	Redemption of preference shares at premium	(2,20,000)	(2,70,000)
	Net increase/decrease in cash and cash equivalent (a+b+c)		15,600
	Cash and cash equivalent at the beginning of the year		1,50,000
	Cash and cash equivalent at the end of the year		1,65,600

Working Notes:

Dr. **Plant and Machinery Account** **Cr.**

Particulars	Amount (₹)	Particulars	Amount (₹)
To Balance b/d	7,00,000	By Depreciation (balancing figure)	80,000
To Bank A/c	95,000	By Balance c/f	8,20,000
To acquired from other	1,05,000		
	9,00,000		9,00,000

Dr. **Provision for Tax Account** **Cr.**

Particulars	Amount (₹)	Particulars	Amount (₹)
To Bank A/c	1,40,000	By Balance b/d	1,50,000
To Balance c/f	1,80,000	By P & L	1,70,000
	3,20,000		**3,20,000**

Dr. **Profit for the year 2016** **Cr.**

Particulars	Amount (₹)
P & L Account (1,75,000 – 1,30,000)	45,000
Transfer to general reserve (1,20,000+1,00,000 for Redemption – Opening 2,00,000)	20,000
Proposed dividend	2,10,000
Net profit	**2,75,000**

4. Cash and Cash Equivalent

Opening balance + Short term investment = 1,00,000 + 50,000 = ₹1,50,000.

Closing balance = Closing cash + Short term investment + Foreign exchange loss

= 80,000 + 84,000 + 1,600 = ₹1,65,600

PART - B

Cost Accounting

Introduction 1

This Unit Includes the Following Topics:

a. **Introduction to cost accounting, Various Cost terms, Classification of Cost [with special reference to CAS]**

b. **Material, Labour, Overhead**

c. **Ascertainment of Cost (Cost Sheet)**

Unit Learning Objectives:

After studying this unit, students will be able to:

- **Understand the meaning of cost, costing, cost accounting and cost accountancy.**
- **Understand the objectives of cost accounting.**
- **Know the underlying cost accounting concepts, cost classification.**
- **Have a basic understanding of material, labour and overhead cost as a part of total cost.**
- **Know the process of ascertainment of cost through Cost Sheets.**

1. Introduction to cost accounting, Various Cost terms, Classification of Cost [with special reference to CAS]

1.1 Introduction to Cost Accounting

- **Evolution of Cost Accounting**

Every modern business has to make its way through keen competition, uncertainty and risks. Quick changes in social and economic environment also create impact upon the businesses. Changes in political outlook of the government of the country also require adjustment in the business policies. Thus, a modern business becomes more and more complex in nature. So, information relating to the business

in detail, appropriate management policy on the basis of detailed information and proper execution of such policies can only bring about success.

The traditional Financial Accounting fails to furnish all information necessary for managing a modern business successfully. Thus, as a branch of Financial Accounting, Cost Accounting has evolved and made rapid progress during the last few decades. This branch of accounting, with its developing techniques and procedures, has been rapidly expanding in the fields of its application. In recent years, another aspect of accounting, called Management Accounting, has been developed and is being employed in many concerns.

Where Financial accounting limits its activities in determining the financial result of trading during a given period of time and stating the financial position as on the closing date of the period, Cost Accounting takes the responsibility of generating information for controlling operations with a view to maximizing efficiency and hence profit, and Management accounting takes the duty of assisting the management with information for planning and decision making.

It is well known that the double entry system of accounting was initiated in 1494. Since then, till the after period of Industrial Revolution cost accounting remained as a small branch of financial accounting. The need for information on internal operation and the competitive business environment ushered by the Industrial revolution acted as catalyst in the development cost accounting. Firms, such as textile mills and railroads, were compelled to devise internal administrative procedures to coordinate the various operations involved in the performance of the basic activity of conversion of raw materials into finished goods by textile mills and the transportation of passengers and freight by the railroads. During 1880s, the newly formed mass distribution and mass production enterprises adapted the internal accounting reporting systems of the railroads to their own organizations. But all these along with the adaptations were exclusively focused on direct labour and direct material (prime costs). The scientific management movement provided a major impetus to the further development of cost accounting practices. The period 1880 - 1925 saw the development of complex product designs and the emergence of multi activity diversified corporations like Du Pont, General Motors etc. It was during this period that scientific management was developed which led the accountants to convert physical standards into Cost Standards, the latter being used for variance analysis and control. During the World War I and II the social importance of Cost Accounting grew with the growth of each country's defense expenditure. In the absence of competitive markets for most of the material required for war, the governments in several countries placed cost-plus contracts under which the price to be paid was cost of production plus an agreed rate of profit. The reliance on cost estimation by parties to defense contracts continued after World War II.

- **Development of Cost Accounting Profession in India**

In India, prior to independence, there were a few Cost Accountants, and they were qualified mainly from I.C.M.A. (now CIMA) London. During the World War II, the need for developing the profession in the country was felt, and the leadership of forming an Indian Institute was taken by some members of Defense Services employed at Kolkata. However, with the enactment of the Cost and Works Accountants of India Act, 1959, the Institute of Cost and Works Accountants of India (presently, The

Institute of Cost Accountants of India) was established at Kolkata. The profession assumed further importance in 1968 when the Government of India introduced Cost Audit under section 233(B) of the Companies Act, 1956. At present it is under Section 148 of the Companies Act, 2013.

- **Meaning of a Few Important Terms**

(a) **Meaning of Cost**

Cost is defined as the expenditure (actual or notional) incurred on or attributable to a given product or service. It can also be described as the resources that have been sacrificed or must be sacrificed to attain a particular objective. In other words, cost is the amount of resources used for something which must be measured in terms of money.

For example, cost of preparing a wooden chair is the amount incurred on the elements like material, labour and other expenses. Similarly cost of offering any services like banking is the amount of expenditure for offering that service. Thus, cost of production or cost of service can be calculated by ascertaining the resources used for the production or services.

CIMA Official Terminology defines cost either as a noun or as a verb.

The term 'cost' as a noun refers to the amount of cash or cash equivalent paid or the fair value of other consideration given to acquire an asset at the time of its acquisition or construction.

The term 'cost' as a verb refers to the process to ascertain the cost of a specified thing or activity.

(b) **Meaning of Costing**

CIMA Official Terminology specifically states that the use of the term costing is not recommended except with a qualifying adjective, for example standard costing. The term is used in the following connotations; batch costing, continuous operation costing, contract costing, job costing, service costing, specific order costing, absorption costing and marginal costing.

In general, costing is a method and technique of ascertaining costs. While costing methods include the principles that govern determination of cost in a given industry (Contract Costing, Job Costing etc.), costing techniques include the process of cost ascertainment to aid decision making (Marginal Costing, Standard Costing etc.)

(c) **Meaning of Cost Accounting**

CIMA Official Terminology defines cost accounting as the process of gathering of cost information and its attachment to cost objects, the establishment of budgets, standard costs and actual costs of operations, processes, activities or products; and the analysis of variances, profitability or the social use of funds.

(d) **Meaning of Cost Accountancy**

Cost Accountancy is the academic discipline of cost accounting and is defined as 'the application of costing and cost accounting principles, methods and techniques to the science and art and practice of cost control and the ascertainment of profitability as well as presentation of information for the purpose of managerial decision making'.

- **Scope of Cost Accounting**

The scope of cost accounting is very wide and includes the following:

(i) **Cost Ascertainment:** It deals with the collection and analysis of expenses, the measurement of production of the different product at the different stages of manufacture and the linking up of production with the expenses. In fact, the varying procedures for the collection of expenses give rise to the different systems of costing as historical or actual costs, estimated costs, standard costs etc. Again, the varying procedures for the measurement of production have resulted in different methods of costing such as specific order costing, operation costing etc.

(ii) **Cost Book Keeping:** It involves maintenance of records of all costs incurred from their incurrence to their charge to departments, products and services. Such recording is done on the basis of double entry system. If the cost and financial accounts are kept separately then their reconciliation is also to be done in order to verify the accuracy of both sets of accounts.

(iii) **Cost Control:** Cost accounting also includes the utilization of cost information for exercising control. It involves a detailed examination of each cost in the light of benefit derived from the incurrence of the cost. Thus, cost is analyzed to recognize whether the current level of costs is satisfactory in the light of standards set in advance.

(iv) **Cost Reports:** Presentation of cost is the ultimate function of cost accounting. These reports are primarily for use by the management at different levels. Cost Reports forms the basis for planning and control, performance appraisal and managerial decision making.

- **Objectives of Cost Accounting**

Following are the major objectives of cost accounting:

a) To ascertain the cost per unit of the different products manufactured by a business concern.

b) To provide a correct analysis of cost of processes or operations and by different elements of cost.

c) To disclose sources for wastage and to prepare such reports which may be necessary to control such wastage.

d) To provide requisite data and serve as a guide to price fixation of products manufactured or services rendered.

e) To ascertain the profitability of each of the products and advise management as to how these profits can be maximized.

f) To exercise effective control of stocks of raw material, work-in-progress, consumable stores and finished goods in order to minimize the capital locked up in these stocks.

g) To present and interpret data for management planning, decision-making and control.

h) To help in the preparation of budgets and implementation of budgetary control.

i) To guide management in the formulation and implementation of incentive bonus plans based on productivity and cost savings.

j) To organize cost reduction programmes with the help of different departmental managers.

- **Cost Accounting and Financial Accounting**

(a) **Similarities between Cost Accounting and Financial Accounting**

The similarities can be summarized as follows:

(i) Both cost accounts and financial accounts are maintained using the double entry system of accounting.

(ii) Recording of transactions, both under the cost accounting system and financial accounting system, is made on the basis of common vouchers, invoices, and documents.

(iii) Both cost accounts and financial accounts involve the process of matching the costs and revenues of the related activity for the current period.

(iv) Both accounting systems keep records of direct costs and indirect costs.

(v) Both accounting systems enable the business to compare and reconcile trading results.

(vi) Both accounting systems assist managers in deciding on business policy and making managerial decisions.

The differences between the two are as follows:

Point of distinction	Financial Accounting	Cost Accounting
1. Purpose	It is prepared for providing information about the results of the business activities as a whole for a particular period to the users.	The main purpose of Cost Accounting is to provide information to the management for the proper planning, control and decision making.
2. Form of accounts	These accounts are kept in such a way as to meet the requirements of companies Act and Income Tax Act.	These accounts are generally kept voluntarily to meet the requirements of the management. But now companies Act has made it obligatory to keep cost records in some manufacturing industries.
3. Recording	It classifies, records and analyses the transactions in a subjective manner i.e., according to the nature of expenses.	It records the expenditure in an objective manner i.e., according to the purposes for which the costs are incurred.
4. Control	It lays emphasis on the recording aspect without attaching any importance on control	It provides a detailed system of control for materials, labour and overhead costs with the help of standard costing and budgetary control.
5. Periodicity of reporting	It reports operating results and financial position usually at the end of the year.	It gives information through cost reports to management as and when desired.

6. Analysis of profit	Financial accounts are the accounts of the whole business. They are independent in nature and disclose the net profit or loss of the business as a whole.	Cost Accounting is only a part of the financial accounts and discloses profit or loss of each product, job or service.
7. Reporting of costs	The costs are reported in aggregate in financial accounts	The costs are broken down on a unit basis in cost accounts.
8. Nature of transactions	Financial accounts relate to commercial transactions of the business and include all expenses viz., manufacturing office, selling and distribution etc.	Cost accounts relate to transactions connected with the manufacture of goods and services and include only those expenses which enter into production.
9. Information	Monetary information is only used (i.e., only monetary transactions are recorded).	Non-monetary information like units is also used (i.e., it deals with monetary as well as non- monetary information).
10. Figures	Financial accounts deal mainly with actual facts and figures.	Cost accounts deal partly with facts and figures and partly with estimates.
11. Reference	In devising or operating a system of financial accounting reference can be made in case of difficulty to the company law, case decisions and to the canons of sound professional practice.	No such reference is possible. Guidance can be had only from a body of convention followed by cost accountants.
12. Relative efficiency	Financial accounts do not provide information on the relative efficiencies of various workers, plants and machinery.	Cost accounts provide valuable information on the relative efficiencies of various plants and machinery.
13. Stock valuation	Stock is valued at cost or market price whichever is less	Stock is valued at cost

Definition of Cost Centre

Cost centres are the collecting places for costs before they are further analysed. For cost accounting purposes, departments are termed cost centres.

CIMA Official Terminology defines a cost centre as a production or service location, function, activity or item of equipment for which costs are accumulated.

Cost Centre may be of two types –personal cost centre and impersonal cost centre. Personal cost centre consists of a person or a group of persons. Cost centres which are not personal cost centres are impersonal cost centres.

Cost centres may also be classified into broad types i.e., Operating Cost Centres and Support- Service

Cost Centres. Operating Cost Centres are those which are in the chain of operations like machine shop, welding shop, assembly shop, operation theatre, call centre and so on.

Cost centre is often referred as a responsibility centre whose managers are normally accountable for only those costs that are under their control, also known as expense centres.

- **Definition of Cost Object**

Costs are often measured in terms of a product, a service to a hotel guest or a sales territory. These are known as Cost Object. CIMA Official Terminology states that cost object is (for example) a product, service, centre, activity, customer or distribution channel in relation to which costs are ascertained.

- **Definition of Cost Unit**

Cost Unit is a device for the purpose of breaking up costs into smaller sub divisions attributable to products or services.

CIMA official Terminology defines a cost unit as a unit of product or service in relation to which costs are ascertained. Cost unit should be appropriate to the type of business. It is important to note that once costs are traced to cost centres, they are further analysed in order to establish the cost per cost unit. Alternatively, some items of costs may be charged directly to a cost unit, for example direct materials and direct labour costs.

Cost units can be either single cost unit or composite cost unit as follows:

Single Cost Units		Composite Cost Units	
Industry	**Cost Unit**	**Industry**	**Cost Unit**
Power	Megawatt, Kilo Watt Hour (KWH)	Hotel	Room - Day
Cement	Metric Tonne (MT)	Hospital	Patient - Day
Automobile	Number of vehicles	Goods Transport	Tonne – kilometre
Audit Firm	Audit File / Chargeable hour	Passenger Transport	Passenger - Km

Cost Accounting Standards

The Institute of Cost Accountants of India, recognizing the need for structured approach to the measurement of cost in manufacture or service sector and to provide guidance to the user organizations, government bodies, regulators, research agencies and academic institutions to achieve uniformity and consistency in classification, measurement and assignment of cost to product and services, has constituted Cost Accounting Standards Board (CASB) with the objective of formulating the Cost Accounting Standards. Till date, the Board has issued 24 Cost Accounting Standards, Generally Accepted Cost Accounting Principles, 11 Guidance Notes. Consider the following link for a list of CASs: https://icmai.in/Knowledge-Bank/cas.php

- **Classification of Cost**

As per Para 4.3 of CAS 1, Classification of cost is the arrangement of items of costs in logical groups having regard to their nature (subjective classification) and purpose (objective classification).

Thus, in CAS 1, two types of classification (logical groups) are recommended.

a. Subjective classification (classification on the basis of nature) and

b. Objective classification (on the basis of purpose)

Accordingly, Para 6 of CAS 1 suggest five classifications along with some sub classifications. These are as follows.

1. **Classification by nature of expense (Para 6.1) –** on the basis of nature of the expense the elements of cost can be classified in the following three categories:

   a. **Material –** Material Costs are cost of materials used for the purpose of production of a product or rendering of a service, net of trade discounts, rebates, taxes and duties refundable that can be quantified with reasonable accuracy.

   b. **Employee -** Employee Costs are consideration, including benefits paid or payable to employees, permanent or temporary, for the purpose of production of a product or rendering of a service.

   c. **Expenses -** Expenses are costs other than material cost and employee cost for the purpose of production of a product or rendering of a service. For example - cost of utilities, payment for bought out services, job processing charge.

2. **Classification by traceability of the cost to a cost object (Para 6.2) –** on the basis of traceability costs are either direct cost or indirect cost.

   a. **Direct cost -** If a cost can be assigned to a cost object in an economically feasible way, it shall be termed as direct to that cost object. These are of three types

      (i) **Direct material cost -** Direct Material Costs are the cost of materials which can be assigned to a cost object in an economically feasible way.

      (ii) **Direct employee cost -** Direct Employee Cost are employee costs, which can be assigned to a cost object in an economically feasible way.

      (iii) **Direct expenses -** Direct Expenses are expenses except direct material and direct employee cost which can be assigned to a cost object.

   b. **Indirect cost –** if a cost is not identifiable as a direct cost, then it is referred as indirect cost. It comprises of the following.

      (i). **Indirect material -** Indirect Material Costs are cost of materials, which cannot be directly assigned to a particular cost object in an economically feasible way

      (ii). **Indirect employee cost -** Indirect Employee costs are employee costs, which cannot be directly assigned to a particular cost object in an economically feasible way.

      (iii). **Indirect expenses -** Indirect Expenses are expenses, which cannot be directly assigned to a particular cost object in an economically feasible way.

3. **Classification by function (Para 6.3)** – costs can be classified according the functions which are -

   (i) **Manufacturing/Production cost:** The cost of operating the manufacturing division of a company is production cost. It includes costs beginning with supplying materials, labour and services and ends with the primary packing of the product. Thus, it includes the cost of direct material, direct labour, direct expenses and factory overheads.

   (ii) **Administration cost:** The cost of formulating the policy, directing the organisation and controlling the operations, which is not related directly to a production, selling, distribution, research or development activity or function are administration costs.

   (iii) **Selling cost:** The cost of seeking to create and stimulate demand (sometimes termed as marketing) and of securing orders.

   (iv) **Distribution cost:** The expenditure incurred from making the packed product available for dispatch to making the reconditioned returned empty packages, if any, available for-use. Expenditure incurred in moving articles to and from prospective customers as in the case of goods on sale or return basis is also included in distribution cost.

   (v) **Research cost:** The cost of searching for new or improved products, new application of materials, or new or improved methods.

   (vi) **Development cost:** The cost of implementation of the decision to produce a new or improved product or to employ a new or improved method till the commencement of formal production of that product or by the method is development cost.

4. **Classification by nature of behaviour of the cost (para 6.4) -** Costs shall be classified based on behaviour in response to the changes in the activity levels such as, fixed cost, variable cost and semi-variable cost. Accordingly, costs are -

   (i) **Fixed cost -** Fixed costs are costs which do not vary with the change in the volume of activity.

   (ii) **Variable cost -** Variable costs are the cost which tends to directly vary with the volume of activity.

   (iii) **Semi variable cost -** Semi Variable Costs are the costs that contain both fixed and variable elements. They partly change with the change in the level of activity

5. **Classification by nature of production or operation process (para 6.5) -** Costs shall also be classified on the basis of nature of production or operation process. Operation Cost shall be the cost a specific operation involved in production of goods or rendering of services. Accordingly, costs are -

   (i) Job cost

   (ii) Batch cost shall be the aggregate cost related to a cost unit which consist of a group of similar articles or services which maintain its identity throughout one or more stages of production or operation.

(iii) Contract cost shall be the cost of a contract agreed upon between the contractee and the contractor.

(iv) Process cost shall be the cost of production or operation process where goods are produced or services rendered from a sequence of continuous or repetitive operations or processes during a period.

(v) Joint costs are the costs of common resources used for producing two or more products or rendering two or more services simultaneously.

1.2 Material, Labour, Overhead

I. Material Cost

Material is any substance (Physics term) that forms part of or composed of a finished product. i.e., material refers to the commodities supplied to an undertaking for the purpose of consumption in the process of manufacturing or of rendering service or for transformation into products. Materials are also known as Inventory. The term Materials / Inventory covers not only raw materials but also components, work-in-progress and finished goods and scrap also.

Material cost is the significant constituent of the total cost of any product. It constitutes 40% to 80% of the total cost. The percentages may differ from industry to industry. But for manufacturing sector the material costs are of greatest significance. Inventory also constitutes a vital element in the Working Capital. So, it is treated as equivalent to cash. Therefore, the analysis and control on Material Cost is very important.

- **Some Useful Concepts Associated with Material Cost**

  a) **Purchase:** Purchasing involves procurement of materials of requisite quantity and quality at economic price. It is of extreme importance particularly to a manufacturing concern because it has bearing on all vital factors of manufacture such as quantity, quality, cost, efficiency, economy, prompt delivery, volume of production and so on. Organizations normally have a separate department for this purpose.

  b) **Purchase Requisition:** Purchases Requisition is a request made to the Purchase Department to procure materials of given description and of the required quality and quantity within a specified period. It is a formal request and it authorizes the Purchase Department to issue a Purchase Order to secure periodic requirements of a given material or materials. It also helps provide guidance to the Purchase Department to estimate the future requirements in order to secure maximum purchase benefits in the form of higher discount and better credit terms.

  c) **Purchase Order:** Purchase Order (PO) is a request made in writing to selected supplier to deliver goods of requisite quality, quantity, (as per the purchase requisition) at the prices, terms and conditions agreed upon. It is a commitment on the part of the purchaser to accept the delivery of goods contained in the Purchase Order if the terms included therein, are fulfilled. Purchase Order contains details like (i) Purchase Order No; (ii) PO Date; (iii) Supplier Name and Address; (iv) Material Code; (v) Material description; (vi) Grade & Other particulars of the

material; (vii) Quantity to be supplied; (viii) Price; (ix) Place of delivery; (x) Taxes; (xi) Terms of Payment (Credit period) etc.

d) **Receipt and Inspection of Material – Goods Received Cum Inspection Note:** The stores department will receive the material after the gate entry. It will compare the quantities received with the PO quantity. GRN is a valuable document as it forms the basis of accounting entry in the stores ledger and stock records. It is the document basis for quality control department to carry inspection of the material in warded. It also forms the basis of payments to be made to the supplier in respect of the materials supplied by him. Supplier's invoices are checked with GRN.

- **Determining the Optimal Purchase Quantity**

  Important requirement for an efficient system of purchase control is to ensure that only the correct quantity of materials is purchased. The basic factors to be considered while fixing the ordering quantity are as follows:

  (i) There should be no overstocking.

  (ii) Materials should always be available in sufficient quantity to meet the requirements of production and to avoid plant shut down.

  (iii) Purchases should be made in economic lots.

Purchase department in manufacturing concerns is usually faced with the problem of deciding the quantity of various items, which they should purchase basing on the above factors. If purchases of material are made in bulk, then inventory cost will be high due to overstocking and carrying inventory for long. On the other hand, if the order size is small each time, then the ordering cost will be very high. In order to minimize ordering and carrying costs it is necessary to determine the order quantity which minimizes the total costs (ordering and carrying cost). The optimal ordering quantity, in this context, is known as Economic Order Quantity.

Economic Order Quantity is 'the size of the order for which both ordering and carrying cost are minimum'. Here, ordering costs are the costs which are associated with the ordering of material. It includes cost of staff posted for ordering of goods, expenses incurred on transportation, inspection expenses of incoming material etc. On the other hand, carrying costs are the costs for holding the inventories. It includes the cost of capital invested in inventories. Cost of storage, Insurance etc.

The assumptions underlying the Economic Ordering Quantity (EOQ): The calculation of economic order of material to be purchased is subject to the following assumptions:

(i) Ordering cost per order and carrying cost per unit per annum are known and they are fixed.

(ii) Anticipated usage of material in units is known.

(iii) Cost per unit of the material is constant and is known as well.

(iv) The quantity of material ordered is received immediately i.e., lead time is Zero.

The formula for EOQ is as follows –

$$EOQ = \sqrt{\frac{2AO}{C}}$$

Where A = Annual requirement; O = Ordering cost per order;

C = Carrying cost per unit per annum = Purchase price x Carrying cost %

Illustration 1:

Calculate the Economic Order Quantity from the following information. Also state the number of orders to be placed in a year.

Consumption of materials per annum = 10,000 Kg

Order placing cost per order = ₹50

Cost per kg. of raw materials = ₹2

Storage costs = 8% of average inventory

Solution:

Given,

Consumption of materials per annum = A= 10,000 Kg

Order placing cost per order = O = ₹50

Carrying cost per unit per annum = ₹ 2 x 8% = ₹ 0.16

So, $EOQ = \sqrt{\frac{2AO}{C}} = \sqrt{\frac{2 \times 10{,}000 \times 50}{0.16}}$ = 2,500 Kg.

No. of orders = 10,000/2,500 = 4

Total order cost = 4 x 50 = ₹200

Average inventory = $\frac{EOQ}{2}$ = 1,2500 kg

Total carrying cost = 1,250 x 0.16 = ₹200

Total inventory cost = ordering cost + carrying cost = 200 + 200 = ₹400

Note: At EOQ, total ordering and carrying costs are always equal.

- **Material Storage and Control**

Once the material is received, it is the responsibility of the stores-in-charge, to ensure that material movements in and out of stores are done only against the authorized documents. Stores-in-charge is responsible for proper utilization of storage space & exercise better control over the material in the stores to ensure that the material is well protected against all losses such as theft, pilferage, fire, misappropriation etc. To smoothly conduct these activities, materials received are appropriately classified and codified.

After the material classification and codification is done for all the materials, for each material code the organization needs to fix the Minimum Level, Maximum Level, Re-order Level and Re-order Quantity. It is the storekeeper's responsibility to ensure inventory of any material is maintained between the Minimum Level and Maximum Level. These levels are described below:

Maximum Level indicates the maximum quantity of an item of material that can be held in stock at any time.

Minimum Level indicates the lowest quantitative balance of an item of material which must be maintained at all times so that there is no stoppage of production due to the material being not available.

When the stock in hand reaches the ordering or re-ordering level, store keeper has to initiate the action for replenish the material. This level is fixed somewhere between the maximum and minimum levels in such a manner that the difference of quantity of the material between the Re-ordering Level and Minimum Level will be sufficient to meet the requirements of production up to the time the fresh supply of material is received.

Danger Level is the level at which normal issue of raw materials is stopped and only emergency issues are only made. This is a level fixed usually below the Minimum Level. When the stock reaches this level very urgent action for purchases is indicated.

The formulas for calculating the above levels are listed below:

(i) Re-Ordering level= Minimum Level + (Normal Rate of Consumption × Normal Re-order Period)

or

Re-Order level = Maximum Rate of Consumption X Maximum Re-Order period (lead time)

(ii) Maximum Level = Re-Order Level + Re-Order Qty – (Minimum Rate of Consumption × Minimum Re-Order Period)

(iii) Minimum Level = Re-Order level – (Normal Rate of Consumption X Normal Re-Order Period)

(iv) Danger Level = Normal Rate of Consumption × Maximum Reorder Period for emergency purchases

Consider the following illustration.

Illustration 2

The components A and B are used as follows:

Normal usage	300 units per week each
Maximum usage	450 units per week each
Minimum usage	150 units per week each
Reorder Quantity	A - 2,400 units; B - 3,600 units.
Reorder period	A - 4 to 6 weeks, B - 2 to 4 weeks.

Calculate for each component:

(a) Re-order Level (b) Minimum Level (c) Maximum Level (d) Average Stock Level.

Solution:

	Particulars	A	B
(a)	Reorder Level [Max. Consumption × Max. Re-order Period]	2700 units (450 × 6)	1800 units (450 × 4)
(b)	Minimum Level [ROL – (Normal Consumption × Normal Reorder period)]	1200 units [2700 – (300×5)]	900 units [1800 – (300×3)]
(c)	Maximum Level [ROL + ROQ – (Min. Consumption × Min. Reorder Period)]	4500 units [2700 + 2400 – (150×4)]	5100 units [1800 + 3600 –(150 × 2)]
(d)	Average Stock Level [Min. Level + Max. Level] / 2 OR [Min. Level + ½ Re-order Quantity]	2850 units [4500 + 1200]/2 (or) 2400 units 1200 + ½ (2400)	3000 units [5100 + 900]/2 (or) 2700 units 900 + ½ (3600)

Stores Records

The bin cards and the stores ledger are the two important stores records that are generally kept for making a record of various items.

(a) Bin Card: Bin Card is a quantitative record of receipts, issues and closing balance of items of stores. Separate bin cards are maintained for each item and are placed in shelves or bins. This card is debited with the quantity of stores received, credited with the quantity of stores issued and the balance of quantity of store is taken after every receipt or issue.

(b) Stores Ledger: Stores Ledger is maintained by the costing department to make record of all receipts, issues of materials with quantities, values (Sometimes unit rates also). Ledger resembles with bin cards except that receipts, issues and balances are shown along with their money value. The ledger contains an account for every item of stores in which receipts, issues and balances are recorded both in quantity and value. Normally there should not be any difference between the quantities shown in the Bin Card and the Stores Ledger. However, in practice differences arise mainly due to the reasons such as arithmetic error, non-posting of a document etc. The following is the format of Stores Ledger:

Stores Ledger Account											
Date	Receipts				Issues				Balance		
	GR No	Qty	Rate	Amount	SR No	Qty	Rate	Amount	Qty	Rate	Amount

Several methods of pricing of material issues have been evolved. Some of these methods are-

(i) First In First Out (FIFO)

(ii) Last In First Out (FIFO)

(iii) Simple Average Price Method

(iv) Weighted Average Price Method

Illustrtaion 3

Prepare a statement showing the pricing of issues, on the basis of -

(a) FIFO and

(b) Simple Average methods from the following information pertaining to Material-D

March 1 Purchased 100 units @ ₹10 each

2 Purchased 200 units @ ₹ 10.20 each.

5 Issued 250 units to Job X vide M.R.No.12

7 Purchased 200 units @ ₹10.50 each

10 Purchased 300 units @ ₹10.80 each

13 Issued 200 units to Job Y vide M.R.No.15

18 Issued 200 units to Job Z vide M.R.No.17

20 Purchased 100 units @ ₹11 each

25 Issued 150 units to Job K vide M.R.No.25

Solution:

(a) FIFO:

Stores Ledger Account

Date	Receipts			Issue			Balance	
	Qty.	Price (₹)	Value (₹)	Qty.	Price (₹)	Value (₹)	Qty.	Value (₹)
March 1	100	10	1000	—	—	—	100	1000
March 2	200	10.2	2040	--	--	--	300	3040
March 5	—	—	—	100	10	1000	50	510
				150	10.2	1530		
March 7	200	10.5	2100	--	--	--	250	2610
March 10	300	10.8	3240	--	--	--	550	5850
March 13	--	--	--	50	10.20	510	350	3765

				150	10.5	1575		
March 18	--	--	--	50	10.5	525	150	1620
				150	10.8	1620		
March 20	100	11	1100	--	--	--	250	2720
March 25	--	--	--	150	10.8	1620	100	1100

(a) Simple Average Method:

Stores Ledger Account

Date	Receipts			Issue			Balance	
	Qty.	Price (₹)	Value (₹)	Qty.	Price (₹)	Value (₹)	Qty.	Value (₹)
March 1	100	10	1000	—	—	—	100	1000
March 2	200	10.2	2040	--	--	--	300	3040
March 5	—	—	—	250	10.10 (1)	2525	50	515
March 7	200	10.5	2100	--	--	--	250	2615
March 10	300	10.8	3240	--	--	--	550	5855
March 13	--	--	--	200	10.50 (2)	2100	350	3755
March 18	--	--	--	200	10.65 (3)	2130	150	1625
March 20	100	11	1100	--	--	--	250	2725
March 25	--	--	--	150	10.90 (4)	1635	100	1090

Working Notes:

1. Calculation of Price for Issue on March 5th = (10 + 10.2) / 2 = ₹10.10
2. Calculation of Price for Issue on March 13th = (10.2 + 10.5 + 10.8) / 3 = ₹10.50
3. Calculation of Price for Issue on March 18th = (10.5 + 10.8) / 2 = ₹10.65
4. Calculation of Price for Issue on March 25th = (10.8 + 11) / 2 = ₹10.90

II. Labour Cost

Labour is an important element of cost and for overall cost control and cost reduction, Labour Cost is of paramount importance. It is also called as Employee Cost.

Labour Cost is classified into Direct Cost and Indirect Cost. Direct Labour Cost is the cost that can be identified with a product unit. It can also be described as cost of all labour incurred for altering the construction, composition or condition of the product. Indirect Labour Cost is the cost, which cannot be identified with a product unit. It represents the amount of wages which is paid to the workers who are not directly engaged on the production but it includes wages paid to the workers and assistants working in departments like purchasing, store keeping, time office, maintenance, and other service and production departments. In other words, indirect wages are the wages paid to the workers who facilitate the production rather than actually engaged in production. The Direct Labour Cost can be charged directly to the job or product units and is included in the prime cost. Indirect Labour Cost is included in the overhead cost.

- **Methods of Wage Payment**

One of the important components of Labour Cost Control is the wages system. A system of wage payment, which takes care of both, i.e. providing guarantee of minimum wages as well as offering incentive to efficient workers helps to motivate the workers to a great extent. It should also be remembered that high wages do not necessarily mean high labour cost because it may be observed that due to high wages the productivity of workers is also high and hence the per unit cost of production is actually decreased. On the other hand, if low wages are paid, it may result in lower productivity and hence higher wages do not necessarily mean high cost.

Two important wage payment systems are –

(a) Time Rate System: Under this method, rate of payment of wages per hour is fixed and payment is made accordingly on the basis of time worked irrespective of the output produced. In other words, Time Rate Wages = Time Taken (hours) × Rate per hour

Illustration 4

Time Taken for the job = 30 hours

Rate per hour = ₹2

Calculate the time rate wages.

Solution:

Time Rate Wages = Time Taken (hours) × Rate per hour = 30 x 2 = ₹60

(b) Piece Rate System: This method is also called as payment by results where the workers are paid as per the production achieved by them. Thus, if a worker produces higher output, he can earn higher wages.

In other words, Piece Rate Wages = Output produced (units) × Rate per unit

Workers may receive the same piece rate for whatever be the level of output or alternatively, there can be differential piece rates for different levels of output.

Illustration 5

From the following particulars, calculate the earnings of workers X and comment on the labour cost.

Standard time allowed: 20 units per hour

Normal time rate: ₹30 per hour

Differential Rate to be applied:

80% of piece rate when below standard

120% of piece rate at or above standard

In a particular day of 8 hours, X produces 140 units.

Solution:

Standard production per day is 20 units × 8 hours = 160 units

Worker X produces 140 units which means he is below standard and will get wages @ 80% of the normal piece rate.

X's earnings:

Normal piece rate = ₹30 per hour/20 units = ₹1.5 per unit

80% of the normal piece rate = ₹1.20 per unit

Earnings = ₹1.20 x 140 units = ₹168

Labour cost per unit = ₹168/140 units = ₹1.20

- **Premium Bonus Plans**

In the time rate system, the workers are paid according to the time taken while in case of piece rate system, the output produced by the worker decides his wages as rate per unit is fixed rather than rate per hour. In the premium bonus plans, the gain arising out of increased productivity is shared by both, the employer and employee. The bonus to be paid to the workers is computed on the basis of savings in the hours, i.e. the difference between the time allowed and time taken. The time allowed is the standard time, which is fixed by conducting a time and motion study by the work-study engineers.

The individual bonus schemes commonly used are as follows:

(i) **Halsey Premium Plan**

In this plan, bonus is paid on the basis of time saved. Standard time is fixed for a job and if the actual time taken is less than the same, the worker becomes eligible for bonus. However, bonus is paid equal to wages of 50% of the time saved. Thus,

Total Earnings = $H \times R + 50\% \times [S - H] \times R$

Where, H = Hours worked, R = Rate per hour, S = Standard time

(ii) **Halsey-Weir Premium Plan**

Under this method, there is only one difference as compared to the Halsey Plan and that is instead of 50% bonus for the time saved, it is 33% of the time saved. Accordingly the formula for this method is modified as follows.

Total Earnings = $H \times R + 33\% \times [S - H] \times R$

(iii) **Rowan Plan**

This premium bonus plan was introduced by Mr. James Rowan. It is similar to that of Halsey Plan in respect of time saved, but bonus hours are calculated as the proportion of the time taken which the time saved bears to the time allowed and they are paid for at time rate. The formula for computation of total earnings is as follows:

Total Earnings = $H \times R + [S - H]/S \times H \times R$

Apart from individual bonus plans, there are group bonus plans also where work is to be carried on in a group only.

Illustration 6

Time allowed for a job is 48 hours; a worker takes 40 hours to complete the job. Time rate per hour is ₹15. Compute the total earnings of the worker under the three bonus plans discussed above.

Solution:

(a) Halsey Plan

Total Earnings = H × R + 50% [S – H] R

Total Earnings = 40 × ₹15 + 50% [48 - 40] ₹15

Total Earnings = ₹600 + ₹60 = ₹660

(b) Halsey-Weir Plan

Total Earnings = H × R + $33^{1}/_{2}$% [S – H] R

Total Earnings = 40 × ₹15 + $33^{1}/_{2}$% [48 - 40] ₹15

Total Earnings = ₹600 + ₹40 = ₹640

(c) Rowan Plan

Total Earnings = H × R + [S – H]/S × H × R

Total Earnings = 40 × ₹15 + [48 – 40]/48 x 40 x ₹15

Total Earnings = ₹600 + ₹100 = ₹700

Illustration 7

From the following particulars work out the earnings for the week of a worker under:

(i) Straight Piece Rate

(ii) Differential Piece Rate

(iii) Halsey Premium System

(iv) Rowan System

Number of working hours per week — 48 hours

Wages per hour — ₹3.75

Normal time per piece — 20 Min

Normal output per week — 120 pieces

Actual output for the week — 150 pieces

Differential piece rate — 80% of the piece rate when output is below standard and 120% above standard.

Solution:

Computation of earnings for the week of a worker

(i) Piece rate = (48 x 3.75) / 120 = ₹1.5

Earnings under Straight Piece Rate = 150 x 1.5 = ₹225

(ii) Efficiency = (150 / 120) x 100 = 125% (> 100%)

Earnings under Differential Piece Rate = 150 x 1.5 x 120/100 = ₹ 270

(iii) Standard time for actual production = 48 x (150 / 120) = 60 hrs

Earnings under Halsey Plan = (48 x 3.75) + 50/100(60 – 48) x 3.75 = 180 + 22.5 = ₹ 202.5

(iv) Earnings under Rowan Plan = (48 x 3.75) + [(60-48 / 60) x (3.75 x 48)] = 180 + 36 = ₹ 216

- **Measurement of Employee Cost**

Measurement of Employee Cost: Inclusions and Exclusions:

The following items are to be included for the purpose of measuring employee cost:

(i) Any payment made to an employee either in cash or kind

(ii) Gross payments including all allowances payable and includes all benefits

(iii) Bonus, ex-gratia, sharing of surplus, remuneration payable to Managerial personnel including Executive Directors and other officers

(iv) Any amount of amortization arising out of voluntary retirement, retrenchment, termination, etc.

(v) Variance in employee payments/costs, due to normal reasons (if standard costing system is followed)

(vi) Any perquisites provided to an employee by the employer

The following items are to be excluded for the purpose of measuring employee cost:

(i) Remuneration paid to Non-Executive Director

(ii) Cost of idle time [= Hours spent as idle time x hourly rate]

(iii) Variance in employee payments/costs, due to abnormal reasons (if standard costing system is followed)

(iv) Any abnormal payment to an employee – which are material and quantifiable

(v) Penalties, damages paid to statutory authorities or third parties

(vi) Recoveries from employees towards benefits provided – this should be adjusted/reduced from the employee cost

(vii) Cost related to labour turnover – recruitment cost, training cost and etc.

(viii) Unamortized amount related to discontinued operations.

Illustration 8

Basic pay ₹5,00,000; Lease rent paid for accommodation provided to an employee ₹2,00,000, amount recovered from employee ₹40,000, Employer's Contribution to P.F. ₹75,000, Employee's Contribution to P.F. ₹75,000; Reimbursement of Medical expenses ₹67,000, Hospitalization expenses of employee's family member borne by the employer ₹19,000, Festival Bonus ₹20,000, Festival Advance ₹30,000. Compute the Employee cost.

Solution:

Computation of Employee Cost

	Particulars	Amount (₹)
	Basic Pay	5,00,000
Add	Net cost to employer towards lease rent paid for accommodation provided to an employee [= lease rent paid less amount recovered from employee] = [2,00,000 (-) 40,000]	1,60,000
Add	Employer's Contribution to PF	75,000
Add	Reimbursement of Medical Expenses	67,000
Add	Hospitalisation expenses of employee's family member paid by the employer	19,000
Add	Festival Bonus	20,000
	Employee Cost	8,41,000

Note:

(i) Festival advance is a recoverable amount, hence not included in employee cost.

(ii) Employee's contribution to PF is not a cost to the employer, hence not considered

III. Overhead Cost

According to CIMA, overhead costs are defined as the total cost of indirect materials, indirect labour and indirect expenses. Thus, all indirect costs like indirect materials, indirect labour, and indirect expenses are called as overheads. Examples of overhead expenses are rent, taxes, depreciation, maintenance, repairs, supervision, selling and distribution expenses, marketing expenses, factory lighting, printing stationery etc. As per CAS-3, overheads are defined as follows 'Overheads comprise costs of indirect materials, indirect employees and indirect expenses which are not directly identifiable or allocable to a cost object in an economically feasible manner'.

- **Classification of Overhead**

(a) Function-wise Classification:

(i) Manufacturing/Factory Overhead – e.g. depreciation of factory machinery

(ii) Office and Administrative Overhead – e.g. printing and stationery

(iii) Selling Overhead – e.g. Salary of salesmen

(iv) Distribution Overhead - e.g. Carriage outward

(b) Behaviour-wise Classification

(i) Fixed overhead – e.g. Rent

(ii) Variable overhead – e.g. consumable stores

(iii) Semi-variable overhead – e.g. Telephone bill

- **Overhead Accounting**

The ultimate aim of Overhead Accounting is to absorb them in the product units produced by the firm. Absorption of overhead means charging each unit of a product with an equitable share of overhead expenses. The important steps involved in Overhead Accounting are as follows:

(a) Collection, Classification and Codification of Overheads: Overheads collection is the process of recording each item of cost in the records maintained for the purpose of ascertainment of cost of each cost centre or unit. Classification of overhead is the process of arranging overhead costs into groups according to their degree of similarity. For example, based on elements, overhead costs are classified into Indirect Materials, Indirect labour and Indirect expenses, based on behaviour, overheads are classified into fixed, variable and semi-variable and based on function, overheads are classified into manufacturing overhead, office and administrative overhead, selling and distribution overhead. Codification can be done by allotting numerical codes or alphabetical codes or a combination of both. Since, there are numerous items of overheads, a code number to each one will facilitate identification of these items easily.

(b) Allocation, Apportionment and Reapportionment of overheads: After the collection, classification and codification of overheads, the next step is allocation and apportionment of overheads into the product units. In simple words complete distribution of an item of overhead to the departments or products (cost centre or cost units) on logical or equitable basis is called allocation. For example, electricity charges can be allocated to various departments if separate meters are installed, depreciation of machinery can be allocated to various departments as the machines can be identified. Unfortunately, in many cases, such allocation seems to be practically impossible or costly. If it is not possible to charge the overheads to a particular cost centre or cost unit, they are to be apportioned to various departments on some suitable basis. This process is called as 'Apportionment' of overheads. The basis for apportionment is normally predetermined and is decided after a careful study of relationships between the base and the other variables within the organisation. Overhead apportionment is done in two stages:

(i) Primary Distribution: Here, overhead costs are apportioned among various production as well as service departments on some suitable basis. Some suitable bases are as follows;

Overhead item	Basis
Rent and building	Floor space occupied by each department
General Lighting	No. of light points in each department
Telephones	No. of extensions in a department
Depreciation of factory building	Floor space
Material handling	No. of material requisitions or Value of material issued

(ii) Secondary Distribution: After the primary distribution as shown above is over, the next step is to re-distribute the service department costs over the production departments. This also needs to be done on some suitable basis, as there may not be a direct linkage between services and production activity. Some examples of the bases that can be used to distribute cost of different service departments are:

Service department	Basis
Quality	No of inspection done
Canteen, welfare	No workers
Internal transport	No. of trucks or trolleys used or Tonne-miles consumed
Payroll office	No. of labour hours
Purchase office	No of purchase orders or Value of material purchased

Based on whether the service departments are involved in inter-departmental services or not, various methods that are used in secondary distribution are – direct distribution, step distribution, reciprocal service, repeated distribution methods etc. However, the most useful method is simultaneous equation method.

Illustration 9

The summary as per primary distribution is as follows:

Production departments A- ₹2400; B- ₹2100 & C- ₹1500

Service departments X - ₹700; Y- ₹900

Expenses of service departments are distributed in the ratios of:

X dept.: A- 20%, B- 40%, C- 30% and Y- 10%

Y dept.: A- 40%, B- 20%, C- 20% and X- 20%

Show the distribution of service costs among A, B and C under repeated distribution method.

Solution:

Particulars	Production departments			Service departments	
	A	B	C	X	Y
As per primary distribution	2400	2100	1500	700	900
Service dept X	140	280	210	(700)	70
Service dept Y	388	194	194	194	(970)
Service dept X	38.8	77.6	58.2	(194)	19.4
Service dept Y	7.76	3.88	3.88	3.88	(19.4)
Service dept X	0.776	1.552	1.164	(3.88)	0.388
Total	2975.336	2657.032	1967.244	0	0.388

It can be noticed that the undistributed balance in service department is very negligible and thus can be ignored for further distribution.

Illustration 10

Refer to the previous illustration. Apply simultaneous equation method.

Solution:

In the above Illustration No. 3, service dept X gives 10% of its service to Y and receives 20% of Y's service.

Let 'x' be the total expenses of dept X (its own + share of Y) and

'y' be the total expenses of dept Y (its own + share of X)

This can be expressed as:

'x' = 700 + 20% of 'y' and

'y' = 900 + 10% of 'x'

i.e. x = 700 + 0.2y and

y = 900 + 0.1x

Multiplying both equations by 10, we get

10x = 7000 + 2y i.e. 10x –2y = 7000 and

10y = 9000 + x i.e. -x+10y = 9000

Now multiplying 2nd equation by 10, and then adding the two equations, we get –

98y = 97000

Thus y = 990 and x = 898

Based on this we distribute the service department costs over production departments.

Redistribution Statement

	Department				
	A	B	C	X	Y
Primary Distribution	2400	2100	1500	700	900
X	180	359	269	(898)	90
Y	396	198	198	198	(990)
Total	2976	2657	1967	—	—

(c) Absorption of Overheads: Once the steps of primary and secondary distribution are carried out, what we get is total indirect costs of production departments. The next step is to assign these totals to the individual product units. A job or a product passes through all or many production departments before it is formed into a finished saleable product. It is necessary to know the cost of each department it passes through per unit. The absorption of overhead enables a Cost Accountant to recover the overhead cost spent on each product department through each unit produced.

Thus, absorption means 'recording of overheads in Cost Accounts on an estimated basis with the help of a predetermined overhead rate, which is computed at normal or average or maximum capacity'

In general, the formula for overhead absorption rate is give as:

Overhead Rate = Amount of Overhead / No of units of the base

Overhead rate can be Actual or Predetermined Overhead Rate. Actual Overhead Rate is obtained by dividing the overhead expenses incurred during the accounting period by actual quantum on the base selected. On the other hand, Predetermined Rate is computed by dividing the budgeted overhead expenses for the accounting period by the budgeted base. Normally, organization apply a Predetermined Rate and then adjust for overhead under or over absorption.

Based on the particular base used, overhead absorption rates can be of many types such as –

(i) Production Unit Method

(ii) Percentage of Direct Material Cost

(iii) Percentage of Direct Wages Cost

(iv) Percentage of Prime Cost

(v) Direct Labour Hour Rate

(vi) Machine Hour Rate

(vii) Dual Rate

Illustration 11: A Comprehensive Problem

The New Enterprises Ltd. has three producing departments A, B and C two service Departments D and E. The following figures are extracted from the records of the Co. (₹)

Rent and Rates	5,000
General Lighting	600
Indirect Wages	1,500
Power	1,500
Depreciation on Machinery	10,000
Sundries	10,000

The following further details are available:

	A	B	C	D	E
Floor Space (Sq. Mts.)	2,000	2,500	3,000	2,000	500
Light Points	10	15	20	10	5
Direct Wages	3,000	2,000	3,000	1,500	500
H.P. of machines	60	30	50	10	--

Working hours	6,226	4,028	4,066	--	--
Value of Material	60,000	80,000	1,00,000	--	--
Value of Assets	1,20,000	1,60,000	2,00,000	10,000	10,000

The expenses of D and E are allocated as follows:

	A	B	C	D	E
D	20%	30%	40%	---	10%
E	40%	20%	30%	10%	--

What is the factory cost of an article if its raw material cost is ₹50, labour cost ₹30 and it passes through Departments A, B and C. For 4, 5 & 3 hours respectively?

Solution:

Primary Distribution Summary

Particulars	Basis	Total (₹)	A (₹)	B (₹)	C (₹)	D (₹)	E (₹)
Rent & Rates	Space (4:5:6:4:1)	5,000	1,000	1,250	1,500	1,000	250
Lighting	Light Points (2:3:4:2:1)	600	100	150	200	100	50
Indirect wages	Direct wages (6:4:6:3:1)	1,500	450	300	450	225	75
Power	Horse Power (6:3:5:1)	1,500	600	300	500	100	--
Depreciation	Value of Asset (12:16:20:1:1)	10,000	2,400	3,200	4,000	200	200
Sundries	Direct wages (6:4:6:3:1)	10,000	3,000	2,000	3,000	1,500	500
Wages	Actual	2,000	--	--	--	1,500	500
		30,600	7,550	7,200	9,650	4,625	1,575

Secondary Distribution Summary

Particulars	**A**	**B**	**C**	**D**	**E**
Totals	7,550	7,200	9,650	4,625	1,575
Cost of D (2:3:4:1)	925	1,387	1,850	(4,625)	463
	8,475	8,587	11,500	--	2,038
Cost of E (4:2:3:1)	815	408	611	204	(2,038)
	9,290	8,995	12,111	204	--
Cost of D (2:3:4:1)	41	61	82	(204)	20
	9,331	9,056	12,193	--	20
Cost of E (4:2:3:1)	8	4	6	2	(20)
	9,339	9,060	12,199	2	--
Cost of D (2:3:4:1)	--	1	1	(2)	--
	9,339	**9,061**	**12,200**	--	--
Working Hours	6,226	4,028	4,066		
Rate per hour	1.5	2.25	3.00		

Computation of Factory Cost of the Article

Particulars	Amount (₹)
Material	50.00
Labour	30.00
Overheads	
Dept A (4 x 1.5)	6.00
Dept B (5 x 2.25)	11.25
Dept C (3 x 3)	9.00
Factory Cost	**106.25**

1.3 Ascertainment of Cost (Cost Sheet)

- **Concept of Cost Sheet**

A cost sheet, also referred as statement of cost, is a statement that shows the various components of total cost for a product. The selling price (after adding certain percentage of profit to the cost) can be deduced for a product based on the cost sheet. It is the depiction of the cost accumulation process of a single output based on a single cost unit. An estimated cost sheet is prepared based on estimated cost just before the production begins. Under absorption costing system, direct material, direct labour, direct expenses, fixed and variable production overhead are considered as composing the factory (works) cost. Administrative overhead added to works cost gives the cost of production. Selling and distribution overhead adds to cost of production to give the cost of sales.

The term conversion cost is used to represent the cost of converting raw material into finished goods. Thus, conversion cost is the sum of direct labour cost, direct expenses and production overhead. Cost sheet shows the operating results.

- **Format of a Cost Sheet**

Cost Sheet or Statement of Cost and Profit

Particulars	Amount (₹)	Amount (₹)
A. Direct Material		
Opening stock		
+ Purchases		
+ Carriage inwards		
- Closing stock		
B. Direct wages		
C. Direct Expenses		
I. Prime cost (A+B+C)		

D. Factory overheads- Indirect materials Loose tools Indirect wages Rent and rates (Factory) Lighting and heating (F) Power and fuel Repairs and Maintenance Drawing office expenses Research and experiment Depreciation – plant (F) Insurance – (F) Work manger's salary Add: Opening Work-in-progress Less: Closing Work-in-progress		
II. Factory cost/works cost (I+D)		
E. Office and Administrative Overheads		
Rent and rates – office		
Salaries – Office		
Insurance of office building and equipment		
Telephone and postage		
Printing and stationery		
Depreciation of furniture and office equipment		
Legal expenses		
Audit fees		
Bank charges		
III. Cost of production (II + E)		
Add: Opening Stock of Finished Goods Less: Closing Stock of Finished Goods		
IV. Cost of Goods Sold		
F. Selling and distribution overheads		
Showroom rent and rates		
Sales men's salaries and commission		
Traveling expenses		
Printing and stationery – sales department		
Advertising		
Postage		
Collection expenses		
Carriage outward		
Depreciation of delivery van		
Samples and free gifts		
V. Cost of sales (IV+F)		
VI. Profits / loss		
VII. Sales (V + VI)		

Note: The following items are, however, not included in Cost Sheet.

a)	Income Tax
b)	Dividends to shareholders
c)	Premium on redemption of shares and debentures
d)	Capital losses i.e., loss out of sales
e)	Interest on loan or debentures or bank interest
f)	Donations
g)	Capital expenditure
h)	Discounts on shares and debentures
i)	Commission to managing directors
j)	Underwriting commission
k)	Writing off goodwill and preliminary expenses
l)	Reserve for bad debts
m)	Transfer to all reserves or appropriation of profits
n)	Share premium
o)	Interest on capital
p)	Drawing of proprietors
q)	All personal expenses of owner

Illustration 12

Prepare a statement of cost from the following data to show material consumed, Prime cost, factory cost, Cost of goods sold and profit.

	1-1-2021 (₹)	31-12-2021 (₹)
Raw material	60,000	50,000
Work-in-progress	24,000	30,000
Finished goods	1,20,000	1,10,000
Purchase of materials during the year		9,00,000
Wages paid		5,00,000
Factory overheads		2,00,000
Administration overheads		50,000
Selling and distribution overheads		30,000
Sales		20,00,000

Solution:

Statement of Cost and Profit

Particulars	(₹)	(₹)
Opening stock of raw materials	60,000	
Add: purchase of raw materials	9,00,000	
	9,60,000	
Less: Closing stock of raw materials	50,000	
Materials consumed		9,10,000
Wages paid		5,00,000
Prime cost		14,10,000
Factory overheads		2,00,000
Add: opening stock or WIP		24,000
		16,34,000
Less: closing stock of WIP		30,000
Factory cost		16,04,000
Administrative overheads		50,000
Cost of production		16,54,000
Add: opening stock of finished goods		1,20,000
		17,74,000
Less: closing stock of finished goods		1,10,000
Cost of goods sold		16,64,000
Selling and distribution overheads		30,000
Cost of sales		16,94,000
Profit (bal. fig.)		3,06,000
Sales		20,00,000

Illustration 13

From the following particulars, prepare cost statement showing the component of total cost and the profit for the year ended 31st December, 2021.

Particulars	1-1-2021 (₹)	Particulars	31-12-2021 (₹)
Stock of finished goods	6,000	Stock of finished goods	15,000
Stock of raw materials	40,000	Stock of raw material	50,000
Work-in-progress	15,000	Work-in-progress	10,000
Purchase of raw materials	4,75,000	General expenses	32,500
Carriage inward	12,500	sales for the year	8,60,000

Wages	1,75,000	Income tax	500
Works manager's salary	30,000	Dividend	1,000
Factory employees' salaries	60,000	Debenture interest	5,000
Factory rent, taxes and Insurance	7,250	Goodwill written off	10,000
replacement of machinery	10,000	Selling expenses	9,250
Power expenses	9,500		
Other production expenses	43,000		

Solution:

Statement of Cost and Profit

Particulars	₹	₹
Opening stock of raw materials	40,000	
Add: purchase of raw materials	4,75,000	
	5,15,000	
Less: closing stock of raw materials	50,000	
	4,65,000	
Add: Carriage inward	12,500	
Materials consumed		4,77,500
Wages		1,75,000
Prime cost		6,52,500
Factory expenses:		
Works manager's salary	30,000	
Factory employees' salaries	60,000	
Factory rent, taxes and insurance	7,250	
Power expenses	9,500	
Other production expenses	43,000	
Opening work-in-progress	15,000	1,64,750
		8,17,250
Less: closing work-in-progress		10,000
Works cost		8,07,250
General expenses		32,500
Cost of production		8,39,750
Add: opening stock of finished goods		6,000
Less: closing stock of finished goods		8,45,750
		15,000
Cost of goods sold		8,30,750

Selling expenses		9,250
Cost of sales		8,40,000
Profit (Bal. fig)		20,000
Sales		8,60,000

Methods of Costing 2

This Unit Includes the Following Topics:

a. **Job/Batch/Contract**

b. **Process Accounts (Basic concept of simple process, Equivalent Production, Inter process profit)**

c. **Joint Product and By Product**

d. **Operating/Service Costing**

Unit Learning Objectives:

After studying this unit, students will be able to:

- **Understand cost determination under Job/Batch/Contract Costing**
- **Understand cost determination under Process Costing**
- **Understand joint cost allocation among Joint and By Products**
- **Understand cost determination under Operating/Service Costing**

Methods of Costing

Costing is the technique and process of ascertaining costs. In order to do the same, it is necessary to follow a particular method of ascertaining cost. A costing method is designed to suit the way goods are processed or manufactured or the way services are provided. Each organization's costing method will therefore have unique features but costing methods of firms in the same line of business will more than likely have common aspects. Broadly, the costing methods are classified in the following:

a. Specific Order Costing (Job Costing, Batch Costing and Contract Costing)

b. Operation or Process Costing

a. **Specific Order Costing:** Specific order costing is the category of basic costing methods applicable where the work consists of separate jobs, batches or contracts each of which is authorized by a specific order or contract. It includes job costing, batch costing and contract costing. If products are identified as individual units according to the terms of the Jobs, Contracts or Batches, Specific Order Costing is followed by the organization concerned.

b. **Operation or Process Costing** is followed in organizations products are produced through certain processes.

In addition to the above, **Operating or Service Costing** is applied in service organizations such as transport companies or hotels etc.

2.1 Job/Batch/Contract Costing

2.1.1 Job Costing

Job Costing is the accounting system that traces costs to individual units or to specific jobs, contracts, or batches of goods. The method is also known by various other names, such as specific order costing, production order costing, job lot costing or lot costing.

A job is simply a product or service that can be easily (in other words, at reasonable cost) distinguished from other products or services and for which the firm desires that a specific cost be recorded for the product or service. Firms that produce jobs are often called job shops. The record of the cost of the job kept in the accounting system is called job cost sheet or job cost cards.

- **Features of Job Costing**

  (a) Each job maintains its separate identity throughout the production stage.

  (b) The job is meant for a specific customer and not meant for a mass market.

  (c) Production pattern is not repetitive and continuous.

  (d) Production begins only after getting order from the customer.

  (e) Each job is executed as per the requirement of the customer. Each job order is considered as a separate cost unit.

  (f) Duration of production cycle is usually short but a large order may extend beyond one year.

  (g) A Job Cost Sheet is prepared and Job Register is maintained to record particulars of the job like price, date of commencement, special requirement etc. Profit or Loss is calculated on the completion of the job.

- **Advantages of Job Costing**

  Job costing offers the following advantages:

  (a) The cost of material, labour and overhead for every job or product in a department is available daily, weekly or as often as required while the job is still in progress.

  (b) On completion of a job, the cost under each element is immediately ascertained. Costs may be compared with the selling prices of the products in order to determine their profitability and to decide which product lines should be pushed or discontinued.

(c) Historical costs for past periods for each product, compiled by orders, departments or machines, provide useful statistics for future production planning and for estimating the costs of similar jobs to be taken up in future. This assists in the prompt furnishing of price quotations for specific jobs.

(d) The adoption of predetermined overhead rates in job costing necessitates the application of a system of budgetary control of overhead with all its advantages.

(e) The actual overhead costs are compared with the overhead applied at predetermined rates; thus, at the end of an accounting period, overhead variances can be analysed.

(f) Spoilage and defective work can be easily identified with specific job or product

(g) Job costing is particularly suitable for cost plus and such other contracts where selling price is determined directly on the basis of costs.

- **Limitations of Job Costing**

The limitations of job costing are:

(a) Job costing is comparatively more expensive as more clerical work is involved in identifying each element of cost with specific departments and jobs.

(b) With the increase in the clerical processes, chances of errors are enhanced.

(c) The cost as ascertained, even where they are compiled very promptly, are historical as they are compiled after incidence.

(d) The cost compiled under job costing system represents the cost incurred under actual conditions of operation. The system does not have any scientific basis.

- **Preparation of a Job Cost Sheet**

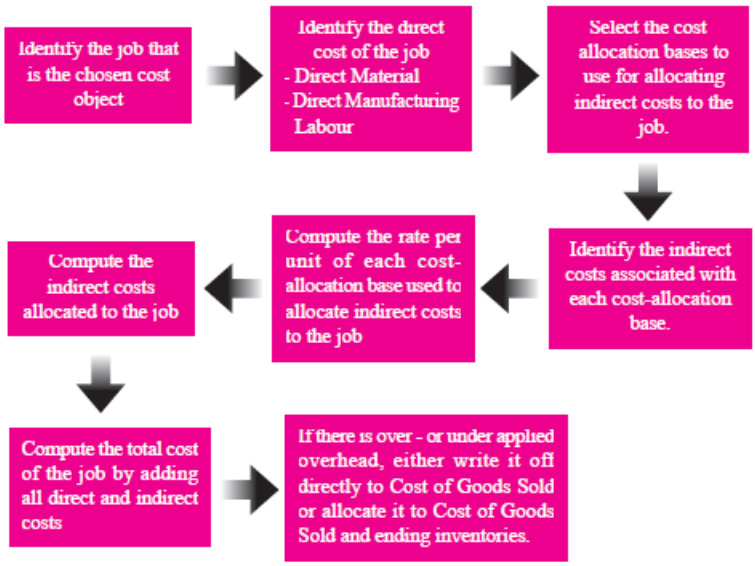


Figure 2.1: Steps in Preparation of Job Cost Sheet

- **Illustrative Examples**

Illustration 1

As newly appointed Cost Accountant, you find that the selling price of Job No. 9669 has been calculated on the following basis:

Particulars	₹
Materials	12.08
Direct Wages – 22 hours at 25 paise per hour	5.50
Department A – 10 hours,	
B – 4 hours	
C - 8 hours	17.58
Plus 33% on Prime Cost	5.86
	23.44

An analysis of the previous year's profit and loss account shows the following:

Particulars	₹	**Particulars**	₹
Materials Used	77,500	Factory Overheads:	
Direct Wages:		A	2,500
A	5,000	B	4,000
B	6,000	C	1,000
C	4,000	Selling Costs	30,000

You are required to:

(a) Draw up a Job Cost Sheet;

(b) Calculate and enter the revised costs using the previous year's figures as a basis;

(c) Add to the total job cost 10% for profit and give the final selling price.

Solution:

In order to draw up Job Cost Sheet, the factory overhead rates of different departments and percentage of selling cost will have to be determined first on the basis of previous year's figures as follow:

Factory Overhead Rates:

Particulars	**Department**		
	A	B	C
	₹	₹	₹
Factory Overheads	2,500	4,000	1,000
Direct Labour Hours (D.W. x 4)	20,000	24,000	16,000
Factory Overhead Rates per hour	0.125	0.167	0.063

Percentage of Selling Cost on Works Cost = $\frac{₹30,000}{₹1,00,000} \times 100 = 30\%$

Cost Sheet

Job No. 9669			Period
Particulars			₹
Materials			12.08
Direct Wages:			
Dept. A		2.50	
Dept. B		1.00	
Dept. C		2.00	5.50
Prime Cost			17.58
Factory Overheads:			
Dept. A	(10 hours. @ ₹0.125)	1.25	
Dept. B	(4 hours. @ ₹0.167)	0.67	
Dept. C	(8 hours. @ ₹0.063)	0.50	2.42
Works Cost			20.00
Selling Cost (30% of Works Cost)			6.00
Cost of Sales			26.00
Profit (10% on Cost)			2.60
Selling Price			28.60

Illustration 2:

The data pertaining to Heavy Engineering Ltd. using are as follows at the end of 31.3.2017. Direct material ₹9,00,000; Direct wages ₹7,50,000; Selling and distribution overhead ₹5,25,000; Administrative overhead ₹ 4,20,000, Factory overhead ₹ 4,50,000 and Profit ₹ 6,09,000.

(a) Prepare a cost sheet showing all the details.

(b) For 2012-13, the factory has received a work order. It is estimated that the direct materials would be ₹ 12,00,000 and direct labour cost ₹ 7,50,000. What would be the price of work order if the factory intends to earn the same rate of profit on sales, assuming that the selling and distribution overhead has gone up by 15%? The factory recovers factory overhead as a percentage of direct wages and administrative and selling and distribution overheads as a percentage of works cost, based on the cost rates prevalent in the previous year.

Solution:

Statement of cost and profit

Particulars	₹
Direct Materials	9,00,000
Direct Wages	7,50,000
Prime Cost	16,50,000

Factory Overheads (60% of wages)	4,50,000
Works Cost	21,00,000
Administration Overhead (20% of works cost)	4,20,000
Cost of Production	25,20,000
Selling & Distribution Overheads (25% of Works Cost)	5,25,000
Cost of Sales Profit (1/5 of Cost) Sales	36,54,000

Estimated price of work order

Particulars	₹
Direct Materials	12,00,000
Direct Wages (or labour)	7,50,000
Prime Cost	19,50,000
Factory Overheads (60% of wages)	4,50,000
Works Cost	24,00,000
Administration Overhead (20% of works cost)	4,80,000
Cost of Production	28,80,000
Selling & Distribution Overheads (40% i.e., 25 % + 15% of Works Cost)	9,60,000
Total Cost	38,40,000
Profit (1/5 of Total Cost)	7,68,000
Estimated Sales price	46,08,000

Illustration 3:

A shop floor supervisor of a small factory presented the following cost for Job no.555 to determine selling price.

Particulars	Per unit (₹)
Materials	70
Direct Wages 18 hours at 2.5	45
Dept. X-8 hours	
Dept. Y-6 hours	
Dept. Z-4 hours	
Chargeable expenses (special stores items)	5
	120
Plus 33% Overheads	40
	160

Analysis of the Profit/Loss Account for 2016 shows the following

Particulars	₹	₹	Particulars	₹	₹
Materials		1,50,000	Sales		2,50,000
Direct Wages:					
Dept. X	10,000				
Dept. Y	12,000				
Dept. Z	8,000	30,000			
Special stores items		4,000			
Overheads:					
Dept. X	5,000				
Dept. Y	9,000				
Dept. Z	2,000	16,000			
		2,00,000			
Gross profit c/d		50,000			
		2,50,000	Gross profit b/d		2,50,000
Selling expenses		20,000			50,000
Net profit c/d		30,000			
		50,000			50,000

It is also noted that average hourly rates for the 3 departments, X, Y and Z are similar.

You are required:

(a) Draw up a job cost sheet;

(b) Calculate the entire revised cost using 2016 actual figures as basis;

(c) Add 20% to total cost to determine selling price.

Solution:

Calculation of Departmental Overhead Rates

Particulars	Departments		
	X (₹)	Y (₹)	Z (₹)
(i) Direct Wages	10,000	12,000	8,000
(ii) Rate of wages per hour	2.5	2.5	2.5
(iii) Hours	4000	4800	3200
(iv) Actual Overheads in 8%	5000	9000	2000
(v) Department Overhead Rates per hour (iv ' iii)	1.250	1.875	0.625

Revised job cost sheet

Particulars			₹
Materials			70
Labour:			
Dept. X	8 x 2.5	20	
Dept. Y	6 x 2.5	15	
Dept. Z	4 x 2.5	10	45
Direct Expenses			5
Prime Costs			120
Overheads:	8 x 1.250		
Dept. X	6 x 1.875	10.00	
Dept. Y	4 x 0.625	11.25	23.75
Dept. Z		2.50	
Total Cost			143.75
Add: Profit 20%			28.75
Selling Price			172.50

Illustration 4:

In a factory following the Job Costing Method, an abstract from the work in process as at 30th September, was prepared as under.

Job No.	Materials	Direct Labour	Factory Overheads Applied (₹)
115	1,325	400 hrs 800	640
118	810	250 hrs. 500	400
120	765	300 hrs 475	380
	2,900	**1,775**	**1,420**

Materials used in October were as follows:

Material requisitions No.	Job no.	Cost (₹)
54	118	300
55	118	425
56	118	515
57	120	665
58	121	910
59	124	720
		3,535

A summary of Labour Hours deployed during October is as under:

JOB NO.	NUMBER OF HOURS	
	SHOP A	SHOP B
115	25	25
118	90	30
120	75	10
121	65	-
124	20	10
	275	75
Indirect Labour:		
Waiting for material	20	10
Machine breakdown	10	5
Idle time	5	6
Overtime premium	6	5
	316	101

A shop credit slip was issued in October, that material issued under requisition No.54 was returned back to stores as being not suitable. A material transfer note issued in October indicated that material issued under requisition No.55 for Job 118 was directed to Job 124.

The hourly rate in shop A per labour hour is ₹3 while at shop B it is ₹ 2 per hour. The factory overhead is applied at the same rate as in September; Jobs 115, 118 and 120 were completed in October.

You are asked to compute the factory cost of the completed jobs. It is practice of the management to put a 10% on the factory cost to cover administration and selling overheads and invoice the job to the customer on a total cost plus 20% basis what would be the invoice price of these three jobs?

Solution:

Calculation of selling price of the Job

Job No.	115	118	120
	₹	₹	₹
Costs in September:			
Material	1,325	810	765
Labour	800	500	475
Overheads	640	400	380
Total (A)	2,765	1,710	1,620
Costs in October:			
Material	-	515	665
Labour			

(25 x 3)+(25 x 2)	125		
(90 x 3)+(30 x 2)		330	
(75 x 3)+(10 x 2)			245
Overheads (80%)	100	264	196
Total (B)	225	1,109	1,106
Total Factory Cost (A+B)	2,990	2,819	2,726
Add: Admn. Overheads' 10%	299.0	281.9	272.6
	3,289.0	3,100.9	2,998.6
Profit 20%	651.80	620.18	599.72
Selling Price	3,946.80	3,721.08	3,598.32

2.1.2 Batch Costing

As per CIMA Official Terminology, Batch costing is a 'form of specific order costing where costs are attributed to batches of product (unit costs can be calculated by dividing by the number of products in the batch)'.

- **Essential features of Batch Costing**

  a. Each batch is treated as a cost unit.

  b. All costs are accumulated and ascertained for each batch.

  c. A separate Batch Cost Sheet is used for each batch and is assigned a certain number by which the batch is identified.

  d. The cost per unit is ascertained by dividing the total cost of a batch by the number of items produced in that batch.

- **Applications of Batch Costing**

  Batch Costing is applied in those industries where the similar articles are produced in definite batches for internal consumption in the production of finished products or for sale to customers generally. It is generally applied in –

  a. Readymade Garments Manufacturing Industries.

  b. Pharmaceutical / Drug Industries.

  c. Spare parts and Components Manufacturing Industries.

  d. Toys Manufacturing Industries.

  e. Tyres and Tubes Manufacturing Industries.

- **Economic Batch Quantity (EBQ)**

  Economic Batch Quantity refers to the optimum quantity batch which should be produced at a point of time so that the set up and processing costs and carrying costs are together optimized.

(a) Setting up and Processing Costs

The setting up and processing costs refer to the costs incurred for setting up and processing operations before the start of production of a batch. There is an inverse relationship between batch size and set up and processing costs.

Large the Batch size: Lower the set-up costs because of few batches.

Smaller the Batch size: Higher the set-up costs because of more batches.

(b) Carrying Costs

The carrying costs refer to the costs incurred in maintaining a given level of inventory. There is positive relationship between batch size and carrying costs.

Large the Batch size: Higher the carrying costs because of high average inventory.

Smaller the Batch size: Lower the carrying costs because of low average inventory.

(c) The Trade-off between the Two Costs

The optimum quantity of batch which should be produced at a point of time determined after achieving a trade-off between set up costs and carrying costs. Such batch size is known as EBQ because annual total cost of set up and carrying is minimum at this batch size.

Economic Batch Quantity = $\sqrt{\frac{2AS}{C}}$

where, A = Annual Demand

S = Set up Cost per batch

C = Carrying Cost per unit per year

Illustration 5

From the following information, calculate Economic Batch Quantity for a company using batch costing:

Annual Demand for the components	2,400 units
Setting up cost per batch	₹ 100
Manufacturing cost per unit	₹ 200
Carrying cost per unit	6% p.a.

Solution:

$EBQ = \sqrt{\frac{2AS}{C}}$

where, EBQ = Economic Batch Quantity

A = Annual Demand = 2,400 units

S = Set up cost per batch = ₹ 100

C = Carrying cost per unit per year = 200 × 6% = ₹12

$EBQ = \sqrt{\frac{2 \times 2{,}400 \times 100}{12}}$ = 200 units

Illustration 6

AB Ltd is committed to supply 24,000 bearings per annum to CD Ltd on a steady basis. It is estimated that it costs 10 paise as inventory holding cost per bearing per month and that the set-up cost per run of bearing manufacture is ₹ 324.

(a) What would be the optimum run size for bearing manufacture?

(b) What is the minimum inventory holding cost at optimum run size?

(c) Assuming that the company has a policy of manufacturing 6,000 bearing per run, how much extra costs would the company be incurring as compared to the optimum run suggested in (a)?

Solution:

(a) Optimum Production Run Size = $\sqrt{\frac{2AS}{C}}$

where, A = Number of units to be produced within one year = 24,000 bearings

S = Setup cost per production run = ₹ 324

C = Carrying cost per unit per annum = ₹ 0.10 × 12 months = ₹ 1.20

Optimum Production Run size = $\sqrt{\frac{2 \times 24{,}000 \times 324}{1.20}}$ = 3,600 bearings

(b) Minimum Inventory holding cost at Optimum Production Run Size

= Average Inventory × Carrying Cost per unit per annum

= 3600/2 ×1.20 = ₹ 2,160

(c) Statement showing Total Cost at Production Run size of 3,600 and 6,000 bearings

Particulars	Production Run Size	
	3600	6000
i. Annual Requirements	24,000	24,000
ii. Number of Runs	24000/3600 = 7 (app)	24000/6000 = 4
iii. Setup Cost per run	324	324
iv. Average Inventory	3600/2 = 1800	6000/2 = 3000
v. Carrying Cost per unit per annum	₹0.10 × 12months = ₹1.20	₹0.10 × 12 months = ₹1.20
	(₹)	(₹)
Total Set up Cost (ii × iii)	(7 × ₹ 324) = 2,268	(4 × ₹ 324) = 1,296
Total Carrying Cost (iv × v)	1,800 × 1.20 = 2,160	3,000 × 1.20 = 3,600
Total Cost	4,428	4,896

Extra Cost incurred, if run size is 6,000 bearings = ₹ 4,896 - ₹ 4,428 = ₹ 468

2.1.3. Contract Costing

Contract costing is a method used in construction industry to find out the cost and profit of a particular construction assignment. The principles of job costing are also applicable in contract costing. In fact, Contract Costing can be termed as an extension of Job Costing as each contract is nothing but a job completed. Contract Costing is used by concerns like construction firms, civil engineering contractors, and engineering firms. One of the important features of contract costing is that most of the expenses can be traced to a particular contract. Those expenses that cannot be traced to a particular contract are apportioned to the contract on some suitable basis.

According to CIMA official terminology, Contract Costing is a 'form of specific order costing where costs are attributed to contracts'.

- **Essential features of contract costing**

  a. A formal contract is made between customer and supplier.

  b. Work is undertaken to customers' special requirements.

  c. The work is for a relatively long duration.

  d. The work is frequently constructional in nature.

  e. The method of costing is similar to job costing.

  f. The work is frequently based on site.

  g. It is not unusual for a site to have its own cashier and time-keeper.

- **Contractor vs. Contractee**

  The person who takes contract for a price is called the Contractor and the person from whom it is taken is called the Contractee. In Contract Costing, we are mainly concerned with the books of the contractor.

- **Types of Contracts**

  a. Cost Plus Contract: Cost-plus contract is a contract where the value of the contract is determined by adding an agreed percentage of profit to the total cost.

  b. Target Price Contract: In such cases, the contractor receives an agreed sum of profit over his pre-determined costs. In addition, a figure is agreed as the target figure and if actual costs are below this target, the contractor is eligible for bonus for the savings.

- **Important Terminologies**

  a. **Value of Work Certified:** A contract is a continuous process and to know the cost or value of the work completed as on a particular date; assessment of the completion of work is carried out by an expert (it may be any professional like surveyor, architect, engineer etc.). The expert, based on his assessment, certifies the work completion in terms of percentage of total work. The value of certified portion is calculated and is known as value of work certified. Payment is made on the basis of work certified.

b. Cost of Work Uncertified: It represents the cost of the work which has been carried out by the contractor but has not been certified by the expert. It is always shown at cost price. There is no role of work uncertified in payment.

c. Retention Money: In a contract, a contractee generally keeps some amount payable to contractor with himself as security deposit. To ensure that the work carried out by the contractor is as per the plan and specifications, it is monitored periodically by the contractee. To have a cushion against any defect or undesirable work, the contractee upholds some money payable to the contractor. This security money upheld by the contractee is known as retention money.

d. Work-in-progress:

In Contract Accounts, the value of the work-in-progress consists of:

(a) the cost of work completed, both certified and uncertified,

(b) the cost of work not yet complete, and

(c) the amount of profit taken as credit.

In the Balance Sheet, the work-in-progress is usually shown under two heads, viz. certified and uncertified. The cost of work completed and certified and the profit credited will appear under the head 'certified' work-in-progress, while the completed work not yet certified and the cost of labour, material and expenses of work which has not reached the stage of completion are shown under the head 'uncertified' work-in-progress.

e. Notional Profit: It is calculated as follows:

Value of Work Certified	×××
Add Cost of Work not yet Certified	×××
	×××
Less Total cost of contract to date	×××
Notional Profit	×××

f. Estimated Profit: It is the excess of the contract price over the estimated total cost of the contract. [can be calculated and feasible to calculate only in case of contracts whose end is near].

g. Escalation Clause: In order to protect the contractor from the rise in the price, an escalation clause may be inserted in the contract. Escalation clause in a contract empowers a contractor to revise the price of the contract in case of increase in the prices of inputs due to some macro-economic or other agreed reasons. As per this clause, the contract price is increased proportionately if there is a rise in input costs like material, labour or overheads. The condition that may be laid down is that the contractor will have to produce a proof regarding the rise in the price.

- **Treatment of profit on incomplete contract**

  a. **If the contract is in its early stages (normally less than 25%):** No profit should be credited to Profit and Loss Account.

  b. **If the contract is reasonably advanced:**

  (i) Completed to extent of 25% to less than 50%: One-third of the notional profit on cash basis is carried to Profit and Loss A/c.

  i.e., 1/3 × Notional Profit × Cash received/Work Certified

  (ii) Completed to extent of 50% to less than 90%:

  Two-third of the notional profit on cash basis is carried to Profit and Loss A/c.

  i.e., 2/3 × Notional Profit × Cash received/Work Certified

  c. **If the contract is almost complete (90% or above):** In this case, the portion of the profit to be transferred to Profit & Loss Account is calculated by using the estimated total profit which is ascertained by subtracting the total cost to date and the additional cost to complete the contract from the contract price. The different formulas for such computations of profit are as follows:

  1. Estimated profit × Work certified/Contract price

  2. Estimated profit × Work certified/Contract price × Cash received/ Work Certified

  3. Estimated profit × Total cost to date/Estimated Total cost

  4. Estimated profit × Total cost to date/Estimated Total cost × Cash received/ Work Certified

  d. **Loss on contract:** It is always transferred to Profit and Loss A/c

- **Illustrative Example**

Illustration 7:

A firm of Builders, carrying out large contracts kept in contract ledger, separate accounts for each contract on 30th June, 2017, the following were shown as being the expenditure in connection with Contract No. 555.

	₹
Materials purchased	1,16,126
Materials issued from stores	19,570
Plant, which has been used on other contracts	25,046
Additional plant	7,220
Wages	1,47,268
Direct expenses	4,052
Proportionate establishment expenses	17,440

The contract which had commenced on 1st February, 2017 was for ₹ 6,00,000 and the amount certified by the Architect, after deduction of 20% retention money, was ₹ 2,41,600 the work being certified on 30th June, 2017. The materials on site were ₹ 19,716. A contract plant ledger was also kept in which depreciation was dealt with monthly the amount debited in respect of that account is ₹ 2260. Prepare Contract Account showing profit on the contract.

Solution:

Dr. **Contract Account** **Cr.**

Particulars	Amount ₹	Particulars	Amount ₹
To, Materials purchased A/c	1,16,126	By, Work in progress A/c	
To, Material issued A/c	19,570	- Work certified	3,02,000
To, Depreciation A/c	2,260	By, Material stock A/c	
To, Wages A/c	1,47,268		19,716
To, Direct expenses A/c	4,052		
To, Proportionate estab. expenses A/c	17,440		
To, P & L A/c [15,000 x 2/3 x 4/5]	8,000		
To, Reserve c/d	15,000		
	3,21,716		3,21,716

Illustration 8:

A contractor has undertaken a construction work at a price of ₹ 5,00,000 and begun the execution of work on 1st January, 2016. The following are the particulars of the contract up to 31st December, 2016.

Particulars	Amount ₹	Particulars	Amount ₹
Machinery	30,000	Overheads	8,252
Materials	1,70,698	Materials returned	1,098
Wages	1,48,750	Work certified	3,90,000
Direct expenses	6,334	Cash received	3,60,000
Uncertified work	9,000	Materials on 31.12.2016	3,766
Wages outstanding	5,380		
Value of plant on 31.12. 2016	22,000		

It was decided that the profit made on the contract in the year should be arrived at by deducting the cost of work certified from the total value of the architects certificate, that 1/3 of the profit so arrived at should be regarded as a provision against contingencies and that such provision should be increased by taking to the credit of Profit and Loss Account only such portion of the 2/3rd profit, as the cash received to the work certified.

Solution:

Dr. **Contract Account** **Cr.**

Particulars	Amount ₹	Particulars		Amount ₹
To, Machinery A/c	30,000	By, Plant & Machinery A/c		22,000
To, Materials A/c	1,70,698	By, Materials returned A/c		1,098
To, Wages incl. outstanding A/c	1,54,130			3,766
To, Direct Expenses A/c	6,334	By, Materials on hand A/c		
To, Overheads A/c	8,252	By, W.I.P A/c		
To, P & L A/c	34,738			
To, Reserve c/d	21,712	Work certified	3,90,000	3,99,000
		Work uncertified	9,000	
	4,25,864			4,25,864

Illustration 9:

A contractor commenced the work on a particular contract on 1st April, 2016 he usually closes his books of accounts for the year on 31st December of each year. The following information is revealed from his costing records on 31st December, 2016.

	₹
Materials sent to site	43,000
Jr. Engineer	12,620
Labour	1,00,220

A machine costing ₹ 30,000 remained in use on site for 1/5th of year. Its working life was estimated at 5 years and scrap value at ₹ 2,000

A supervisor is paid ₹ 2,000 per month and had devoted one half of his time on the contract.

All other expenses were ₹14,000 the materials on site were ₹ 2,500.

The contract price was ₹ 4,00,000. On 31st December, 2016 2/3rd of the contract was completed however, the architect gave certificate only for ₹ 2,00,000. On which 80% was paid. Prepare Contract Account.

Solution:

Dr. **Contract Account** **Cr.**

Particulars	Amount ₹	Particulars		Amount ₹
To, Material A/c	43,000	By, W.I.P A/c		
To, Jr. Engineer A/c	12,620	Work certified	2,00,000	
To, Labour A/c	1,00,220	Work uncertified	*44,365	
To, Dep. On plant A/c [(30,000-2,000)/5] x 1/5	1,120			2,44,365
		By, Material at site		2,500
To, Supervisor (2,000 x 9 x 1/2)	9,000			
To, Other expenses A/c	14,000			
To, P & L A/c	35,683			
To, Reserve c/d	31,222			
	2,46,865			2,46,865

Working notes:

Work uncertified:

For 2/3rd - ₹1,77,460

For 1/6th - ? (2/3 – 1/2 = 1/6)

* [(1,77,460 ÷ 2/3) x 1/6] = ₹44,365

Illustration 10:

The information given under has been extracted from the books of a contractor relating to contract for ₹3,75,000.

	I YEAR	II YEAR	III YEAR
	₹	₹	₹
Materials	45,000	55,000	31,500
Direct Expenses	1,750	6,250	2,250
Indirect expenses	750	1,000	---
Wages	42,500	57,500	42,500
Total work certified	87,500	2,82,500	3,75,000
Uncertified work	---	5,000	---
Plant	5,000	---	---

The value of plant at the end of I year was ₹4,000 at the end of II year ₹2,500 and at the end of III year it was ₹1,000. It is customary to pay 90% in cash of the amount of work certified. Prepare the contract Account and show how the figures would appear in the balance sheet.

Solution:

Dr. **Contract Account** **Cr.**

Particulars	Amount ₹	Particulars		Amount ₹
Ist Year				
To, Materials A/c	45,000	By, W.I.P A/c		
To, Direct Expenses A/c	1,750	Work certified	87,500	
To, Indirect Expenses A/c	750	Work uncertified	Nil	87,500
To, Wages A/c	42,500	By, Plant A/c		4,000
To, Plant A/c	5,000	By, P & L A/c		3,500
	95,000			95,000
IInd Year		By, W.I.P A/c		
To, Work in progress A/c	87,500	Work certified	2,82,500	
To, Materials A/c	55,000	Work uncertified	5,000	2,87,500
To, Direct Expenses A/c	6,250	By, Plant A/c		2,500
To, Plant A/c	4,000			
To, Wages A/c	57,500			
To, Indirect Expenses A/c	1,000			
To, P & L A/c	47,250			
To, Reserve c/d	31,500			
	2,90,000			2,90,000
IIIrd Year		By, Reserve b/d		31,500
To, Work in progress A/c	2,87,500	By, Contractee A/c		3,75,000
To, Plant A/c	2,500	By, Plant A/c		1,000
To, Materials A/c	31,500			
To, Direct expenses A/c	2,250			
To, Wages A/c	42,500			
To, P & L A/c	41,250			
	4,07,500			4,07,500

Balance Sheet as on …….

Liabilities	Amount ₹	Assets		Amount ₹
Ist Year	----	Work in progress (-) Cash received (90%) Plant	87,500 78,750	 8,750 4,000
IInd Year	----	Work in progress (-) cash received (90%) (-) Reserve	2,87,500 2,54,250 33,250 31,500	 1,750
IIIrd Year	----	Plant		2,500

2.1.4 Process Costing

Process costing is applied when output consists of a continuous stream of identical units. It is a costing method used where it is not possible to identify separate units of production, or jobs, usually because of the continuous nature of the production processes involved.

As per CIMA Official Terminology, process costing is a 'form of costing applicable to continuous processes where process costs are attributed to the number of units produced. This may involve estimating the number of equivalent units in stock at the start and end of the period under consideration'.

- **Applicability of Process Costing**

  Process costing is used where there is a continuous flow of identical units and it is common to identify it with continuous production such as the following:

  a. Oil refining

  b. The manufacture of soap

  c. Paint manufacture

  d. Food and drink manufacture

- **The Features of Process Costing**

  a. The continuous nature of production in many processes means that there will usually be closing work in progress which must be valued. In process costing it is not possible to build up cost records of the cost of each individual unit of output because production in progress is an indistinguishable homogeneous mass.

  b. There is often a loss in process due to spoilage, wastage, evaporation and so on.

  c. The output of one process becomes the input to the next until the finished product is made in the final process.

  d. Output from production may be a single product, but there may also be a by-product (or by-products) and/ or joint products (Later discussed in detail.)

- **Preparation of Process Account**

  A process account has two sides, and on each side there are two columns – one for quantities (of raw materials, work in progress and finished goods) and one for costs.

  (a) On the left-hand side of the process account i.e. Debit side, we record the inputs to the process and the cost of these inputs. So, we might show the quantity of material input to a process during the period and its cost, the cost of labour and the cost of overheads.

  (b) On the right-hand side of the process account i.e., Credit side, we record what happens to the inputs by the end of the period.

  (i) Some of the input might be converted into finished goods, so we show the units of finished goods and the cost of these units.

  (ii) Some of the material input might evaporate or get spilled or damaged, so there would be losses. So, we record the loss units and the cost of the loss.

  (iii) At the end of a period, some units of input might be in the process of being turned into finished units so would be work in progress (WIP). We record the units of WIP and the cost of these units.

  The objective of process costing is to work out the cost of each process, transfer the same to the subsequent process and finally ascertain the total cost of production. Therefore, it is necessary to charge various costs to each process. The costs include – material, labour, direct expenses and overhead.

- **Important Aspects of Process Costing**

  a. **Normal Loss:** It is the loss which is unavoidable on account of inherent nature of production process. Such loss can be estimated in advance on the basis of past experience or available data. The normal process loss is recorded only in terms of quantity and the cost per unit of usable production is increased accordingly. Where scrap possesses some value as a waste product or as raw material for an earlier process, the value thereof is credited to the process account. This reduces the cost of normal output; process loss is shared by usable units.

  b. **Abnormal Loss:** Any loss caused by unexpected or abnormal conditions such as plants breakdown, sub-standard materials, carelessness, accident etc., or loss in excess of the margin anticipated for normal process loss should be regarded as abnormal process loss. Abnormal Loss Account is credited with realizable scrap value, if any. The balance is written off to Costing Profit and Loss Account.

  The units of abnormal loss or gain are calculated as under:

  Abnormal loss (or gain) = Total Loss – Normal Loss

  The valuation of abnormal loss should be done with the help of the formula below:

  (Total Cost incurred in the process - Scrap value of Normal loss units) ÷ (Input units - Normal loss units)

c. **Abnormal Gain:** Normal loss is an estimate which is based on expectation in process industries in normal condition but slight differences are bound to occur between the actual and the anticipated losses of a process. These differences will not always represent increased loss, on occasions the actual loss will be less than that expected. Thus, when actual loss in a process is less than the expected, it results in an abnormal gain. The value of the gain will be calculated in similar manner to an abnormal loss.

- **Illustrative Examples**

Illustration 11

Product X is obtained after it passes through three distinct processes. You are required to prepare Process Account from the following information:

	Total	I	II	III
	Amount (₹)	Amount (₹)	Amount (₹)	Amount (₹)
Materials	15,084	5,200	3,960	5,924
Direct Wages	18,000	4,000	6,000	8,000
Production Overheads	18,000	-	-	-

1,000 units @ ₹ 6 per unit was introduced in Process I. Production overheads to be distributed at 100% on direct wages.

Actual Output	Units	Normal Loss	Value of Scrap (₹ per unit)
Process I	950	5%	4
Process II	840	10%	8
Process III	750	15%	10

Prepare Process Account for I, II and III, Normal Loss Account, Abnormal Loss Account and Abnormal Gain Account

Solution:

Dr. **Process I Account** **Cr.**

Particulars	Units	Rate	Amount (₹)	Particulars	Units	Rate	Amount (₹)
To Material A/c (Introduced)	1,000	6	6,000	By Normal Loss A/c (1,000 × 5%)	50	4	200
To Material A/c			5,200				
To Direct Wages A/c			4,000	By Process II A/c	950	20	19,000
To Production Overheads A/c			4,000				
(100% × Direct wages)							
	1,000		**19,200**		**1,000**		**19,200**

Cost per unit = (Total cost - scrap value of NL) ÷ (Total input - NL units)

= (19200-200) ÷ (1000- 50) = 19000/950 = 20

Dr. **Process II Account** **Cr.**

Particulars	Units	Rate	Amount (₹)	Particulars	Units	Rate	Amount (₹)
To Process I A/c	950	20	19,000	By Normal Loss A/c	95	8	760
To Material A/c			3,960	(950 × 10%)	855	40	34,200
To Direct Wages A/c			6,000	By Balance c/d			
To Production Overheads A/c			6,000				
	950		**34,960**		**950**		**34,960**
To Balance b/d	855	40	34,200	By Process III A/c	840	40	33,600
				By Abnormal Loss A/c (Bal. fig.)	15	40	600
	34,200		**34,200**		**855**		**34,200**

Cost per unit = (Total cost - scrap value of NL) ÷ (Total input - NL units)
= (34960 – 760) ÷ (950 – 95) = 40

Dr. **Process III Account** **Cr.**

Particulars	Units	Rate	Amount (₹)	Particulars	Units	Rate	Amount (₹)
To Process II A/c	840	40	33,600	By Normal Loss A/c	126	10	1,260
To Material A/c			5,924	(840 × 15%)			
To Direct Wages A/c			8,000	By Balance c/d	714	76	54,264
To Production Overheads A/c			8,000				
	840		**55,524**		**840**		**55,524**
To balance b/d	714	76	54,264	By Finished Stock A/c	750	76	57,000
To Abnormal Gain A/c (b. f)							
	750		**57,000**		**750**		**57,000**

Cost per unit = (Total cost - scrap value of NL) ÷ (Total input - NL units)
= (55524 – 1260) ÷ (840 –126) = 76

Dr. **Normal Loss Account** **Cr.**

Particulars	Units	Rate	Amount (₹)	Particulars	Units	Rate	Amount (₹)
To Process I A/c	50	4	200	By Cash A/c	50	4	200
To Process II A/c	95	8	760	By Cash A/c	95	8	760
To Process III A/c	126	10	1,260	By Cash A/c (Bal. fig.)	90	10	900
				By Abnormal Gain A/c	36	10	360
	271		**2,220**		**271**		**2,220**

Dr. **Abnormal Loss Account** **Cr.**

Particulars	Units	Rate	Amount (₹)	Particulars	Units	Rate	Amount (₹)
To Process II A/c	15	40	600	By Cash A/c	15	8	120
				By Costing Profit & Loss A/c			480
	15		**600**		**15**		**600**

Dr. **Abnormal Gain Account** **Cr.**

Particulars	Units	Rate	Amount (₹)	Particulars	Units	Rate	Amount (₹)
To Normal Loss A/c	36	10	360	By Process III A/c	36	76	2,736
To Costing Profit & Loss A/c			2376				
(Bal. fig.)	**36**		**2,736**		**36**		**2,736**

Inter Process Profit

The output of one process is transferred to the subsequent process at cost price. However sometimes, the transfer is made at cost plus certain percentage of profit. This is done when each process is treated as a profit center. In such case, the difference between the debit and credit side of the process account represents profit or loss and is transferred to the Profit and Loss Account. The stocks at the end and at the beginning contain an element of unrealized profits, which have to be written back in this method. If the profit element contained in the closing inventory is more than the profit element in the opening inventory, profit will be overstated and vice versa. Profit is realized only on the goods sold, thus to obtain the actual profit the main task would be to calculate the profit element contained in the inventories. In order to compute the profit element, in closing inventory and to obtain the net realized profit for a period, three columns have to be shown in the ledger for showing the cost, unrealized profit and the transfer price.

- **Equivalent Production**

This represents the production of a process in terms of completed units. In other words, it means converting the incomplete production units into its equivalent of complete units. In each process an estimate is made of the percentage completion of any work-in-progress. A production schedule and a cost schedule will then be prepared. The work-in-progress is inspected and an estimate is made of the degree of completion, usually on a percentage basis. It is most important that this estimate is as accurate as possible because a mistake at this stage would affects the stock valuation used in the preparation of final accounts.

The formula for equivalent production is:

Equivalent Production = Actual no. of units in process of manufacture × Percentage of work completed

For example, if 20% work has been done on the average of 1,000 units still in process, then 1,000 such units will be equal to 200 completed units. The cost of work-in-progress will be equal to 200 completed units.

Calculation of Equivalent Production

The following steps are adopted to calculate statement of equivalent production:

(i) State the opening work-in-progress in equivalent completed units by applying the percentage of work needed to complete the unfinished work of the previous period. If the opening work-in-progress is 100 units is which 40% is completed, then the equivalent units of the current period will be 100 x 60% i.e., 60 units.

(ii) Add to (i), the number of units introduced and completed during the period. This can be found out by deducting the units in the closing work-in-progress from the number of units put into the process.

(iii) Add to the above, the equivalent completed units of closing work-in-progress. This can be found out by applying the percentage of work done on the finished units at the end of the period.

Consider the following illustrations.

Illustration 12:

	Degree of completion			
Opening stock	1,600	Units	Material	70%
			Labour	60%
			Overhead	60%
Transfer from Process I	10,200	Units		
Transfer to next process	9,200	Units	Material	60%
Units scrapped	800	Units	Labour	40%
Normal loss 10% of Input Closing stock	1,800	Units	Overhead	40%

Prepare a Statement of Equivalent Production.

Solution:

Statement of Equivalent Production

Input	Output	Units	Material		Labour		Overheads	
			%	Units	%	Units	%	Units
1600	Opening Stock	1600	30	480	40	640	40	640
10200	Normal Loss	1000	-	-	-	-	-	-
	Finished Units	7600	100	7600	100	7600	100	7600
	Closing Stock	1800	60	1080	40	720	40	720
		12000		9160		8960		8960
	Less: Abnormal Gain	200	100	200	100	200	100	200
11800		11800		8960		8760		8760

Illustration 13:

From the following information prepare process account.

OPENING STOCK		DEGREE OF COMPLETION
800 Units @ ₹6 per unit	₹ 4,800	Material I - 100% Material II - 60% Labour & Overheads 40%
Transfer from Process NO - I 12,000 units costing Transfer to next process	 ₹16,350 9,700 units	
Normal process loss Closing stock	10% 1,800 units	

Degree of Completion: For units scrapped:- Material 100% Labour and Overheads 50%. For closing stock: Material 60%; Labour and overheads 50%

Scrap realized Re.1.00 per unit

Other information: Material ₹10,500; Labour ₹ 20,760; Overheads ₹16,670

Solution:

Statement of Equivalent Production

Input	Output	Units	Material-I		Material - II		Labour		Overheads	
			%	Units	%	Units	%	Units	%	Units
800	Opening Stock	800	-	-	40	320	60	480	60	480
12000	Normal Loss									
	(800+12000-1800) x 10%	1100	-	-	-	-	-	-	-	-
	Finished Units (9700-800)	8900	100	8900	100	8900	100	8900	100	8900
	Closing Stock	1800	100	1800	60	1080	50	900	50	900
		12600		10700		10300		10280		10280
	Add: Abnormal Loss	200		200	100	200	50	100	50	100
12800		12800		10900		10500		10380		10380

Statement of Cost per unit

Particulars	Cost (₹)	Equivalent Cost (₹)	Cost per unit (₹)
Material-I	16350	10900	1.5
Material-II	10500	10500	1.0
Labour	20760	10380	2.0
Overhead (16,670 - 1,100)	15570	10380	1.5

Value of Abnormal Loss

Element	Units	Cost per unit (₹)	Total Cost (₹)
Material-I	200	1.5	300
Material-II	200	1.0	200
Labour	100	2.0	200
Overhead	100	1.5	150
			850

Value of Closing Stock

Element	Units	Cost per unit (₹)	Total Cost (₹)
Material-I	1800	1.5	2,700
Material-II	1080	1.0	1,080
Labour	900	2.0	1,800
Overhead	900	1.5	1,350
			6,930

Dr. Process Account Cr.

Particulars	Units	₹	Particulars	Units	₹
To, Opening Stock A/c	800	4,800	By, Normal Loss A/c	1100	1,100
To, Transfer from Process-I A/c	12000	16,350	By, Closing Stock A/c	1800	6,930
To, Material A/c		10,500	By, Abnormal Loss A/c	200	850
To, Labour A/c		20,760	By, Transfer to Next Process A/c @ ₹ 6.206 per unit	9700	60,200
To, Overheads A/c		16,670			
	12800	69,080		12800	69,080

2.1.5 Joint Product and By-Product

In several industries, more than one product emerges from the manufacturing process. These products are sometimes produced intentionally while in some cases they emerge out of the main manufacturing process. Such products are termed as either joint products or by-products. Though sometimes these terms are used interchangeably, there is a major difference between the two and therefore it is necessary to understand clearly the difference between them. Similarly there is a difference between the accounting of the two and hence it is essential to define clearly the concepts of joint products and by-products.

- **Meaning of Joint Product**

  In CIMA Terminology defines joint products as "two or more products separated in the course of processing each having a sufficiently high value to merit recognition as a main product". Joint products imply that they are produced from the same basic raw material, are comparatively of equal importance, are produced simultaneously by a common process and may require further

processing after the point of separation. For example, in the oil refining industry the following joint products arise from the same process:

(a) Aviation fuel; (b) Diesel fuel; (c) Paraffin; (d) Petrol; (e) Lubricants.

- **Features of Joint Products:**

  a. Joint products are the result of utilization of the same raw material and same processing operations. The processing of a particular raw material may result into the output of two or more products.

  b. All the products emerging from the manufacturing process are of the same economic importance. In other words, the sales value of those products may be more or less same and none of them can be termed as the major product.

  c. The products are produced intentionally which implies that the management of the concerned organization has intention to produce all the products.

  d. Some of joint products may require further processing or may be sold directly after the split point.

  e. The manufacturing process and raw material requirement is common up to a certain stage of manufacturing. After the stage is crossed, further processing becomes different for each product. This stage is known as 'split off' point. The expenditure incurred up to the split off point is called as joint cost and the apportionment of the same to different products is the main objective of the joint product accounting.

  f. The management has little or no control over the relative quantities of the various products that will result.

  g. Joint products are commonly produced in industries like, chemicals, oil refining, mining, meatpacking, automobile etc. In oil refining, fuel, oil, petrol, diesel, kerosene, lubricating oil are few examples of the joint products.

- **Important Terminology**

  a. Split Off Point: This is a point up to which, input factors are commonly used for production of multiple products, which can be either joint products or by-products. After this point, the joint products or byproducts gain individual identity.

  b. Joint Costs: Joint cost is the pre separation cost of commonly used input factors for the production of multiple products. In other words, all costs incurred before or up to the split off point are termed as joint costs or pre separation costs and the apportionment of these costs is the main objective of joint product accounting.

- **Accounting Treatment:**

  In case of joint products, the main objective of accounting of the cost is to apportion the joint costs incurred up to the split off point. This is because, the total cost of production of the joint product will be cost incurred up to the split off point duly apportioned plus the cost incurred after

the split off point. However, the main problem lies in apportioning the joint costs among joint products appropriately. Some of the important methods are:

a. **Physical Quantity Method:** Under this method, cost apportionment is made in proportion to the volume of production. These physical measures may be units, pounds, litres, kilos, tones, gallons etc.

b. **Average Unit Cost Method:** Under this method, the joint cost is apportioned to the joint products by computing the average unit cost of the product units. The average unit cost is computed by dividing the total manufacturing cost by the total number of units produced of all products. This method is useful where all the products produced are uniform with each other in all the respects. This method will not be useful if the production units are not similar with each other.

c. **Weighted Average Method:** Under this method, weights are assigned to each unit based upon size of the units, difference in type of labor employed, material consumption, market share, efforts of labour required and so on. The joint cost is apportioned on the basis of the weights assigned to each product. This method is highly useful if the weights assigned are on objective basis. If subjective element creeps in, the method may not give accurate results.

d. **Selling Price/ Market Value Method:** Under this method, the joint cost is apportioned on the basis of sales value at the split off point. The logic is that a product should bear the share of the joint cost according to its sale price. If sales price is higher than that of the other products, more share of joint cost should be charged to that product and if it is comparatively less than that of other products, less share of joint cost should be charged to the same. Though logically this method seems to be sound, in practice, charging higher share of joint cost to the product with higher sales value may not be justified due to the fact that lesser efforts are required for manufacturing of the same.

e. **Net Realizable Value Method:** This is also known as Market value less cost to complete individual product method. This is a variation of the market value method. It is used where one or more products require an additional processing from the split-off point. This is due to the following reasons: (i) There may not be any ready market (or) (ii) It may be more profitable to process further.

Illustration 14:

T Ltd., in the course of refining crude oil obtains four joint products A, B, C and D. The total cost till the split off point was ₹ 97,600. The output and sales in the year 2015 were as follows:

Product	Output (Balance)	Sales (₹)	Separate Costs (₹)
A	5,00,000	1,15,000	30,000
B	10,000	10,000	6,000
C	5,000	4,000	—
D	9,000	30,000	1,000

You are required:

(a) Calculate the net income for each of the products if the joint costs are apportioned on the basis of sales value of the different products.

(b) What would be the net income of the company from each product if it decides to sell the products at the split off point itself A@ ₹15 paise, B @ ₹ 50 paise, C @ ₹ 80 paise and D @ ₹ 3 per gallon.

(c) In case the company expects to operate at the same level of production and sales in the year 2012 could the company increase the net income by altering its processing decisions? If so, what would be the expected overall net income? Which product should be sold at split off? Assume that all costs incurred after the split -off are variable.

Solution:

Statement Showing Computation of Profit After Further Processing:

	Particulars	A	B	C	D	Total
		₹	₹	₹	₹	₹
(I)	Sales at further processing	1,15,000	10,000	4,000	30,000	1,59,000
(II)	Separate cost	30,000	6,000	--	1,000	37,000
(III)	Sales at Split off (I) - (II)	85,000	4,000	4,000	29,000	1,22,000
(IV)	Joint Costs (On basis of NRV)	68,000	3,200	3,200	23,200	97,600
(V)	Profit (III) - (IV)	17,000	800	800	5,800	24,400

Statement Showing Computation of Profit Before Further Processing:

	Particulars	A	B	C	D	Total
		₹	₹	₹	₹	₹
(I)	Sales at split off	75,000	5,000	4,000	27,000	1,11,000
(II)	Joint Cost (as apportioned above)	68,000	3,200	3,200	23,200	97,600
(III)	Profit (I) - (II)	7,000	1,800	800	3,800	13,400

Statement Showing Computation Of Incremental Profit By Further Processing :

	Particulars	A	B	C	D	Total
		₹	₹	₹	₹	`
(I)	Sales after further process	1,15,000	10,000	4,000	30,000	1,59,000
(II)	Sales at split off (I) - (II)	75,000	5,000	4,000	27,000	1,11,000
(III)	Incremental sales	40,000	5,000	--	3,000	48,000
(IV)	Incremental/Separate costs	30,000	6,000	--	1,000	37,000
(V)	Incremental Profit (loss) (III) - (IV)	10,000	(1,000)	--	2,000	11,000

Product 'A' and 'D' should be further processed because there is additional profit where as product 'B' and 'C' need not be further processed because there is no additional profit.

Computation of Profit by implementing decision:

		₹
Profit from A	=	17,000
Profit from B	=	1,800
Profit from C	=	800
Profit from D	=	5,800
	=	25,400

Illustration 15:

A vegetable oil refining company obtains four products whose cost details are:

Joint costs of the four products: ₹ 8,29,600

Outputs : A - 5,00,000 litres; B -10,000 litres, C- 5,000 litres and D- 9,000 kgs.

Further processing costs: A ₹ 2,40,000; B ₹ 48,000, C-Nil and D-₹ 8,030.

The products can be sold as intermediates i.e., at split-off point without further processing. The sale prices are:

	As finished Product	As Intermediate
A ` Per litre	1.84	1.20
B ` Per litre	8.00	4.00
C ` per litre	6.40	6.40
D ` Per Kg.	26.67	24.00

(a) Calculate the product-wise profit allocating joint costs on Net Realisable Values (NRV).

(b) Compare the profitability in selling the products with and without further processing.

Solution:

(a) **Statement showing computation of profit after further processing:**

	Particulars	A	B	C	D	Total
		₹	₹	₹	₹	₹
(i)	Sales after further processing	9,20,000	80,000	32,000	2,40,030	12,72,030
(ii)	Separate / further costs	2,40,000	48,000	--	8,030	2,96,030
(iii)	Sales at split off (being NRV) (I-II)	6,80,000	32,000	32,000	2,32,000	9,76,000
(iv)	Joint costs (NRV basis)	5,78,000	27,200	27,200	1,97,200	8,29,600
(v)	Profit	1,02,000	4,800	4,800	34,800	1,46,400

Statement Showing Computation of Profit Before Further Processing:

	Particulars	A	B	C	D	Total
		₹	₹	₹	₹	₹
(I)	Sales at split off	6,00,000	40,000	32,000	2,16,000	8,88,000
(II)	Joint costs as apportioned above	5,78,000	27,200	27,200	1,97,200	8,29,600
(III)	Profit (I – II)	22,000	12,800	4,800	18,800	58,400

(b) **Statement Showing Computation of Incremental or Additional Profit by Further Process:**

	Particulars	A	B	C	D	Total
		₹	₹	₹	₹	₹
(I)	Sales after further processing	9,20,000	80,000	32,000	2,40,030	12,72,030
(II)	Sales before further processing	6,00,000	40,000	32,000	2,16,000	8,88,000
(III)	Incremental or additional sales (I-II)	3,20,000	40,000	-	24,030	3,84,030
(IV)	Incremental cost	2,40,000	48,000	-	8,030	2,96,030
(III)	Additional Profit or Loss (III-IV)	80,000	(8,000)	-	16,000	88,000

Products A&D should be further process, because there is incremental profit and where as products B and C need not be further process.

Alternative Method:

Statement Showing Computation of Profit Before Further Processing (on the basis of sales):

	Particulars	A	B	C	D	Total
		₹	₹	₹	₹	₹
(I)	Sales before further processing / split off	6,00,000	40,000	32,000	2,16,000	8,88,000
(II)	Joint costs 8,29,000 x (6,00,000/8,88,000)	5,60,540	37,369	29,895	2,01,796	8,29,600
(III)	Profit	39,460	2,631	2,105	14,204	58,400

Statement Showing Computation of Profit After Further Processing (on basis of sales)

	Particulars	A	B	C	D	Total
		₹	₹	₹	₹	₹
(I)	Sales at split off	6,80,000	32,000	32,000	2,32,000	9,76,000
(II)	Joint costs as apportioned above.	5,60,540	37,369	29,895	2,01,796	8,29,600
(III)	Profit or Loss	1,19,460	(5,369)	2,105	30,204	1,46,400

- **Meaning of By-Products**

  The term 'by-products' is sometimes used synonymously with the term 'minor products'. The by-product is a secondary product, which incidentally results from the manufacture of a main product. By–products are also produced from the same raw material and same process operations but they are secondary results of operation. In CIMA Terminology, By-product is "a product

which is recovered incidentally from the material used in the manufacture of recognized main products such as having either a net realizable value or a usable value which is relatively low in comparison with the saleable value of the main products. By products may further be processed to increase their realizable value".

- **Difference Between Joint products and Co-products**

  The answer lies in management attitudes to their products, which in turn is reflected in the cost accounting system. The difference between joint product and by-product are as follows:

  (a) A joint product is regarded as an important saleable item, and so it should be separately considered in costing. The profitability of each joint product should be assessed in the cost accounts.

  (b) A by-product is not important as a saleable item, and whatever revenue it earns is a 'bonus' for the organisation. It is not worth costing by-products separately, because of their relative insignificance. It is therefore equally irrelevant to consider a by-product's profitability. The only question is how to account for the 'bonus' net revenue that a by-product earns.

- **Accounting treatment:**

  By-products are jointly produced products of minor importance and do not have separate costs until the split off point. They are not produced intentionally but are emerging out of the manufacturing process of the main products. The following methods are used for accounting of by-products. The methods are broadly divided into Non-Cost Methods and Cost Methods.

  (A) Non-Cost Methods: The following methods are included in this category.

  (a) Other income or miscellaneous income method: Under this method, sales value of by-products is credited to the Profit and Loss Account and no credit is given in the Cost Accounts. The credit to the Profit and Loss Account is treated as other income or miscellaneous income. No effort is made for ascertaining the cost of the product. No valuation of inventory is made and all costs and expenses are charged to the main product. This is the least scientific method and is used where the sales value of the by-product is negligible.

  (b) Total sales less total cost: Under this method, sales value of by-product is added to the sales value of the main product. Further the total cost of the main product including the cost of the by-product is deducted from the sales revenue of the main product and by-product. All costs and expenses are charged to the main product.

  (c) Total cost less sales value of by-product: In this method, the total cost of production is reduced by the sales value of the by-product. This method seems to be more acceptable because like waste and scrap, by-product revenue reduces the cost of major products.

  (d) Total cost less sales value of by-products after setting off selling and distribution overheads of by-products: Sales value of the by-product minus the selling and distribution

overheads of byproduct is deducted from the total cost. Selling and distribution overheads are charged against by-products actually sold.

(e) Reverse cost method: This method is based on the view that the sales value of the by-product contains an element of profit. It is agreed that this element of profit should not be credited to the Profit and Loss Account. The cost of by-product is arrived at by working backwards. Selling price of the by-product is deflated by an assumed gross profit margin. Thus under this method, sales value of the by-product is first reduced by, an estimated profit margin, selling and distribution expenses and then the post-split off costs and then the cost of the main product is thus reduced by this net figure.

(B) Cost Methods: The Following are the Cost Methods:

(a) Replacement Cost Method: This method is used by the firms whose by-products are consumed within the factory as raw materials. Production costs of the main product receive credit for providing the materials. The cost assigned to the product is the purchase cost or the replacement cost (that is in vogue in market price). This method is mostly used in steel-manufacturing industry.

(b) Standard Cost Method (or) Total Cost less By-Product valued at Standard: In this method, WIP is credited with by-products' value at a standard price. The standard may be at a past average price.

(c) Joint Cost Proration Method: Under this method, the accounting treatment is to change each product for costs after the split-off point and to apportion the joint costs between the major products and the by-products. To put in other words, joint costs are apportioned to major products and by-products on some acceptable basis.

Illustration 16:

In manufacturing the main product 'A' a company processes the resulting waste material into two by products B and C. Using reversal cost method of by products, prepare a comparative profit and loss statement of the three products from the following data:

(i) Total cost upto separation point was ₹ 68,000

	A (₹)	B (₹)	C (₹)
(ii) Sales (all production)	1,64,000	16,000	24,000
(iii) Estimated net profit % to sale value	—	20%	30%
(iv) Estimated Selling expenses as % of sales value	20%	20%	20%
(v) Costs after separation	—	4,800	7,200

Solution:

Apportionment of Joint expenses for the products

Particulars	B (₹)	C (₹)
Sales	16,000	24,000
(-) Profit	3,200	7,200
Total Cost	12,800	16,800
(-) Selling expenses	3,200	4,800
Manufacturing cost	9,600	12,000
(-) Separate expenses	4,800	7,200
Joint Expenses	4,800	4,800

Joint expenses of A = 68,000 – (4,800 + 4,800) = 58,400.

Profit and Loss Statement:

	Particulars	A ₹	B ₹	C ₹	Total ₹
(i)	Joint cost	58,400	4,800	4,800	68,000
(ii)	Separate cost	--	4,800	7,200	12,000
(iii)	Manufacturing cost (I + II)	58,400	9,600	12,000	80,000
(iv)	Selling expenses	32,800	3,200	4,800	40,800
(v)	Total cost (III + IV)	91,200	12,800	16,800	1,20,800
(vi)	Profit *	72,800	3,200	7,200	83,200
(vii)	Sales	1,64,000	16,000	24,000	2,04,000

Illustration 17:

The progressive manufacturing company manufactures one main product and two by-products. Data for month are shown below:

Particulars	Main Product	By-Product A	By Product B
Sales	1,50,000	12,000	7,000
MANUFACTURING COST:			
(a) Before separation	75,000	—	—-
(b) After separation	23,000	2,200	1,800
Administration cost	12,000	1,500	1,000
Ratio of Distribution of			
Selling cost	85%	10%	5%
Net profit in sales	20%	15%	10%

Assuming no beginning and ending inventories, apportion the joint cost among main product and the byproducts.

Solution:

Calculation of Selling Expenses:

Particulars	Amount (₹)
Sales of 3 products	1,69,000
(-) Profit (30,000 + 1,800 + 700)	(32,500)
Total Cost	1,36,500
(-) Joint & Separate cost (75,000 + 27,000)	(1,02,000)
	34,500
(-) Administration cost	14,500
Selling Expenses	20,000

Statement showing apportionment of Joint Expenditure:

	Particulars	Main Product	By Product A	By Product B	Total
(i)	Sales	1,50,000	12,000	7,000	1,69,000
(ii)	Profit	30,000	1,800	700	32,500
(iii)	Total cost (i – ii)	1,20,000	10,200	6,300	1,36,500
(iv)	Selling expenses	17,000 (85%)	2,000 (10%)	1,000 (5%)	20,000
(v)	Cost of production	1,03,000	8,200	5,300	1,16,500
(vi)	Administration cost	12,000	1,500	1,000	14,500
(vii)	Manufacturing cost (V-VI)	91,000	6,700	4,300	1,02,000
(viii)	Separate expenses	23,000	2,200	1,800	27,000
(ix)	Share of joint expenses (VII – VIII)	68,000	4,500	2,500	75,000

2.1.6 Operating/ Service Costing

Cost Accounting has been traditionally associated with manufacturing companies. However, in the modern competitive market, cost accounting has been increasingly applied in service industries like banks, insurance companies, transportation organizations, electricity generating companies, hospitals, passenger transport and railways, hotels, road maintenance, educational institutions, road lighting, canteens, port trusts and several other service organizations. The costing method applied in these industries is known as 'Operating Costing'.

- **Meaning of Operating Costing**

  According to CIMA (London) operating costing is, 'that form of operating costing which applies where standardized services are provided either by an undertaking or by a service cost centre within an undertaking'

- **Nature of Operating Costing**

  The main objective of operating costing is to compute the cost of the services offered by the organization. For doing this, it is necessary to decide the unit of cost in such cases. The cost units vary from industry to industry. For example, in goods transport industry, cost per ton kilometre is to be ascertained while in case of passenger transport, cost per passenger kilometre is to be computed. Cost units used in different service units are explained in detail later in chapter. The next step is to collect and identify various costs under different headings.

The headings used are,

a. Fixed or standing charges

b. Semi-fixed or maintenance charges

c. Variable or running charges.

One of the important features of operating costing is that mostly such costs are fixed in nature. For example, in case of passenger transport organization, most of the costs are fixed while few costs like diesel and oil are variable and dependent on the kilometres run.

Because of the diverse nature of activities carried out in service undertakings, the cost system used is obviously different from that of manufacturing concern.

- **Ascertainment of Cost Unit**

One main problem with service costing is the ability to define a realistic cost unit that represents a suitable measure of the service provided. The cost units vary from industry to industry. Generally, two different kinds of cost unit are ascertained under service costing: Simple Cost unit and Composite Cost unit.

(a) Simple Cost Unit:

The cost unit, which uses only one single parameter for measurement of the service cost, is termed as a simple cost unit. For example, in goods transport industry, cost per ton kilometre is to be ascertained.

(b) Composite Cost Unit:

If the service is a function of two activity variables, a composite cost unit may be more appropriate. Hotels, for example, may use the 'occupied bed-night' as an appropriate unit for cost ascertainment and control. Each organisation will need to ascertain the Composite Cost Unit most appropriate to its activities.

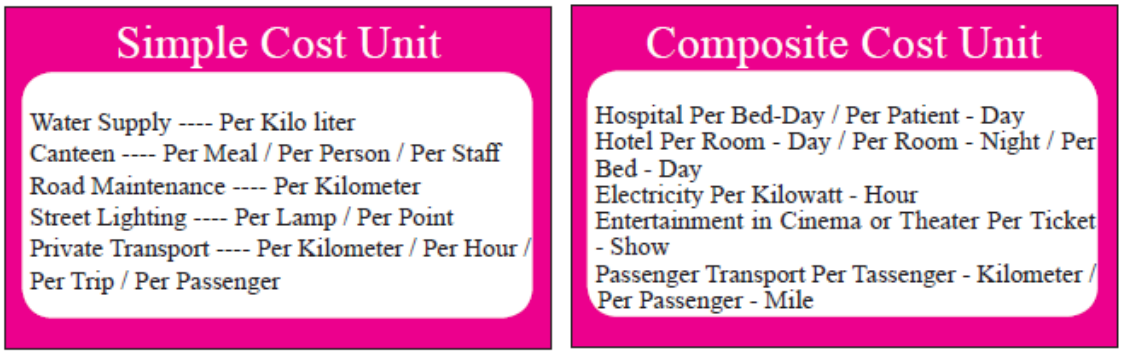


Figure 2.2: Simple Cost Units vs. Composite Cost Units

2.1.6.1 Transport Costing

Costing in a transport industry consists of determining the operating cost of each vehicle and applying this cost to find out the cost per unit of service rendered by a vehicle. The cost unit is selected with proper care keeping in view the needs of each concern, the weight, bulk, volume and type of goods carried and distance covered in each trip. Transport undertakings include goods transport

organizations as well as passenger transport organizations. The cost unit is either ton kilometer or passenger kilometer. The meaning is cost of carrying one ton over a distance of one kilometer or cost of carrying one passenger for a distance of one kilometer.

- **Classification of Costs**

  The costs of a transport organization can be classified and accumulated under the following heads:

  (a) Fixed or Standing Charges: These costs which include garage charges, insurance, taxes, license, depreciation, wages of drivers, cleaner's salary, establishment cost of workshop and office. Out of the above some of the costs are directly identifiable for each vehicle such as license fee and some are apportioned such as office expenses.

  (b) **Semi-variable/ Maintenance Charges:** These costs are in the nature of semi-variable nature includes expenditure on maintenance, repairs, tyres, tubes and other charges.

  (c) **Operating and Running costs:** These costs are variable in nature, includes fuel, lubricating oil, wages of drivers/cleaners (if paid on per trip / kilometer). These costs can be easily identifiable with each of the vehicle.

- **Absolute vs. Commercial Ton-Km**

Absolute ton-km = ∑ (Distance travelled x Load Carried in each part of the journey)

Commercial ton-km = Average load carried x Total distance travelled

Consider the following illustration.

Illustration 18

Lorry starts with a load of 20 MT of Goods from Station 'A'. It unloads 8 MT in Station 'B' and balance goods in Station 'C'. On return trip, it reaches Station 'A' with a load of 16 MT, loaded at Station 'C'. The distance between A to B, B to C and C to A are 80 Kms, 120 Kms and 160 Kms, respectively. Compute Absolute MT- Kilometre and Commercial MT-Kilometre"

Solution:

Absolute basis:

MT-Kilometre: = (20MT × 80 Kms) + (12 MT×120 Kms) + (16 MT × 160 Kms)

= 1,600 + 1,440 + 2,560 = 5,600 MT-Kilometre

Commercial basis: MT-Kilometre: = [{(20+12+16)/3} MT × {(80+120+160) Kms]

= 16 MT×360 Kms = 5,760 MT–Kilometre

Illustration 19:

Mr. Sohan Singh has started transport business with a fleet of 10 taxies. The various expenses incurred by him are given below:

(i) Cost of each taxi ₹ 75,000

(ii) Salary of office Staff ₹1,500 p.m.

(iii) Salary of Garage's Supervisor ₹ 2,000 p.m.

(iv) Rent of Garage ₹ 1,000 p.m

(v) Drivers Salary (per taxi) ₹ 400 pm.

(vi) Road Tax and Repairs per taxi ₹ 2,160 p.a.

(vii)Insurance premium @ 4% of cost p.a.

The life of a taxi is 3,00,000 km. and at the end of which it is estimated to be sold at ₹15,000. A taxi runs on an average 4,000 Km. per month of which 20% it runs empty, petrol consumption 9 Km. per litre of petrol costing ₹ 6.30 per litre. Oil and other sundry expenses amount to ₹10 per 100 Km.

Calculate the effective cost of running a taxi per kilometre. If the hire charge is ₹1.80 per Kilometre, find out the profit that Mr.Shoan may expect to make in the first year of operation.

Solution:

Statement Showing Computation of Effective Cost and Profit for the Year

Particulars	Amount (₹)	Amount (₹)
Fixed expenses:		
Salary of staff	1,500	
Salary of garage supervisor	2,000	
Rent of garage	1,000	
Driver Salary (10 x 400)	4,000	
Road tax and repairs (2,160 x 10/12)	1,800	
Insurance premium (75,000 x 4 % x 10/12)	2,500	12,800
Fixed cost of 10 taxi's per month		
Cost per taxi = ₹ 12,800/10 = ₹ 1,280		
Cost per km = 1280/4,000 = 0.32		0.32
Running Costs:		
Depreciation [(75,000-15,000) / 3,00,000]		0.20
Petrol (6.3/9)		0.70
Oil & sundry expenses (10/100)		0.10
		1.32
Effective cost per Km = 1.32 x (100/80)		1.65

Profit for year = (1.80 – 1.65) x 10 x 3,200 x 12 = ₹ 57,600

Illustration 49:

Janata Transport Co. has been given a route 20 km. long for running buses. The company has a fleet of 10 buses each costing ₹ 50,000 and having a life of 5 years without any scrap value.

From the following estimated expenditure and other details calculate the bus fare to be charged from each passenger.

(i)	Insurance charges	3% p.a.
(ii)	Annual tax for each bus	₹ 1,000

(iii)	Total garage charges	₹1,000
(iv)	Drivers' salary for each bus	₹150 p.m
(v)	conductor's salary for each bus	₹100 p.m
(vi)	Annual repairs to each bus	₹1,000
(vii)	Commission to be shared by the driver and conductor equally:	10% of the takings
(viii)	Cost of stationary	₹500 p.m.
(ix)	Manager's salary	₹2,000 p.m.
(x)	Accountant's salary	₹1,500 p.m.
(xii)	Petrol and oil	₹25 per 100 km

Each bus will make 3 round trips carrying on an average 40 passengers on each trip. The bus will run on an average for 25 days in a month. Assuming 15% profit on takings, calculate, the bus fare to be charged from each passenger.

Solution:

Insurance (50,000 x 3% x 10/12)	1,250
Tax (1,000 x 10/12)	833.33
Garage charges	1,000
Drivers salary (150 x 10)	1,500
Conductor salary (100 x 10)	1,000
Repairs (1,000 x 10/12)	833.33
Cost of stationary	500
Managers salary	2,000
Accountant salary	1,500
Depreciation (50,000 x 10/5 x 1/12)	833.33
Petrol * (30,000/100) x 25	7,500
Commission of conductor & driver 35,000 x (10/100)	3,500
	29,750
(+) Profit @ 15% on takings (35,000 x 15/100)	5,250
	35,000

* 10 x 20 x 3 x 2 x 25 = 30,000

Let 'X' be the takings

X = 26,250 + (10/100 X) + (15/100 X) 100 X = 26,25,000 + 25 X

X = 35,000

Fare per passenger Km = 35,000 / (30,000 x 40) = 0.0292 = ₹ 0.03

- **Other Forms of Operating Costing:** Other forms of operating or service coasting include Hotel Costing, Cinema Hall Costing, Canteen Costing etc.

Techniques of Costing 3

This Unit Includes the Following Topics:

a. **Contribution and Break-Even analysis (Marginal Costing)**
b. **Cost-Volume-Profit Analysis**
c. **Standard Costing (Basic concept, Material variance and Labour variance)**
d. **Budgeting and Budgetary Control**
e. **Activity Based Costing**

Unit Learning Objectives:

After studying this unit, students will be able to:

- **Understand the meaning of Marginal Cost and Marginal Costing and its difference with Absorption Costing**
- **Understand the basic principles of cost-volume and profit analysis**
- **Understand the process of standard costing**
- **Understand the various types of budgets and their relevance**
- **Understand how ABC offers a superior way of apportioning overhead cost**

In today's competitive world, the manufacturing and service firms are forced to become integrated, more flexible and highly automated to increase their productivity by lowering their costs in order to survive on the market. To survive and grow, companies are required to improve their product and service quality, flexibility, product variety and novelty gradually while consistently maintaining or reducing their costs. This can be achieved by employing the most appropriate costing technique that would help in making informed decisions, cost control and cost management. Costing techniques are methods for ascertaining cost control and decision-making purposes, (CIMA, 2009). Most important costing techniques are Marginal Costing, Standard Costing, Budgetary Control and Activity Based Costing.

3.1 Marginal Costing

- **Meaning of Marginal Costing**

  Marginal costing is *"the ascertainment of marginal costs and study of the effect on profit of changes in volume or type of output by differentiating between fixed costs and variable costs."* Several other terms like direct costing, contributory costing, variable costing, comparative costing, differential costing and incremental costing are used more or less synonymously with marginal costing.

  The essential feature of marginal costing is division of total costs into fixed and variable, without which this could not have existed. Variable costs vary with volume of production or output, whereas fixed costs remain unchanged irrespective of changes in the volume of output. It is to be understood that unit variable cost remains same at different levels of output and total variable cost changes in direct proportion with the number of units. On the other hand, total fixed cost remains same disregard of changes in units, while there is inverse relationship between the fixed cost per unit and the number of units.

- **Features of Marginal Costing:**

  The main features of Marginal Costing may be summed up as follows:

  1. Appropriate and accurate division of total cost into fixed and variable by picking out variable portion of semi variable costs also.
  2. Valuation of stocks such as finished goods, work-in-progress is valued at variable cost only.
  3. The fixed costs are written off soon after they are incurred and do not find place in product cost or inventories.
  4. Prices are based on Marginal Cost and Marginal Contribution.

- **Meaning of Absorption Costing**

  Absorption costing refers to a method of costing to account for all the costs of manufacturing. The management uses this method to absorb the costs incurred on a product. The costs include direct costs and indirect costs. Direct costs include materials, labour used in production. Indirect costs include factory rent, administration costs, compliance, and insurance.

  Absorption costing is also known as full costing since it includes all the costs associated with production including variable costs and fixed costs. Variable costs are direct labour and material costs. Fixed costs include rent, security, and insurance expenses. Semi-variable costs include electricity charges for the factory. Thus, under full costing, all the expense are absorbed by the product irrespective of the product being sold. Accordingly, the closing inventory also consists of fixed costs, thus increasing the value of the inventory. This method of inventory valuation increases the profit of the company.

- **Absorption Costing vs. Marginal Costing**

  The differences between Absorption Costing and Marginal Costing are as follows.

Absorption Costing	Marginal Costing
Costs are classified as direct and indirect.	Costs and classified as fixed and variable.
The year-end inventory of finished goods under absorption costing is valued at total cost, i.e. fixed and variable.	The year-end inventory is valued at variable cost only.
The fixed overhead absorption may create some problems like over/under absorption. This happens because of the overhead absorption rate which is pre-determined.	The fixed overheads are charged directly to the Costing Profit and Loss Account and not absorbed in the product units.
Due to the inventory valuation, which is done at the full cost, the costs relating to the current period are carried forward to the subsequent period.	Fixed costs are not taken into consideration while valuing the inventory and hence there is no distortion of profits.

Income Statement under Absorption Costing

Following is the format of income statement under absorption costing.

Particulars	₹
I. Sales	
II. Total Cost	
Direct material consumed	
Direct labour cost	
Variable manufacturing overhead	
Fixed manufacturing overhead	
Cost of production	
Add: Opening stock of finished goods	
(Value at cost of previous year's production)	
Less: Closing stock of finished goods	
(Value at production cost of current period)	
Cost of Goods Sold	
Add: (or less) Under (or over) absorption of Fixed Manufacturing overhead	
Add: Administration costs	
Add: Selling and distribution costs	
Total Cost	
III. Profit (Sales-Total cost)	

Income Statement under Marginal Costing

Following is the format of income statement under marginal costing.

Particulars	₹
I. Sales	
Variable manufacturing costs:	
Direct material consumed	
Direct labour	
Variable manufacturing overhead	
Cost of Goods Produced	
Add: Opening stock of finished goods	
(value at cost of previous period)	
Less: Closing stock of finished goods	
(Value at current variable cost)	
Cost of Goods Sold	
Add: Variable administration. Selling and distribution overhead	
II. Total Variable Cost	
Contribution (Sale-Total variable costs)	
Less: Fixed costs (production, administration, selling and distribution)	
Net profit	

Fundamental Principles of Marginal Costing

Since fixed costs are constant within the relevant range of volume sales, the following is the net impact of selling one extra unit:

1. Revenue will increase by the sales price of one unit.
2. Costs will only increase by the variable cost per unit.
3. The increase in profit will equal sales value less variable costs, i.e. the contribution

If the volume of sales falls by one unit, then profit will fall by the contribution of that unit. If the volume of sales increases by one unit, profit will increase by the contribution of that unit.

Fixed costs relate to time and is thus referred as the period cost, and do not change with increases or decreases in sales volume. It avoids the often-arbitrary apportionment of fixed cost and highlights contribution, which is considered more appropriate for decision –making purposes.

- **Marginal Costing Equation**

  The following is the Marginal Costing Equation or Marginal Costing Identity.

  Sales – Variable Cost = Contribution = Fixed Cost ± Profit (Loss)

- **Tools and Techniques of Marginal Costing:**

  1. **Contribution:**

     In common parlance, contribution is the reward for the efforts of the entrepreneur or owner of

a business concern. From this, one can get in his mind that contribution means profit. But it is not so. Technically or in Costing terminology, contribution means not only profit but also fixed cost. That is why; it is defined as the amount recovered towards fixed cost and profit.

Contribution can be computed by subtracting variable cost from sales or by adding fixed costs and profit.

Symbolically, C = S - V ..... (1)

Where C = Contribution

S = Selling Price

V = Variable Cost

Also C = F + P ..... (2)

Where F = Fixed Cost

P = Profit

From (1) and (2) above, we may deduce the following equation called Fundamental Equation of Marginal Costing i.e.

S – V = F + P ..... (3)

Contribution is helpful in determination of profitability of the products. When there are two or more products, the product having more contribution is more profitable.

2. **Profit Volume Ratio or Contribution Ratio**

It is the ratio between contribution and sales of a product. Higher the P/V ratio, better is the profitability. When two of more products differ in their selling price, their profitability can be compared using P/V ratio.

The following formulas can be used for calculating P/V ratio.

$$\text{P/V ratio} = \frac{\text{Total Contribution}}{\text{Total Sales}} \times 100$$

$$\text{P/V ratio} = \frac{\text{Contribution p.u.}}{\text{Selling Price p.u.}} \times 100$$

$$\text{P/V ratio} = \frac{\text{Change in Contribution}}{\text{Change in Sales}} \times 100$$

$$\text{P/V ratio} = \frac{\text{Change in Profit}}{\text{Change in Sales}} \times 100$$

$$\text{P/V ratio} = 1 - \text{Variable Cost ratio} = 1 - \frac{\text{Total Variable Cost}}{\text{Total Sales}} \times 100$$

3. **Break Even Point**

The term 'Break Even' means the volume of production or sales where there is no profit or loss. In other words, Break Even Point is the volume of production or sales where total costs are equal to revenue. It helps in finding out the relationship of costs and revenues to output. In

understanding the breakeven point, cost, volume and profit are always used. The following is the graphical representation of Break-Even Analysis known as Break-Even Chart.

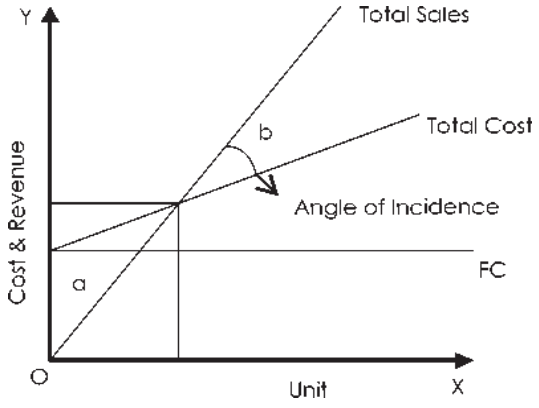


Figure 1: Break-Even Chart

Break-even point is calculated as follows.

$$\text{Break-even point (units)} = \frac{\text{Fixed Cost}}{\text{Contribution p.u}}$$

$$\text{Break-even point (value)} = \frac{\text{Fixed Cost}}{\text{p/v ratio}}$$

4. **Angle of Incidence:**

Angle of Incidence is an angle formed at the intersection point of total sales line and total cost line in a formal break-even chart. If the angle is larger, the rate of growth of profit is higher and if the angle is lower, the rate of growth of profit is lower. So, growth of profit or profitability rate is depicted by Angle of Incidence.

5. **Margin of Safety**

The margin of safety is the difference between the expected level of sales and the breakeven point. It is a reflection of the cushion. The larger the margin of safety, the more likely a profit will be made, i.e. if sales start to fall there is more leeway before the organisation begins to incur losses.

Margin of Safety can be calculated in the following ways.

Margin of Safety = Actual sales (in ₹ or Units) – Break-even Sales (in ₹ or Units)

$$\text{Margin of Safety (in units)} = \frac{\text{Profit}}{\text{Contribution p.u}}$$

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

$$\text{Margin of Safety (in \%)} = \frac{\text{MOS in units or value}}{\text{Actual Sales in units or value}} \times 100$$

6. **Target Sales to Earn Target Profit**

This can be calculated in the following ways.

$$\text{Target Sales (in units)} = \frac{\text{Fixed Cost + Target Profit}}{\text{Contribution p.u}}$$

$$\text{Target Sales (in value)} = \frac{\text{Fixed Cost + Target Profit}}{\text{P/V ratio}}$$

3.2 Cost-Volume-Profit Analysis (CVP analysis)

Managers are concerned about the impact of their decisions on profit. The decisions managers make basically about volume of sales, pricing of products, or incurring a cost. Therefore, managers require an understanding of the relations among revenues, costs, volume, and profit. The cost accounting department supplies the data and analysis, called Cost-Volume-Profit (CVP) analysis, which facilitates managers to take their decisions. The term CVP analysis is interchangeably used with the term marginal costing. Surely the term CVP analysis is much broader in context and uses the similar technique as embedded in marginal costing.

CIMA's Official Terminology defines Cost-Volume-Profit (CVP) analysis as 'the study of the effects on future profit of changes in fixed cost, variable cost, sales price, quantity and mix'.

The terms CVP analysis and the term breakeven analysis are used interchangeably. However, this is somewhat misleading, since the term break even analysis seems to imply that the focus of the analysis is the breakeven point – that is, the level of activity which produces neither profit nor loss.

Consider the following illustrations.

Illustration 1:

The sports material manufacturing company budgeted the following data for the coming year.

	₹
Sales (1,00,000 units)	1,00,000
Variable cost	40,000
Fixed cost	50,000

Find out

(a) P/V Ratio, B.E.P and Margin of Safety

(b) Evaluate the effect of

(i) 20% increase in physical sales volume

(ii) 20% decrease in physical sales volume

(iii) 5% increase in variable costs

(iv) 5% decrease in variable costs

(v) 10% increase in fixed costs

(vi) 10% decrease in fixed costs

(vii) 10% decreases in selling price and 10% increase in sales volume

(viii) 10% increase in selling price and 10% decrease in sales volume

(ix) ₹ 5,000 variable cost decrease accompanied by ₹15,000 increase in fixed costs.

Solution:

(a) P/V ratio, B.E.P and Margin of Safety

Contribution	= Sales – Variable cost	= 1,00,000 – 40,000	= ₹ 60,000
P/V Ratio	= (Contribution/Sales)x100	= (60,000/1,00,000)x100	= 60%
B.E.P sales	= Fixed cost / PV ratio	= 50,000 / 60%	=₹ 83,333
Margin of Safety	= Total sales – B.E.P sales	= 1,00,000 – 83,333	= ₹16,667

(b)

	Contribution (₹)	P/V ratio	BE Sales (₹)	Margin of safety (₹)
(i) Increase in volume by 20%	1,20,000 – 48,000 = 72,000	(72,000/1,20,000)x100 = 60%	(50,000 / 60%) = 83,333	1,20,000 – 83,333 = 36,667
(ii) Decrease in volume by 20%	80,000 – 32,000 = 48,000	(48,000/80,000)x100 = 60%	(50,000 / 60%) = 83,333	80,000 – 83,333 = (3,333)
(iii) 5% increase in variable cost	1,00,000 – 42,000 = 58,000	(58,000/1,00,000)x100 = 58%	(50,000 / 58%) = 86,207	1,00,000 – 86,207 = 13,793
(iv)5% decrease in variable cost	1,00,000 – 38,000 = 62,000	(62,000/1,00,000)x100 = 62%	(50,000 / 62%) = 80,645	1,00,000 – 80,645 = 19,355
(v)10% increase in fixed cost	1,00,000 – 40,000 = 60,000	(60,000/1,00,000)x100 = 60%	(55,000 / 60%) = 91,667	1,00,000 – 91,667 = 8,333
(vi)10% decrease in fixed costs	1,00,000 – 40,000 = 60,000	(60,000/1,00,000)x100 = 60%	(45,000 / 60%) = 75,000	1,00,000 – 75,000 = 25,000
(vii)10% decreases in selling price and 10% increase in sales volume	99,000 – 44,000 = 55,000	(55,000/99,000)x100 = 55.55%	(50,000/ 55.55%)= 90,009	99,000 – 90,009 = 8,991
(viii)10% increase in selling price and 10% decrease in sales volume	99,000 – 36,000 = 63,000	(63,000/99,000)x100 = 63.63%	(50,000/ 63.63%) = 78,579	99,000 – 78,579 = 20,421
(ix) ₹ 5,000 variable cost decrease accompanied by ₹ 15,000 increase in fixed costs.	1,00,000 – 35,000 = 65,000	(65,000/1,00,000)x100 = 65%	(65,000 / 65%) = 1,00,000	1,00,000 – 1,00,000 = 0

Illustration 2:

Two businesses AB Ltd and CD Ltd sell the same type of product in the same market. Their budgeted profits and loss accounts for the year ending 30th June, 2016 are as follows:

	AB Ltd (₹)		CD Ltd (₹)	
Sales		1,50,000		1,50,000
Less: Variable costs	1,20,000	1,35,000	1,00,000	1,35,000
Fixed Cost	15,000		35,000	
Profit		15,000		15,000

You are required to calculate the B.E.P of each business and state which business is likely to earn greater profits in conditions.

(a) Heavy demand for the product

(b) Low demand for the product.

Solution:

Statement Showing Computation of P/V ratio, BEP and Determination of Profitability in Different conditions:

	Particulars		AB Ltd ₹	CD Ltd ₹
I.	*Sales*		1,50,000	1,50,000
II.	*Variable cost*		1,20,000	1,00,000
III.	*Contribution*		30,000	50,000
IV.	P/V ratio	[(30,000/1,50,000) x 100]	20%	
		[(50,000/1.50,000) x 100]		$33^{1}/_{3}$%
V.	Fixed cost		15,000	35,000
VI.	Profit		15,000	15,000
VII.	Breakeven sales (V/IV)		75,000	1,05,000

From the above computation, it was found that the product produced by CD Ltd is more profitable in conditions of heavy demand because its P/V ratio is higher. On the other hand, in the condition of low demand, the product produced by AB Ltd is more profitable because its BEP is low.

Illustration 3 :

The sales turnover and profit during two periods were as follows:

Period	Sales (₹)	Profit (₹)
1	2,00,000	20,000
2	3,00,000	40,000

What would be probable trading results with sales of ₹1,80,000? What amount of sales will yield a profit of ₹ 50,000?

Solution:

P/V ratio = (Change in profit/Change in sales)x100 = (20,000/1,00,000)x100 = 20%

Fixed cost = (Sales x P/V ratio) – Profit = (2,00,000 x 0.2) – 20,000 = ₹ 20,000

Sales required to earn desired profit = (Fixed cost + desired profit) ÷ P/V ratio

= (20,000 + 50,000) / 20% = ₹ 3,50,000

Illustration 4 :

The following results of a company for the last two years are as follows:

Year	Sales (₹)	Profit (₹)
2014	1,50,000	20,000
2015	1,70,000	25,000

You are required to calculate:

(i) P/V Ratio

(ii) B.E.P

(iii) The sales required to earn a profit of ₹ 40,000

(iv) Profit when sales are ₹ 2,50,000

(v) Margin of safety at a profit of ₹ 50,000 and

(vi) Variable costs of the two periods.

Solution:

(i) P/V ratio = (Change in profit / Change in sales) x 100

= (5,000 / 20,000) x 100 = 25%

Fixed cost = (Sales x P/V ratio) – Profit

= (1,50,000 x 25%) – 20,000 = ₹ 17,500

(ii) Break even sales = Fixed cost / PV ratio

= 17,500 / 25% = ₹ 70,000

(iii) Sales required to earn a profit of ₹ 40,000 = (Fixed cost + desired profit) ÷ P/V ratio

= (17,500 + 40,000) / 25% = ₹ 2,30,000

(iv) Profit at sales ₹ 2,50,000 = (Sales x P/V ratio) – Fixed cost

= (2,50,000 x 25%) – 17,500 = ₹ 45,000

(v) Margin of safety at profit of ₹ 50,000 = Profit / PV ratio = 50,000 / 25% = ₹ 2,00,000

(vi) Variable cost for 2011 = 1,50,000 x 75% = ₹ 1,12,500

Variable cost for 2012 = 1,70,000 x 75% = ₹ 1,27,500

Illustration 5:

SV Ltd a multi product company furnishes you the following data relating to the year 2015:

	First Half of the year (₹)	Second Half of the year (₹)
Sales	45,000	50,000
Total cost	40,000	43,000

Assuming that there is no change in prices and variable cost and that the fixed expenses are incurred equally in the two half year period, calculate for the year, 2015

(i) The P/V Ratio,

(iii) Break-even sales

(ii) Fixed Expenses

(iv) Percentage of Margin of safety.

Solution:

(i) P/V ratio = [(7,000 – 5,000) / (50,000 – 45,000)] x 100 = 40%

(ii) Fixed expenses for first half year: = (Sales x PV ratio) – Profit = (45,000 x 0.4)– 5,000 = ₹13,000

Fixed expenses for the year = 13,000 + 13,000 = ₹ 26,000

(iii) Break even sales = 26,000 / 40% = ₹ 65,000

(iv) Margin of safety = (50,000 + 45,000) – 65,000 = ₹ 30,000

Margin of safety ratio = [30,000 / (50,000 + 45,000)] x 100 = 31.58%

Illustration 6 :

A company manufactures scooters and sells it at ₹3,000 each. An increase of 17% in cost of materials and of 20% of labour cost is anticipated. The increased cost in relation to the present sales price would cause at 25% decrease in the amount of the present gross profit per unit.

At present, material cost is 50%, wages 20% and overhead is 30% of cost of sales.

You are required to:

(a) Prepare a statement of profit and loss per unit at present and;

(b) Compute the new selling price to produce the same percentage of profit to cost of sales as before.

Solution:

Let X and Y be the cost and profit respectively.

X + Y = 3,000 (1)

Material = X x 50/100 = 0.5X

Labour = X x 20/100 = 0.2X

Overheads = X x 30/100 = 0.3X

After increase of cost:

Material = 0.5 X x 117/100 = 0.585 X

Labour = 0.2X x 120/100 = 0.240 X

Overheads = 0.300 X

= 1.125 X

Profit = Y x 75/100 = 0.75Y

New Equation 1.125X + 0.75Y = 3,000 → (2)

Multiplying Eq. (1) by 0.75 0.75X + 0.75Y = 2,250

0.375X = 750

X = 750/0.375 = ₹ 2,000

Y = 3,000 – 2,000 = ₹ 1,000

Statement of cost & profit per unit at present:

		₹
Material = 2,000 x 50%	=	1,000
Labour = 2,000 x 20%	=	400
Overheads = 2,000 x 30%	=	600
	=	2,000
(+) profit @ 50% of cost	=	1,000
	=	3,000

Computation of new selling price to get same percentage of profit:

		₹
Material = 1,000 x 117/100	=	1,170
Labour = 400 x 120/100	=	480
Overheads	=	600
Cost	=	2,250
(+) Profit @ 50%	=	1,125
New selling price	=	3,375

3.3 Standard Costing

- **Meaning of Standard**

  Standard means 'norm'. It is a predetermined estimate of quantities. A standard may be defined as, "a pre-determined measurable quantity set in defined conditions against which actual performance may be compared, usually for an element of work, operation or activity". While standards may be based on unquestioned and immutable natural law or fact, they are finally set by human judgement and consequently are subject to the same fallibility which attends all human activity.

- **Meaning of Standard Cost**

  Standard Cost is defined as "the predetermined cost that is calculated at the management's standards of efficient operations and the relevant necessary expenditure". Standard costs are predetermined costs of a product under present or anticipated future conditions. In other words, standard costs are scientifically pre-determined costs.

- **Standard Costs and Estimated Costs**

  The distinction between Standard Costs and Estimated Costs should be clearly understood. While both Standard Costs and Estimated Costs are predetermined costs, their objectives are different. The main differences between the two types of costs are:

  1. Estimated Costs are intended to determine what the costs 'will' be. Standard Costs aim at what costs 'should' be.
  2. Estimated Costs are based on average of past actual figures adjusted for anticipated changes in future. Anticipated wastes, spoilage and inefficiencies, all of which tend to increase costs are included in estimated costs. Standard Costs are planned costs determined on a scientific basis and they are based upon certain assumed conditions of efficiency and other factors.
  3. In Estimated Costing Systems, stress is not so much on cost control, but costs are used for other purposes such as fixation of prices to be quoted in advance. Standard Costs serve as effective tools for cost control.

- **Standard costing**

  The terminology of CIMA defines standard costing as "a technique which uses standards for costs and revenues for the purpose of control through variance analysis".

  Basically, standard costing

  (i) is a system of cost accounting - i.e., a technique of accounting.

  (ii) determines in advance the standard costs with respect to each element of cost - (material, labour and overhead) for each line of product manufactured or service rendered.

  (iii) compares the actual performances and costs with predetermined standard costs and computes the difference known as variance.

  (iv) analyses the variances and attributes or the causes for such variances of actual from standards.

  (v) communicates or reports to the appropriate level of management (responsibility centres) in time for appropriate corrective action to be taken.

- **Advantages of Standard Costing:**

  The advantages derived from a system of standard costing are tabulated below:

  1. Standard Costing system establishes yard-sticks against which the efficiency of actual performances is measured.
  2. The standards provide incentive and motivation to work with greater effort and vigilance for achieving the standard. This increase efficiency and productivity all round.
  3. At the very stage of setting the standards, simplification and standardisation of products, methods, and operations are affected and waste of time and materials is eliminated. This assists in managerial planning for efficient operation and benefits all the divisions of the concern.

4. Costing procedure is simplified. There is a reduction in paper work in accounting and less number of forms and records are required.
5. Cost are available with promptitude for various purposes like fixation of selling prices, pricing of inter-departmental transfers, ascertaining the value of costing stocks of work-in-progress and finished stock and determining idle capacity.
6. Standard Costing is an exercise in planning - it can be very easily fitted into and used for budgetary planning.
7. Standard Costing system facilities delegation of authority and fixation of responsibility for each department or individual. This also tones up the general organisation of the concern.
8. Variance analysis and reporting is based on the principles of management by exception. The top management may not be interested in details of actual performance but only in the variances form the standards, so that corrective measures may be taken in time.
9. When constantly reviewed, the standards provide means for achieving cost reduction.
10. Standard costs assist in performance analysis by providing ready means for preparation of information.
11. Production and pricing policies may be formulated in advance before production starts. This helps in prompt decision-making.
12. Standard costing facilitates the integration of accounts so that reconciliation between cost accounts and financial accounts may be eliminated.
13. Standard Costing optimizes the use of plant capacities, current assets and working capital.

- **Limitations of Standard Costing:**

1. Establishment of standard costs is difficult in practice.
2. In course of time, sometimes even in a short period the standards become rigid.
3. Inaccurate, unreliable and out of date standards do more harm than benefit.
4. Sometimes, standards create adverse psychological effects. If the standard is set at high level, its non-achievement would result in frustration and build-up of resistance.
5. Due to the play of random factors, variances cannot sometimes be properly explained, and it is difficult to distinguish between controllable and non-controllable expenses.
6. Standard costing may not sometimes be suitable for some small concerns. Where production cannot be carefully scheduled, frequent changes in production conditions result in variances. Detailed analysis of all of which would be meaningless, superfluous and costly.
7. Standard costing may not, sometimes, be suitable and costly in the case of industries dealing with non-standardized products and for repair jobs which keep on changing in accordance with customer's specifications.

8. Lack of interest in standard costing on the part of the management makes the system practically ineffective. This limitation, of course, applies equally in the case of any other system which the management does not accept wholeheartedly.

- **Types of Standards**

  Standards can be of following types:

  a) Basic Standard: The terminology of CIMA defines basic standard as, "a standard established for use over a long period from which a current standard can be developed".

  b) Ideal Standard: The terminology of CIMA defines ideal standard as "a standard which can be attained under most favourable conditions".

  c) Attainable Standard: This is also known as the expected standard. It is defi ned as, "a standard which can be attained if a standard unit of work is carried out efficiently, a machine is operated properly or a material is properly used".

  d) Normal Standard: Normal standard has been defi ned 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".

  e) Current Standard: A current standard is a standard for a certain period, for certain circumstances.

- **Analysis of Variance**

  Standard costing aims at revealing the difference between the pre-determined standard cost and actual costs. Any such difference is referred to as a "variance".

  Variance may be defined as, "the difference between planned, budgeted or standard costs and actual costs (similarly in respect of revenue)". Variance represents the difference between planned performance and actual performance. Planned performance may be stated in the form of standard costs or budgets.

  As the causes of variances are due to many factors, it is inevitable to break this total into its component parts and analysed separately. Analysis is carried out by taking the factor one at a time by assuming that the other factors are kept (remain) constant. The cost of each cause of variation can be identified and thereby the adverse tendencies (causes) may be rectified. The terminology of CIMA defines variance analysis as, "the analysis of variances arising in a standard costing system into their constituent parts". Following are the various types of variance analysis of costs.

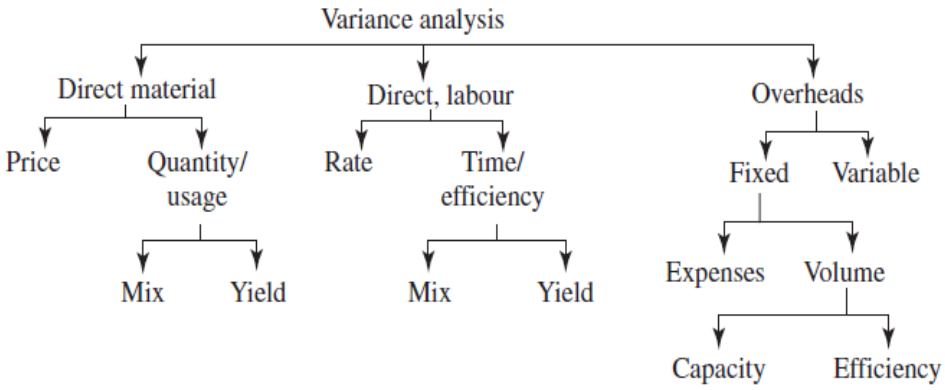


Figure 2: Scope of Analysis of Variance

- **Direct Material Cost Variances**

  Direct material cost variance shows the difference between the standard material cost of the actual quantity of goods and the actual material cost. Direct material cost variations arise due to variations in: (i) standard usage; (ii) standard price; (iii) standard yield; and (iv) standard mix from actual usage, actual price, actual yield and actual mix, respectively.

  1. **Material Cost Variance:** It is calculated by the following formula.

     Material cost variance = Standard cost of materials for actual output – Actual cost of materials used.

     or = (Standard cost per unit x Actual output) - (Actual price × Actual quantity)

     or = (Standard price × Standard quantity for actual output) – (Actual price × Actual quantity)

  2. **Material Price Variance:** Material-price variance is the difference between the standard price and the actual price of material used in production. It is calculated by the following formula.

     Material-price variance = Actual quantity of materials used × (Standard unit price – Actual unit price).

     Some of the reasons for material-price variance may be as follows:

     (i) Wide range of fluctuations in market prices of materials used.

     (ii) Changes in quantity of purchase (bulk purchase).

     (iii) Failure to avail discounts (cash, trade) at the time of purchase.

     (iv) Quality of materials purchased.

     (v) Rush orders—in case of shortage of materials etc.

  3. **Material-Usage Variance (or) Quantity Variance**

     It may be defi ned as, "that portion of material cost variance which is due to the difference

between the standard quantity of materials specified and the actual quantity used".

The formula for the computation of variance is:

Material-usage variance = Standard price × (Standard quantity – Actual quantity)

Some of the reasons for usage variance are listed as follows:

(i) Lack of skill in proper use of materials.

(ii) Inefficiency in production.

(iii) Wastage and pilferage in the use of materials.

(iv) Defective production resulting in abnormal loss.

(v) Improper maintenance of plant and machinery.

(vi) Improper setting of standard.

(vii) Use of a material mix other than the standard mix etc.

4. Material Mix Variance

Mix variance arises in case different raw materials are mixed to manufacture a product. Mix variance may be defined as "that portion of the direct material usage variance which is due to the difference between the standard and actual composition of a mixture".

The formula for calculating material-mix variance is as follows:

Material-mix variance = Standard price (Revised standard quantity – Actual quantity)

where Revised standard quantity = $\frac{\text{Standard quantity}}{\text{Total weight of stanard mix}}$ ×Total weight of actual mix

5. Material Yield Variance

Material-yield variance may be defi ned as, "that portion of direct material usage variance which is due to the difference between the standard yield specified and the actual yield obtained". It is the sub-division of material-usage variance. This variance highlights the cost incidence of difference between the quantity produced and the quantity that should have been produced as per norms envisaged for the output/input ratio.

Material yield variance = Standard cost per unit of output × (Standard output for actual input – Actual output).

Whereas the standard output for actual input can be calculated as:

Standard output for actual input = $\frac{\text{Standard output}}{\text{Standard material input}}$ × Actual material input

Consider the following illustrations.

Illustration 7:

From the following information calculate:

(a) Material cost variance

(b) Material price variance and

(c) Material usage variance

Standard output 200 units

Standard material per unit 5 kgs

Standard price per kg ₹ 4

Actual output 180 units

Actual price per kg ₹ 5

Actual materials used 500 kgs.

Solution:

(a) Calculation of material-cost variance:

Material cost variance = Standard cost – Actual cost

Substituting the values in the formula, we get

= ₹ 4 × (180 unit ×5 kg) – ₹ 5 × 500 kg

= ₹ 4 (900 kgs) – 2,500

= ₹ 3,600 – ₹ 2,500

= ₹ (1,000) (F).

(b) Computation of price variance:

Material-price variance = Actual quantity (Standard price – Actual price)

Substituting the values in the above formula, we get:

= 500 kgs (₹ 4 – ₹ 5)

= 500 × (–1)

= ₹ 500 (A).

(c) Calculation of usage variance:

Material-usage variance = Standard price (Standard quantity – Actual quantity)

Substituting the given values in the formula, we get:

= ₹ 4 (900 kgs – 500 kgs)

= ₹ 4 × 400 kgs

= ₹ 1,600 (F).

(d) Verification:

Material-cost variance = Material-price variance + Material-usage variance

₹ 1,100 (F) = ₹ 500 (A) + ₹ 1,600 (F)

₹ 1,100 (F) = ₹ 1,100 (F).

Illustration 8

K Ltd. using Standard Costing System, produces a chemical product by blending two basic raw materials.

The standard cost of a chemical mixture is as follows:

90 Kg of Material A @ ₹ 4 per kg.

60 Kg of Material B @ ₹ 5 per kg.

A standard loss of 20% on input is expected in production. The cost records for a period have shown the following usage:

140 kg. of Material A @ ₹ 3.80 per kg.

60 kg. of Material B @ ₹ 5.60 per kg.

The quantity processed was 165 kilograms of good product.

From the above given information analyse the following variances:

(i) Material Cost Variance

(ii) Material Price Variance

(iii) Material Usage Variance

(iv) Material Mix Variance

(v) Material Yield Variance

Solution:

Basic Calculation

Material	Standard for 640 kg. Output			Actual for 680 kg. Output		
	Qty. Kg.	Rate (₹)	Amt. (₹)	Qty. Kg.	Rate (₹)	Amt. (₹)
A	90	4	360	140	3.80	532
B	60	5	300	60	5.60	336
Total	150		660	200		868
Less: Loss	30	--	--	35	--	--
	120	5.50 (660 ÷ 120)	660	165		868

Standard Cost of actual output = ₹5.50

(i) Material Cost Variance = (Std. Cost of Actual Output - Actual Cost)

= (₹5.50 x 165 - Rs 868) = ₹39.50 (F)

(ii) Material Price Variance = (SP - AP) x AQ

Material A = (4 – 3.80) x 140 = ₹ 28 (F)

Material B = (5 – 5.60) x 60 = ₹ 36 (A)

MPV ₹8 (A)

(iii) Material Usage Variance = Standard price × (Standard quantity – Actual quantity)

Material A = 4 x (165 x 90/120 – 140) = ₹ 65 (A)

Material B = 5 x (165 x 60/120 – 60) = ₹ 112.50 (F)

₹ 47.50 (F)

(iv) Material-mix variance = Standard price (Revised standard quantity – Actual quantity)

Material A = 4 x (200 x 90/150 – 140) = ₹ 80 (A)

Material B = 5 x (200 x 60/150 – 60) = ₹ 100 (F)

₹ 20 (F)

(v) Material yield variance = Standard cost per unit of output × (Standard output for actual input – Actual output)

= 5.50 x (200 x 120/150 – 165) = ₹27.50 (F)

- **Direct Labour Cost Variances**

Direct labour cost variance refers to the difference between the standard direct labour cost of actual quantity of goods produced and the actual direct labour cost incurred. The variances may arise either due to variations in: (i) standard usage; (ii) standard rate; (iii) standard efficiency; and (iv) standard mix from actual usage, actual rate, actual efficiency and actual mix, respectively.

1. **Labour Cost Variance:** It is calculated by the following formula.

Labour cost variance = Standard cost for actual output – Actual cost

or, = (Standard cost per unit x Actual output) - (Actual price × Actual quantity)

or, [Standard wage rate per hour × Std direct labour hrs. produced] – [Actual wage rate per hrs × Actual direct labour hrs]

2. **Labour Rate Variance:** Direct labour (wages) rate variance is the difference between the standard wage rate and the actual wage rate per hour. The terminology of CIMA defines this as, "the difference between the standard and the actual direct labour rate per hour for the total hours worked". It is calculated by using the following formula:

Labour rate variance = Actual hours or time (Std wage rate – Actual wage rate)

Wage-rate variance occurs due to the following reasons:

(i) Wage structure—better payment would have been made,

(ii) Skilled workers would have been inducted in the place of less-effi cient workers.

(iii) Overtime work in excess of standard rate.

(iv) Failure to pay full normal wages to new entrants.

(v) Change in piece rate.

(vi) Employment of one or more workers of a different grade.

(vii) Use of different methods of payment. etc.

3. **Labour Efficiency Variance:** Direct-labour efficiency is the difference between the standard direct labour hours prescribed for actual production and the actual direct labour hours. is computed as follows:

Labour efficiency variance = Standard wage rate per hour × (Std direct labour hours produced – Actual direct labour hours)

Labour-efficiency variance arises due to the following causes:

(i) Sub-standard and defective materials.

(ii) Faulty machinery.

(iii) Inefficient workers.

(iv) Insufficient training to workers.

(v) Poor working conditions.

(vi) Improper schedule of jobs etc.

(a) Labour Idle Time Variance: Direct-labour idle-time variance is the difference between the actual hours paid and the hours actually worked. It is a sub-classification of labour-efficiency variance. The variance is calculated by using the formula:

Labour idle-time variance = Std wage rate per hour × Abnormal idle hours

(b) Labour-Mix Variance (Group Composition): Direct-labour-mix variance is the difference between the standard composition and the actual composition of direct labour. This variance arises due to the change in composition of the labour force arising from the use of various grades of labour in the manufacturing. It is computed by the following formula;

Labour mix variance = Std rate (Revised std labour hours – Actual labour hours)

where, Revised standard labour = $\frac{\text{Total of actual hours}}{\text{Total of standard hours}} \times$ Standard hours

(c) Labour Yield Variance: This is the variation in the labour cost due to an increase or decrease in the output in comparison to the standard specified. It is calculated by using the formula:

Labour-yield variance = Standard cost per unit (Standard production for Actual mix – Actual production)

= Standard Rate (Standard Hours – Revised Standard Hours)

Consider the following illustrations.

Illustration 9

The standard cost card reveals the following:

Labour rate = Re 1 per hour

Hours set per unit for production = 10 hours

The actual dates are as follows:

Units produced = 1,000

Hours worked = 12,000

Actual labour cost = ₹ 15,000

Calculate labour cost variances.

Solution:

Workings:

(i) Calculation of standard time:

Standard time = Hours per unit of output × Units produced

= 10 hours × 1,000 units

= 10,000 hours.

(ii) Calculation of standard cost:

Standard cost = Standard rate × Standard time

= Re 1 × 10,000 hrs

= Re 10,000.

(iii) Calculation of actual rate per hour

= Actual labour cost/ Hours worked

= 15000/12000

= ₹ 1.25 per hour

(a) **Computation of labour-cost variance:**

Labour-cost variance = Standard cost – Actual cost

or, Labour-cost variance = (₹ 10,000 – ₹ 15,000)= (₹ – 5,000) = ₹ 5,000 (Adverse).

(b) **Calculation of labour-rate variance:**

Labour-rate variance = Actual time (Std rate – Actual rate)

or, Labour-rate variance = 12,000 hrs (₹ 1 – ₹ 1.25)

= 12,000 hrs (– ₹ 0.25)

= (–3,000)

= ₹ 3,000 (A).

(c) **Computation of labour-efficiency variance**

Labour-efficiency variance = Standard rate (Standard time – Actual time).

= ₹ 1 (10,000 hrs – 12,000 hrs)

= ₹ 1. (–2,000 hrs)

= ₹ 2,000 (A).

(d) **Verifcation:**

Labour-cost variance = Labour-rate variance + Labour-efficiency variance

₹ 5000 A) = ₹ 3000 (A) + ₹ 2,000 (A)

₹ 5,000 (A) = ₹ 5,000 (A).

Illustration 10

The standard labour complement and the actual labour complement engaged in a week for a job are as under:

	Skilled workers	Semi-skilled workers	Unskilled workers
a) Standard no. of workers in the gang	32	12	6
b) Standard wage rate per hour (₹)	3	2	1
c) Actual no. of workers employed in the gang during the week	28	18	4
d) Actual wage rate per hour (₹)	4	3	2

During the 40-hour working week the gang produced 1,800 standard labour hours of work. Calculate labour cost variances.

Solution:

Workings:

Analysis of Given Data

	Standard Data			Actual Data		
	Hours	Rate (₹)	Value (₹)	Hours	Rate (₹)	Value (₹)
Skilled	32 × 40 =1,280	3	3,840	28 × 40 = 1,120	4	4,480

Semi-skilled	12 × 40 = 480	2	960	18 × 40 = 720	3	2,160
Unskilled	6 × 40 = 240	1	240	4 × 40 = 160	2	320
	2,000		5,040	2,000		6,960

Computation of Required Values

	SRSH (1) (₹)	SRRSH (2) (₹)	SRAH (3) (₹)	ARAH (4) (₹)
Men	3 x 1,152 = 3,456	3,840	3 x 1,120 = 3,360	4,480
Women	2 x 432 = 864	960	2 x 720 = 1,440	2,160
Boys	1 x 216 = 216	240	1 x 160 = 160	320
	4,536	5040	4,960	6,960

Computation of variances:

Labour cost variance = SRSH – Actual Cost = 4536 – 6960 = ₹2,424 (A)

Labour rate variance = AH (SR – AR) = SRAH – Actual cost = 4960 – 6960 = ₹2,000 (A)

Labour Efficiency variance = SR (SH – AH) = SRSH – SRAH = 4536 – 4960 = ₹424 (A)

Labour Mix variance = SR (RSH – AH) = SRRSH - SRAH = 5040 – 4960 = ₹80 (F)

Labour Yield variance = SR (SH – RSH) = SRSH – SRRSH = 4536 – 5040 = ₹504 (A)

3.4 Budgeting and Budgetary Control

Planning and control systems are linked inextricably to the ways in which people behave. Such systems consider and deals with what people are meant to do (missions, objectives, goals, etc.), how they should do it (plans), what they should allocate resources to (budgets) and how well they do it (budgetary control mechanisms).

A budget is often thought of as a financial plan. A budget may, however, be expressed not only in financial terms but also in quantitative terms (e.g. budgets for labour hours, material purchases, or units of sales). Budgets are, of course, internal to the organization and, like most management accounting information, do not form part of the organization's published financial statements.

- **Meaning of Budgeting**

  Budgeting has come to be accepted as an efficient method of short-term planning and control. It is employed, no doubt, in large business houses, but even the small businesses are using it at least in some informal manner. Through the budgets, a business wants to know clearly as to what it proposes to do during an accounting period or a part thereof. The technique of budgeting is an important application of Management Accounting. Probably, the greatest aid to good management that has ever been devised is the use of budgets and budgetary control. It is a versatile tool and has helped managers cope with many problems including inflation.

- **Meaning of Budget**

  Budget is a financial and/or quantitative statement, prepared and approved prior to a defined period of time of the policy to be pursued during that period for the purpose of attaining a given

objective. It may include income, expenditure and employment of capital.

The CIMA Official Terminology defines a budget as "a plan quantified in monetary terms, prepared and approved prior to a defined period of time, usually showing planned income to be generated and/or expenditure to be incurred during that period and the capital to be employed to attain a given objective".

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

- **Meaning of Budgetary Control**

Budgetary control is defined as "the establishment of budgets relating the responsibilities of executives to the requirements of a policy and the continuous comparison of actual with budgeted results, either to secure by individual action the objective of that policy or to provide a basis for its revision."

- **Uses of Budgets**

Primary uses:

a) Quantifying planned resource usage (materials, labour, etc.)

b) Quantifying income generation

c) Quantifying resource procurement (materials, outsourced components, subcontractors)

Secondary uses:

a) Quantifying payment for resources (cash budgeting)

b) Quantifying collections of cash (from debtors, etc.)

- **Budget vs. Forecast**

A Budget is a financial plan expressed in quantitative terms, prepared by the management in advance for forthcoming period whereas, forecast means estimation of future trends and outcomes, based on the past and present data. Budget is the financial expression of a business plan or target but Forecast is the prediction of upcoming events or trends in business, on the basis of present business conditions. Budget primarily means, what business want to achieve but in Forecast, the idea is, what business will achieve

- **Features of Budget**

a) Financial and/or Quantitative statement

b) Futuristic – prepared and approved prior to a defined period of time

c) Goal Oriented – for the purpose of attaining a given objective

d) Components – income, expenditure and employment of capital

- **Objectives of Budgeting**

a) To encourage self-study in all aspects of a company's operations.

b) To get all members of management to "put their heads" to the basic question of how the business should be run

c) to make them a coordinated team operating in unison towards clearly defined objectives.

d) To force a definition and crystallization of company policies and aims.

e) To increase the effectiveness with which people and capital are employed.

f) To disclose areas of potential improvement in the company's operations.

g) To stimulate study of relationship of the company to its external economic environment for improving the effectiveness of its direction.

- **Relationship between Budgets and Budgetary Control**

Budgets form the basis for the exercise of budgetary control. A budget is a means, and Budgetary control is the end result. A budget is an integral part of the Budgetary control system. The Budget is a financial plan. Budgetary control results from the administration of the financial plan.

The terms budgetary control and budgeting are often used interchangeably to refer to a system of managerial control. Budgetary control implies the use of a comprehensive system of budgeting to aid management in carrying out its functions like planning, coordination and control. It is a system which uses budgets for planning and controlling different activities of business.

- **Types of Budgets**

The following figure depicts various types of budgets.

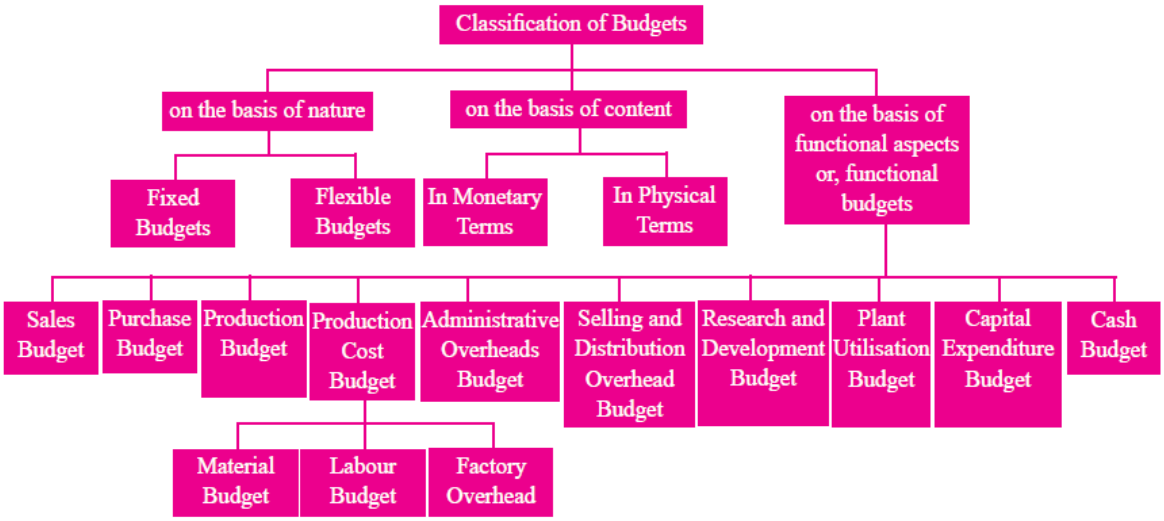


Figure 4: Types of Budgets

1. Fixed Budget vs. Flexible Budget

a. **Fixed Budget:** A fixed budget is designed to remain unchanged irrespective of the level of activity actually attained. A budget is drawn for a particular level of activity is called fixed budget. According to ICWA London "Fixed budget is a budget which is designed to remain unchanged irrespective of the level of activity actually attained." Fixed budget is usually prepared before the beginning of the financial year. This type of budget is not going to highlight the cost variances due to the difference in the levels of activity. Fixed Budgets are suitable under static conditions.

b. **Flexible Budget:** A flexible budget is a budget which is designed to change in accordance with the various level of activity actually attained. The flexible budget also called as Variable Budget or Sliding Scale Budget, takes both fixed, variable and semi fixed manufacturing costs into account. Flexible Budget is also called Variable or Sliding Scale budget, "takes both the fixed and manufacturing costs into account. Flexible budget is the opposite of static budget showing the expected cost at a single level of activity. According to CIMA, England defined "Flexible Budget is a budget which is designed to change in accordance with the level of activity actually attained."

Illustration 11

Draw up a flexible budget for overhead expenses on the basis of the following data and determine the overhead rates at 70%, 80% and 90%:

Plant Capacity	At 80% capacity (₹)
Variable Overheads:	
Indirect labour	12,000
Stores including spares	4,000
Semi Variable:	
Power (30% - Fixed; 70% -Variable)	20,000
Repairs (60%- Fixed; 40% -Variable)	2,000
Fixed Overheads:	
Depreciation	11,000
Insurance	3,000
Salaries	10,000
Total overheads	62,000
Estimated Direct Labour Hours	1,24,000

Solution:

Flexible Budget at Different Capacities and Determination of Overhead Rates

Particulars	70% (₹)	80% (₹)	90% (₹)
(A) Variable overheads:			

Indirect labour	10,500	12,000	13,500
Stores including spares	3,500	4,000	4,500
Total (A)	14,000	16,000	18,000
(B) Semi Variable overheads:			
Power (Working Note)	18,250	20,000	21,750
Repairs (Working Note)	1,900	2,000	2,100
Total (B)	20,150	22,000	23,850
(C) Fixed overheads:			
Depreciation	11,000	11,000	11,000
Insurance	3,000	3,000	3,000
Salaries	10,000	10,000	10,000
Total (C)	24,000	24,000	24,000
Grand Total (A+B+C)	58,150	62,000	65,850
Labour Hours	1,24,000 ×70%/80% = 1,08,500	1,24,000	1,24,000 × (90%)/(80%) = 1,39,500
Overhead rate per hour (₹)	58,150/1,08,500 = 0.536	62000/124000 = 0.50	65850/139500 = 0.472

Working notes: Semi Variable overheads

	70%	90%
Power:		
Variable (70%)	14,000 x 70%/80% =12,250	14,000 × 90%/80% = 15,750
Fixed (30%)	6,000	6,000
Total	18,250	21,750
Repairs:		
Variable (40%)	800 x 70%/80% = 700	800 × 90%/80% = 900
Fixed (60%)	1,200	1,200
Total	1,900	2,100

2. Functional Budgets

Functional budgets are budgets prepared for each department or process within an organization. A financial or quantitative statement prepared for a function of an organisation; it summarizes the policies and the level of performance expected to be achieved by that function for a budget period. These functional budgets are then summarized to produce the overall summary or master budget for the whole organization. Functional budgets are associated with the functions of an organization. A functional budget can be temporary or permanent, depending on its use. The functional budget is one which relates to any of the functions of an organization. The numbers of functional budgets depend upon the size and nature of business.

The following are the commonly used functional budgets:

a) Sales Budget

b) Production Budget

c) Direct Material Budget

d) Direct Labour Budget

e) Production Overheads Budget

f) Office & Administration Overheads Budget

g) Selling & Distribution Overheads Budget

h) Advertising Cost Budget

i) Research & Development Expenditure Budget

j) Capital Expenditure Budget

k) Cash Budget

Consider the following Illustrations.

a. **Sales Budget**

A Sales Budget provides an estimate of quantity and Selling Price for each product for each zone or region. The sales budget, a type of operating budget, is a forecast of the expected units a company intends to sell over a period of time and the revenue it should generate from it. It is the basis for preparing the income statement for the business.

Illustration 12

XYZ Ltd. produces two products, X and Y and operates three sales divisions for sale of their products. Prepare a sales budget for six months ended 30/06/2022 from the following information.

Budgeted sales for six months ended 31/12/2021:

Particulars	Divn. I	Divn. n	Divn. ID
Product X	1.600 @₹10	2.400 @ ₹10	2,400 @ ₹10
Product Y	800 @ ₹9	4.800 @ ₹9	2,000 @ ₹9

Actual sales during the same period:

Particulars	Divn. I	Divn. n	Divn. in
Product X	2,000 @ ₹10	3,200 @ ₹10	2,800 @ ₹10
Product Y	400 @₹ 9	4.000 @ ₹ 9	1.600 @ ₹ 9

In the management meeting, following decisions have been taken:

(i) The price of product X should be increased by ₹ 1 as there is a high demand for product X.

(ii) Product Y is not selling at the expected rate as this product has been over-priced. However, if the selling price is reduced by ₹1, it is expected that the market would pick up. Therefore, the divisional sales managers have made the following estimates:

Percentage increase over previous budget (%)

Product	Divn. I	Divn. II	Divn. III
Product X	20%	30%	10%
Product Y	5%	10%	8%

Solution:

Sales Budget

Period: 6 months ended 30/06/2022

Divn.	Product	Budget 30/06/22			Budget 31/12/21			Actual 31/12/21		
		Qty.	Price (₹)	Value (₹)	Qty.	Price (₹)	Value (₹)	Qty.	Price (₹)	Value (₹)
I	X	1,920	11	21,120	1,600	10	16,000	2,000	10	20,000
	Y	840	8	6,720	800	9	7,200	400	9	3,600
	Total	2,760		27,840	2,400		23,200	2,400		23,600
II	X	3,120	11	34,320	2,400	10	24,000	3,200	10	32,000
	Y	5,280	8	42,240	4,800	9	43,200	4,000	9	36,000
	Total	8,400		76,560	7,200		67,200	7,200		68,000
III	X	2,640	11	29,040	2,400	10	24,000	2,800	10	28,000
	Y	2,160	8	17,280	2,000	9	18,000	1,600	9	14,400
	Total	4,800		46,320	4,400		42,000	4,400		42,400
Grand Total		15,960		1,50,720	14,000		1,32,400	14,000		1,34,000

b. **Production Budget**

The production budget is the basis for developing cost budgets about the raw materials and other consumables to be purchased. It is a type of operating budget.

A Production Budget is prepared for estimating the required production for a given period. This budget is prepared on the basis of estimated sales (obtained from Sales Budget), inventory policy of the firm (with regard to finished goods), production capacity, procurement policy and other relevant factors.

Illustration 13

From the following information, prepare a production budget for ABC Co. Ltd assuming that

(a) There is no loss in production

(b) Normal loss in production – 5% and 10% for products X and Y, respectively.

	Sales Budget (units)	Product X	Product Y
1.	Division I	2,000	1,000
	Division II	3,000	6,000
	Division III	2,500	2,250
	Total units	7,500	9,250
2.	Stock as on 1 January:		
	X – 1,500		
	Y – 2,000		
3.	Stock on 31 December: Estimated to be 10% more in quantity		

Solution:

Total number of units to be produced is to be found out in the same manner as discussed in the previous illustration.

Production Budget for the period……..

Product (1)	Sales Budget (2)	Desired Closing Stock 31 December (3)	Opening Stock 1 January (4)	Units to be Produced (2) + (3) – (4) = (5)
X	7,500	1,500 + 10% = 1,650	1,500	7,650
Y	9,250	2,000 + 10% = 2,200	2,000	9,450

3. Direct Material Budget

Direct Materials Budget is prepared for estimating the quantity of raw material required for budgeted production. This budget is prepared on the basis of Production Budget, inventory policy of the firm (with regard to raw materials), material purchase policy, stock levels to be maintained at the stores, delivery period by supplier etc.

Illustration 14

From the following figures prepare the raw material purchase budget for January, 2021:

Particulars	Materials					
	A	B	C	D	E	F
Estimated Stock on Jan 1	16,000	6,000	24,000	2,000	14,000	28,000
Estimated Stock on Jan 31	20,000	8,000	28,000	4,000	16,000	32,000
Estimated Consumption	1,20,000	44,000	1,32,000	36,000	88,000	1,72,000
Standard Price per unit	25 paise	5 paise	15 paise	10 paise	20 paise	30 paise

Solution:

Raw Materials Purchase Budget for January 2021

Type	A	B	C	D	E	F	Total
Estimated Consumption (units)	1,20,000	44,000	1,32,000	36,000	88,000	1,72,000	
Add: Estimated stock on Jan 31, 2021 (units)	20,000	8,000	28,000	4,000	16,000	32,000	
	1,40,000	52,000	1,60,000	40,000	1,04,000	2,04,000	
Less: Estimated stock on Jan 1, 2021 (units)	16,000	6,000	24,000	2,000	14,000	28,000	
Estimated purchase (units) (1)	1,24,000	46,000	1,36,000	38,000	90,000	1,76,000	6,10,000
Rate per unit (₹) (2)	0.25	0.05	0.15	0.10	0.20	0.30	
Estimated purchases (₹) (1×2)	31,000	2,300	20,400	3,800	18,000	52,800	1,28,300

4. Direct Labour Budget

Direct Labour Budget is prepared to estimate the labour time required for meeting the budgeting production target, the number of workers required, the labour rate, the labour cost and labour recruitment plan.

Illustration 15

A factory works 8 hours per day, 6 days in a week and budget period is one year and during each quarter, lost hours due to leave, holidays and other causes are estimated to be 124 hours.

Particulars	Product A	Product B
Direct Labour per unit		
In P Dept.	2 hrs @ ₹ 1 Per Hrs	1 hr @ ₹ 2 Hrs
In Q Dept.	1 hr @ ₹ 3 Per Hrs	1 hr @ ₹ 3 Per Hrs
Units to be produced as per production budget	10,000	4,000

Required: Prepare (a) Manpower Budget, showing Direct Labour hours and number of workers; and (b) Manpower Budget showing labour cost.

Solution:

Manpower Budget showing Labour Hours and Number of Workers

Particulars	Dept. P	Dept. Q
A. Hours Required		
For Product 'A'	20,000	10,000
For Product 'B'	4,000	4,000
Total Hrs. Required	24,000	14,000
B. Hours during Budget Period (Note)	2,000	2,000
C. No. of Workers (A/B)	12	7

Manpower Budget showing Labour Cost

Particulars	Dept. P			Dept. Q		
	Hrs Required	Rate (₹)	Amt (₹)	Hrs Required	Rate (₹)	Amt (₹)
For Product 'A'	20,000	1	20,000	10,000	3	30,000
For Product 'B'	4,000	2	8,000	4,000	3	12,000
			28,000			42,000

5. Cash Budget

This budget represents the anticipated receipts and payment of cash during the budget period. The cash budget also called as Functional Budget. Cash budget is the most important of the entire functional budget because; cash is required for the purpose to meeting its current cash obligations. If at any time, a concern fails to meet its obligations, it will be technically insolvent. Therefore, this budget is prepared on the basis of detailed cash receipts and cash payments. The estimated Cash Receipts include:

(1) Cash Sales

(2) Credit Sales

(3) Collection from Sundry Debtors

(4) Bills Receivable

(5) Interest Received

(6) Income from Sale of Investment

(7) Commission Received

(8) Dividend Received

(9) Income from Non-Trading Operations etc.

The estimated Cash Payments include the following:

(1) Cash Purchase

(2) Payment to Creditors

(3) Payment of Wages

(4) Payments relate to Production Expenses

(5) Payments relate to Office and Administrative Expenses

(6) Payments relate to Selling and Distribution Expenses

(7) Any other payments relate to Revenue and Capital Expenditure

(8) Income Tax Payable, Dividend Payable etc.

Illustration 16

Prepare a Cash Budget for the three months ending 30th June, 2022 from the information given below:

(a)

Month	Sales (₹)	Materials (₹)	Wages (₹)	Overheads (₹)
February	14,000	9,600	3,000	1,700
March	15,000	9,000	3,000	1,900
April	16,000	9,200	3,200	2,000
May	17,000	10,000	3,600	2,200
June	18,000	10,400	4,000	2,300

(b) Credit terms are:

Sales/debtors: 10% sales are on cash, 50% of the credit sales are collected next month and the balance in the following month.

Creditors: Materials 2 months Wages 1/4 in the following month

Overheads 1/2 in the following month.

(c) Cash and bank balance on 1st April, 2022 is expected to be ₹ 6,000.

(d) other relevant information are:

(i) Plant and machinery will be installed in February 2022 at a cost of ₹96,000. The monthly instalment of ₹2,000 is payable from April onwards.

(ii) Dividend @ 5% on preference share capital of ₹2,00,000 will be paid on 1st June.

(iii) Advance to be received for sale of vehicles ₹9,000 in June.

(iv) Dividends from investments amounting to ₹1,000 are expected to be received in June.

Solution:

Cash Budget for the 3 Months Ending 30th June 2022 **(Amount in ₹)**

Particulars	April	May	June
Opening Balance (A)	6,000	3,950	3,000
Add: Receipts: (B)			
Cash Sales	1,600	1,700	1,800
Collection from debtors [see note(i)]	13,050	13,950	14,850
Advance for sale of vehicles	-	-	9,000
Dividends from Investments	-	-	1,000
Total (A+B)	20,650	19,600	29,650
Less: Payments:			
Materials	9,600	9,000	9,200
Wages [see note (ii)]	3,150	3,500	3,900
Overheads	1,950	2,100	2,250
Instalment of Plant & Machinery	2,000	2,000	2,000
Preference dividend	-	-	10,000
Total (C)	16,700	16,600	27,350
Closing Balance (A+B-C)	3,950	3,000	2,300

Working Notes:

(i) Computation of Collection from Debtors (Amount in ₹)

Month	Total Sales	Credit Sales	Feb	Mar	Apr	May	June
Feb	14,000	12,600	---	6,300	6,300	---	---
Mar	15,000	13,500	---	---	6,750	6,750	---
Apr	16,000	14,400	---	---	---	7,200	7,200
May	17,000	15,300	---	---	---	---	7,650
					13,050	13,950	14,850

(ii) Wages payment in each month is to be taken as three-fourths of the current month plus one-fourth of the previous month.

- **Master Budget**

When the functional budgets have been completed, the budget committee will prepare a Master Budget for the target of the concern. Accordingly, a budget which is prepared incorporating the summaries of all functional budgets. It comprises of budgeted profit and loss account, budgeted balance sheet, budgeted production, sales and costs. It is the summary budget incorporating its functional budgets, which is finally approved, adopted and employed. The Master Budget represents the activities of a business during a profit plan. This budget is also helpful in coordinating activities of various functional departments.

It is the summary Budget, incorporating its component functional budgets, which is finally approved, adopted and employed. Master budget gathers together all the budget gathers together all the budgets all the budgets of various departments and makes a Summary of them. Master budget is prepared in two parts; Forecast income statement and Forecast Balance Sheet. In the former part, the principal items of revenue, expenses, losses and profit are shown. In the Forecast Balance Sheet, the items of Balance sheet i.e., fixed assets, current assets, total capital employed and liabilities are shown. Master Budget is an outlay showing the proposed activity and the anticipated financial results during the coming year or budgeted year. It is presented before the Board of Directors for adoption and approval. After approval of the Master Budget, various functional budgets are sent to the concerned departments, so that, they can plan their working according to their budgets

- **Zero Base Budgets**

Traditional methods of budgeting have taken the current level of operating activity (the base) as the starting point and then adjusted this starting point for expected changes. As these changes are normally made at the margin of the existing budget and do not involve a fundamental review of the base budget, the term incremental budgeting is used to describe this process. In this context it can be seen that any inefficiencies in the base can be overlooked. Again we would, however, point out that many industries are under severe cost pressure so this may present a somewhat simplistic view of the world, and probably considerably more work goes on reviewing the base budget from the previous period than many textbooks appear to suggest.

The alternative solution presented to the problem of inefficiency in the base is termed zero-based

budgeting (ZBB) or sometimes priority-based budgeting. As can be imagined, under this system each manager in charge of an authorized programme has to justify each item of expense as if the programme was totally new to the organization. This solution would thus reject the concept of an existing base and raise issues over whether the function should be performed at all, how it should be performed, how much should it cost to perform and so on. Managers are thus constantly questioning the way in which an activity is delivered and if it is to the benefit of their organization.

- **Budgetary Control**

Budgetary Control is defined as "the establishment of budgets, relating 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 objective of that policy or to provide a base for its revision."

Budgetary control is intimately connected with budgets. The Chartered Institute of Management Accountants, London defines 'Budgetary control; as "the establishment of budgets, relating the responsibilities of executive to the requirements 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 firm basis for its revision". The process of budgetary control is set up with the objective to closely monitor whether or not the actual sales and expenses are in line with the financial plan. The processes involve setting up goals at the organizational level and then percolate it to match the personal goals of each employee. The employees and departments are rewarded when the goals are achieved, but if the actual results seem to fall well below expectations then correction measures are undertaken.

A budgetary control system secures control over performance and costs in the different parts of a business:

(i) by establishing budgets

(ii) by comparing actual attainments against the budgets; and

(iii) by taking corrective action and remedial measures or revision of the budgets, if necessary.

The budget is a blue-print of the projected plan of action expressed in quantitative terms and for a specified period of time. The budgets put the plan in a concrete form and follow up action to see that plan is adhering to complete the system of control. In other words, while budgeting is the art of planning, budgetary control is the act of adhering to the plan. In fact, budgetary control involves continuous comparison of actual results with the budgets and taking appropriate remedial action promptly

Budgetary control is achieved by comparing the actual results with the budget. The differences are calculated as variances and management action may be taken to investigate and correct the variances if necessary or appropriate. If costs are higher or revenues are lower than the budget, then the difference is an adverse variance. If costs are lower or revenues are higher than the budget, then the difference is a favourable variance.

The main features of budgetary control are:

1. Establishment of budgets for each purpose of the business.
2. Revision of budget in view of changes in conditions.
3. Comparison of actual performances with the budget on a continuous basis.
4. Taking suitable remedial action, wherever necessary.
5. Analysis of variations of actual performance from that of the budgeted performance to know the reasons thereof

3.5 Activity Based Costing

A powerful tool for measuring performance, Activity-Based Costing (ABC) is used to identify, describe, assign costs to, and report on agency operations. A more accurate cost management system than traditional cost accounting; ABC identifies opportunities to improve business process effectiveness and efficiency by determining the "true" cost of a product or service. Activity Based Costing is a method for developing cost estimates in which the project is subdivided into discrete, quantifiable activities or a work unit. ABC systems calculate the costs of individual activities and assign costs to cost objects such as products and services on the basis of the activities undertaken to produce each product or services. It accurately identifies sources of profit and loss.

- **Limitations of Traditional Costing System**

The cost of product arrived in traditional accounting system is not so accurate due to following reasons:

(i) The present Costing system has developed convenient overhead recovery basis and blanket overhead recovery are acceptable when valuing stocks for financial reporting, but they are inappropriate when used for decision making and typical product strategy decisions. Such decisions have implications over 3-5 years and over this period many fixed costs become variable.

(ii) The traditional fixed verses variable cost split is often unrealistic since, as business grows, they often become more complex.

(iii) In case of companies manufacturing and selling multiple products usually make decisions on pricing, product-mix, process technology etc., based on distorted cost information due to difficulties in traditional costing system in collection, classification, allocation and recovery of overheads to individual products.

(iv) The cost structure is changing especially when making direct labour component to small proportion.

(v) Traditional accounting was confined merely to furnishing information at product level. The new manufacturing technology demands the feedback of performance while production is still in progress rather than history.

(vi) There is also an urgent need to integrate the activity measurement and financial measurement.

Therefore, in order to overcome the inadequacies of traditional methods of overhead absorption and short term biasing of marginal costing, Activity Based Costing (ABC) has been researched.

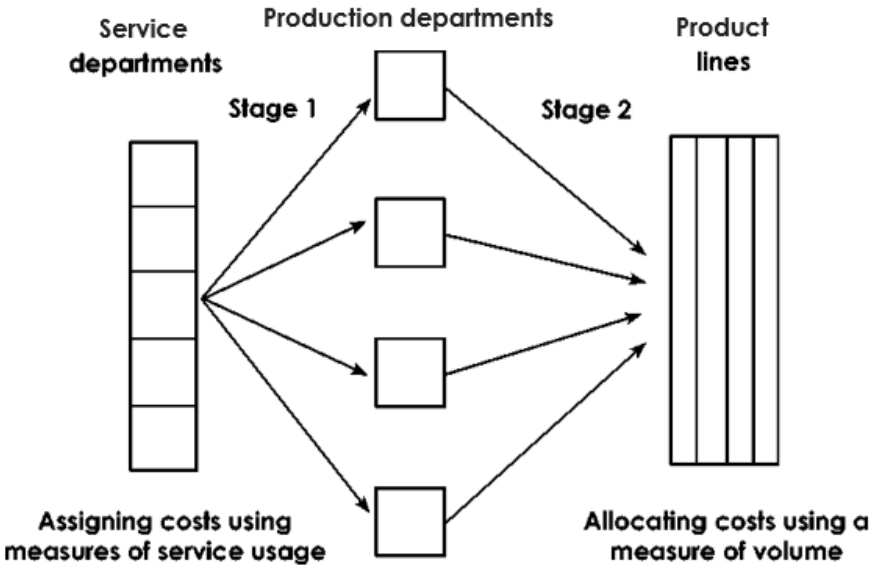


Figure 3: Traditional Costing System

- **Concept of Activity Based Costing**

The concepts of ABC were developed in the manufacturing sector of the United States during the 1970s and 1980s.It is a practice in which activities are identified and all related costs of performing them are calculated, providing actual costs chargeable. The focus of activity based costing is activities. Thus identifying activities is a logical first step in designing an activity based costing. An activity is an event, task or unit of work with a specified purpose. For example; designing products, setting up machines, operating machines and distributing products.

The CIMA terminology defines ABC as a cost attribution to cost units on the basis of benefit received from indirect activities. Peter B. B. Turney defines ABC as "a method of measuring the cost and performance of activities and cost objects. It assigns cost to activities based on their use of resources and assigns cost to cost objects based on their use of activities. ABC recognizes the causal relationship of cost drivers to activities."

The total cost for performing the activity will be based on the number of times the activity is performed during a specific time frame. An activity based costing system first traces costs to activities and then to products and other cost objects.

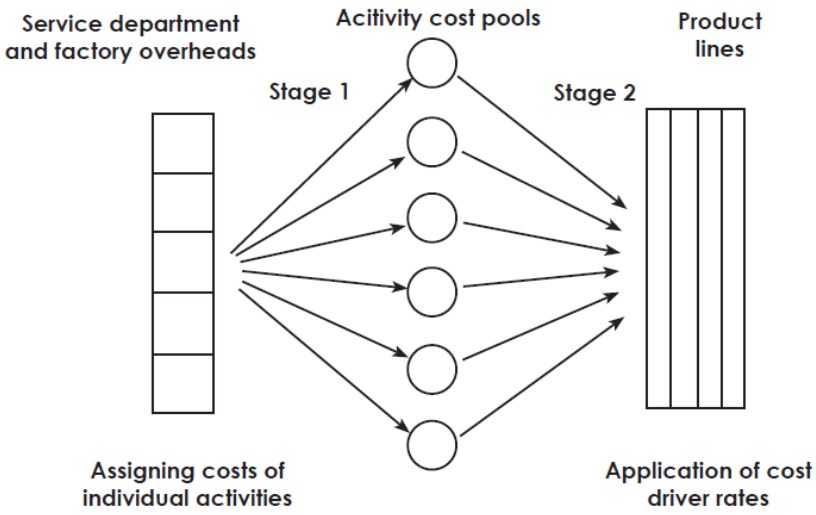


Figure 4: Activity Based Costing System

- **Important Terms Used in ABC**

The operation of the ABC system involves the use of the following terms:

a) **Activity**: An activity means an aggregate of closely related tasks having some specific functions which are used for completion of goal or objectives. For example, customer order processing is an activity. It includes receiving order from customers, interacting with production department regarding capacity to produce and giving commitment to the customer regarding delivery time. Other activities may be assembling, packaging, advertising etc.

b) **Resource**: Resources are elements that are used for performing the activities or factors helping in the activities. For example, order receiver, telephone, computers etc. are resources in customer order processing activity. It may include material, labour, equipment, office supplies etc.

c) **Cost**: Cost is amount paid for resource consumed by the activity. For example, salaries, printing stationary, telephone bill etc. are cost of customer order processing activity. It is also known as activity cost pool.

d) **Cost object**: It refers to an item for which cost measurement is required. e.g. a product, a service, or a customer.

e) **Cost pool**: A cost pool is a term used to indicate grouping of costs incurred on a particular activity which drives them.

f) **Cost driver**: Any element that would cause a change in the cost of activity is cost driver. Actually cost drivers are basis of charging cost of activity to cost object. Cost drivers are used to trace cost to product by using a measure of resources consumed by each activity. For example, frequency of order, number of orders etc. may be cost driver of customer order processing activity. Cost driver may be involved two parts:

(i) Resource cost driver

(ii) Activity cost driver

A resource cost driver is a measure of the quantity of resources consumed by an activity. An activity cost driver is a measure of the frequency and intensity of demand, placed on activities by cost objects.

Consider the following examples.

Activities	Resources	Cost pools	Cost driver
Consulting	Consultant, computer	Employee cost, maintenance cost	Level of consultant, time spent
Laser printing	Printing staff, printer	Colour cost, maintenance cost, printing stationary	No. of pages printed, font
Accounting administration	Administration staff	Salaries	No. of times account produced
Customer service	Telephone, staff	Telephone bill, salaries	Frequency of order, no. of order, time spent in servicing, no. of service calls
Research development	Staff, equipment, material	Salaries, maintenance cost, material cost	No. of research projects, time spent on a project, technical complexities of project

The cost drivers for various functions i.e., production, marketing, research, and developments are given below:

Production	Number of units Number of set-ups
Marketing	Number of sales personnel, Number of sales orders
Research& development	Number of research projects, Personnel hours spend on projects, Technical complexities of the projects
Customer service	Number of service calls Number of products serviced Hours spend on servicing products

- **Stages of Activity Based Costing**

  The different steps or stages in ABC system can be given as follows:

  a) Identify the chosen cost objects

  The cost objects of any organization are the products or services and the goal is to first calculate the total cost of manufacturing and distributing these products and their unit cost.

  b) Identify the different activities within the organization

  After the identification of cost objects, the main activities, which are being performed in the organization, have to be identified. Usually the number of activities over cost centers in ABC will be much more as compared to traditional overhead system. The exact number will depend on how the management subdivides the organizations activities.

c) Identifying the direct cost of products

The direct cost of products or objects may comprise direct material cost, direct labour cost and direct expenses. Classification of as many of the total costs as direct costs as is economically feasible should be made. It reduces the amount of costs classified as indirect.

d) Relating the overhead to the activities

After identifying the organizations activities, the various items of overhead are related to activities both support and primary, that caused them. As a result of relating the items of overhead to various activities, cost pool or cost buckets are created.

e) Spreading the support activities across the primary activities

The spreading of support activities (i.e., activities which support or assist manufacturing) across the primary activities (correlated to the number of units produced) is done on some suitable base which reflects the use of support activity. The base is the cost driver and is measured of how the support activities are used.

f) Determining the activity cost drivers

The determination of the activity cost drivers is done in order to relate the overhead collected in cost pools to the cost objects of products. It is done on the basis of the factor that drives the consumption of the activities.

g) Calculating the activity cost driver rates

The activity cost rates for each activity are calculated in the way in which overhead absorption rates would be calculated under the traditional system. It can be presented as follows:

Activity cost driver rate = Total cost of activity/Activity driver

These activity cost driver rates are to be used for ascertaining the amount of overhead chargeable to various cost objects or products.

h) Computing the total cost of products or cost objects

The total costs of the products shall be computed by adding all direct and indirect costs assigned to them. The amount of overhead chargeable to a product or cost object shall be calculated by multiplying the activity cost driver rates by different amounts of each activity that each product or other cost object consumes.

- **Significance of ABC**

The following list reflects the results of several surveys of practice in the United States, the United Kingdom, and Canada to determine why companies choose ABC.

a) Cost Reduction: ABC measures how much activities that are costly and then take steps to reduce their costs by changing the productions process or outsourcing those activities.

b) Product pricing and decisions of whether to continue producing a product or keeping a

particular customer. ABC implementers generally believe that ABC provides more accurate cost information than conventional costing does. Management can use this information to negotiate price increases with customers or to drop unprofitable products.

c) Budgeting and performance measurement: Management can use more accurate cost information to improve budgets and measures of department and division performance.

- **Advantages of ABC**

a) It provides more accurate product costing information by reducing arbitrary cost allocations.

b) It improves the quality of information available for decision making by answering the questions such as what activities and events are driving cost and where efforts should be made to control cost?

c) It is easiest way to allocate overhead in the product.

d) It helps to identify the activities that can be eliminated.

e) It links up cause and effect relationship.

f) ABC helps to identify the value-added activities (that increase the customer's satisfaction) and non- value-added activities (that creates the problems in customer's satisfaction).

g) ABC translates cost in to a language that people can understand and that can be linked up to business activities.

- **Limitations of ABC**

a) More time consuming to collect data

b) Cost of buying, implementing and maintaining activity based system

c) In some cases, the establishment of cause-and-effect relationship between cost driver and costs not be a simple affair.

d) ABC does not conform to generally accepted accounting principles in some areas

- **Traditional Costing System vs. Activity Based Costing System**

Activity-Based Costing (ABC) is a system that focuses on activities as the fundamental cost objects and uses the cost of these activities for computing the costs of products. There are several reasons why managers are preferring ABC to traditional system.

(i) In the traditional system cost analysis is done by product. In ABC managers focus attention on activities rather than products because activities in various departments may be combined and costs of similar activities ascertained, e.g. quality control, handling of materials, repairs to machines etc. If detailed costs are kept by activities, the total company costs for each activity can be obtained, analysed, planned and controlled.

(ii) Managers manage activities and not products. Changes in activities lead to changes in costs. Therefore, if the activities are managed well, costs will fall and resulting products will be more competitive.

(iii) Allocating overhead cost to production based on a single cost driver (allocation base, such as unit basis, percentage of material, percentage of prime cost, labour hour rate, machine hour rate etc.) can result in an unrealistic product cost because the traditional system fails to capture cause-and-effect relationships. To manage activities better and to make wiser economic decisions, managers need to identify the relationships of causes (activities) and effects (costs) in a more detailed and accurate manner.

(iv) ABC highlights problem areas that deserve management's attention and more detailed analysis. Many actions are possible, on pricing, on process technology, on product design, on operational movements and on product mix.

Traditional costing can lead to under costing or over costing of products or services. Over or under costing of products distorts cost information. A poor quality of cost information causes management to make poor decisions for pricing, product emphasis, make or buy etc. ABC differs from the traditional system only in respect of allocations of overheads or indirect costs. Direct costs are identified with, or assigned to, the cost object, in the same manner as is done in case of traditional costing system. Overhead costs are linked to the cost objects based on activities.

Illustration 17:

The budgeted overheads and cost driver volumes of XYZ are as follows.

Cost Pool	Budgeted Overheads (₹)	Cost Driver	Budgeted Volume
Material procurement	5,80,000	No. of orders	1,100
Material handling	2,50,000	No. of movements	680
Set-up	4,15,000	No. of set ups	520
Maintenance	9,70,000	Maintenance hours	8,400
Quality control	1,76,000	No. of inspection	900
Machinery	7,20,000	No. of machine hours	24,000

The company has produced a batch of 2,600 components of AX-15, its material cost was ₹ 1,30,000 and labor cost ₹ 2,45,000. The usage activities of the said batch are as follows.

Material orders – 26, maintenance hours – 690, material movements – 18, inspection – 28, set ups – 25, machine hours – 1,800

Calculate – cost driver rates that are used for tracing appropriate amount of overheads to the said batch and ascertain the cost of batch of components using activity Based Costing.

Solution:

Computation of Cost Driver Rates

	Particulars		Amount (₹)
1.	Material procurement	580000/1100	527
2.	Material handing	250000/680	368
3.	Set-up	415000/520	798
4.	Maintenance	970000/8400	115
5.	Quality control		196
6.	Machinery	720000/24000	30

Computation of Batch Cost of 2600 units of AX-15

		₹
Material cost		1,30,000
Labour Cost		2,45,000
Prime Cost		3,75,000
Add: Overheads		
Material orders 26 x 527	13,702	
Material handling 18 x 368	6,624	
Set-up 25 x 798	19,950	
Maintenance 690 x 115	79,350	
Quality Control 28 x 196	5,488	
Machinery 1800 x 30	54,000	1,79,114
Total Cost		**5,54,114**

Illustration 18:

A company produces four products, viz. P, Q, R and S. The data relating to production activity are as under

Product	Quantity of production	Material cost/ unit ₹	Direct labour hours/unit	Machine hours/ unit	Direct Labour cost/ unit ₹
P	1,000	10	1	0.50	6
Q	10,000	10	1	0.50	6
R	1,200	32	4	2.00	24
S	14,000	34	3	3.00	18

Production overheads are as under:	₹
(i) Overheads applicable to machine oriented activity:	1,49,700
(ii) Overheads relating to ordering materials	7,680
(iii) Set up costs	17,400
(iv) Administration overheads for spare parts	34,380
(v) Material handling costs	30,294

The following further information have been compiled:

Product	No. of set up	No. of materials orders	No. of times materials handled	No. of spare parts
P	3	3	6	6
Q	18	12	30	15
R	5	3	9	3
S	24	12	36	12

Required:

(i) Select a suitable cost driver for each item of overhead expense and calculate the cost per unit of cost driver.

(ii) Using the concept of activity based costing, compute the factory cost per unit of each product.

Solution:

Computation of Cost Driver Rates

1) Overheads relating to Machinery oriented activity

Cost Driver ⟶ Machine Hour Rate

(1000 x 0.5) + (1000 x 0.5) + (1200 x 2) + (14000 x 3) = 1,49,700/49,900 = ₹ 3 per hour

2) Overheads relating to ordering materials

Cost driver ⟶ No. of Material orders 7680/30 = ₹ 256 per order

3) Set up costs

Cost driver ⟶ No. of set ups 17400/50 = ₹ 348 per set up

4) Administrative Overheads for spare parts Cost driver ⟶ No. of spare parts 34380/36 = ₹ 955 per spare part.

5) Material Handling costs

Cost driver ⟶ No. of times materials handled 30294/81 = ₹ 374 per material handling

Computation of factory cost for each product

	P		Q		R		S	
Materials		10.00		10.00		32.00		34.00
Labour		6.00		6.00		24.00		18.00
Overheads								
Machine oriented activity	1.500		1.50		6.00		9.00	
Ordering of Materials	0.768		0.31		0.64		0.22	
Set up costs	1.044		0.63		1.45		0.60	
Administrative Spare Parts	5.730		1.43		2.39		0.82	
Material handling	2.244	11.29	1.12	4.99	2.81	13.29	0.96	11.60
Factory Cost (₹)		**27.29**		**20.99**		**69.29**		**63.60**

Illustration 19

Precision Auto comp Ltd. Manufactures and sells two automobile components A and B. Both are identical with slight variation in design. Although the market for both the products is the same, the market share of the company for product A is very high and that of product B very low. The company's accountant has prepared the following profitability statement for the two products Cost of production: (same for both the products)

Direct Material	₹	125
Dirbect Labour	₹	24
Direct Expenses (sub-contract charges)	₹	36
Overheads (400% of direct labour)	₹	96
Total Cost	₹	281

		Product A	Product B	Total
Quantity sold	No.	1,24,000	23,150	1,47,150
Unit sale price	₹	300	290	
Total sales realisation	₹			4,39,13,500
Cost of sales as above	₹			4,13,49,150
Margin	₹			25,64,350

The company's marketing manager, after attending a workshop on activity-based costing challenges the accountant's figures. The nearest competitor's prices for the two products are ₹ 330 and ₹ 275 per unit respectively and, if the company can match the competitor's prices, it can sell 75,000 nos. each of the two products. The

Production Manager confirms that he can produce this product mix with the existing facilities. The management engages you as consultant, and the following facts have been identified by you:

(a) product A undergoes 5 operations and product B undergoes two operations by sub-contractors, although the total subcontract charges are the same for both the products, and

(b) 75% of the overheads is accounted for by three major heads relating to sub-contracting operations, *viz*., ordering, inspection and movement of components, to and from the sub-contractor's works. Prepare a revised profitability statement to find out if the marketing manager's proposal is viable.

Solution:

Total overheads = 1,47,150 x 96 = ₹ 1,41,26,400

Operations overhead = 1,41,26,400 x 75/100 = ₹ 1,05,94,800

Balance 25% assumed to be fixed i.e. ₹ 35,31,600

Allocation of Variable Overheads under ABC

A = 1,05,94,800 x 5/7 = ₹ 75,67,714

B = 1,05,94,800 x 2/7 = ₹ 30,27,086

Statement showing computation profit under Activity Based Costing as per Manager's suggestion:

		A		B		Total
No. of units		**Units**	**75000**	**Units**	**75000**	
Materials	₹	125	93,75,000	125	93,75,000	1,87,50,000
Labour	₹	24	18,00,000	24	18,00,000	36,00,000
Direct expenses	₹	36	27,00,000	36	27,00,000	54,00,000
Prime Cost	₹	**185**	**1,38,75,000**	**185**	**1,38,75,000**	**2,77,50,000**
Variable Overheads	₹	101	75,67,714	41	30,27,086	1,05,94,800
Fixed Overheads	₹	24	17,65,800	24	17,65,800	35,31,600
Total Cost	₹	**310**	**2,32,08,514**	**250**	**1,86,67,886**	**4,18,76,400**
Profit	₹	30	15,41,486	25	19,57,114	34,98,600
Sales	₹	**330**	**2,47,50,000**	**275**	**2,06,25,000**	**4,53,75,000**

As the profit is more at the Marketing Manager's proposal by ₹ 9,34,250 and hence this proposal may be accepted.

Illustration 20

Relevant data relating to a company are:

		Products			
		P	Q	R	Total
Production and sales (units)		60,000	40,000	16,000	
Raw material usage in units		10	10	22	
Raw material costs	₹	50	40	22	24,76,000
Direct labour hours		2.5	4	2	3,42,000
Machine hours		2.5	2	4	2,94,000
Direct labour costs	₹	16	24	12	
No. of production runs		6	14	40	60
No. of deliveries		18	6	40	64
No. of receipts		60	140	880	1,080
No. of production orders		30	20	50	100

Overheads: ₹

Setup	60,000
Machines	15,20,000
Receiving	8,70,000
Packing	5,00,000
Engineering	7,46,000

The company operates a JIT inventory policy and receives each component once per production run. Required:

(i) Compute the product cost based on direct labour-hour recovery rate of overheads.

(ii) Compute the product cost using activity based costing.

Solution:

(i) Traditional Method of absorption of overhead i.e. on the basis of Direct Labour Hours

$$\text{Total overheads} = \frac{36,96,000}{\text{Hours } (60000 \times 2.5)+(400000 \times 4)+(160000 \times 3)} = \frac{36,96,000}{3,42,000}$$

= ₹ 10.81 per labour hour 3,42,000

Calculation of Factory cost of the products

	P	Q	R
	₹	₹	₹
Raw Material	50=000	40=00	22=00
Direct Labour	16=000	24=00	12=00
Overheads (2.5 x 10.81)	27=025	43=24	21=62
Factory cost	**93=000**	**107=24**	**55=62**

(ii) Under Activity Based Costing System

Computation of Cost Drivers Rates.

1) Set up cost : Cost driver ⟶ No. of Production run 60000/60 = ₹ 1000/per run

2) Machines : Cost driver ⟶ Machine hour rate 15,20,000/2,94,000 = ₹ 5.17 per Machine hour rate

3) Receiving cost: Cost driver ⟶ No. of Receipts 8,70,000/1080 = ₹ 805.56

4) Packing : Cost driver ⟶ No. of deliveries 5,00,000/64 = ₹ 7812.5 per delivery

5) Engineering: Cost driver ⟶ No. of Production order 7,46,000/100 = ₹ 7,460 per order

Calculation of Factory Cost per unit of Production

	P		Q		R	
	₹	₹	₹	₹	₹	₹
Materials		50.00		40.00		22.00
Direct Labour		16.00		24.00		12.00
Overheads						
Setup cost	0.10		0.35		2.50	
Machines	12.93		10.34		20.68	
Receiving cost	0.81		2.82		44.31	
Packing	2.34		1.17		19.53	
Engineering	3.73	19.91	3.73	18.41	23.31	110.33
Factory Cost		**85.91**		**82.41**		**144.33**

Illustration 21

Trimake Limited makes three main products, using broadly the same production methods and equipment for each. A conventional product costing system is used at present, although an Activity Based Costing (ABC) system is being considered. Details of the three products, for typical period are:

	Labour Hours per unit	Machine Hours per unit	Material Per unit	Volumes Units
Product X	½	1 ½	₹ 20	750
Product Y	1 ½	1	12	1,250
Product Z	1	3	25	7,000

Direct labour costs ₹ 6 per hour and production overheads are absorbed on a machine hour basis. The rate for the period is ₹ 28 per machine hour.

You are required:

(a) to calculate the cost per unit for each product using conventional methods.

Further analysis shows that the total of production overheads can be divided as follows

	%
Costs relating to set-ups	35
Costs relating to machinery	20
Costs relating to materials handling	15
Costs relating to inspection	30
Total production overhead	100%

The following activity volumes are associated with the product line for the period as a whole. Total activities for the period

	Number of Set-ups	Number of movements of materials	Number of Inspections
Product X	75	12	150
Product Y	115	21	180
Product Z	480	87	670
	670	120	1,000

You are required:

(b) To calculate the cost per unit for each product using ABC principles; c) to comment on the reasons for any differences in the costs in your answers to (a) and (b)

Solution:

(a) **Computation of cost per unit using Conventional Methods:**

Total overheads	₹
X = 750 x 1.5 x 28 =	31,500
Y = 1250 x 1 x 28 =	35,000
Z = 7000 x 3 x 28 =	5,88,000
	6,54,500

Computation of Cost

	X	Y	Z
	₹	₹	₹
Materials	20	12	25
Labour	3	9	6
Overheads	42	28	84
Factory Cost	**65**	**49**	**115**

Under ABC Costing

		Setup Cost	Machine Cost	Machine Handling Cost	Inspection Expenses	Total
Costs	₹	2,29,075	1,30,900	98,175	1,96,350	6,54,500
Cost Driver		No. of setups	Machine hours	No. of Moment of Materials	No. of Inspections	
Cost driver rates	₹	341.90 (229075/670)	5.6 (130900/23375)	818.125 (98,175/120)	196.35 (196350/1000)	

Cost per unit under ABC costing

	X		Y		Z	
	₹	₹	₹	₹	₹	₹
Materials		20.00		12.00		25.00
Labour		3.00		9.00		6.00
Overheads						
Setup Cost	34.19		31.45		23.44	
Machine cost	8.40		5.60		16.80	
Machine Handling Cost	13.09		13.74		10.17	
Inspection Cost	39.27	94.95	28.27	79.06	18.79	69.20
Total Cost		**117.95**		**100.06**		**100.20**

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