CHAPTER 1
AN INTRODUCTION TO ACCOUNTING

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Learning objectives:

After studying the chapter, you should be able to:

1. Describe the types of business organization and the relevance of accounting system
2. Define accounting and its role in making business decisions
3. Name the parties interested in accounting information
4. Explain the branches of accounting
5. appreciate the role of accountant and their career opportunities
6. Understand the importance of ethics in accounting

1.1 Introduction

We live in an era of knowledge which poses many challenges and opportunities to all of us. It helps us to expand our intellectual, academic and professional visions to cope with the present scenario. It is no wonder that today we study about management accounting which not only gives emphasis on the mechanics and function of accounting but also helps managers for effective decision making. We may describe that Accounting is a service function which provides financial information to the interested parties inside and

outside the organisation for their effective decision making. Hence, the primary role of accounting information is to provide useful and reliable information for decision-making purposes. As every one knows that the business deals with a number of transactions in every day, it is difficult to remember all those transactions. A well developed accounting system is required to cater to the needs of the users. Hence, we may call that the accounting is the language for the modern business which serves as means of communication about the business operations and financial position to various interested parties through financial statements or reports. To make communication effective, the recipient should understand the message that the sender intends to convey. In the same way, as a management student, you must learn the meaning of accounting and its related aspects thoroughly which are necessary for interpreting the accounting data in a meaningful manner.

1.2 Forms of Organisation and its relevance of Accounting

In a simple way, business means something that is carried on with a motive to earn profit/income which is inherent in any business. It does not mean that that every business generates profits, but the motive behind every act/transaction in a business would be making profit. This may be classified into;

Public sector organizations are part of, or owned by, central, or state government. Example- Indian Oil Corporation (IOC), BHEL, State Bank of India and so on.

Private sector means that organisations are owned by private individuals which can be classified as under:

- **Sole Traders :** An individual who has set up in business on their own. Here decision making is completely flexible to an individual concern.
- **Partnership :** Two or more individuals join together to run a business are called partnership. Minimum two and maximum 20 members join together and do the business. If you are interested to register under the partnership Act, you have to follow the government regulation. It is good for all.
- **Private Limited Companies:** It refers to a company that is permitted to offer its securities for sale to the private with the maximum of 50 members. Capital is divided into small parts and the same has been mobilised through known circle viz. Employees, family, relatives and friends. In other words, this type of company share does not go for public offer for fund mobilisation. In India names must end in the Private Limited. Example: General Motors India Private limited. Here it is required to register under the Companies Act and submit the annual report at the year ending.
- **Public Limited Companies:** It refers to a company that is permitted to offer its securities for sale to the general public, typically through a stock exchange. In simple words, Capital is divided into small parts which are known as shares and the same has been mobilised through Public. It can be further classified into listed and not listed companies. It should register under the Companies Act and submit the report at the end of the financial year. In India names must end in the Limited (Ltd.). Example: Ashok Leyland Limited.

Non-Profit Organisation: It is a legally constituted organisation whose primary motive is to render the service without any commercial or monetary benefits. Example: Education institutions, charities, health care and so on.

We hope that you are now aware of the types of organisation and hence let us discuss the relevance of accounting.

A business involves some amount capital. Often the owner of the capital expects to earn profit out of their operations. To know the profit level, the organization has to maintain the recording, classifying,

summarizing the transaction happened during the period. In a sole proprietorship concern, the owner may act as a manager and look after the all the business activities. He knows about all the transactions made during the period. Even if he has not maintained any record it will not give much problem. Where more than one individual or interest is involved in an organization, question of equity commonly arise. The failure to maintain a proper record of all transactions may result in the exploitation of equity to the advantage of another. The importance of proper accounting is clearly seen when it is noted that the rights of the partners control, investment, income etc., differ widely. Hence, it is mandatory of the organisation to have the proper system of accounting.

Test your understanding:

1. Why is accounting called a service function?

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2. Can you list any three private limited and public limited companies?

1. ________________	1. ________________
2. ________________	2. ________________
3. ________________	3. ________________

2. Can you define the kind of organisation? (Cooperative, charity or society)

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1.3 Definition of Accounting and its role in making business and economic decision

I hope that you have learned about the types of organisation and its relevance of accounting. Let us define accounting and its role in making business and economic decisions.

1.3.1 Definition of Accounting

Accounting is defined as ‘the art of recording, classifying and summarizing in a significant manner and in terms of money, transactions and events which are of financial character and interpreting the result thereof” – **American Institute of Certified Public Accountants (AICPA).**

Each and every word has the meaning. An analysis of the above definition brings out the following functions of accounting. Let us discuss one by one.

Accounting is an Art

An art is that part of knowledge, which helps us in attaining our aim or object. It shows the way which we may reach our objective in the best possible manner. In this context, our objective is to ascertain the financial position at given point of time. This is possible by way of recording (Journal), classifying (grouping the similar nature of in one head is known as Ledger), summarizing the business transactions (trial balance). Hence the accounting is an art.

Recording, Classifying and summarizing

Recording business transactions is the first step in accounting mechanics. The transactions that are systematically recorded in accounting records are called subsidiary books and journal.

Classification is the process of grouping of transactions or entries or entries of one nature which known as Ledger. The recorded data from the journal has been transferred to ledger. For example sales of any nature i.e. cash or credit sale is written in the sale accounts.

Recording and classifying data into a logical form is referred to as "Book Keeping"

Summarizing is the art of preparing a consolidated statement at the given point of time.

In a significant manner

Recording, classifying and summarizing the business transactions have some common method. If each company has following different methods to prepare these statements, it would be very difficult to understand by the users. For this purpose, the business community formulated some common principles, standards and systems. This will be discussed in detail in unit 2.

Records transactions in term of money

Recording business transaction in terms of money is the common measure of recording and helps in better understanding of the business transactions. For example, you may purchase one table. If you are going to enter in a book, purchase of furniture without mentioning the worth of the furniture is meaningless.

Deals with transactions and events shows financial character

All business transactions can not be measured in terms quantity i.e. value of transactions. Only those transactions and events which are of financial character (able to measure) will be recorded in terms money. If a transaction has no financial character then it will not be measured in terms of money and will not be recorded.

For Example, you or your parents occupy the good position in any organisation say General Manager (GM). Your health is of great use to the business. But can you quantify your health value? Similarly, quarrel between you and your superior, bad working conditions for workers etc are facts that affect earning of the business. However, they are not recorded because they do not have financial character. Thus only those transactions and events, which are of financial character, will be recorded in terms of money. Therefore they are recorded.

Interpretations

Accounting is not only recording, classifying and summarizing the transactions and events of financial character, but also interpreting the information based on requirement. For instance, Accountant may concern about the performance of collection activities, cost how and where we can minimise the cost to improve profitability; he can find out a device for better material management and so on.

Test your understanding

1. Do you recall the definition of accounting? Yes / No
2. Can you list out the functions of Accounting? Yes / No
3. List out the accounting activities which is taking place in your organisation

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1.3.2 Role of accounting in making business decision

Financial information is essential for any economic decision, because financial accounting information focuses on actual events that are useful in making number of decisions. For the purpose of decision making, the past is used as a guide to future estimates of the developing various different alternatives. According to international Accounting Standards Board gives examples of decisions that are based on accounting information include the following:

- It helps the investors' to decide when to buy, hold or sell their securities of a company
- It helps to mobilise the funds through capital market
- Assessing the stewardship or accountability of management
- Assessing the ability of the company's operational efficiency
- To determine the taxation policy, dividend policy of the company
- Regulating the company's activities in a proper way

1.4 Branches of Accounting

As we discussed above, the purpose of accounting is to provide the information to various interested parties depending on their needs. To fulfil the ever increasing demands of the users, the various branches have come into reality.

1.4.1 Financial Accounting

It involves recording, classifying and summarizing the business events and transactions occurred during the particular period of time to the users in order to help them for making sound economic decisions about the performance and financial position. The purpose of this process is to ascertain the profit and loss of a business operations and financial position (balance sheet) during the particular period of time- Generally end of the financial year (1st April to 31st March). Accounting information is related to past event; hence, it is historical in nature. That is why it is also called historical accounting or post-mortem accounting. Yet, it is not enough information to the management for planning and control of the business activities, for efficient running of business. Hence it requires two more forms of accounting viz. cost and management accounting.

The main functions of financial accounting are as follows:

- It helps the user to assess the financial position and based on to forecast for future activities of a business
- It helps to find out the operating efficiency in generating profitability of the business.
- It is the language of business
- It helps to prepare the financial statements which is the mandatory documents for registered company
- It helps for managerial decision making to compare with the predetermine standard.

1.4.2 Cost Accounting

It helps to discover the cost of goods produced goods or services rendered by the business. Also it helps in controlling the cost by way of identifying the excess expenses, avoidable loses, wastes and so on. The emphasis is on historical costs as well as future decision-making costs.

The functions of cost accounting are summarised as follows:

- It helps to ascertain the cost of an output in tern to develop the standard.
- It facilitates the date for determination of selling price or quotation.
- It helps to minimise the cost by way of comparing with the standards.

- It helps to determine the profitability of each product, process, department and so on
- It is useful in controlling the operations of a business in a broad sense.

1.4.3 Management Accounting

It deals with the processing of financial and cost accounting data for managerial decision making. It is concerned with providing information to management in an organisation to enable them to carry out their planning, controlling and decision-making responsibilities. This also helps the manager to discharge their duties more efficiently and effectively.

The important functions of management accounting are as:

- It helps in achieving the organisational objective by way of formulating policies, execute plans.
- Interpretation of the available data in a meaningful manner in order to control the performance
- It is a medium of communication at different levels.
- Coordinating the different departments for achieving the desired goal of the organisation.

Test your understanding:

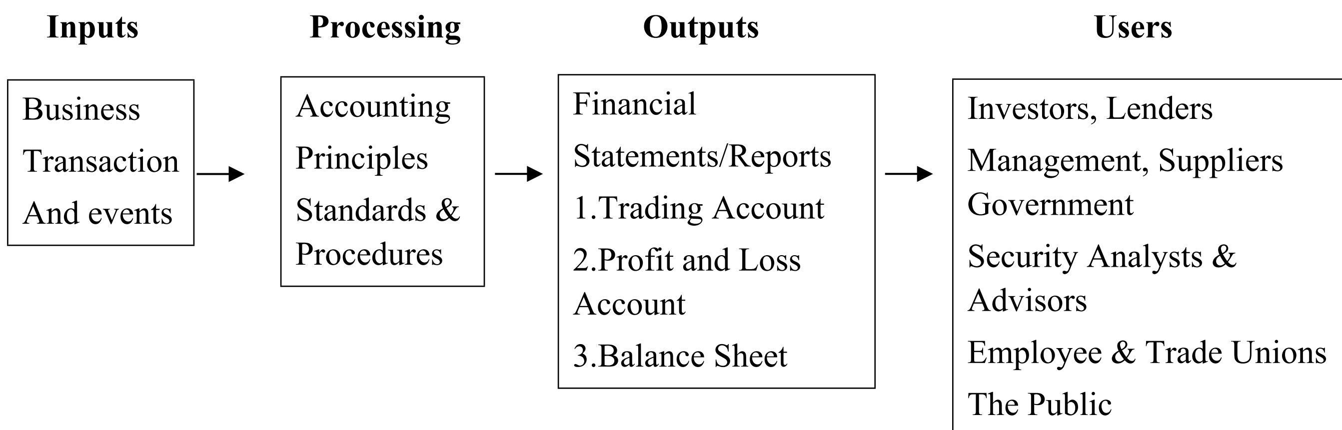
1. Can you distinguish between management and financial accounting? Yes/No
2. Can you distinguish between cost and management accounting? Yes/No
3. List out the main functions of management accounting.

1.5 Accounting as an information system

Accounting is an information system which provides the useful information for making business decisions. Accounting provides "information that is useful in making business and economic decisions for making reasoned choices among alternative uses of scarce resources in the conduct of business & economic activities". (Stamford, Connecticut: Financial Accounting Standards Board, 1978)

Figure 1

The Accounting information system



1.5.1 Key characteristics of accounting information

As mentioned above, the primary role of accounting information is to provide useful and reliable information for decision-making purposes for various groups, before that accounting information satisfy the following criteria:

1. **Understand ability:** While reading the contents of the reports, it should be easily understandable by those who have reasonable knowledge about business activities. The information of report should be presented with clarity, uniform format, opt word etc.
2. **Relevance:** The information should assist the decision-makers, and should not confuse them. As an investor, one may like to invest, as a lender one may like to lend money to this business, as a contractor/ employee one may like to work for the business. To get answer for these questions, the company's accounting information should be reliable and relevance. Avoid unnecessary information.
3. **Consistency:** Consistency of treatment of any items in the report and application of accounting policies should be required for accounting information.
4. **Comparability:** Accounting information should provide the users to compare similar companies in the same industry group and to make comparisons of performance over time.
5. **Reliability:** The information furnished in the report is truthful, accurate, complete (nothing significant missed out) and capable of being verified.
6. **Objectivity:** While preparing and presenting the Accounting information to the users, it must be a neutral one. In other words, it should not focus towards a particular user group or vested interest.

1.5.2 Users and their interest /concerns of accounting information

The following are the important users of accounting information and this list is not exhaustive. Anyone having interested about the company can use the information for decision-making.

1. **Owner(s):** It refers to a person or a group of persons who has provided capital for running the business. It may be an individual (in case of proprietor), partners (in case of partnership firm) and shareholders (in case of a joint stock company). Generally the owner of the business is interested in the financial information to know the return on investment and invested amount. Also they can compare with their competitors. In case, if it is joint stock company, it gets greater importance because of separate legal entity concept (The meaning of separate legal entity in next unit).
2. **Managers:** Generally, the person who is taking care of all activities in a company is called as a Manager. For managing business profitably, he/she may require adequate and updated information about financial results and financial position which helps managers in efficient and smooth running of the business.
3. **Investors:** The person who is interested to invest his/her money in a company is known as potential/prospective investor. Before making investment in that company, the investor wants to assess the company's financial results and position in turn to calculate the expected return and the risk involved in their investment.
4. **Creditors:** The person who is extending credit to a company is called creditors. Sometimes an institution is also extending credit to a company. They would like to have financial information to assess the repaying capacity, credit worthiness etc.
5. **Employees:** Employees are concerned about job security and future prospects which have the intimate relationship with the performance of business. Thus, by analyzing the financial statements, they can draw conclusions about their job security and future prospects.

6. **Government and Regulatory Agencies:** Tax authorities, stock exchanges, Securities Exchange Board of India (SEBI), Department of company affairs are known as government and regulatory authorities. For example, collecting the tax is based on accounting records.
7. **Researchers/ analyst:** Those who are interested to develop a theory or model or to submit the report for academic requirement are called researchers/analyst. They need financial information for testing the hypotheses or assess the financial performance of the company.
8. **Public:** A company influences the public in many ways, because it provides the employment to a number of persons, act as a customer to many suppliers, and so on. Hence, public is always interested in knowing the future directions of a company. As far as their concern, this is the only way to know about the company.

Test your understanding

1. Can you remember why the creditors and employees are interested in accounting information?

Yes/ No

2. Can you list any four characteristics of accounting information?

1. __________________ 2.__________________

3.__________________ 4. __________________

1.6 Accountant

First, let us define who is an accountant? The person who is responsible for supplying the accounting information to the management is known as Accountant. yet many people assume that the process of recording the business transactions i.e. Book-keeping is a part of Accountant job. Apart from this, he/she is designing the efficient information system, budgeting, tax planning, auditing and so on. They play an important role in any organization. Today's accountant is a key member of the management team for all private, public, non-profit and governmental organizations. He/she is known by different names by different organization viz. controller, Comptroller, Chief Accountant, Financial Advisor, Financial controller and so on.

1.6.1 Role of Accountant

Accountant performs a wide variety of roles within an organization. The designation of accountants depends on the functional roles they perform. He or she will be concerned with specific tasks within the branches of accounting, such as fixed assets, cash, payroll, inventory, billing, general ledger and so on. For this, it is better to be specializing in which he/she likes to perform. Depending on the hierarchy, the roles will vary. Whatever may be the role, he/she should be able to recognize valid data, make required inputs, perform functional manipulations, generate reports, and interpret results. From the above discussion, we may get the following qualities to become a good accountant:

1. Expertise in functional area of accounting
2. Competence in computer operating and understanding of applications software clearly
3. A clear understanding of how the accounting system works
4. An awareness of the business as a whole in which he/she is working.

The modern business environment has expanded the roles of accountants in many ways.

1. He/she must be able to generate more timely reports in a wider variety of formats
2. He/she has greater responsibility for personal interactions, data processing, hardware and software acquisitions

3. Coordination inside and outside the accounting domain.
4. The development of accounting information systems has increased the importance of accounting functions

1.6.2 Career Opportunities in Accounting

Accounting opens the door to many diverse career opportunities. This is discussed below:

A. **Public Accounting:** It is a segment which offers the wide variety of services to the public like auditing, tax services, consulting (management advisory) services.
B. **Private accounting:** It refers to the person who provides the services for employing company alone. They occupy the good position and do the specialized services like management accounting, internal auditing, and information system.
C. **Government Accounting:** The person who renders services to the government department and agencies. For example, Indian railway, Post Office, Income Tax Department and so on.
D. **Not- for-profit Accounting:** the person who may choose education as a career or like to work in hospitals, charities and societies. These types of institutions are established for providing services to the public.

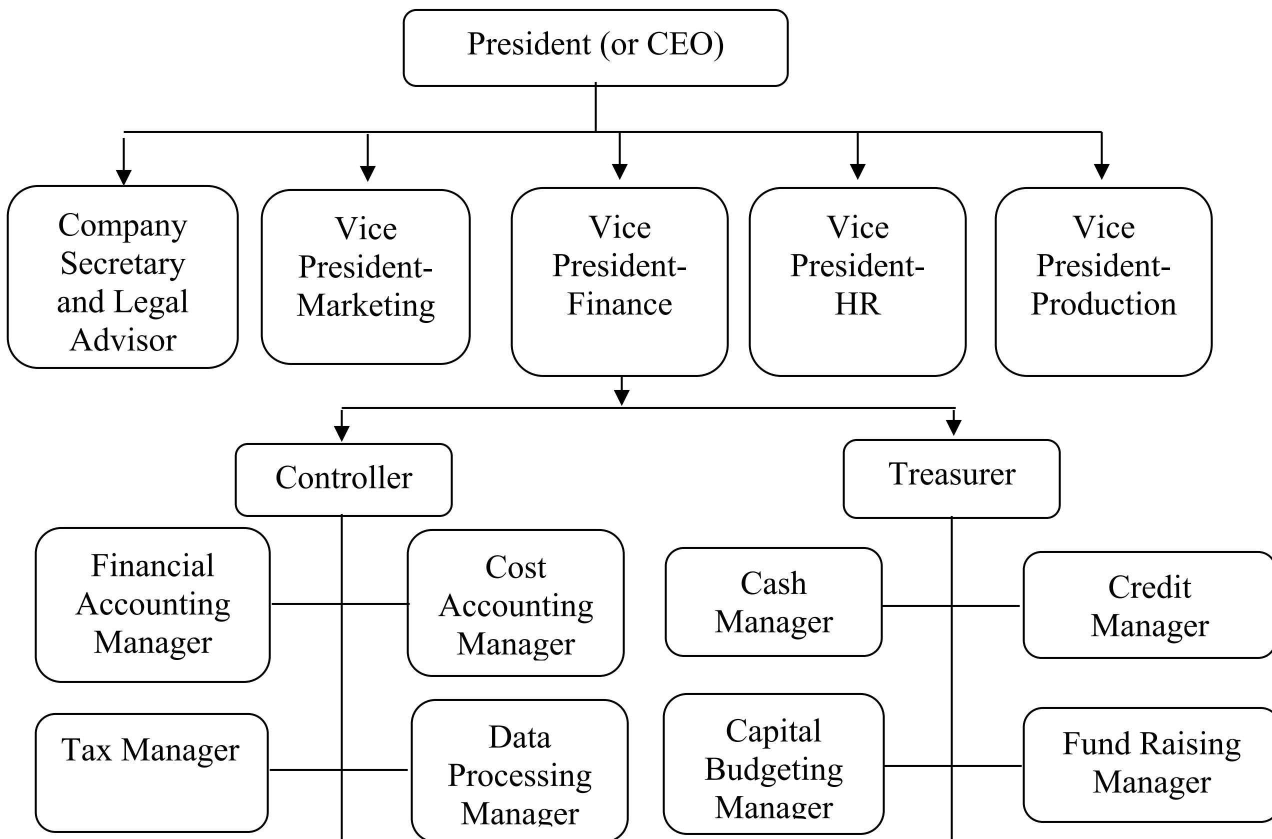
Test your understanding

1. Can you remember the definition of Accountant? Yes / No
2. List out the career opportunities in public and private accounting.

1.7 Organisation for Accounting and Finance Function

The accounting system depends upon the size of operations, nature of the organisation. In a small concern, the management accountant is directly under the owner or sometimes owner itself acts as an accountant. But in a big concern, the duties and responsibilities are classified into different compartment and assigned their duties and responsibilities as under:

Figure 2 - Organization of Accounting and Finance Function



Adapted from: **Financial Management**, 4th Edition, by Prasanna Chandra

The division of task helps the organisation to reach their goal on time. Also it gives clarity of role to the concern person which brings their fullest efficiency.

Test your understanding

1. Can you give the reasons for division of task?

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2. If you are working in an organisation, draw the structure of accounting function.

1.8 Importance of ethics in Accounting

Ethics in accounting is an important one, because the decision maker who rely the information available in the financial statements is highly competent, reliable, and objective. Based on this, decision makers are taking decision. While preparing the financial statements, the decision makers are expecting from the company to appoint not only a well qualified but also who possesses a high degree of integrity for their profession. The purpose of ethics for the business is to increase the public confidence in their products and services. Failing which unethical behaviour leads to collapse of the entity. If you look into the corporate scandals includes, WorldCom, Tyco, Enron and Xerox, the core features of many corporate scandals is fraudulent accounting and weak internal control system. The decline in business ethics has serious implications for the accounting professions. In the accounting field, the AICPA maintains and enforces a code of professional conduct for public accountants. The Institute of Management Accountants (IMA) and the Institute of Internal Auditors (IIA) also maintain a code of ethics. Though the professional accounting organizations recognize the accounting profession's responsibility to provide ethical guidelines to its members, professional accountants frequently encounter professional dilemmas. It is because; the accountant finds the conflict between standards and its expectations of his superior. Like wise, external auditor and the wishes of the company and so on. On the other hand, many ethical questions can not be answered and it is difficult to adhere to GAAP or following the rules of the profession. This poses the high pressure to the accountant. However, it is very important to recognize an ethics dilemma, select the more ethical alternative considering all the circumstances and consequences.

Test your understanding

What are the reasons for having ethics in accounting?

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summary

- Accounting is a service function which provides financial information to the interested parties inside and outside the organisation for their effective decision making. Hence, the primary role of accounting information is to provide useful and reliable information for decision-making purposes.
- The accounting is the language for the modern business which serves as means of communication about the business operations and financial position to various interested parties through financial statements or reports.
- To know the profit level, the organization has to maintain the recording, classifying, summarizing the transaction happened during the period.

- Accounting is defined as ‘the art of recording, classifying and summarizing in a significant manner and in terms of money, transactions and events which are of financial character and interpreting the result thereof
- Financial information is essential for any economic decision, because financial accounting information focuses on actual events that are useful in making number of decisions.
- Financial accounting involves recording, classifying and summarizing the business events and transactions occurred during the particular period of time to the users in order to help them for making sound economic decisions about the performance and financial position.
- Cost accounting helps one to discover the cost of goods produced goods or services rendered by the business.
- Management Accounting deals with the processing of financial and cost accounting data for managerial decision making.
- the primary role of accounting information is to provide useful and reliable information for decision-making purposes for various groups
- The person who is responsible for supplying the accounting information to the management is known as Accountant
- Accountant performs a wide variety of roles within an organization
- Accounting opens the door to many diverse career opportunities
- The accounting system is fully depending upon the size of operations, nature of the organisation
- Ethics in accounting is an important one, because of the decision maker who rely the information available in the financial statements is highly competent, reliable, and objective. Based on this, decision makers are taking decision

Glossary

Accounting: It is the process of recording, classifying, summarising and reporting the economic business events in a proper manner.

Cost Accounting: it is concerned with the computation of the aggregate cost of products manufactured and for services provided.

Management Accounting: It relates to use the financial and cost accounting data for the purpose of evaluating the performance, reviewing policies and planning.

Owner: Those who have contributed the capital for starting the business.

Accountant: The person who is responsible for supplying the accounting information to the management is known as Accountant

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ACCOUNTING PRINCIPLES, STANDARDS AND SYSTEMS

Structure

1.9 Learning Objectives

1.10 Introduction

1.11 Meaning and Criteria for Accounting Principles

1.12 Accounting Principles

- Accounting Concepts and its applications
- Accounting Conventions

1.13 Accounting Standards in India

- Benefits of Accounting Standards
- Standard setting in India
- Scope of Accounting Standards

1.14 System of Accounting

1.15 Book Keeping

- Definition
- System of Book-keeping
- Types of accounts and accounting rules
- Accounting Terms

1.16 Accounting Equation and Transaction Analysis

- Summary
- Glossary
- Test your understandings
- References and further Readings

1.9 Learning Objectives:

After studying this chapter, you will learn:

- The basic accounting Concepts
- Conventions
- Accounting Standards
- System of accounting and book keeping

1.10 Introduction

As we discussed in the previous chapter, accounting aims to provide information about the financial position and performance to various users for decision making. Let us assume, you have two companies' financial statement namely, ABC Limited, XYZ Limited, in your hands. You would like to assess their financial performance, compare the results and decide to invest your money on the basis of the findings of analysis. If there are no commonalities, uniformity in the preparation of financial statements, you could not interpret the content in an objective and accurate manner. For instance, if ABC limited follows its own notion for the accounting terms like, revenue, expenses, assets, liabilities, period of time and so on, there will be complete turmoil. Therefore it is necessary to have uniformity and consistency in the preparation of financial statements which is the driving force to have some general rules, concepts and conventions. It governs the accounting field which is referred as the basic accounting principles. It is also known as "Generally Accepted Accounting Principles" (GAAP). The term GAAP is used to describe the concepts and conventions to be followed for the preparation of financial statements. It is formulated and recognized by regulatory bodies through out the world. As a management student, it is better to expand your knowledge on accounting principles, standards and systems which would help you to understand and to analyze the financial statements effectively.

1.11 Meaning and criteria for Accounting Principles

It is a set of rules, concepts and conventions used in the preparation of accounting reports. The purpose of describing the GAAP is to ensure the uniformity in preparations of the reports. These principles are developed on the basis of three criteria:

1. **Usefulness:** Provided information should be accurate and reliable to the users for their decision making.
2. **Objectivity:** it is not enough that the information provided is reliable and accurate, but the same has to be supplemented by facts and relevant documents which reduces the individual bias.
3. **Economy:** It should be simple to adopt and these principles should be followed without incurring abnormal cost and excessive effort as well.

Test of Understanding

1. Can you explain the need for the accounting principles?

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2. List out the criteria for the formation of accounting principles.

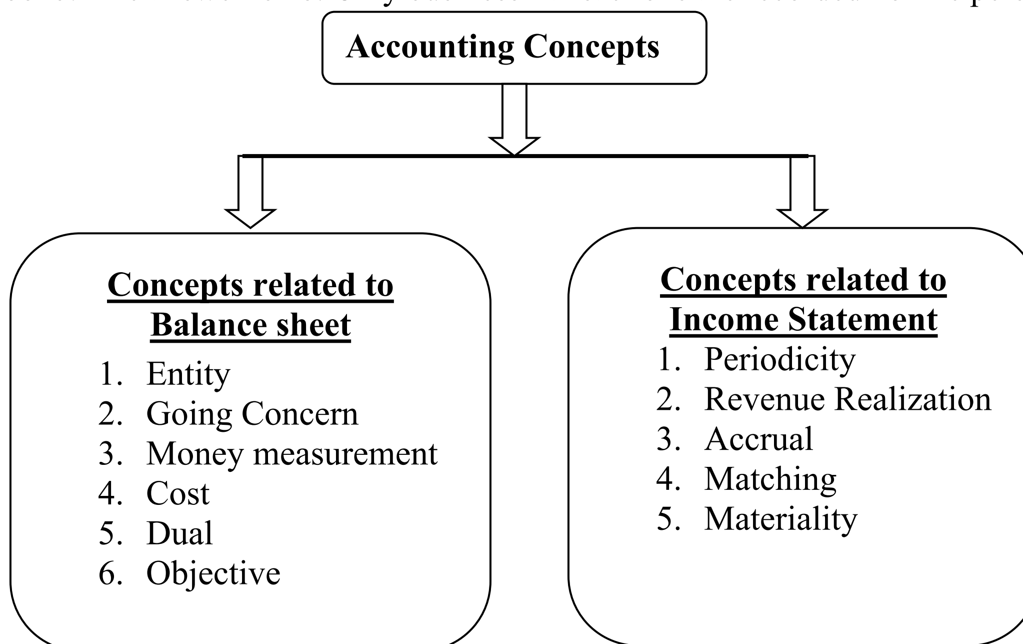
1.12 Accounting Principles

It describes various terms such as concept, convector, doctrine, assumption, postulates etc., all these are synonymous, except concept and conventions.

Principles = Concept + Conventions

Accounting Concepts and its applications: Information in the financial statements should reflect the true 'substance" of the business and the results of its operation. The theory of accounting has developed the concept of a ***"true and fair view"***. The true and fair view is applied in ensuring and assessing whether accounts do indeed portray accurately the business' activities. To achieve the "true and fair view" content in the financial statements, accounting has adopted certain concepts and conventions which help the finance mangers to ensure that accounting information is presented accurately and consistently. It can be categorised based on the relevance of financial statements viz. balance sheet and income sheet related concepts. It is given in the figure 2.1. Another way of classification is fundamental and non-fundamental concepts.

1. **Business entity concept / Enterprise Concept**: This concept is important and implies that a business is separate and distinct from the persons who supplied capital to the organization. (Owner). The concept is applicable to all type of organization. It insists on entering all the business transactions in the books of the business from the point of business and not from owners' point of view. For example, the owner provides the money to the business as capital to initiate the business. In the business point of view, the owner is treated as a creditor because the business has received money from the owner and the business is liable to repay to the owner in future. Hence capital is a liability. *Example:* if the owner has purchased some material for house renovation is it necessary to enter in the books? The answer is no. Only business transactions are recorded not the personal transactions.



2. **The Money Measurement concept**: As we discussed in chapter 1, only those transactions expressed in monetary terms are recorded in accounting. It helps us for better understanding of the business transactions. *Let us take an example*; you would like to know the assets of XYZ limited company. The company provides the information to you like we have two cars, one building and cash balance of Rs.5000. Is it possible to know/interpret this statement meaningfully? Instead, the report can state that the value of building is Rs 5 lakhs, cars worth Rs. 4 lakhs and cash balance is Rs. 5000. Now we can say the total assets of a company is Rs.9,05,000/-

3. **Going concern concept (or) Continuity concepts:** Recording the business transactions and preparation of the financial statements is based on the assumption that the company exist for longer period. The concept does not apply if the company goes in to liquidation or insolvency.

4. **Cost concept:** All fixed assets are recorded in the accounts books at the price at which they are acquired. The price paid to acquire the assets is termed as cost and this cost is the basis for all the subsequent accounting of the assets. *For example.* The value of building is Rs. 5 lakhs as on 31.03. XXXX. It reflects the book value (acquisition value) minus depreciation.
5. **Dual aspect concept (or) Accounting equation concept:** According to this concept, every transaction has two aspects i.e. receiving aspect and giving aspect. For example, you have decided to start the business with a capital of Rs. 10,000. Now the business owns the asset worth Rs.10000. at the same time, the business has obligation to repay the amount received from you i.e. Rs. 10000. Thus this can be represented in the equation form as

   Capital (owner's equity) = Assets (cash)

   Rs. 10000 = Rs. 10000

   Let us assume that you would like to expand your business. But you do not have funds and hence have borrowed Rs.5000 from your friend Mr. Kavi and invested the same in the business. The loan received from your friend increases the assets as well as liability (repayment obligation to your friend in future). Thus

   Capital (owner's equity) + Creditors = Assets (cash)

   Rs. 10000 + 5000 = Rs. 15000
6. **Accounting period concept:** As we discussed above, the business is going to operate for an indefinite period. The objective of any business is to make profits consistently. Every businessman wants to know the result of is his investment. Profit is the true of measure of operational efficiency, and the difference between capital at the time of commencement and end of the business is known as profit or loss. But, the owner of the business is not interested to wait for a long or indefinite period. Not only that, belated ascertainment of profit or loss does not serve any purpose. Therefore owner and other interested parties are interested to know the results at frequent interval for that they have shorter period i.e 12 months which is fair and helps to know the position. The period for which the statements are presented is called accounting period.
7. **Matching concept:** It is necessary to match the expenses incurred during the accounting period with the revenues recognized during the period. From that we can find the amount of income or profit during the period. The concept emphasizes that the cost is reported as expenses in the accounting period in which the revenue associated with those costs is reported. For example, when the sales value of some goods is reported as revenue in a year, the cost of those goods would be reported as an expense in the same year.
8. **Realization or Revenue Recognition Concept:** This concept deals with the point of time at which the revenue is taken as earned. According to this concept, revenue is realized when goods and services produced by a business are transferred to the customer. For example, you have received an order from your customer. Till the execution of the order, you should not report as revenue realized. Suppose, assume that you received an order along with advance payment. It is also not treated as revenue realized till the order is executed.
9. **Objectivity Concept:** It implies that all accounting transactions should be evidenced and supported by the documents. It is subject to verification by auditors. The documentary evidence should be objective which indicates the evidence is free from any bias. This concept ensures the credibility and dependability.

Accounting conventions

1. **Convention of disclosure:** As discussed earlier, the published financial statements must fully disclose the true and fair view of the business activities during the particular period. It must have all relevant information and prepared with honesty. Adequate disclosures give the confidence on business activities among the interested groups.
2. **Convention of consistency:** The accounting practices and certain methods remain unchanged over the years. This is because, comparison of the results of one year with that of another year gives meaningful results and helps to take appropriate decisions. It does not mean that the procedure has made permanent. If it is essential, the method can be changed.
3. **Convention of Conservatism**: This convention insists the need for not expecting any profit till the same is realized, as future is uncertain. But it provides for all possible losses while preparing the financial statements based on the past experience or forecasting ability. In simple words, to safeguard against possible losses a policy of caution is adopted here.
4. **Convention of Materiality:** This concept implies that insignificant information should not be reported in the financial statements. There is no clear meaning of the materiality and which transactions are significant and insignificant as well. It lies in the hands of the person who prepares the financial statements.

Test of Understanding

1. Can you list out the balance sheet related concepts?

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2. Can you list out the profit and loss account related concepts?

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1.13 Accounting Standards in India

The term accounting standards may be defined as "It is a written statement issued from time to time by institutions of the accounting profession or institutions/ bodies to ensure the good financial reports". Accounting Standards deal mainly with financial measurements and disclosures used in producing the financial statements. In India Accounting Standard are formulated by the accounting standards Board (ASB) of the ICAI. The board membership comprised users, and auditors of financial statements, representatives of government and regulatory agencies and academics. The final standards are issued by the council of ICAI. It differs from country to country.

Benefits of Accounting Standards: The benefits of accounting standard are as follows:

1. it improves the credibility and reliability of financial statements
2. Benefits to Accountants and Auditors
3. Determining Managerial Accountability

Standard setting in India:

The purpose of accounting standards is to synchronize the different accounting policies and practices in a country. Also it reduces the alternatives in the preparation of financial statements and thereby ensuring comparability with different company to get meaningful results.

Formation of the Accounting Standards Board

A. The Institute of Chartered Accountants of India (ICAI), recognizing the need to harmonise the diverse accounting policies and practices in use in India, constituted the Accounting Standards Board (ASB) on 21st April, 1977.

B. The composition of the ASB is fairly broad-based and ensures participation of all interest-groups in the standard-setting process. Apart from the elected members of the Council of the ICAI nominated on the ASB.

Institutions that influence that Indian GAAP: the following are the important institute that influence the Indian GAAP

- ❖ Institutes of Charted Accountant of India (ICAI)
- ❖ Department of Company Affairs (DCA)
- ❖ The Securities &Exchange Board of India (SEBI)
- ❖ Central Board of Direct Taxes (CBDT)
- ❖ Reserve Bank of India (RBI)
- ❖ Comptroller and Auditor General (CAG) of India

Scope of Accounting Standards*

1. Efforts will be made to issue Accounting Standards which are in conformity with the provisions of the applicable laws, customs, usages and business environment in India. However, if a particular Accounting Standard is found to be not in conformity with law, the provisions of the said law will prevail and the financial statements should be prepared in conformity with such law.
2. The Accounting Standards by their very nature cannot and do not override the local regulations which govern the preparation and presentation of financial statements in the country. However, the ICAI will determine the extent of disclosure to be made in financial statements and the auditor's report thereon. Such disclosure may be by way of appropriate notes explaining the treatment of particular items. Such explanatory notes will be only in the nature of clarification and therefore need not be treated as adverse comments on the related financial statements.
3. The Accounting Standards are intended to apply only to items which are material. Any limitations with regard to the applicability of a specific Accounting Standard will be made clear by the ICAI from time to time. The date from which a particular Standard will come into effect, as well as the class of enterprises to which it will apply, will also be specified by the ICAI. However, no standard will have retroactive application, unless otherwise stated.
4. The Institute will use its best endeavours to persuade the Government, appropriate authorities, industrial and business community to adopt the Accounting Standards in order to achieve uniformity in preparation and presentation of financial statements.
5. In formulation of Accounting Standards, the emphasis would be on laying down accounting principles and not detailed rules for application and implementation thereof.
6. The Standards formulated by the ASB include paragraphs in bold italic type and plain type, which have equal authority. Paragraphs in bold type indicate the main principles. An individual standard should be read in the context of the objective stated in that standard and this Preface.
7. The ASB may consider any issue requiring interpretation on any Accounting Standard. Interpretations will be issued under the authority of the Council. The authority of Interpretation is the same as that of Accounting Standard to which it relates.

Present status of Accounting Standards in India*:

So far, 29 Indian Accounting Standards on the following subjects have been issued by the Institute:

AS 1	Disclosure of Accounting Policies
AS 2	Valuation of Inventories
AS 3	Cash Flow Statements
AS 4	Contingencies and Events Occurring after the Balance Sheet Date
AS 5	Net Profit or Loss for the Period, Prior Period Items and Changes in Accounting Policies
AS 6	Depreciation Accounting
AS 7	Construction Contracts (revised 2002)
AS 8	Accounting for Research and Development (withdrawn pursuant to the issuance of AS 26)
AS 9	Revenue Recognition
AS 10	Accounting for Fixed Assets
AS 11	The Effects of Changes in Foreign Exchange Rates (revised 2003)
AS 12	Accounting for Government Grants
AS 13	Accounting for Investments
AS 14	Accounting for Amalgamations
AS 15	Accounting for Retirement Benefits in the Financial Statements of Employers (recently revised and titled as Employee Benefits)
AS 16	Borrowing Costs
AS 17	Segment Reporting
AS 18	Related Party Disclosures
AS 19	Leases
AS 20	Earnings Per Share
AS 21	Consolidated Financial Statements
AS 22	Accounting for Taxes on Income
AS 23	Accounting for Investments in Associates in Consolidated Financial Statements
AS 24	Discontinuing Operations
AS 25	Interim Financial Reporting
AS 26	Intangible Assets
AS 27	Financial Reporting of Interests in Joint Ventures
AS 28	Impairment of Assets
AS 29	Provisions, Contingent Liabilities and Contingent Assets

Sources: www.icai.org

Test of Understanding

1. Can you remember purpose of accounting standards Yes / No

2. What do AS 2, 14, 20, and 25 deal with?

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1.14 Systems/Basis of Accounting

According to the matching concept, the business transactions are recorded during the accounting period. It requires a proper system of accounting. There are three systems of accounting. Let us discuss the three systems with the help of the following example.

A business generates sales worth Rs.50, 000 in which Rs.20, 000 is on credit sales. During the same period, the expenses incurred was Rs.25, 000 in which Rs.10, 000 is payable. Compute the profit.

1. **Cash System:** The business transactions are recorded in the books only when the money is actually received or paid. No entries are made for outstanding and prepaid expenses or accrued and unearned incomes. Government system of accounting is on Cash Basis. Cash system of accounting is preferred by Non-trading concerns such as charitable institutions clubs, schools, colleges, etc., and professional men like chartered accountants lawyers and doctors.

   Solution for the above example based on this method of recording:

   Income = Revenue received – Expenses paid

   = Rs.30000 – 15000 = Rs.20, 000.

2. **Accrual System or Mercantile System:** Under this system any income or expenses relating to current year are recorded in the books. It does not consider whether the income or expenses are actually received/paid or not. It reflects the complete record of financial transactions of a given accounting period.

Solution for the above example based on this method of recording:

Income = Revenue earned – Expenses incurred

= Rs.50000 – 25000 = Rs.25, 000.

3. **Modified Cash system or Hybrid System:** This system is a combination of the above systems. It means the accrual systems are followed for expenses and cash basis are followed for revenue.

The most used system is accrual system which has the wider applicability and the others are minimal usage.

Test your understandings

1. Define accrual system.

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1.15 Book – Keeping

Book-keeping is part of accounting cycle. Business transactions are recorded in a set of books regularly according to prescribed rules and regulations on the basis of some definite system for fulfillment of certain objects. As we discussed in chapter1**,** Bookkeeping may be defined as an art of recording transactions of a business in a set of books on a regular and systematic manner. Note that only those transactions related to business are recorded. All records before preparation of Trial balance is a subject matter of book- keeping. Book-keeping includes

Journal & Ledger

Systems of Book –Keeping

1. **Single Entry System:** As discussed earlier, the business transactions have two effects. But this system is recorded in an unsystematic manner by recording only a single aspect. It records cash and personal accounts only. From this we cannot prepare the final accounts.

2. **Double Entry System:** Business has number of transactions. Transaction means (Trans, Action) two actions or actions between two parties. Therefore two parties are necessary for a transaction. One party receives some value and another party gives the same. This gives rise to two aspects namely, Receiving and Giving. The receiving aspects are known as "Debit" and the giving aspects are known as "Credit". If a transaction is to be recorded completely, both its receiving and giving aspects must be recorded simultaneously. We can say that every debit entry has its corresponding Credit entry. Thus Double entry book-keeping is a system of account keeping by which both the receiving and the giving aspects of each transaction is recorded at a time.

   Approaches of Double Entry System: It has two approaches for the application of this system.

   a. **American Approach:** According to this system, the transactions are divided into five categories. Categories and rules are given in the table.

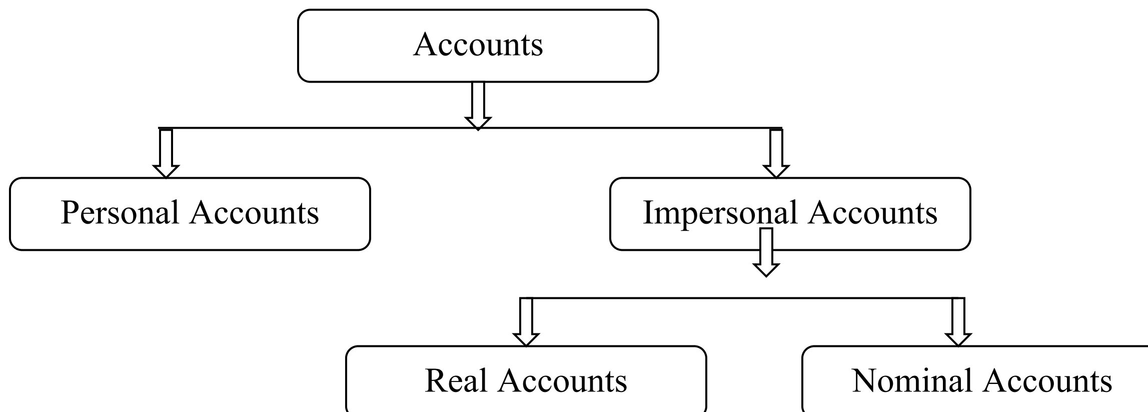
Table 2.1

Particulars	Debit	Credit
Capital	Decrease	Increase
Liability	Decrease	Increase
Assets	Increase	Decrease
Expenses	Increase	Decrease
Revenue	Decrease	Increase

   b. **English Approach:** According to this system, the transactions are entered in the books based on the debit and credit rules. (Rules are discussed in the next chapter)

Types of Accounting and accounting rules

An account is a chronological summary of the transactions conducted by business or otherwise relating to persons, property or items of expenditure or gain, the benefits received being on one side and benefits given being on the other side. Accounts are broadly divided into two.



Personal Account: Accounts, which are connected with persons, are called personal accounts. This can be further classified into three categories:

- **Natural Personal Account**: Natural personal account means persons who are creations of God. For example, Kavi's a/c, Sakthi's a/c etc.
- **Artificial Personal Account**: Artificial personal account includes accounts of corporate bodies or institutions which are recognized as persons in business dealings. For example, Government, Club, Limited Company etc.

- **Representative Personal Account**: Representative personal account is the account which represents a person or a group of persons. For example, when the salary is due for employees, an outstanding salary account represents the account of a employees to whom the salary is payable.

Impersonal Account: Accounts, which are not connected with persons, are called Impersonal accounts. Impersonal accounts are further divided into two.

1. **Real Account/ Property Account/ Asset Account:** it can be divided into:
   - **Tangible Real Account:** Tangible real accounts are those things that can be touched, felt and measured. For example, cash a/c, building a/c, furniture a/c etc.
   - **Intangible Real Account:** These accounts represent things which cannot be touched but, however, can be measured in terms of money. For example, patent a/c, goodwill a/c etc.

2. Nominal Account/Imaginary Account/ Fictitious Account: Nominal accounts explain the nature of the transactions. They do not really exist. For example, salary paid to employee, rent paid to landlord etc. Nominal accounts mainly include accounts of expense, losses, income and gains.

Rules of Accounting

Type of Account	Rules for Accounting
Personal Account	Debit the receiver, credit the giver
Real Account	Debit what comes in, credit what goes out
Nominal Account	Debit all expenses (losses), credit all incomes (gains)

Test of Understanding

1. What are the debit and credit rules?

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2. Can you give an example for artificial personal account and intangible account?

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Accounting Terms

For the proper understanding of accounting system, it is necessary to understand some important terms which are used in the business world. Some of the important terms are described in simple words and explained in this section.

Terms	Meaning
Capital	Capital refers the amount invested by the owner in business.
Liability	It is an obligation of the business to repay the amount in future
Assets	The rights owned by the business and carrying for future benefits. It may be tangible or intangible.

Revenue	Money received by way of selling a produced output.
Expenses	Money spent to produce an output
Profit	The excess of revenue over the related expenses.
Loss	The excess of expenses over the related revenue
Debtors	The person who received the goods or services without paying the amount to the business
Creditors	The person who provided their services or goods without receiving any amount from the business
Drawings	Withdrawal of cash or goods from the business by the owner for his personal use
Purchases	Goods acquired by the business for producing an output for sale.
Stock	The property held for a sale in the ordinary business or in the process of the production for such sale or both
Depreciation	Charges on fixed assets for wear and tear purpose

Accounting Equation and Transaction analysis

As we discussed earlier in dual aspect concept, the accounting equation shows the fundamental components of balance sheets. It is also called as Balance sheet equation. Let us discuss the equation on the following transactions.

1. You started business with Rs. 50000
2. Purchased goods for cash Rs.15000
3. Purchased goods on credit Rs.6000
4. Cash paid to creditors Rs. 5000

Transaction 1: You started business with Rs, 50,000.

Capital & Liabilities	Rs.	Assets	Rs.
Capital	50,000	Cash	50,000
	50,000		50,000

Transactions 2: Purchased goods for cash Rs. 15,000

The effect of this transaction is that it reduces the cash balance by Rs.15000. But in the asset side, purchase of goods is shown as inventory.

Capital & Liabilities	Rs.	Assets	Rs.
Capital	50,000	Cash Inventory	35,000 15,000
	50,000		50,000

Transaction 3: Purchased goods on credit Rs.6000

The effect of this transaction is that it increases the stock by Rs.6000. But in the liability side, creditors are posted due to credit purchase of goods.

Capital & Liabilities	Rs.	Assets	Rs.
Capital	50,000	Cash	35,000
Creditors	06,000	Inventory	21,000
	56,000		56,000

Transaction 4: Cash paid to creditors Rs. 5000

This transaction reduces the amount of both 'cash' and 'creditors' accounts.

Capital & Liabilities	Rs.	Assets	Rs.
Capital	50,000	Cash	30,000
Creditors	01,000	Inventory	21,000
	51,000		51,000

Effects of financial transactions on accounting equation: The different types of business transactions may result in a maximum of nine possible combinations which affect the components of accounting equation:

1. Increase in one asset; decrease in another asset
2. Increase in one liability; decrease in another liability
3. Increase in one item of proprietor's equity; decrease in another item of proprietor's equity
4. Increase in one item of proprietor's equity ; decrease in liability
5. Increase in liability; decrease in proprietor's equity
6. Increase in asset: increase in liability
7. increase in asset: increase in proprietor's equity
8. decrease in asset; decrease in liability
9. decrease in asset; decrease in proprietor's equity

Test of Understanding

1. Give an example of business transaction affecting only the following:

   Assets

   Liabilities

2. Capital + Liabilities = Fixed Assets + current assets. Is it true?

Summary

- Basic accounting concepts and conventions are the ground rules for financial accounting. These concepts and conventions are important in understanding of the process of accounting
- The theory of accounting has developed the concept of a "true and fair view". The true and fair view is applied in ensuring and assessing whether accounts do indeed portray accurately the business' activities.
- Accounting Standards deal mainly with financial measurements and disclosures used in producing the financial statements.

- The purpose of accounting standards is to synchronize the different accounting policies and practices in a country. Also it reduces the alternatives in the preparation of financial statements and thereby ensuring comparability with different companies to get meaningful results.
- Book-keeping is part of accounting cycle. Business transactions are recorded in a set of books regularly according to prescribed rules and regulations on the basis of some definite system for fulfillment of certain objectives.

Glossary

Accounting principles: Accounting principles is a set of rules, concepts and conventions used in the preparation of accounting reports universally

Accounting concepts: It refers the ground rules for recording the business transactions

Accounting conventions: Customs and traditions which guide the accountants while preparing the accounting statements

Cash system of accounting: Accounting entries are made only when the cash is received or paid

Mercantile system of accounting: Under this system any income or expenses relating to current year are recorded in the books.

Test of Understandings

Please answer the following situations and test your understanding of accounting concept and its relevance and applications.

1. You are the owner of a hardware shop. You take some paint and other materials for your house renovations. Is this transaction recorded as a business expense? Yes / No
2. You would like to purchase a printing business. But you have no experience in the industry. Is this information recorded in the financial statements? Yes/ No
3. A company's stock price has plummeted 70% in the past six months due to increased competition. Do we assume that the company is still in business? Yes /No
4. Your construction company owns two excavators and is preparing to sell both of them in order to buy one new brand. The book value of the two used excavators is Rs. 10,000, Is that the price the owner should expect to get as a trade-in value?
5. Your company has Rs. 40,000 in assets, owes the bank Rs. 12,000, and owes creditors an additional Rs. 8,000. How much equity do you have in the company?
   Rs. 20000 /Rs.44000
6. Department stores often have fiscal years that end on Jan 31. Can you explain why that is the case.
   Yes / No

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Structure

1.0 Learning Objectives

1.1 Introduction

1. 2 Meaning of Journal and its format

1.3 Journalising the transactions

1.4 Meaning of Ledger

1.5 Method of writing an account and its format

1.6 Posting and balancing the ledger

1.7 Subsidiary Books

- 1.7.1 Purchases Book
- 1.7.2 Sales Book
- 1.7.3 Purchases return Book
- 1.7.4 Sales return Book
- 1.7.5 Cash Book
- 1.7.6 Bills receivables and Payable Books
- 1.7.7 Journal Proper

1.8 Summary

1.9 Glossary

1.10 Test your understanding

1.11 References and Further Readings

1.0 Learning Objectives

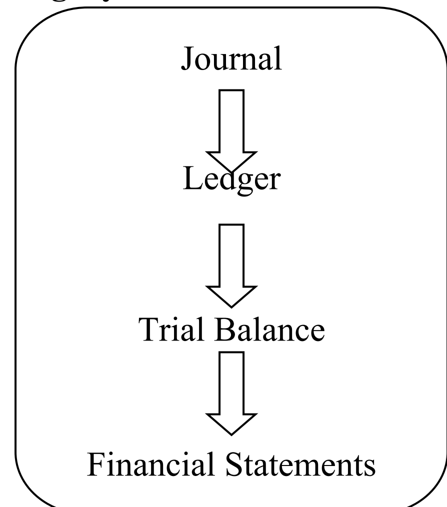
After studying this chapter, you will learn:

- The recording of transactions in the books of accounts
- To prepare different set of subsidiary books

1.1 Introduction

The purpose of accounting cycle is to measure business transactions and transform these transactions into financial statements that will communicate useful information to decision makers. It refers to a complete sequence of accounting procedures which are required to be repeated in the same order during each accounting period. Accounting cycle involves the following four major phases's i.e. recording, classifying, summarizing and reporting the financial statements. Let us first discuss the first two phases viz. journal and ledger in this chapter.

Accounting Cycle



1.2 Meaning of Journal and its format

Journal is a book of first entry. Business transactions are first entered in the journal before they are taken to the appropriate accounts in the ledger. Journalising is the process of recording journal entries in chronological order by applying the rules of debit and credit. The following is a form of journal:

Date	Particulars	Ledger Folio Number	Debit	Credit

A Journal has five columns. They are:

1. Date column	Date of the transaction is entered in dd/mm/yyyy format
2. Particulars column	Debit and credit aspects are entered. While entering the debit entry, it is always ends with Dr. the credit aspects starts with 'To' In addition to this, you have to write about the transaction briefly below the entry is called Narration**.**
3. Ledger Folio	It states the page number of account in the ledger where the particular amount is transferred/ posted. (While preparing the journal this column remains blank)
4. Debit Column	The debit amount will be entered.
5. Credit Column	The credit amount will be entered.

Advantages of Journal: the following are the important advantages of journal

- Journal gives complete information about the business transactions
- It includes a brief explanation of the transactions
- Since it follows double entry system for recording, the errors are reduced.

Test of understanding

1. Explain the term journal and state its significance.

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2. Can you remember what type of information will appear in the particular column?

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1.3 Journaling the transactions

To make the correct entry of your business transactions, the following procedures to be adopted:

1. Identify the accounts affected by the transaction and name them.
2. Classify the accounts and identify them as nominal or real or personal
3. Apply the rules of debit and credit to the accounts and
4. Recording them in the journal
5. Narration

Example 1: Mr. Khan commenced business on 1st April 2007, with Rs.1, 60,000. The following are his transactions during the month of April. Journalise these transactions.

Date	*Particulars*	*Amount*
April 2	Bought goods for cash	80,000
4	Purchased goods from Rao	32,000
7	Goods sold for cash	64,000
8	Sold goods to Jamal	32,000
10	Machinery purchased for cash	24,000
12	Purchases of Land	8,000
20	Paid freight	8,000
25	Settled Rao's a/c with	31,200
26	Insurance paid	4,800
29	Jamal settled his account with	30,800
30	Salaries paid	4,000
30	Sale of Land	4,000

Solution:

Before preparing the journal, you should remember the following:

1. As we discussed earlier, all transactions of the business have to be entered from the business point of view and not from the owner's point of view.
2. Follow the procedures or steps.

Transaction 1: Mr. Khan commenced business on 1st April 2007, with Rs.1, 60,000.

In this transaction, the business received Rs. 1, 60,000. Ask yourself the question: who has given the sum to the business? The answer is Mr.Khan.

Step 1: Capital account and cash account

Step 2: Capital is personal a/c and cash is real account

Step 3: Capital is to be credited since the owner is a giver and cash account to be debited.

Step 4: The journal entry is

Cash A/C Dr

To Capital A/C

Transaction 2: Bought goods for cash Rs.80, 000

Step 1: Purchases account and cash account

Step 2: Purchases and cash account are real accounts

Step 3: Purchase account should be debited since goods have come into business and Cash is to be credited since the cash has gone out.

Step 4: The journal entry is

Purchases A/C Dr

To Cash A/C

Transaction 3: Bought goods from Rao Rs.32, 000

Step 1: Purchases account and Rao account

Step 2: Purchases is real account and Rao is personal account

Step 3: Purchase account should be debited since goods have come into business and Rao account is to be credited since he gives the benefit to us without receiving money.

Step 4: The journal entry is

Purchases A/C Dr

To Rao's A/C

Transaction 4: Goods sold for cash Rs.64, 000

Step 1: Sales account and Cash account

Step 2: Sales and cash accounts are real accounts.

Step 3: Cash account should be debited since cash comes in and sales account is to be credited since the goods have gone out of the business.

Step 4: The Journal entry is

Cash A/C Dr

To Sales A/C

Transaction 5: Machinery purchased for cash Rs.24, 000

Step 1: Machinery account and Cash account

Step 2: Machinery and cash accounts are real accounts.

Step 3: Machinery account should be debited since machinery comes in and cash account is to be credited since the cash have gone out of the business. (See points to remember 1)

Step 4: The journal entry is

Machinery A/C Dr

To Cash A/C

Transaction 6: Salaries paid Rs.4, 000

Step 1: Salaries account and Cash account

Step 2: Salaries is nominal account and cash accounts is real account.

Step 3: Salaries account should be debited and cash account is to be credited.

Step 4: The journal entry is

Salaries A/C Dr

To Cash A/C

Like wise follow other transactions and verify whether the answer is correct or not.

Date	Particulars	L.F No.	Debit Rs.	Credit Rs.
01.04.2007	Cash A/C Dr To Capital A/C (Being cash received from Mr. Khan as a capital)		1,60,000	 1,60,000
02.04.2007	Purchases A/C Dr To Cash A/C (Being goods purchased for cash)		80,000	 80,000
04.04.2007	Purchases A/C Dr To Rao's A/C (Being goods purchased from Mr. Rao on Credit basis)		32,000	 32,000
07.04.2007	Cash A/C Dr To Sales A/C (Being goods sold for cash)		64,000	 64,000
08.04.2007	Jamal A/C Dr To Sales A/C (Being goods sold to Mr.Jamal on credit basis)		32,000	 32,000
10.04.2007	Machinery A/C Dr To Cash A/C (Being machinery purchased for cash)		24,000	 24,000
12.04.2007	Land A/C Dr To Cash A/C (Being land purchased for cash)		8,000	 8,000
20.04.2007	Freight A/C Dr To Cash A/C (Being the amount paid for freight)		8,000	 8,000
25.04.2007	Rao's A/C Dr To Cash A/C To Discount A/C (Being amount paid to Mr.Rao and settled his account)		32,000	 31,200 800
26.04.2007	Insurance A/C Dr To Cash A/C (Being amount paid for Insurance)		4,800	 4,800

29.04.2007	Cash A/C Dr Discount A/C Dr To Jamal A/C (Being amount received from Mr.Jamal and he settled his account)		30,800 1,200	 32,000
30.04.2007	Salaries A/C Dr To Cash A/C (Being amount paid for salary)		4,000	 4,000
30.04.2007	Cash A/C Dr To Land A/C (Being cash received by selling the land)		4,000	 4,000

Points to remember:

1. *Normally, Goods purchased for a company is called purchase account. But if the company purchases any fixed assets viz. machinery, furniture, land, building etc. they do not come under the purchases account. It should be mentioned the respective asset name account.*
2. *Normally, Goods sold for a company is known as sales account. But if the company sold any fixed assets, mentioned the respective asset name itself.*
3. *It is presumed that if the transaction has the name of the individual or company without specifying whether the transactions are on cash basis or credit basis, it should be treated as credit transaction.*
4. *Regarding the expenses, the person to whom the money is paid should not be debited, even if their names are specifically given.*
5. *If the owner withdraws some money or goods for his personal use, it is treated as drawing account. (Drawing is to be debit side; cash means cash account or from bank means Bank account; goods means purchases account to be credited)*
6. *The payment received or paid without mentioning the word 'settlement' should be treated as a normal entry. If the word settlement is there, you have to check the following:*
   a. *Is there any advance payment/receipt?*
   b. *Is there any return?*
   c. *Is there any part payment/receipt?*

   If you find the answer for the above questions, you should treat the difference amount as a discount. But the total debit should be equal to credit. For example, see the 25th and 29th transactions.
7. *Sometimes you may find that there are a number of transactions on the same date relating to one particular account or of one particular nature. You have to record in any the following three ways:*
   a. *a particular account may be debited while several accounts may be credited*
   b. *a particular account may be credited while several accounts may be debited*
   c. *Several accounts might be debited as well as credited.*

   This is known as compound journal entry.

Test of understanding

1 Can you remember the procedure for journalising the transactions? Yes/No

2. What is compound Journal entry?

____

____

3. Regarding the expenses, the person to whom the money is paid, even if their names are specifically given – what you will do?

____

____

1.4 Meaning of Ledger

The ledger is the main book of accounts or a book of final entry. It refers to a set of books. The business transactions are entered in various subsidiary books (Journal is a subsidiary book), as and when it happens. From these subsidiary books all information connected with any single account cannot be seen at a glance. Therefore all information connected with one single account-personal, property, expenses or income - are grouped together so as to get the desired information immediately. Such grouping of transactions is done in another book called Ledger. Hence it may be defined as a "a summary statement of all the transactions relating to a person, asset, expenses or income which have taken place during a given period of time and shows their net effect". In small organization it is possible to keep all the ledger accounts in one ledger. But in large size organizations, it is convenient to sub-divide the ledger to facilitate easy reference as under:

- General ledger: It contains all accounts other than Debtors and creditors which includes owner's account, assets accounts, purchases account, and all the nominal accounts.
- Subsidiary Ledger: this can be further divided into two:
  - Debtors Ledger: It contains credit sales and related activities which enable the businessman to calculate the amount owing by his customers easily.
  - Creditors Ledger: it contains credit purchases and related activities which enable the businessman to calculate the amount due to each creditor.

Test of Understanding

1. Define Ledger?

____

____

2. Write down the subdivision of a Ledger?

____________________ ____________________

____________________ ____________________

1.5 Method of writing an account and its format

The ledger thus becomes the permanent store house of all transactions. The ledger is vertically divided into two equal parts, each of which is sub-divided into four sections as date, particulars, journal folio and amount.

Dr (Left hand side)				(Right hand side) Cr			
Date	Particulars	J.F No.	Rs.	Date	Particulars	J.F No.	Rs.

1.6 Posting and Balancing the Ledger

If a particular account is debited, it is posted in the debit side (left hand side) of that account and vice-versa. When a ledger account is balanced, we can really understand the position of that account. From the balance we can easily ascertain the amount due to someone or amount due from someone or total of a particular expense or income is shown.

The procedure of posting is as follows:

1. Enter the debit aspect of the transaction entered in journal on the debit side of the account in the ledger with all the relevant details in the respective column.
2. Similarly, enter the credit aspect of the transaction in the journal on the credit side of the account in the ledger with all the relevant details in the respective column.
3. In the folio column of the journal, the page number of the ledger in which posting is done is entered. (this column remains blank)
4. It is customary to prefix the name of the account credited and entered on the debit side of the account in the ledger with word "To."
5. Similarly, the name of the account debited and entered on the credit side of the account in the ledger is prefixed with "By."

It may be noted that the words "To" and "By" do not have any special meaning. Hence, the prefix can be conveniently ignored as done by modern accountants.

Steps in Balancing:

1. You have to make a total of both sides separately
2. Difference between the totals of both sides is known as balance.
3. The balance is written on the account in the side for which the total is short. If the credit side is short, the balance is written as "By balance c/d" on the credit side. If the Debit side is short, the balance is written as "To balance c/d" on the Debit side.
4. The balance has brought down to the opposite side. The balance written on credit side as "By Balance c/d" is brought down to the debit side of the account as "To Balance b/d" after completing the totals. Similarly, the balance written on debit side as "To Balance c/d" is brought down to the credit side of the account as "By Balance b/d" after completing the totals.

Now let us discuss how to post and balancing the ledger. For this please consider the above example.

Ledgers Accounts

Cash Account

Date	Particulars	JF No.	Amount	Date	Particulars	JF No.	Amount
01.04.07	To Capital A/c		1,60,000	02.04.07	By Purchases A/c		80,000
07.04.07	To Sales A/c		64,000	10.04.07	By Machinery A/c		24,000

29.04.07	To Jamal A/c		30,800	12.04.07	By Land A/c		8,000
30.04.07	To Land A./c		4,000	20.04.07	By Freight A/c		8,000
				25.04.07	By Rao's A/c		31,200
				26.04.07	By Insurance A/c		4,800
				30.04.07	By Salaries A/C		4,000
				30.04.07	By Balance C/d		98,800
			2,58,800				**2,58,800**
01.05.07	**To Balance b/d**		**98,800**				

Capital Account

Date	Particulars	JF No.	Amount	Date	Particulars	JF No.	Amount
				01.04.07	By Cash A/c		1,60,000
30.04.07	To Balance c/d		1,60,000				
			1,60,000				**1,60,000**
				01.05.07	**By Balance b/d**		**1,60,000**

Purchases Account

Date	Particulars	JF No.	Amount	Date	Particulars	JF No.	Amount
02.04.07	To Cash A/c		80,000				
04.04.07	To Rao's A/c		32,000	30.04.07	By Balance c/d		1,12,000
			1,12,000				**1,12,000**
01.05.07	**To Balance b/d**		**1,12,000**				

Rao's Account

Date	Particulars	JF No.	Amount	Date	Particulars	JF No.	Amount
25.04.07	To Cash A/c		31,200	04.04.07	By Purchases A/c		32,000
	To Discount A/c		800				
			32,000				**32,000**

Sales Account

Date	Particulars	JF No.	Amount	Date	Particulars	JF No.	Amount
				07.04.07	By Cash A/c		64,000
30.04.07	To Balance c/d		96,000	08.04.07	By Jamal A/c		32,000
			96,000				**96,000**
				01.05.07	**By Balance b/d**		**96,000**

Machinery Account

Date	Particulars	JF No.	Amount	Date	Particulars	JF No.	Amount
10.04.07	To cash		24,000	30.04.07	By Balance c/d		24,000
			24,000				**24,000**
01.05.07	**To Balance b/d**		**24,000**				

Land Account

Date	Particulars	JF No.	Amount	Date	Particulars	JF No.	Amount
10.04.07	To cash		8,000	30.04.07	By Cash A/c		4,000
				30.04.07	By Balance c/d		4,000
			8,000				**8,000**
01.05.07	**To Balance b/d**		**4,000**				

Freight Account

Date	Particulars	JF No.	Amount	Date	Particulars	JF No.	Amount
20.04.07	To cash		8,000	30.04.07	By Balance c/d		8,000
			8,000				**8,000**
01.05.07	**To Balance b/d**		**8,000**				

Insurance Account

Date	Particulars	JF No.	Amount	Date	Particulars	JF No.	Amount
26.04.07	To cash		4,800	30.04.07	By Balance c/d		4,800
			4,800				**4,800**
01.05.07	**To Balance b/d**		**4,800**				

Salaries Account

Date	Particulars	JF No.	Amount	Date	Particulars	JF No.	Amount
30.04.07	To cash		4,000	30.04.07	By Balance c/d		4,000
			4,000				**4,000**

01.05.07	**To Balance b/d**		**4,000**				

Discount Account

Date	Particulars	JF No.	Amount	Date	Particulars	JF No.	Amount
29.04.07	To Jamal's A/c		1,200	25.04.07	By Rao's A/c		800
				30.04.07	By Balance c/d		400
			1,200				**1,200**
01.05.07	**To Balance b/d**		**400**				

Jamal's Account

Date	Particulars	JF No.	Amount	Date	Particulars	JF No.	Amount
08.04.07	To Sales A/c		32,000	29.04.07	By Cash A/c		30,800
					By Discount A/c		1,200
			32,000				**32,000**

Test of Understanding:

1. Can you remember all steps involved in posting the transaction in the ledger? Yes/ No
2. Can you remember all steps involved in balancing the ledger? Yes/ No

1.7 Subsidiary Books of Accounts

A journal is subdivided into various books (or journals) is known as sub divisions of the journal or subsidiary books. This division is for the sake convenience and handling of numerous transactions of repetitive nature. It reduces the work involved in the posting and entering of each transaction in the journal and ledger. All similar transactions are recorded in one particular book. For example, all credit sales are recorded in one book known as the sales Day Book. The following are the subsidiary books maintained as follows:

1.7.1 Purchase Book: this book is also called "Purchase Journal", Bought Book', 'Purchase Day Book', 'Invoice Book'. It is used for credit purchases and not for cash purchases. Here purchases of any assets are not recorded. At the end of every month, all transactions are transferred to general ledger along with the suppliers' invoices. The form of purchases book is as follows:

Date	Name of the Supplier	L.F No.	Inward Invoices No.	Amount

1.7.2 Sales Book: This book is also called "Sales Journal", 'Sold Book', 'Sales Day Book'. It is used for credit sales and not for cash sales. Here sale of any old assets are not recorded. At the end of every month, all transactions are transferred to general ledger. The form of Sales book is as follows:

Date	Name of the Customer	L.F No.	Outward Invoices No.	Amount

1.7.3 Purchases Return Book: It is also called as return outwards book. The purpose of this subsidiary book is to record transactions relating to return of goods to suppliers. The ruling of the book is similar to that of purchases book except for the fact that column no.3 is provided for debit note numbers. The form of purchases return book is as follows:

Date	Name of the Customer	L.F No.	Debt Note Nos.	Amount

1.7.4 Sales Return Book: It is also called return inwards book. The purpose of this subsidiary book is to record transactions relating to return of goods from our customers. The ruling of the book is similar to that of sales book except for the fact that column no.3 is provided for credit note numbers. The form of Sales return book is as follows:

Date	Name of the Customer	L.F No.	Credit Note Nos.	Amount

1.7.5 Cash Book: It serves both as a journal and ledger. All cash transactions are recorded in this book. The format is similar to ledger. Debit side is called as receipts and credit side is called as payments. There are three types of cash book:

a. Single column Cash Book – one column on both sides.

b. Double column Cash Book – discount and cash column on both the sides.

c. Three Column Cash Book – discount, cash and bank column on both sides.

1.7.6 Bills receivable and payable Book: transactions regarding bills receivables accepted by our customers are recorded in bills receivables book. At the end of the month, this will transfer to general ledger account. If any outstanding is there, it will appear in the asset side of the balance sheet. Similarly, Transactions regarding bills payable are accepted by us and drawn by our suppliers are recorded in bills payable book. At the end of the month, this will transfer to general ledger account. If any outstanding is there, it will appear in the liability side of the balance sheet.

1.7.7 Journal Proper: Transactions which can not be recorded in any of the above mentioned books will be recorded in journal proper. The following are the examples:

a. Opening and closing entries

b. Adjustment entries

c. Transfer entries

d. Rectification entries

Test of understanding

1. Can you remember different types of cash Books? Yes / No
2. Define subsidiary book? Yes /No

1.8 Summary

- Accounting cycle involves the following four major phases's i.e. recording, classifying, summarizing and financial statements.
- Journalising is the process of recording journal entries in a chronological order by applying the rules of debit and credit.

- All information connected with one single account-personal, property, expenses or income - are grouped together so as to get the desired information immediately. Such grouping of transactions is done in another book called Ledger.
- Following are the two types of ledger: General ledger and Subsidiary ledger
- The subsidiary ledger is further subdivided into the following: Debtors ledger and Creditors ledger
- Posting refers to the recording of transactions from journals to the ledger.
- Balancing refers to the closing of the ledger accounts by putting the balance on the appropriate side of the account.
- A journal is subdivided into various books (or journals) is known as sub divisions of the journal or subsidiary books. This division is for the sake of convenience and handling of numerous transactions of repetitive nature.

1.9 Glossary

Accounting Cycle: It refers to a complete sequence of accounting procedures which are required to be repeated in the same order during each accounting period

Journalizing: It is the process of recording journal entries in chronological order by applying the rules of debit and credit.

Ledger: a summary statement of all the transactions relating to a person, asset, expenses or income which have taken place during a given period of time and show their net effect

Test of understanding

1. Enter the following transactions in the books of original records of ABC Limited, Trichy.

2008

January 1 Opening Balance: Furniture-- Rs. 8,000, Machinery-- Rs. 20,000, Debtors-- Rs. 12,000, Creditors-- Rs. 30,000, Capital-- Rs. 35,000, Cash in Hand Rs. 20,000, Cash at Bank-- Rs. 5,000

January 2 Purchased goods from Mr. Khan on credit Rs. 10,000

January 4 Purchased 500 bags of sugar @ Rs. 45 per bag

January 6 Paid rent Rs. 500

January 7 Gave Rs. 1,000 as donation

January 13 Sold goods to E on credit Rs. 10,000

January 17 Returned goods to Mr. Khan Rs. 500

January 18 Returned goods to B Rs. 4,000, E returned goods Rs. 600

January 19 Paid Rs. 4,000 to B by cheque in full settlement of his accounts

January 20 Received Rs. 6,000 from E in cash, Purchased furniture in cash Rs. 4,000

January 21 purchased furniture on credit from Mohan Rs. 2,000

January 23 Sold old furniture on credit to R for Rs. 400

January 24 Withdrew Rs. 1,000 for personal use

January 31 outstanding wages are Rs. 500 and outstanding salaries are Rs. 2,000

2. Enter the following transactions in the Journal, and post them to ledger on 31.01.2007

Jan 2007		
1	Harsha commenced business with	200000
2	Purchase furniture	20000
3	Purchase goods for cash	10000
4	Bought goods on credit from Ranjit	30000
5	Bought goods on credit from Balu	40000
8	Sold goods for cash	30000
10	Sold goods on credit to Ram	45000
12	Cash paid to Rangjit	25000
14	Ram returned damaged goods	1000
15	Goods returned to Balu	500
18	Cash received from Ram	30000
19	Stationery purchased	2000
25	Salaries paid	3000
30	Rent paid	2000

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Trial Balance

Structure

Learning Objectives

1.10 Introduction

1.11 Meaning of Trial Balance

1.12 Importance of preparing Trial Balance

1.13 Preparation of Trial Balance

1.14 Guidelines for preparing Trial Balance

1.15 Errors and Trial Balance
Types of errors
Guidelines for locating errors
Summary
Glossary
Test your understanding
References and Further Readings

Leaning Objectives

After studying this chapter you should be able to

- Describe the meaning and importance of preparing a trial balance
- Make posting and prepare a trial balance;
- Learn how errors are disclosed by trial balance
- Learn about the methods of allocating errors in a trial balance

1.10 Introduction

The double entry system offers a great advantage to us in checking the arithmetic accuracy of books of accounts. Here, the debit side must be equal to the credit side. To verify this, after preparation of ledger, another statement is to be prepared namely trial balance. In this chapter, we will discuss about preparation of trial balance in detail.

1.11 Meaning of Trial Balance

Trial balance is the summary of debit and credit balances extracted from the ledgers on a particular date. It helps us to prove the arithmetical accuracy of the entries recorded in the journal and posted into the ledger. According to M S Gosav in his book, "The Substance of Accounting defines, "Trial balance is a statement containing the balances of all ledger accounts as at any given date, arranged in the form of debit and credit columns placed side by side and prepared with the objective of checking the arithmetical accuracy of ledger postings". According to Spicer and Poglar's as stated in his book "Book keeping and Accounts", "A trial balance is a list of all the balances standing on the ledger accounts and cash books of a concern at any given data".

1.12 Importance /significance/ objectives of preparing the trial balance

The following are the main objectives of trial balance:

a. It helps in knowing the balance of any particular account in the ledger
b. It helps in preparation of final accounts.
c. It ensures the arithmetical accuracy
d. It helps to prove that double entry has been followed while recoding the transactions

1.13 Preparation of Trial Balance

There are two methods which are widely adopted in the preparation of trial balance.

A. **Balance Method:** while balancing the account, difference amount is known as balance which has been summarized in the trial balance on the respective columns. The totals must be equal in both the sides. This is the most commonly used method of preparing trial balance. The format of the trial balance is as follows:

Trail balance as on ……….

Sl. No.	Name of the Account	L.F No	Debit balance	Credit balance

B. **Total method:** This method is also called 'gross trial balance method'. The total of debit and credit columns is appeared in the trail balance in the respective column.

Trail balance as on ……….

Sl. No.	Name of the Account	L.F No	Debit total amount	Credit total amount

1.14 Guidelines for preparing Trail balance

Trial balance consists of balances found in various ledger accounts which are appearing in the trial balance as follows:

- An asset is always appeared in debit side of trial balance
- Liabilities is always appeared in credit side of trial balance
- All the incomes or gains appear in credit side of trial balance
- All the expenses or losses appear in debit side of trial balance
- Opening stock, purchases, and sales return always appear in debit side of the trial balance
- Closing stock, sales, and purchases return always appear in credit side of the trial balance
- Reserves and provisions appear credit side of the trial balance.

Exercise: consider the problem discussed in chapter 1, prepare a trial balance under the balance method and total method.

Preparation of Trial Balance under total method:

Trial Balance of Mr.Khan's Books as on 30.04.2007

Sl. No	Name of the Account	L.F No.	Debit total Balance	Credit total balance
1	Cash		2,58,000	1,59,200
2	Capital		0	1,60,000
3	Purchases		1,12,000	0
4	Sales		0	96,000
5	Machinery		24,000	0
6	Land		8,000	4,000
7	Freight		8,000	0
8	Insurance		4,800	0
9	Salaries		4,000	0
10	Rao's		32,000	32,000
11	Jamal		32,000	32,000

12	Discount		1,200	800
Total			4,84,000	4,84,000

Under Balance Method:

Trial Balance of Mr.Khan's Books as on 30.04.2007

Sl. No	Name of the Account	L.F No.	Debit total Balance	Credit total balance
1	Cash		98,800	
2	Capital			1,60,000
3	Purchases		1,12,000	
4	Sales			96,000
5	Machinery		24,000	
6	Land		4,000	
7	Freight		8,000	
8	Insurance		4,800	
9	Salaries		4,000	
12	Discount		400	
Total			2,56,000	2,56,000

Exercise 2: the following balances are extracted from the books of Mr. Dhasan on 31st December 2007. Prepare a Trial Balance.

Name of Account	Amount	Name of Account	Amount
Dhasan's Capital	15,000	Sales	75,000
Dhasan's Drawings	2,500	Return Inwards	1,000
Furniture & Fittings	1,300	Discounts (Dr)	800
Bank Overdraft	2,100	Discounts (Cr)	1,000
Sundry Creditors	5,500	Taxes	1,000
Business Premises	10,000	General Expenses	2,000
Stock (1st January '07)	11,000	Salaries	4,500
Sundry Debtors	9,000	Commissions (Dr)	1,100
Rent from Tenants	500	Reserve for Bad & doubtful debts	1,000
Purchases	55,000	Carriage on purchases	900

Solution:

Trial Balance as on 30.12.2007

Sl. No	Name of Account	Dr	Cr
1	Dhasan's Capital		15,000
2	Dhasan's Drawings	2,500	
3	Furniture & Fittings	1,300	
4	Bank Overdraft		2,100
5	Sundry Creditors		5,500
6	Business Premises	10,000	
7	Stock (1st January '07)	11,000	
8	Sundry Debtors	9,000	
9	Rent from Tenants		500
10	Purchases	55,000	
11	Sales		75,000
12	Return Inwards	1,000	
13	Discounts (Dr)	800	
14	Discounts (Cr)		1,000
15	Taxes	1,000	
16	General Expenses	2,000	
17	Salaries	4,500	
18	Commissions (Dr)	1,100	
19	Reserve for Bad & doubtful debts		1,000
20	Carriage on purchases	900	
Total		1,00,100	1,00,100

Test of Understanding

1. Can you remember the importance of Trial Balance? Yes /No
2. Can you remember the guidelines of trail Balance? Yes / No

1.15 **Errors and Trial Balance**

Though trial balance offers an arithmetic accuracy, it is not free from errors. There are some errors which are not disclosed by the trial balance even when it tallies. Therefore it is better to know such errors.

Types of errors: Broadly it can be classified into two

a. Errors disclosed by the Trial Balance
b. Errors not disclosed by the Trial Balance

Let us discuss now along with examples:

Errors Disclosed by the Trial Balance A trial balance will be in disagreement on account of the following errors:

- Wrong posting of entries, e.g., a debit entry of Rs. 5000 for purchase of furniture wrongly posted as Rs. 50 in the account
- Omission of posting, e.g., when a debit entry of Rs. 5000 for purchase of furniture has not been posted at all
- Duplication of posting, e.g., when a debit entry of Rs. 5000 for purchase of furniture has been posted twice to the account
- Wrong side of posting, e.g., when debit entry is posted on the credit side or credit entry is posted on the debit side. That is, when debit entry of Rs. 500 is posted on the credit side and vice-versa
- Errors in casting the totals of debit or credit side of the trial balance
- Wrong transfer of balances to the trial balance
- Omission of entering the balance of account in the trial balance
- Balance of cash book omitted to be recorded in the trial balance
- Wrong balancing of account
- Errors in the total or posting of entries of subsidiary book
- Wrong carry forward of balances in the various books, i.e. day books, cash book etc.

Errors not Disclosed by the Trial Balance The following errors do not affect the agreement of the trial balance:

- **Errors of omission**: A transaction is completely omitted to record in journal or subsidiary book. Since both the aspects are omitted, the trial balance will tally. This type of errors are not disclosed by trial balance and is known as errors of omission. For example, Purchase of furniture worth Rs. 5000 has not been recorded at all
- **A wrong entry in a subsidiary book:** Posting of wrong amount to both debit and credit side of the account. For example, if the purchase amount of Rs.1000 is entered in the purchase book as Rs.100. The trial balance will tally since the debit and credit has been recorded at Rs.100. the books are arithmetically correct but the fact is that there is an error.
- **Compensating Errors:** Error made in the posting of debit or credit entry is compensated by an identical error of equal amount. These errors are known as errors of compensation. For example, purchases book and sales book are posted an excess of Rs.1000.
- **Posting a transaction on the correct side of a wrong account:** if a purchase of Rs.1000 from Ramesh has been credited to Rajesh instead of Ramesh, it will not affect the trial balance.
- **Errors of principle:** The accounting principle is disregarded or violated while recording the transactions. For example, a capital item treated as revenue item and vice versa. That is, purchase of furniture posted to purchase a/c instead of furniture account.
- Erroneously recording a transaction twice. These are known as errors of duplication.

Methods of Locating Errors in Trial Balance: if the trial balance does not tally, the book keeper must locate the errors and correct them by means of journal entries. The procedures given below will help the accountant in finding out the errors:

1. Check the totals of debit and credit columns of the Trial Balance.
2. Ensuring the totals of the list of Debtors and Creditors are correct

3. Ensuring whether all the balances are included in the Trial Balance.
4. Ascertain the exact amount of the difference and try to recollect the memory
5. If any amount is place in wrong side of the Trial Balance, the difference caused in the Trial balance will be twice that of the amount wrongly placed.
6. If an error divides by 9, it may be due to the transposition of figures. If a book keeper enters 676 as 667 the error is 9. If a figures2761 is transposed as 2716, the error is 45 which are divisible by 9. Check up whether any such transposition of figure has taken the place.
7. Ensuring that there is no mistake in the balancing of the ledger accounts.
8. If the difference is not still traced all amounts will have to be carefully gone through again.

Test of Understanding

1. Can you remember the types of errors? Yes / No
2. Can you list out any four errors that are not disclosed by a Trial Balance?

____

____

3. Can you remember the methods of locating the errors in a Trial Balance? Yes/ No

Summary

- Trial balance is the summary of debit and credit balances extracted from the ledgers on a particular date. It helps to prove the arithmetical accuracy of the entries record in the journal and posted into the ledger
- There are two methods in preparation of trial balance namely total method and balance method.
- Though the trial balance offers an arithmetic accuracy, it is not free from errors. There are some errors which are not disclosed by the trial balance even when it tallies.
- The Trial balance does not tally; the book keeper must locate the errors and correct them by means of journal entries. The procedures are discussed to locate the errors by the accountant

Glossary

Trial balance: A trial balance is a list of all the balances standing on the ledger accounts and cash books of a concern at any given data

Balance Method**:** In which ledger has the balances are summarized in the trial balance in respective sides.

Test your understanding

Exercise 1: Prepare a Trial Balance of Jayam & Company as at 30th December 2007.

Name of Account	Amount	Name of Account	Amount
Cash	640	Land and Building	56000
Opening Stock	11400	Rent Received	10000
Debtors	6400	Electricity	13000
Sales	127800	Bills Receivable	3400
Wages	26400	Traveling Expenses	4600
Creditors	10400	Insurance	7200
Bad Debts Reserves	800	Purchases	24000

Carriage	600	Purchases returns	1000
Trade marks	10600	Discounts	600
Advertising	2500	Bad Debts	1400
Salaries	21800	Bank	17000
Machinery	57800	Capital	117440

References and Further Readings

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PREPARATION OF FINANCIAL STATEMENTS

Learning Objectives

After studying this chapter you should able to

- Define final account
- Understand their importance, contents and preparation of income statement
- The relationship between balance sheet and income statement
- Understand and explain the terms used in a balance sheet

Introduction

It is necessary to have discussion about the business classification here before starting to discuss about the financial statement. The business concerns can be classified as trading, manufacturing and service organization. Trading business is doing only buying and selling of goods. For example, Retail stores, wholesalers, Dealers, Agencies and so on. Manufacturing organization engages manufacturing activities i.e. buy a raw material, convert them into final goods and the same has been sold to the customers directly or indirectly. For example, TVS Motor company, Lakshimi Mills Limited, etc. Service organizations provide services to the customers. For example, banks, insurance companies etc. Depending upon the forms of organizations, they may be classified as proprietorship, partnership, joint stock Company etc. (Already we discussed in chapter 1)

As a businessman, irrespective of type, you are interested in knowing about two facts or to find the answer to the following questions: 1. whether the business earned a profit or loss during the period? 2. Where does the business stand now? To answer these two questions, you have to prepare final accounts. It is

the final step in the accounting cycle. Also you know that an important function of accounting is to measure and report the income of the business and financial position as well. In this chapter, you will learn how to prepare the final accounts. Further, you will understand the need for adjustment entries and their effect on these statements.

Income Statement

The aim of the income statement is to ascertain the net profit/loss during the accounting period. In broad terms, Revenue is the income that mainly accrues to the company either by the sale of goods or rendering of services. In contrast, Expenses are the costs incurred in earning revenues. Thus, income statement is concerned with matching the revenues of a specified period with the expenses of that period. Greater the accuracy of this matching procedure, more correct is the income determination. In other words, preparation of a P & L account is based on the ***Matching Principle***. Depending upon the nature of business, the items in the income statement will vary and also the scope of final accounts will vary. For easy understanding, it is given in the table form.)

Nature of Business	Statement	Concern
Trading Organization	Trading Account	Gross Profit
	Profit and Loss Account	Net Profit
Manufacturing Organization	Manufacturing Account	Cost of Production
	Trading Account	Gross Profit
	Profit and Loss Account	Net Profit
Service Organization	Profit and Loss Account	Net Profit

Manufacturing Account: The aim of the account is to ascertain the cost of production of finished goods. Cost of production is the difference between the materials consumed plus factory expenses and closing stocks. A specimen of manufacturing accounts is shown below:

Manufacturing account in T Format

Company name ------------ for the year ending -----------

Particulars	Rs.	Rs.	Particulars	Rs	Rs
To Opening Stock			By Closing Stock		
Raw materials			Raw material		
Work – in-progress			Work in progress		
Add: Purchases of raw material			By Cost of production		
Less: Return Outwards/Purchase return			(Transferred to Trading a/c)		
<u>To Direct Expenses:</u>					
♦ To carriage Inwards					
♦ To Wages and Salaries					
♦ To Freight and cleaning charges					
♦ To Gas, Fuel and Water					
♦ To Royalty on Production					

♦ To Oil. Grease, Water etc., ♦ To Consumable Stores ♦ To Power ♦ To Coal and coke ♦ To Other factory expenses					

Here we are computing the cost of production. This amount is transferred to trading account in order to compute the gross profit or loss of a business considering the revenues.

Trading Accounts: This is part of profit and loss account. The aim of the account is to find out the gross profit or gross loss of a business. Gross profit or loss is the difference between the "cost of goods sold" and sales. Trading accounts is also a ledger accounts. It is prepared based on the double entry principle of debit and credit. A specimen of trading accounts is shown below.

Trading account in T Format

Company name ------------ for the year ending -----------

(Ex: Trading Account of Ashok Leyland Ltd for the year ending 31st March 2007)

Particulars	Rs.	Rs.	Particulars	Rs	Rs.
To cost of production # (or) *The following items#* To Opening Stock To Purchases Less: Return Outwards/Purchases return To Direct Expenses: ♦ To carriage Inwards ♦ To Wages and Salaries ♦ To Freight and cleaning charges ♦ To Import Duty ♦ To Customs Duty ♦ To Gas, Fuel and Water ♦ To Royalty on Production ♦ To Oil. Grease, Water etc., ♦ To Consumable Stores ♦ To Power ♦ To Coal and coke ♦ To Other factory expenses To Gross Profit c/d* (Transferred to Profit and Loss a/c)			By Sales Less: Return Inwards / Sales return By Loss on Fire By Closing Stock By Gross Loss c/d* (Transferred to Profit and Loss a/c) (*) & (#) Only one figure will be there.		

Note:

1. Net sales refer sales minus sales return; Net purchases refer purchases minus purchase returns.
2. Direct expenses are those expenses which are directly associated to produce an output.

Method of preparing the Trading Account

1. Transfer the cost of production from the manufacturing account to the trading account.
2. Transfer all debit balances in the trial balance (only direct expenses/ factory related expenses) to the debit side of trading account.
3. Transfer all credit balances in the trial balance (only sales and returns) to the credit side of trading account.
4. Transfer the balance in the trading account (which represents gross profit or gross loss) to the profit and Loss account.
5. Any expense paid or incurred during the period pertaining to a subsequent period is excluded. (Example prepaid expenses)
6. The purpose of having two columns is that all the adjustments have to made in the first amount column (in accounting, we use to call as an Inner column). The final amount has transferred to second column (outer column).

Test of Understanding

1. Define cost of production and cost of goods sold.

____

____

2. What is gross profit or loss?

____

____

3. How is different from purchases different from Net purchases?

____

____

4. How are net sales different from Sales?

____

____

Profit and Loss Account: The second section helps to know the Net Profit/Net Loss of business activity during an accounting period. This section starts with gross profit / loss. In other words, the accounts begin with trading accounts ends. All the remaining expenses like management, financial, selling and distribution, etc. are shown in debit side, and gains are shown in credit side of the accounts. The difference amount is called either profit or loss. If the credit side is more than the debit side, it indicates net profit for the period. Conversely, if the debit side is more than the credit side, it indicates net loss for the period. The balancing figure of this account is transferred to balance sheet. (Add or less with capital) A Specimen of profit & Loss account is show & below.

Profit and Loss Account in T Format

Company name ------------ for the year ending -----------

(Ex: Profit and Loss Account of Ashok Leyland Limited for the year ending 31st March 2007)

Particulars	Rs.	Rs.	Particulars	Rs.	Rs.
To Gross Loss b/d			By Gross Profit b/d		
<u>Administrative Expenses</u>			By Interest Received		
♦ To Salaries & Wages			By Discounts Received		
♦ To Rent, Rate & Taxes			By Dividend Received		
♦ To Printing & Stationary			By Commission Received		
♦ To Postage & Telegrams			By Rent From Tenants		
♦ To Legal Charges			By Income from Investment		
♦ To Telephone Charges			By Apprenticeship Premium		
♦ To Audit Fees			By Interest on Debentures		
♦ To Insurance			By Miscellaneous Receipts		
♦ To General Expenses			By Bad Debts recovered		
♦ To Office Lighting			By Interest on Deposits		
♦ To Director's Fees			By Interest on bill Exchange		
<u>Financial Expenses</u>			By Profit on Sale of Fixed Assets		
♦ To Interest on Capital			By Accrued Income of investments		
♦ To Interest on Loan			By Interest on Renewal of Bill of Exchange		
♦ To Discounts Allowed			By Accrued Income		
♦ To Discounts on Bills			By Special Bonus received from Suppliers		
♦ To Royalty			By Reserve for Discounts on Creditors		
♦ To Bank Charges			By Interest on Drawings		
♦ To Discounts or Rebate on BE			By Net Loss *		
<u>Selling & Distribution Expenses</u>					
♦ To Advertising					
♦ To Travel Expenses					
♦ To Bad Debts					
♦ To Provision for Bad Debits					
▪ Doubt & Debits					
♦ To Godown/Warehouse Rent					
♦ To Carriage Outwards					
♦ To Agent's Commission					
♦ To Salesman Commission					
♦ To Salesman Expenses					
♦ To Unkeep Vehicles					

♦ To Export Expenses ♦ To Transportation ♦ To Showroom Expenses ♦ To Trade Expenses ♦ To Store Charges ♦ To Samples, Catalog etc., <u>Depreciation & Maintenance</u> ♦ To Depreciation ♦ To Repairs & Maintenance <u>Extraordinary Expenses</u> ♦ To Loss On Fire ♦ (Not covered By Insurance) ♦ To Cash Defalcation ♦ To Loss on Sale of Fixed Assets ♦ To Packing Charges for Finished Goods To Net Profit *					
To Appropriations To Dividends To Transfer to any reserves To balance c/d to Balance Sheet			By Balance b/f By Net Profit for the year		

* Only one figure will be there.

Method of preparing the Profit and Loss Account

1. Transfer the gross profit or gross loss from the trading account to the profit and loss account.
2. Transfer all the balances are not taken in trading account
    a. All debit balances of nominal accounts in the trial balance to the debit side of profit and loss account.
    b. All credit balances of nominal accounts in the trial balance to the credit side of profit and loss account.
3. Transfer the balance in the profit and loss account (which represents net profit or net loss) to the owner's capital account.
4. Income or gains under each appropriate heading earned during the period (whether actually received or not) are credited.
5. Any expense paid or incurred during the period pertaining to a subsequent period is excluded.
6. Any income received during the period not yet earned but received in advance (expected to be earned during a subsequent period) is excluded.

So far we discussed about the preparation of income statement in T format. Let us discuss the report form or vertical form of presentation. Typically, companies employ the vertical form. A specimen of vertical form has given below:

Particulars	Schedules	Amount
Income		
Sales		
Other Income		
Expenditure		
Manufacturing & Other Expenditure		
Administrative Expenses		
Financial Expenses		
Selling & Distribution Expenses		
Depreciation & Maintenance		
Extraordinary Expenses		
Profit before Tax		
Provision for Tax		
Profit after Tax		
Prior period adjustments		
Profit available for appropriations		
Appropriations		
Debenture redemption reserve		
Dividend		
General Reserve		
Surplus carried out to Balance Sheet		

Let us discuss the preparation of income statement along with exercise. Consider the following trial balance and prepare the income statement in T format.

Trial Balance as on 30.12.2007

Sl. No	Name of Account	Dr	Cr
1	Dhasan's Capital		15,000
2	Dhasan's Drawings	2,500	
3	Furniture & Fittings	1,300	
4	Bank Overdraft		2,100
5	Sundry Creditors		5,500
6	Business Premises	10,000	

7	Stock (1st January '07)	11,000	
8	Sundry Debtors	9,000	
9	Rent from Tenants		500
10	Purchases	55,000	
11	Sales		75,000
12	Return Inwards	1,000	
13	Discounts (Dr)	800	
14	Discounts (Cr)		1,000
15	Taxes	1,000	
16	General Expenses	2,000	
17	Salaries	4,500	
18	Commissions (Dr)	1,100	
19	Reserve for Bad & doubtful debts		1,000
20	Carriage on purchases	900	
	Total	1,00,100	1,00,100

Solution:

Trading Account for the year ending 31st December 2007

Particulars	Rs.	Rs.	Particulars	Rs.	Rs.
To opening Stock		11,000	By Sales	75,000	
To Purchases		55,000	Less: Sales Return	1,000	74,000
To Carriage on purchases		900			
To Gross Profit c/d		7,100			
		74,000			74,000

Profit and Loss Account for the year ending 31st December 2007

Particulars	Rs.	Rs.	Particulars	Rs.	Rs.
To Discounts		800	By Gross Profit b/d		7,100
To Taxes		1,000	By Rent from Tenants		500
To General Expenses		2,000	By Discounts		1,000
To Salaries		4,500	By Reserve for Bad & doubtful debts		1,000
To Commission		1,100			
To Net Profit		200			
		9, 600			9,600

Let us prepare in vertical format:

Particulars	Schedules	Amount	Amount
Income			
Sales	I	74,000	
Other Income	II	2,500	76,500
Expenditure			
Manufacturing & Other Expenditure	III	66,900	
Administrative Expenses	IV	7,500	
Financial Expenses	V	800	76,300
Selling & Distribution Expenses	VI	1,100	200
Profit			

Schedules:

The details of various items are shown separately in schedules. A number of schedules are prepared to supplement the information supplied in the Profit and loss. It is used as part of financial statements.

Schedule I: Computation of Net sales

Particulars	amount
Sales	75,000
Less Returns	1,000
	74,000

Schedule II: Computation of income

Particulars	amount
Rent from Tenants	500
Discounts	1,000
Reserve for Bad & doubtful debts	1,000
	2,500

Like wise follow other schedules and verify whether the answer is correct or not.

Difference between Trading and Profit and Loss account

The following are the difference between the trading and profit and loss account:

Trading Account	Profit and Loss account
In order to calculate Gross Profit or Loss	In order to calculate Gross Profit or Loss
Deals with Direct Expenses	Deals with indirect Expenses
The results of this account is transferred to Profit and Loss account	The results of this account is transferred to owner's capital account

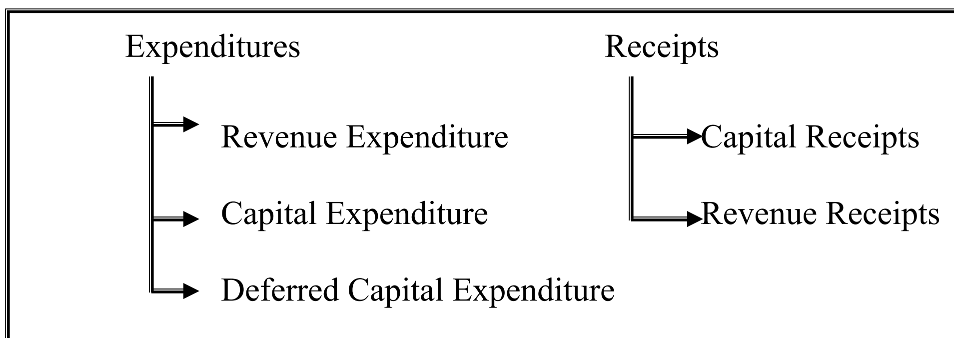
Distinction between revenue and capital expenditure

In the preparation of financial statements, one must be clear regarding the nature of an item of expenditure and receipts. In a business, the expenditures are classified into Capital Expenditure and Revenue Expenditure.

Capital Expenditure: The expenditure results in the acquisition of an asset (tangible or intangible) which can be later sold and converted into cash or which results in an increase in the earning capacity of a business. Usually, the capital expenditure benefits not only in the current accounting year but also many years in the future. The expenditure is generally non-recurring and the amount spent is normally huge. However, it should be noted that all the huge expenditure is not a capital expenditure. Capital expenditures are shown in balance sheet.

Examples:

1. It is the expenditure which results in the purchase or acquisition of asset (land, building, machinery, patents, etc)
2. Expenditure incurred in connection with the purchase of asset (installation charges, wages etc).
3. Expenditure incurred to bring an old asset into working condition (Ex: Repairs expenses).
4. Expenditure incurred for extending or improving an existing asset to increase its productivity or to increase the earning capacity of business or to decrease working expenditure.



Revenue Expenditure: The benefits of expenditure expire within the year or expenditure which merely seeks to maintain the business or keep the assets in good working conditions. It is not carried forward to the next year or years. Therefore, revenue expenditure is a recurring expenditure made to maintain the business. All revenue expenditure are charged to trading and profit and loss account.

Examples:

1. Expenditure incurred in the normal course of business to run the business and to maintain the fixed assets of business (administrative, finance, selling expenses etc.).
2. Expenditure incurred on purchase of goods which will be used to convert them into final product (direct expenses listed in trading account).

Deferred Revenue Expenditure: Deferred revenue expenditure is the expenditure which is originally revenue in nature but the amount spent is so large that the benefit is received for not a year but for many years. A proportionate amount is charged to profit and loss account of each year and balance is carried forward to subsequent years as deferred revenue expenditure. It is shown as an asset in the balance sheet, e.g., expenditure incurred on advertisements.

Capital Receipts: Capital receipts are the receipts which are not received in the ordinary course of business. These are non-recurring receipts. For example, the sale of fixed assets or investments, issue of

shares or debentures, loans taken are some of the examples of capital receipts.

Revenue Receipts: Revenue receipts are receipts obtained in the normal course of business. It is a receipt against supply of goods or services. For examples, Sales, interest, dividend, transfer fees etc. are examples of revenue receipts. Revenue receipts are credited to profit and loss account.

Test of Understanding

1. Can you remember the method of preparation of profit and loss account? Yes/No
2. Can you remember the items appeared in the debit and credit side of profit and loss account? Yes/ No
3. Explain the difference between the Gross profit and Net Profit.

 ____

 ____

4. Explain the difference between the trading and profit and loss account.

 ____

 ____

5. Explain the difference between the revenue and capital expenditure.

 ____

 ____

Balance Sheet

Balance Sheet is one of the important financial statements that will help you to know the financial position of a business. The balances of real and personal accounts are grouped as assets and liabilities and arranged a proper way and it is called Balance sheet.

Meaning and format: According to The American Institute of Certified Public Accountants defines balance sheet as "a tabular statement of summary of balances (debits and credits) carried forward after an actual and constructive closing of books of account and kept according to the principles of accounting." It has two sides, Liabilities and Assets. Assets are shown on right hand side and liabilities are shown on left hand side. The total of these two sides is always equal i.e. Assets=Liabilities. The Companies Act, 1956 has prescribed a particular form for showing assets and liabilities in the balance sheet for companies registered under this act. These companies are also required to give figures for the previous year along with the current year's figures. A specimen of balance sheet is shown below

Balance Sheet in T Format

Company name ------------ as on -----------

(Ex: Balance Sheet of Ashok Leyland Limited as on 31st March 2007)

Particulars	Rs.	Rs.	Particulars	Rs.	Rs.
Capital Add: Interest on Capital Less: Drawings Less: Interest on Drawings			Fixed Assets Goodwill Land & Buildings Loose Tools Furniture & Fitting		

Reserves & Surplus: Capital Reserves Capital Redemption Reserve Share Premium General Reserve Profit & Loss Account Secured Loan Loan On Montages Bank Loan Debentures Unsecured Loan Fixed Deposits Short term loans and advances Current Liabilities Sundry Creditors Bills/Accounts Payable Bank Overdraft Outstanding Expenses Income Received in Advance Unclaimed dividends Provisions Provision for taxation Proposed Dividends For Provident funds For Insurance Pension and other benefits			Motor Vehicles Plant & Machinery Patent & Trademarks Long-Term Loans - (Advances) Investments Current Assets Stock/Stock - in - Trade Sundry Debtors Bills/Accounts Receivable Prepaid Expenses Accrued Income Cash in Hand Cash at Bank Fictitious Assets Preliminary Expenses Advertising Expenses Underwriting Commission Discount on Issue of Share Discount on Issue of Debentures Loss on Fire (Claimed Amount) Advertisement Written off Samples Written off		

Balance Sheet in vertical Format

Company name ------------ as on -----------

(Ex: Balance Sheet of Ashok Leyland Limited as on 31st March 2007)

Particulars	Schedules	Amount	Amount
Sources of funds			
Shareholders' fund			
Capital	I		
Reserves and Surplus	II		
Loan Funds	III		
Secured Loans	IV		
Unsecured Loans			
Total	V		
Application of Funds			
Fixed Assets			
Gross Block	VI		
Less: Depreciation	VII		
Net Block			
Capital work in progress			
Investments			
Current Assets & Loans and Advances	VIII		
Inventories			
Sundry Debtors	IX		
Cash and Bank Balances			
Loans and Advances			
Less: Current Liabilities and provisions			
Net current Assets			
Miscellaneous Expenditure			
Total			

Classification of Balance Sheet Items

1. **Share Capital:** Share capital is the first item on the liabilities side of a balance sheet. Authorized, issued, subscribed, called up and paid up capital is shown in giving the number of shares and their amount. If the capital is issued for other than cash, the amount of such capital is mentioned. The fact of issue of bonus share is also mentioned. Any unpaid calls are deducted from the called up capital. If forfeited shares are reissued, this amount is added to the paid-up capital.
2. **Reserves and Surplus:** Reserves have been created out of undistributed profits and accumulated profits are shown. Reserves are classified as capital reserves and revenue reserves. Capital

reserves are the reserves which are not free for distribution as profits whereas revenue reserves are created out of appropriations of profits.

3. **Secured Loans:** All those loans against securities are known as secured loan. For example, Debentures, Loans and advances from bank, subsidiary companies etc. Any interest outstanding on such loans is also shown here because the interest is also secured.
4. **Unsecured Loans:** Those loans and advances have not given any security are known as unsecured loan. The items included here are deposits, loans and advances from subsidiary companies and loans and advances from other sources. Short-term loans from banks and other sources are also shown in this category.
5. **Current Liabilities and Provisions:** These are divided into current liabilities and provisions. In this category, the list of examples are given in the balance sheet.

Assets Side: The assets are given under the following heads:

1. **Fixed Assets:** Fixed assets are those assets have life over a long period. These assets are meant to increase production capacity of the business. They are not acquired for sale but are used for a considerable period of time. Fixed assets are shown distinctly from each other, e.g., goodwill, land building, leaseholds, plant and machinery, furniture, railways sidings, patents, live stock, vehicles etc. These assets are shown at their original cost. Any additions and deductions during the year are shown separately. The amount of depreciation upto the previous year and during the current year is separately deducted from the assets.
2. **Investments:** Investments are shown by giving their nature and mode of valuation. Investments under various sub-heads such as investments in government or trust securities, in shares, debentures and bonds, and in immovable properties are given separately in the inner column of the balance sheet.
3. **Current Assets:** Current assets are those assets that are shortly convertible into cash. The commonly used method of valuation, i.e. cost price, is not strictly used while valuing stock. The stock is used either at cost or market price, whichever is low. This is done to avoid anticipating profits during inflationary conditions and taking into account losses if there is a fall in prices of stock. The debtors are shown after making a provision for bad and doubtful debts. The debtors, if more than six months old, are given separately. The amounts owned by directors etc., if included in debtors, are also separately mentioned.
4. **Miscellaneous Expenditure:** Deferred revenue expenditure is shown under this heading. Miscellaneous expenditure is the expenses which are not debited fully to the profit and loss account of the year in which they have been incurred. These expenses are spread over a number of years and unwritten balance is shown in the balance sheet. The items under this heading are preliminary expenses, discount allowed on issue of shares or debentures, interest paid out of capital during construction etc.

Distinction between Trial balance and Balance Sheet

Trial Balance (TB)	Balance Sheet
1. It is a list of balances debit & credit from the ledger accounts 2. It contains balances of all personal, real nominal accounts	1. It is a statement of assets and liabilities. 2. It contains balances of only those personal and real accounts, which

	represents assets and liabilities.
3. It is prepared before preparation of Trading, Profit & Loss account	3. It is prepared after the preparation of Trading, P & L etc.
4. It is prepared to check the arithmetic accuracy of the posting into ledger	4. It is prepared to indicate the financial position of the business on a particulars date.
5. Closing stock does not appear in the TB.	5. It is shown on the Assets side.
6. Outstanding and prepaid expenses and incomes are not shown.	6. Outstanding, prepaid expenses and income are shown in Balance sheet
7. Debit and credit balances are shown side by side.	7. It is prepared on 'T' form; Balances left hand side shows liabilities. Right hand side shows assets

Let us prepare the balance sheet for the above example:

Liabilities	***Rs.***	***Rs.***	***Assets***	***Rs.***	***Rs.***
Dharsan's Capital	***15,000***		***Fixed Assets***		
Less: Drawings	2,500		***Furniture & Fittings***		
	12,500		Business Premises	1,300	
Add: Net Profit	200	12,700	Current Assets	10,000	11,300
			Sundry Debtors		
Current Liabilities:					9,000
Bank Over draft	2,100				
Creditors	5,500	7,600			
		20,300			20,300

Test of understanding

1. Balance sheet could be presented either in ----------- form or -----------.
2. List out the current assets.

_______________ _______________

_______________ _______________

3. List the major headings of the liability side.

_______________ _______________

_______________ _______________

4. Fixed assets are valued on the basis of ____________________.

Adjustments

The objective of financial statements is "true and fair view" about the business transactions. This objective can not be achieved without taking into consideration of left out transactions at the time of trial balance preparation. Thus, the transactions which pertain to the period of final accounts but are not considered while preparing the trial balance are called adjustments. You have to record in the books of journal and ledger, with the result that the effects of each of the adjustments have to be recorded. Therefore, the effect of nominal account appears in the trading or profit and loss account.

At the same time, the effect concerning an asset or liability appears in the balance sheet. The exception will be in the cases where an adjustment is such that it affects two nominal accounts only and when both the effects of the adjustment will have to be dealt with in the trading and profit and loss account. The following table shows the effects of adjustments in final accounts:

Sl. No.	Adjustment for	Meaning	Journal Entry
1	Closing Stock	Closing stock refers that the stocks (raw material, WIP, Finished goods) remain unsold at the end of the year	Closing stock Dr To Trading Account
2	Outstanding Expenses	Those expenses have incurred during the accounting period but are not yet paid.	Expenses a/c Dr To Outstanding Expenses a/c
3	Prepaid Expenses / unexpired Expenses	The expenses paid in advance for the subsequent accounting period	Prepaid Expenses a/c Dr To Expenses a/c
4	Depreciation	Depreciation is the decrease in the value of fixed assets due to lapse of time and 'wear and tear'.	Depreciation a/c Dr To Respective Asset a/c
5	Accrued income/ income earned but not received	The income are earned during the current account year but have not been actually received by the end of the same year.	Accrued Income a/c Dr To Income a/c
6	Income received in advance	A portion of income of the subsequent period but received during the current year	Income a/c Dr To Income received in advance a/c
7	Bad Debts	The amount is due from the debtors which is irrevocable	Bad debts a/c Dr To Debtor a/c
8	Provision for Doubtful debts	There is a possibility that some of the debtors may not pay and prove to become irrevocable. The amount is provided to meet such losses.	Profit and Loss a/c Dr To provision for doubtful debts

9	Provision for discount on debtors	Allowing discount to our customer for their prompt payment is known as discount on debtors. So provision is created to meet such expenses	Profit and loss a/c Dr To provision for discount on debtors a/c
10	Provision for discount creditors	Receiving discount for our prompt payment from our creditors is known as discount on debtors. So provision is created to meet such expenses	Reserve for discount on creditors a/c Dr To Profit and loss a/c
11	Interest on capital	Interest is paid to owner's capital	Interest on Capital a/c Dr To Capital a/c
12	Interest on drawings	Interest is charged on drawings made by the owner.	Drawings a/c Dr To Interest on Drawing a/c

Let us discuss the method of treatment in final accounts for the above adjustments.

Sl. No.	**Adjustment for**	**Treatment in Final Accounts**
1	Closing Stock	1. To be credited to trading account. 2. To be shown on the assets side of the balance sheet.
2	Outstanding Expenses	1. Amount to be added to particular item in the trading or profit and loss accounts. 2. To be shown on the liabilities side of the balance sheet.
3	Prepaid Expenses / unexpired Expenses	1. Amount to be deducted from particular item in the profit and loss accounts. 2. To be shown on the assets side of the balance sheet.
4	Depreciation	1. To be debited to profit and loss account. 2. To be deducted from the value of an asset in the balance sheet.
5	Accrued income/ income earned but not received	1. Amount to be deducted from the particular item in the trading or profit and loss accounts. 2. To be shown on asset side of the balance sheet.
6	Income received in advance	1. To be debited to profit and loss account. 2. To be shown on liability side of the balance sheet.
7	Bad Debts	1. Amount of bad debts to be debited to profit and loss account. 2. To be deducted from sundry debtors in the

		balance sheet.
8	Provision for Doubtful debts	1. To be debited to profit and loss account. 2. To be shown by way of deduction from sundry debtors in the balance sheet.
9	Provision for discount on debtors	1. To be debited to profit and loss account. 2. To be shown by way of deduction from sundry debtors in the balance sheet.
10	Provision for discount creditors	1. To be credited to profit and loss account. 2. To be deducted from sundry creditors in the balance sheet.
11	Interest on capital	1. To be debited to profit and loss account. 2. To be added to capital in the balance sheet.
12	Interest on drawings	1. To be credited to profit and loss account. 2. To be deducted from capital in the balance sheet.
13	Loss of goods by fire or accidents	1. Trading account, credit side (full cost value). 2. Profit and loss account, debit side, the loss amount/or the amount not recovered through insurance claim. 3. Balance sheet, asset side, amount of insurance claim if received.
14	Goods distributed as free samples	1. To be debited to profit and loss account as toward advertisement. 2. To be deducted from purchases in trading account.
15	Goods used by owner for personal use	1. To be deducted from purchases. 2. To be added to drawings.

Test your understanding

1. What are adjustments?

   ____

   ____

2. show the treatment of the following adjustment
   a. Closing Stock
   b. Depreciation
   c. Outstanding expenses
   d. Prepaid expenses
   e. Bad debts

3. Example: 1 From the following data, prepare a profit and loss account and a balance sheet as on 31.03.2007.

Particulars	Rs.	Particulars	Rs.
Drawings	10,000	Capital	30,000
Purchases	30,000	Purchase returns	1,000
Sales Returns	5,000	Sales	60,000
Carriage in	2,000	Wage outstanding	2,000
Carriage out	3,000	Rent received	1,000
Depreciation on plant	4,000	Reserve for doubtful debts	1,000
Plant	20,000	Interest	5,000
Salaries and wages	3,000	Sundry creditors	6,000
Bad debts	2,000	Loans	38,000
Premises	20,000		
Interest	5,000		
Stock 1.4.2006	25,000		
Sundry debtors	15,000		
	1,44,000		1,44,000

Adjustments:

1. Stock on 31.03.2007 was Rs.40, 000. A broke out in the godown and destroyed stock worth Rs.5, 000. Insurance company had accepted the claim full.
2. Provide for bad debts @10% and provide for discount on debtors @5% and on creditors - @10%.
3. Depreciate buildings at the rate of 15% p.a.
4. Rent outstanding amounted to Rs.1,000
5. Closing stock includes samples worth of Rs.2,000
6. Provide interest on drawings @ 10% and on capital -@10%.

Solutions:

Trading, profit and loss account for the year ending 31.03.2007

Particulars	Rs.	Rs.	Particulars	Rs.	Rs.
To Opening Stock		25000	By Sales	60000	
To Purchases	30000		Less: Returns	5000	55000
Less: Purchase returns	1000				
	29000		By Closing Stock		38000
					5000
Less: Samples	2000	27000			
To carriage inwards		2000	By Stock destroyed by fire		
To Gross Profit c/d		44000			
		98000			98000

To Salaries		3000	By Gross Profit b/d		44000
To Rent Outstandings		1000	By Rent Received		1000
To carriage outward		3000	By Interest		5000
To Bad debts	2000		By Reserve for doubtful debts		1000
Add: new Bad debts	1500	3500	By Provision for		
To provision for			discount on creditor		600
Discount on debtors		675	By Interest on drawings		1000
To Interest		5000			
To Depreciation					
Plant	4000				
Building	3000	7000			
To interest on Capital		3000			
To Net Profit		26425			
		52600			52600

Balance Sheet as on 31.03.2007

Liabilities	Rs.	Rs.	Assets	Rs.	Rs.
Capital	30000		Debtors	15000	
Add: Net Profit	26425		Less: Provision for Bad debts	1500	
	56425			13500	
Add: Interest on Capital	3000		Less: Provision for discount		
	59425		Debtors	675	12825
Less: Interest on Drawings	1000		Closing Stock		38000
	58425		Samples in stock		2000
Less: Drawings	10000	48425	Insurance claim receivable		5000
Sundry Creditors	6000		Plant		20000
Less: Provision for	600	5400	Premises	20000	
Discount			Less: Depreciation	3000	17000
Loans		38000			
Wages Out standings		2000			
Rent Out standings		1000			
		94825			94825

5.4 Summary

- The profit and loss account and the balance sheet are together known as final accounts. These are the final steps in the accounting process.
- The profit and loss account is prepared to show the financial results of a business.
- Adjustments given outside the trial balance represent entries yet to be made in the journal and the ledger.
- All the adjustments given outside the trial balance will appear in both the trading or profit and loss account and the balance sheet.
- Balance sheet shows the position of assets and liabilities of a business entity as on a particular date.

5.5 Glossary

Revenue is the income that mainly accrues to the firm either by the sale of goods and services or by investing the resources of the firm outside.

Expenses are the costs incurred in earning revenues.

Direct Expenses are the costs incurred in earning revenues.

Revenue Expenditure: The benefits of expenditure expire within the year or expenditure which merely seeks to maintain the business or keep the assets in good working conditions.

Capital Expenditure: The expenditure results in the acquisition of an asset (tangible or intangible) which can be later sold and converted into cash or which results in an increase in the earning capacity of a business.

5.5 Test of Understandings

1. Following are the balances extracted from the books of Goodwill Company on 31.12.2005. Prepare Trading, Profit and Loss account and Balance Sheet after considering the adjustments given below.

Particulars	Amount	Particulars	Amount
Capital	35000	Drawings	6000
Furniture	2600	Bank Overdraft	4200
Stock (01.01.2005)	20000	Sundry creditors	13800
Debtors	15000	Business premises	24000
Purchases	112000	Rent from tenants	1000
Salaries	12000	Taxes and Insurance	2000
Commission (Dr)	1600	General expenses	4000
Carriage	2000	Discount (Cr)	2000
Discount (Dr)	2000	Bad debts	800
Sales	150000	Sales return	2000

Adjustments:

a. Stock on hand on 31.12.2005 Rs.20000
b. Write of depreciation – Business premises – Rs.1000 & furniture –Rs.600
c. Make a reserve of 5% on debtors for doubtful debts
d. Allow interest on capital at 5%
e. Carry forward Rs.200 for unexpired insurance

5.6 References and Further Readings

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UNIT-2

COST – BASIC CONCEPTS

Learning objectives

After studying this unit, you should be able to

- define cost, costing, cost accounting and cost accountancy
- describe the objects of cost accounting
- list out the advantages and objections against cost accounting
- explain the factors to be consider before installation of cost accounting system.
- describe the element of cost
- explain the types of costs.
- describe the methods of costing
- explain the techniques of costing.

Structure

2.1 Introduction

2.2 Definition

  2.2.1 cost

  2.2.2 costing

  2.2.3 cost accounting

  2.2.4 cost accountancy

2.3 Elements of cost

2.4 Types of cost

2.5 Methods of costing

  2.5.1 Job costing

  2.5.2 Contract costing

  2.5.3 Batch costing

  2.5.4 Process costing

  2.5.5 Unit costing

  2.5.6 Operating costing

  2.5.7 Multiple costing

2.6 Techniques of costing

  2.6.1 Historical costing

  2.6.2 Direct costing

  2.6.3 Adsorption costing

  2.6.4 Uniform costing

  2.6.5 Marginal costing

  2.6.6 Standard costing

2.7 Summary

Key words

2.1 Introduction

Costing is a specialized branch of accounting. It has been developed because of limitations of financial accounts. In the present day it is absolutely necessary that a business concern should operate its activities with utmost efficiency and at the lowest cost. The need for determination and control of costs necessitated new set of principles of accounting and thus emerged 'cost account' as a specialized branch of accounting.

2.2 Definition

2.2.1 Cost

The term 'cost' has a variety of meanings. Different people use this term in different senses for different purposes. For example, while buying a book, you generally ask, "how much does it cost"? Here the word cost means price. But in management terminology the term cost refers to expenditure and the price. For our purpose cost is not the some as price. The costing terminology of the Institute of cost and works Accountants, London defines cost as "the amount of expenditure (actual or motional) incurred on or attributable to a given thing" Thus the term 'cost' refers to something that must be sacrificed to obtain a particular thing.

2.2.2 Costing

Costing is the technique and process of ascertaining costs. It cosists of the principles and units which are used for ascertaining the costs of products and services. In the words of Harold J. Wheldon "costing is the classifying and appropriate allocation of expenditure for the determination of the cost of the products or services, and for the presentation of suitably renamed data for purpose of control and guidance of the management". In simple words. Costing is a systematic procedure of determining the unit cost of a product or service. It enables the management to know not only the total cost of a product of a service but also its constituents.

2.2.3 Cost Accounting

Cost Accounting is the process of classifying, recording, allocating and reporting the various costs incurred in the operation of an enterprise.

2.2.4 Cost Accountancy

Cost Accountancy is the application of costing and cost accounting principles methods and techniques to the science, art and practice of cost control and ascertainment of profitability. It includes the presentation of information for the purpose of decision making.

2.3 Objectives of Cost Accounting

The main objectives of cost accounting are summarized below:

1. **Ascertainment of cost:** The primary objective of cost accounting is to ascertain the cost per unit of production and the cost of each element of expenditure, job, process etc.

2. **Determination of selling price:** Another objective of cost accounting is determine selling price by providing information about the composition of total cost of the product or service.

3. Control cost: Cost accounting involves the study of the different operations of manufacturing job – wise, department – wise, operation – wise, division – wise. This facilitates the controlling of costs. Standard costing and budgetary control are costing techniques to control cost.

4. Preparation of financial statements: A proper cost accounting system provides almost instant information regarding production, sales, operating costs, stock or raw – materials, work – in – progress and finished products. This helps in preparation of financial statements i.e. 'Profit and Loss Account and Balance Sheet'.

5. Formulation of operating policies: Cost accounting provides useful information to plan and execute operating policies. Cost accounting helps the management in taking various managerial decisions like profitable product mix, utilization of unused capacity, make or buy a component, operating at a loss or closing down the business, introduction of a new product.

2.4 Advantages and Limitations of Cost Accounting

The important advantages of a cost accounting system may be listed as below:

To the Management

The emergence of cost accountings is mainly to serve the needs of management. Cost accounting offers a number of advantages to the management which are given below.

1. Ascertainment of costs: Cost accounting provides useful information to the management which helps management to ascertain the cost per unit of production and the cost of each element of expenditure, job, process etc.

2. Price fixation: Cost accounting provides information about the composition of total cost of the product or service. This helps management in fixing – up the selling price.

3. Measurement of efficiency: Cost accounting allows for proper and timely measurement of cost and consequently efficiency. Management can measure the efficiency by distinguishing between profitable and unprofitable activities.

4. Inventory control: Cost accounting furnishes information which management requires in respect of inventory control which improves the efficiency of the plant. Various cost accounting techniques like perpetual inventory system, ABC analysis etc. facilitate better inventory control.

5. Managerial control: Cost accounting aims at reducing waste, securing economies, better selling and higher profits. Hence, cost accounting is a useful tool of managerial control.

6. Helpful in maximizing the profits: Cost accounting helps in increasing the profits by disclosing the sources of loss or waste and by suggesting such controls so that waste, leakage, spoilage and inefficiencies of all department may be detected and prevented.

7. Useful in the period of depression and competition: Cost accounting is useful to management in all the times including the period of boom and demand revival. But the need for having though system of costing is greater in the trade depression, trade competition and

seasonal variations. The management must know the actual cost before adopting any scheme of price reduction.

8. **Data for financial statements:** Adequate costing records provide to the management such data as may be necessary for preparation of profit and loss account and balance sheet.

To the Creditors

Creditors are immensely benefited by the installation of costing system. Creditors can base their judgment about the profitability and future prospects of the enterprise upon the studies and reports submitted by the cost accountants. It has become a policy with most of the banks that no loans to industrial firms are made unless such firms have complete cost accounting systems which produce cost reports showing satisfying trends.

To the Employees

Cost Accounting is also of benefit to employees of the organization having a proper costing system. Workers are benefited because they are remunerated by results and wage negotiations. Employees benefit because of the system of incentive plans and bonus, etc. which is instituted to promote cost reduction.

To the National Economy

An efficient costing system benefits the economy as a whole. Some of the benefits are following:

1. An efficient costing system brings prosperity to the concerned business enterprise. This results into stepping up the government revenue in form of more direct and indirect taxes.
2. Sine cost accounting promotes efficiency and optimum utilization or resources of firms, it leads to stability in their funcitioning.
3. Control of costs, elimination of wastages and inefficiencies lead to the progress of the industry and in consequence of the nation as a whole.
4. Efficiency brought about by cost accounting leads to reduced prices for the consumers.

Limitations of Cost Accounting

Following are some objections raised against cost accounting

1. **Unnecessary:** It is often said that cost accounting is not necessary. A good number of enterprises have conducted their business without cost accounting and that too quite efficiently.

2. **Not applicable:** It is often argued that cost accounting be applied to all types of industries; costing can be applied only in manufacturing enterprises. But this is not true cost accounting has a very wide application and can be used in all types of business whether manufacturing or non – manufacturing.

3. **Failure of costing system:** It is often argued that many business houses have failed in spite of have a system of cost accounting.

4. Expensive: The most powerful argument against the cost accounting is that costing system is expensive, i.e., it involves a considerable amount of expenditure to install and run since it required apportionment of costs and absorption of overheads requiring huge amount of clerical work.

5. Problem of reconciliation of cost and financial accounts: The information and results shown by cost accounts are different from that of financial accounts. It is very difficult and costly to reconcile the two types of accounts.

6. Cost differences: The principles of cost accounting keep on changing. Further, there is divergence in cost accounting procedures. Difference producers may be adopted for apportioning overheads and joint costs. Thus, the costs of production of two enterprises may differ due to different procedures adopted by them. Such different procedures are bound to create confusion.

2.5 Installation of Costing System

The main objects of installation of costing system are – ascertainment of costs and control of cost. While installing costing system certain principles must be followed. The important principles are given below:

a) The system should be introduced gradually.

b) The existing organization should be distributed as title as possible.

c) The cost of installing and operating the system must justify the results.

d) The system should be simple and easy to operate.

e) The system should incorporate suitable procedure for reporting to various levels of Management.

The preliminary considerations governing the installation of a cost accounting system may be listed as under.

1. Nature of business: No single system of cost accounting can be suitable for every type of business. Selection of proper system of costing should be made only after through study of the nature of product, stages of production, operations involved etc.

2. Nature of product: The nature of the product determines to a large extent the type of cost accounting system to be adopted. A product requiring high value of material requires and efficient system of material control.

3. Objective: The objectives and information which the management wants to achieve and acquire are also considered. If the management wants to expand its operations, the system of costing should be designed to give maximum attention to production aspect. On the other hand, if the concern has limited market for its products and it wants to increase the sales, the selling aspect would require greater attention.

4. Informal organization: Besides finding out the formal organization structure, the cost accountant should try to estimate the role of the informal organization. This would help him to solve various problems which may remain unsolved within the formal organization structure.

5. Informative and simple: The costing system to be introduced should be simple and informative. It should be capable of furnishing all types of information required, regularly and systematically so that continuous study and check-up of the progress of business is possible.

6. Prompt: Reporting the cost data should not only be accurate but should also be made available promptly and regularly so that decisions can be taken as quickly as possible.

7. Maintenance of records: Accumulation of cost information necessarily means maintenance of detailed cost records. A choice should be made between integral and non-integral accounting of systems. In case of integral accounting of system, no separate set of books are maintained for costing transactions. In case of non – integral costing system, separate books are maintained for cost and financial transaction and at the end of the accounting period, the results of the two sets of books are reconciled.

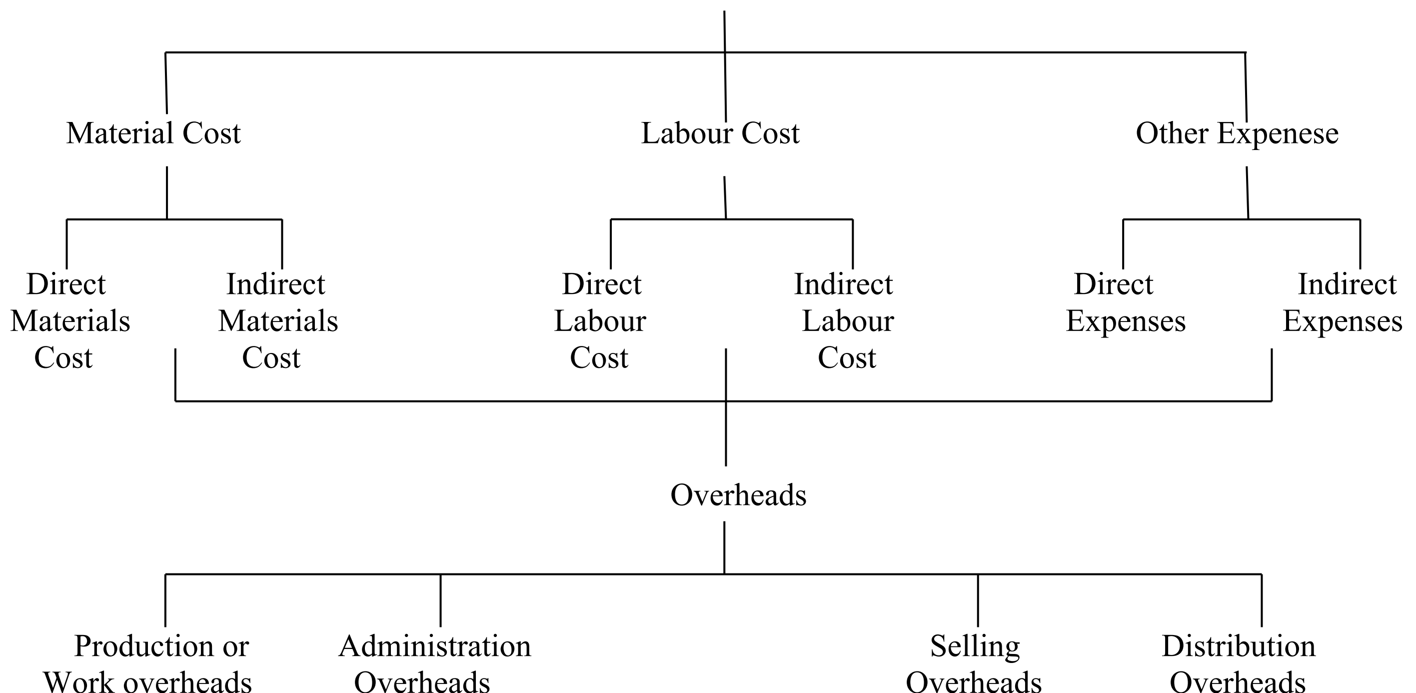
8. Flexibility: Cost accounting system should be flexible and capable of adapting to the changing requirements of the business.

2.6 Elements of Cost

Cost is the amount of expenditure incurred on a given thing and to ascertain the cost of a given thing. According to Ryall (Dictionary of Costing), "In practically all cases a 'cost' is the sum of three groups or components – the purchase or transfer price of materials, the cost of the hire of labour and the value of other disbursements made or expenditure incurred in achieving the desired product or result". Thus, the total cost is the sum of materials, wages and overheads (i.e., all other expenses).

The various elements of cost may be illustrated as below.

Figure 6.1



By grouping the above elements cost, the following divisions of cost are obtained.

Prime Cost = Direct materials + Direct labour + Direct expenses

Factory cost = Prime cost + Factory over heads

Cost of production = Factory cost + Administrative overheads

Cost of sales = cost of production + selling and distribution overhead.

The elements of costs are explained below

a) Direct Materials: Materials which are present in the finished product or can be identified in the product are called direct materials. For example, cloth in dress making; materials purchased for a specific job etc.

Note: However in some cases a material may be direct but it is treated as indirect, because it is used in small quantities or due to any other suitable reason.

b) Direct Labour: Labour which can be identified or attributed wholly to a particular job, product or process or expended in converting raw materials into finished products is called direct labour. For example, labour engaged on the actual production of the product in carrying out the necessary operations for converting the raw materials into finished product.

c) Direct expenses: It includes all expenses other than direct material or direct labour which are specially incurred for a particular product or process. Examples of direct expenses includes – excise duty, royalty, surveyor's fees etc.

d) Indirect materials: Materials which do not normally form part of the finished product are known as indirect materials These are-

- Stores used for maintaining machines and building (lubricants, cotton, waste, bricks etc).
- Stores used by service department like power house, boiler house, canteen etc.

e) Indirect labour: Labour costs which cannot be allocated but can be apportioned to or absorbed by cost units or cost centers is known as indirect labour. Examples of indirect labour includes – charge hands and supervisors; maintenance workers; etc.

f) Indirect expense: Expenses other than direct expenses are known as indirect expenses. Factory rent and rates, insurance of plant and machinery, power, light, heating, repairing, telephone etc., are some examples of indirect expenses.

g) Overheads: It is the aggregate of indirect material costs, indirect labour costs and indirect expenses. The main groups into which overheads may be subdivided are the following:

(i) Production or Works overheads

(ii) Administration overheads

(iii) Selling overheads

(iv) Distribution overheads.

The following format shows you, how a statement of cost/cost sheet is prepared.

[SPECIMEN OF COST SHEET]

I) Cost sheet for the period…

Particulars	Amount	Total cost	No.of Units	Cost per unit
Direct Material				
Opening Stock	xxxx			
(+) Purchase of Raw Material	xxxx			
(+) Carriage inwards	xxxx			
	xxxx			
(-) Closing Stock of Raw Material	xxxx			
Cost of Direct Material		xxxx		xxx
Direct Labour / Wages	xxxx			
(+) Outstanding, (-) Prepaid (if any)	xxxx			
		xxxx		
Direct Expenses		xxxx		xxx
PRIME COST		xxxx		xxx
Add **Factory Expenses**	xxx			
Indirect Labour	xxx			
Indirect Material	xxx			
Indirect Expenses	xxx			
Factory Supervisor's salary	xxx			
Repairs	xxx			
Up keep of factory				
Light, Heat, Power, Coal, Gas,	xxx			
Oil, Water, Lubricants etc.	xxx			
Factory Rent & Rates	xxx			
Factory expenses				
Depreciation on factory				
Plant	xxx			
Building	xxx			
Premises	xxx			
Loose tools written off	xxx			
Haulage	xxx			
Consumable Stores	xxx			

Research & Experimental				
Expenses	xxx		xxx	
Wastage of materials	xxx			
Drawing office expenses	xxx			
Works Stationary	xxx			
Factory Insurance	xxx			
Works Manager's salary	xxx	xxxx	xxx	
GROSS FACTORY COST		**xxxx**		
(+) Opening work-in-progress		xxx		
		xxx		
(-) Closing work-in-progress		xxx		
FACTORY COST		**xxxx**	**xxx**	**xxx**
Add **Administration Expenses**				
Office Salaries	xxx			
Office Lighting & Power	xxx			
Office Rent & Rates	xxx			
Office Insurance	xxx			
Printing costs	xxx			
Postage costs	xxx			
Office Manager's salary	xxx			
Director's fees	xxx			
Audit fees	xxx			
Repairs and Renewals	xxx			
Telephone charges	xxx			
Cleaning charges	xxx			
Legal charges	xxx			
Bank charges	xxx			
Depreciation on				
Office Buildings	xxxx			
Furniture & Equipments	xxxx			
Premises	xxxx	xxxx		
COST OF PRODUCTION		**xxxx**	**xxx**	**xxx**
(+) Opening Finished goods		xxxx		

		xxxx		
(-) Closing Finished goods		xxxx		
COST OF GOODS SOLD		**xxxx**		**xxx**
Add **Selling and Distribution Expenses**				
Advertisement	xxxx			
Salesmen salaries	xxxx			
Samples and free gifts	xxxx			
Sales office rent	xxxx			
Sales promotion expenses	xxxx			
Packing and demonstration	xxxx			
Commission to salesmen	xxxx			
Traveling expenses	xxxx			
Warehouse Rent & Rates	xxxx			
Repairs and up keep of delivery vans	xxxx			
Carriage out wards	xxxx			
Distribution department salaries	xxxx			
Bad debts	xxxx	xxxx		xxx
COST OF SALES		**xxxx**		xxx
PROFIT		**xxxx**		xxx
SALES		**xxxx**		xxx

2.7 CLASSIFICATION OF COST

The cost classification is the process of grouping cost according to their common characteristics. It is essential to classify the cost to identify the cost centers or cost units. The cost can be classified on the basis of the following factors.

1) Elements / Nature: The items which are directly related to the product and form the product are called the elements and expenditure related to the elements are the elements of cost. They are.

a) Materials: The raw material directly required for the production.

b) Labour: The labour directly required for the production process.

c) Overheads: The expenses other than the above two, which are directly related to the production process.

2) Function: the costs, which are divided in the light of the different aspects of basic managerial activities, see involved in the operation of a business.

a) Production cost: Total cost incurred from the production.

b) Administration cost: Cost incurred for formulating policy, directing the organization, the controlling the operation of a firm, which is not related to R&D, production and selling function.

c) Selling cost: The expenditure related in seeking of demand and stimulating the demand (e.g. Advertisement etc)

d) Distribution cost: The cost related to packing of product available for dispatch and the cost incurred for the returned empty containers if any. (e.g. carriage outwards etc).

3) Variability: Under this, cost is classified according to their behaviour in relation to the changes in volume of production.

a) Fixed cost: A cost which tends to be unaffected by variations in volume of output (e.g. Rent, Insurance etc).

b) Variable cost: A cost which tends to vary directly with the volume of output. (e.g. Direct material, Labour & overheads)

c) Semi-fixed and Semi-variable cost: The cost, which is partly fixed and partly variable, is semi-fixed and semi-variable cost. (e.g. Telephone charges etc.)

4) Controllability: The costs, which are classified according to whether or not they are influenced by the action of a given person of the film.

a) Controllable cost: The cost, which is influenced, by the action of a given person of the firm is controllable cost.

b) Uncontrollable cost: The cost, which is not influenced, by the action of a given person of the firm is uncontrollable cost.

5) Normality: The classification is made according to whether or not they are normal costs, which are normally incurred at a given level of output in the conditions in which that level of output is normally attained.

a) Normal cost: The normal cost that is normally incurred at a given level of output in the conditions in which that level of output is normally attained is normal cost.

b) Abnormal cost: The cost which are not normally incurred at a given level of output in the conditions in which that level of output is normally attained is abnormal cost.

6) Capital & Revenue:

a) Capital cost: The cost that is incurred in purchasing of asset either to cash income or to increase the earning capacity is the capital cost.

b) Revenue cost: Any expenditure is done in order to maintain the earning capacity of the concern is the revenue cost.

7) Time: Under this, the cost is classified based on experience, present condition, and plan.

a) Historical cost: It is the ascertainment of costs after they have been incurred. It aims at ascertaining costs actually incurred on work done in the past.

b) Predetermined costs: These are the estimated costs, which is used to make comparison with the actual to identify whether there is a favourable or adverse effect.

8) Planning and controlling: Under this, the classification based on the execution of plans and to have control on it.

a) Budgeted costs: It is an estimate of expenditure for different phases of business operations, co-ordinated in a well-conceived framework for a period in future, which subsequently becomes the written expression of managerial targets to be achieved.

b) Standard cost: The predetermined cost based on a technical estimate for material, labour and overhead for a selected period and for a prescribed set of working conditions is called standard cost.

9)Managerial decisions:

On this basis, costs may be classified into the following types:

a. Marginal cost: Marginal cost is also called variable cost. Variable cost varies with the volume of output. Variable costs include prime cost and variable overheads.

b. Differential costs: These costs arise as a result of change in the level of output. If the change increases the cost, it will be called incremental cost. If the change decreases the cost, it will be called decremental cost.

c. Imputed (or notional) costs: These are imaginary costs which do not involve payment in cash. E.g. rent on own building, interest on capital, depreciation etc.

d. Replacement cost: Replacement cost is the cost of replacement of an asset at the current market price. Eg. A machine was originally purchased for Rs. 20,000. If the same machine has to be purchased now, it will cost Rs. 25,000. The replacement cost is Rs. 25,000.

e. Opportunity cost: It is the value of benefit sacrificed in favour of an alternative course of action.

E.g. The fixed deposit is withdrawn and invested in a project.

The interest on fixed deposit which is sacrificed is the opportunity cost. This cost should be taken into account while evaluating the profitability of the project.

f. Sunk cost: A sunk cost is an irrecoverable cost and is caused by the complete abandonment of a particular plant. Such cost is irrelevant in decision making as it is already incurred.

g. Shut down cost: These are costs which continue to occur even if there is temporary stoppage of production activities. E.g. rent, salaries, insurance, depreciation etc.

h. Conversion cost: It refers to cost of converting raw material into partly or fully finished product. In other word, conversion cost is works cost minus the cost of direct material.

i. Avoidable costs: Avoidable costs are those costs which can be avoided by discontinuation of a product or department.

j. Unavoidable costs: Unavoidable costs are those costs which cannot be avoided by discontinuation of a product or department.

Key Terms

Prime cost

Works cost

Total cost

Job costing

Batch costing

contract costing

UNIT-3
OVERHEADS

Learning objectives

After studying this unit, you should be able to explain the steps involved overhead accounting.

Discuss the difference between allocation and apportionment.

describe the basis of apportionment and principles of appointment O/H

explain what is secondary distribution.

describe how overhead hates are calculated

explain how administration sully and distribution overhead are accounted controlled.

Structure

3.1 Introduction
3.2 Meaning
3.3 Steps involved in overhead Accounting
3.4 Collection of overhead
3.5 Classification of OH.
3.6 Allocation and apportionment of OH
3.7 Re-Apportionment
3.8 Absorption of overheads by production units
3.9 Administration overheads
3.10 Selling and distribution overheads
3.11 Summary
3.12 Keywords
3.13 Review Questions
3.14 Answers to check your progress.
3.15 Suggested Readings.

3.1 Introduction

In these days of rapid technological innovation, heavy expenditure is being incurred on plant modernization. That expenditure cannot be duectly allocated to any particular cost unit because it is incurred as common costs to all units of production. The overhead expenses, now a days, represent significant portion of total cost and assume greater importance. Overhead requires details of analysis for ascertaining accurate cost for pricing and control purposes.

Overhead costs cannot be allocated but have to be suitably apportioned and then absorbed by suitable methods. The cost accountant is required to pay so much attention to the accounting of overhead cost.

3.2 Meaning

Cost relating to a cost centre of cost units consists of direct cost and indirect cost. Direct costs can easily be identified with cost units. Direct cost is the aggregate of direct material, direct labour and direct expenses. The indirect cost constitutes the 'overhead' which is the total

of indirect material, indirect labour and indirect expenses. Indirect cost cannot be traced specifically to any units of production. CIMA defines indirect cost as "expenditure on labour, material or services which cannot be economically identified with a specific sale lure cost unit". According to whelden "over head may be defined as the cost of indirect material, indirect labour and such other expenses including services as can not conveniently charged to a specific unit. Alternatively overheads are all expenses other than direct expenses".

3.3 Steps involved in overhead Accounting

The total cost of a product is as curtained by adding overheads with the prime cost. The overheads which cannot be specifically related to cost units, are to be apportioned to various departments and then to cost centre or production units. The following steps are involved in this procedure.

- Collection of overheads
- Classification of overheads
- Allocation and apportionment of overheads
- Reapportionment of service departments expenses to production department.
- Absorption of overhead by production units.

3.4 Collection of overheads

The production overheads are collected under separate standing order numbers provided from the following documents such as

i) Stores Requisition
ii) Wage analysis sheet
iii) Invoice / purchase vouchers
iv) Cash book
v) Subsidiary books

3.5 Classification Overheads

The classification of overheads are made as specified in unit 6

3.6 Allocation and Apportionment of overheads

The overheads are collected properly under suitable account heading. The next steps allocation and apportionment of such expenses to cost centers this is known as departmentalization of overheads. For this, departments are classified into three types viz.

(i) Manufacturing departments.
(ii) Service departments.
(iii) Partly producing departments.

ALLOCATION OF OVERHEAD COSTS

I.C.M.A., London has defined cost allocation as "the allotment of whole items of cost to cost centres or cost units". In other words allocation is allotment of overhead incurred for a

particular cost centre to that specific cost centre. To the extent possible it is better to allocate overheads. The main conditions for allocation of costs are:

(1) The cost centre should be responsible for incurring such costs.

(2) The amount of overhead to be allotted should be specific.

APPORTIONMENT OF OVERHEAD COSTS:

Charging a fair share of overhead to each cost centre is termed as apportionment. I.C.M.A., London defined it as "the allotment to two or more cost centres of proportions of common items of cost on estimated basis of benefit received".

If an item of overhead cost cannot be allocated to cost centres, it has to be apportioned. For apportionment suitable basis has to be selected so that overheads are equitably distributed between various cost centres.

Distinction between Allocation and Apportionment

There is clear distinction between cost allocation and apportionment. It is necessary to understand the difference clearly so that the terms are not loosely used. No doubt the objective of both allocation and apportionment is to identify the overhead costs with different cost centres and cost units. But they differ in several aspects.

(1) Allocation deals with whole items of cost while apportionment deals with 'parts or portions' of items of cost.

(2) Allocation is directly attributing the items of overheads to cost centres and units. Apportionment takes recourse to the indirect method of equitable subdivision of items of cost.

(3) Allocation does not need any basis. Apportionment is mainly dependent on suitable 'Bases' for subdivision of items of overhead.

(4) Sometimes apportionment starts when allocation ends. For example factory rent is allocated fully to the factory. But it has to be apportioned to different departments or divisions in the factory.

Bases of apportionment

In order to ascertain the correct cost of cost centres and cost units, suitable bases have to be adopted for allocation and apportionment of overhead. The under mentioned are some of the bases adopted for apportionment of manufacturing overheads.

(1) **Direct allocation:** Wherever traceable, overheads are to be directly allocated to particular departments. Examples are power, overtime premium of particular department.

(2) **Labour hours:** Overheads are apportioned on the basis of direct labour hours of different departments.

(3) **Machine hours:** Overheads are distributed on the basis of machine hours worked in each department.

(4) **Value of direct material consumed:** This basis is used for apportioning indirect materials, and material handling charges.

(5) **Direct wages:** Direct wages is used as basis to apportion indirect wages and general overheads.

(6) **Number of staff:** Number of employees in each department is taken as basis to apportion overheads cost incurred for the welfare of workers.

(7) **Floor Area of departments:** The area occupied by different departments is taken as basis to apportion expenses like rent, property tax, lighting heating and building maintenance expenses.

(8) **Capital value of assets:** Capital value of assets of different departments is taken as basis to apportion depreciation, repairs and maintenance, insurance of assets, etc.

(9) **Light points:** The light points of various departments is taken as basis to apportion lighting expenses.

(10) **Kilowatt hours:** The kilowatt hours of various departments is taken as basis to apportion power expenses.

Principles or Criteria for Apportionment of overheads

The following are the methods of apportionment, based on the principles or criteria.

(1) **Service or use method:** Under this method the service or benefit rendered to different departments is the basis of apportionment of overhead. The service rendered to various departments can be measured and it is fair and equitable to use, since benefit received is the criterion for apportionment. For example rent charges are apportioned on "area occupied" basis.

(2) **Analysis or survey method:** For some items of overhead it may not be possible to measure the proportion of benefit derived. In such a case a survey or analysis is made to reveal the extent of overheads to be charged to different departments. Examples are foreman's salary, power expenses when meters are not maintained separately, etc.

(3) **Ability to pay method:** Under this method overhead costs are apportioned on the basis of capacity to bear, i.e., sales volume or profits of different departments. Higher the profit/ sales value of the job more is the overhead charged. This method is generally not used since it is considered inequitable. It penalizes the efficient and profitable units of a business to the advantage of the inefficient ones.

(4) **Efficiency or incentive method:** This is a scientific method of apportionment. Under this method the output is budgeted and efficiency is measured by comparing actual with budgets. If the actual output exceeds the budget the incidence of overhead cost is reduced and the cost per unit is lowered.

If the targets are not achieved the unit cost goes up revealing the inefficiency of the department.

An organization may use one or more criteria depending on its nature and size. The following table shows, different items of overhead cost and the basis to be adopted for apportionment.

Expenses	Basis of apportionment
Factory rent	Area in sq meters or sq feet
Power	Kilowatt hours (K.W.H.)
Indirect Material	Direct material
Indirect wages	Direct wages
Repairs to plant	Plant value
Depreciation	Plant value
Lighting	Light points/Floor area (former preferable)
Supervision	No. of employees
Fire insurance of stock	Stock value
Fire insurance of capital assets	Value of capital assets.
ESI/PF contribution of employer	Wages of each department
Labour welfare expenses	Number of employees
General factory overheads	Labour hours/Direct wages

3.7 Re-Apportionment

Service department's cost is to be transferred to the production department by following suitable methods. This is known as re-apportionment of service department costs to production department or secondary distribution of service department costs to production. The following is the list of bases for the secondary distribution.

	Service Department Cost	Basis of Apportionment
1.	Maintenance department	Hours worked for each department
2.	Pay-roll or time-keeping	Total labour or machine hours or number of employees in each department
3.	Employment or personnel department	Rate of labour turnover or number of employees in each department.
4.	Store- keeping department	No of requisitions or value of materials of each department
5.	Purchase department	No. of purchase orders or value of materials for each department

6.	Welfare, ambulance, canteen service, recreation room expenses	No. of employees in each department.
7.	Building service department	Relative area in each department
8.	Internal transport service or overhead crane service	Weight, value graded product handled, weight and distance traveled.
9.	Transport Department	Crane hours, truck hours, truck mileage, truck tonnage, truck tonne hours, tonnage handled number of packages.
10.	Power House (Electric power cost)	Wattage, horsepower, horsepower machine hours, number of electric points etc
11.	Power House	Floor area, cubic content.

1. Methods of Re-apportionment or Redistribution

The following are the methods for redistributing the service department's costs to production departments.

i. Direct Redistribution method

ii. Step method

iii. Reciprocal Service method.

i) Direct Redistribution Method: The cost of service departments are directly apportioned to production departments without taking into consideration any service from one service department to another service department. Thus, proper apportionment cannot be done and the production departments may either be overcharged or undercharged. The share of each service department cannot be ascertained accurately for control purposes.

Illustration-1

In a light engineering factory, the following particulars have been collected for the three months' period ended on 31st December, 2007. It is required to prepare Production Overheads Distribution Summary showing clearly the basis of apportionment where necessary.

Details		**Production Departments**			**Service Departments**	
		A	**B**	**C**	**X**	**Y**
Direct Wages	Rs.	2,000	3,000	4,000	1,000	2,000
Direct Material	Rs.	1,000	2,000	2,000	1,500	1,500

Staff	Nos.	100	150	150	50	50
Electricity	kWh.	4,000	3,000	2,000	1,000	1,000
Light points	Nos.	10	16	4	6	4
Asset Value	Rs.	60,000	40,000	30,000	10,000	10,000
Area Occupied	Sq.m.	150	250	50	50	50

The expenses for the period were:

Motive Power Rs. 550; Lighting Power Rs. 100; Stores Overheads Rs. 400; Amenities to Staff Rs. 1,500; Depreciation Rs. 15,000; Repairs and Maintenance Rs. 3,000; General Overheads Rs. 6,000; and Rent and Taxes Rs. 275.

Apportion the expenses of service department X in proportion of 3:1:1 and those of service department Y in the ratio of 3:3:4 to departments A,B and C respectively.

Solution:

Production Overheads Distribution Summary

For the quarter ending 31st December 2007

Particulars		Production Departments			Service Department		Total
		A Rs.	B Rs.	C Rs.	X Rs.	Y Rs.	Rs.
1	Direct wages	-	-	-	1,000	2,000	3,000
2	Direct Material	-	-	-	1,500	1,500	3,000
3	Motive power @ 5p.per kWh.	200	150	100	50	50	550
4	Lighting power @ Rs 2.50 per point	25	40	10	15	10	100
5	Stores overhead @ 5% of direct material	50	100	100	75	75	400
6	Amenities to Staff @ Rs. 3 per employee	300	450	450	150	150	1,500
7	Depreciation @ 10% of the value of asset	6,00	4,000	3,000	1,000	1,000	15,000
8		1,200	800	600	200	200	3,000
9		1,000	1,500	2,000	500	1,000	6,000
10		75	125	25	25	25	275

	Repairs and maintenance	8,850	7,165	6,285	4,515	6,010	32,825
	@ 2% of value	2,709	903	903	(4,515)	-	-
		1,803	1,803	2,404	-	(6,010)	-
	General Overheads @	13,362	9,871	9,592	-	-	32,825
	50% of direct wages						
	Rent and taxes @ Rs. 0.50 per sq. meter						
	Total						
	Deptt. X (3:1:1)						
	Deptt. Y (3:3:4)						
	Total						

ii) Step Method: The cost of most serviceable department is first apportioned to other. Service departments and production departments. The next service department is taken up, its cost is apportioned, and this process goes on until the cost of the last service department is apportioned. Thus, the cost of last service department is apportioned only to the production departments.

Illustration:2

The Department Summary showed the following expenses for July.

Production Department		**Service Departments (in order of their importance)**		
P1	**P2**	**X1(Time-keeping)**	**X2 (Stores)**	**X3 (Maintenance)**
Rs.	Rs.	Rs.	Rs.	Rs.
16,000	10,000	4,000	5,000	3,000

The other information relating to departments were:

Details	**Service Departments**			**Production Departments**	
	X1 (Time-keeping)	**X2 (Stores)**	**X3 (Maintenance)**	**P1**	**P2**
No. of employees	-	20	10	40	30
No. of Stores requisitions	-	-	6	24	20
Machine Hours	-	-	-	2,400	1,600

Solution:

Department	As per Primary Distribution				
X1	Rs.	Rs.			
(Time-keeping)	4,000	(-) 4,000			
X2 (Stores)	5,000	800	(-) 5,800		
X3	3,000	400	696	(-) 4,096	
(Maintenance)	16,000	1,600	2,784	2,458	22,842
P1	10,000	1,200	2,320	1,638	15,158
P2					
	38,000				**38,000**

Note: Basis of apportionment:

a) Time-keeping-No. of employees (i.e. 2 : 1 : 4 : 1)

b) Stores – Number of stores requisition (i.e. 3 : 12 : 10)

c) Maintenance – Machine hours (i.e. 3 : 2)

iii) Reciprocal Service Method: In order to avoid the limitation of Step Method, this method is adopted. This method recognized the fact the that if a given department receiving such service from another department, should be charged. If two departments provide service to each other, each department should be charged for the cost of services rendered by the order. There are three methods available for dealing with inter-service departmental transfer:

a) Simultaneous Equation Method

b) Repeated Distribution Method

c) Trail and Error Method

a) Simultaneous Equation Method: The true cost of the service departments are ascertained first with the help of simultaneous equations; these are then redistributed to production departments based on given percentage. The following illustration may be taken to discuss the application of this method.

Illustration: 3

A company has three production department and two service departments, and for a period the departmental distribution summary has the following totals:

Production Departments:	Rs.
P1-Rs. 800; P2 – Rs. 700 and P3 – Rs. 500	2,000

Service Departments:

X1 – Rs. 234 and X2 – Rs. 300 534

2,534

The expenses of the service departments are charged out on percentage basis as follows:

	P1	P2	P3	S1	S2
Service Department X1	20%	40%	30%	-	10%
Service Department X2	40%	20%	20%	20%	-

Prepare a statement showing the apportionment of two service departments expenses of Production Departments by Simultaneous Equation Method.

Solution:

Let x = Total overheads of department S1

Y = total overheads of department S2

Then

x = 234 +2y

y = 300 + 1x

Rearranging and multiplying to eliminate decimals:

10x -2y = 2,340

-x + 10y = 3,000

Multiplying equation (1) by 5, and add result to (2), we get

46x = 14,700

Therefore x = 300

Substituting this value in equation (1), we get

Y = 330

All that now remains to be done is to take these values x = 300 and y = 300 and apportion them based on the agreed percentage to the three production departments; thus:

Particulars	Total	P1	P2	P3
	Rs.	Rs.	Rs.	Rs.
Per distribution summary	2,000	800	700	500
Service department X1 (90% of Rs. 300)	270	60	120	90
Service department X2 (80% of Rs. 330)	264	132	66	66
	2,534	992	886	656

This method is not recommended where there are more than two service departments as each creates an additional unknown.

b) Repeated Distribution Method: The totals as shown in the departments distribution summary are put out in a line, and then the service department totals are exhausted in turn repeatedly according to the agreed percentages until the figures become too small to matter. By solving illustration 3 by Repeated Distribution Method, we get the Secondary Distribution Summary that is given as follows:

	P1	P2	P3	X1	X2
	Rs.	Rs.	Rs.	Rs.	Rs.
As per Summary	800	700	500	234	300
Service Department X1	47	94	70	(234)	23
Service Department X2	129	65	65	64	(323)
Service Department X1	14	25	19	(64)	6
Service Department X2	2	2	2	-	(6)
	992	886	656	-	-

c) Trial and Error Method: The cost of one service department is apportioned to another centre. The cost of another centre plus the share received from the first centre is again apportioned to the first cost centre and this process is repeated until the balancing figure becomes negligible. By solving illustration 3 by Trial and Error Method, we get the following:

2. Advantages of Departmentalization of Overhead Expenses:

- It facilitates control of overhead cost.
- It facilitates control of the uses made of the services rendered to respective departments.
- It facilitates for the ascertainment of cost of respective departments.
- It enables for the calculation of the correct cost of work-in-progress.

The following illustration will make you learn clearly how the allocation, apportionment, and re-apportionment is made.

Illustration: 4

Modern Manufactures Ltd. Have three Production Departments P1, P2, and P3 and two Service Departments S1 and S2, the details pertaining to which are as under:

The following figures extracted from the Accounting records are relevant: Rent and Rates Rs. 5,000, General Lighting Rs. 600, Indirect Wages Rs. 1,939; Power Rs. 1,500; Depreciation on Machines Rs. 10,000 and Sundries Rs. 9,695.

The expenses of the Service Departments are allocated as under:

	P1	P2	P3	S1	S2
Direct wages (Rs.)	3,000	2,000	3,000	1,500	195
Working Hours	3,070	4,475	2,419	-	-
Value of Machines (Rs.)	60,000	80,000	1,00,000	5,000	5,000
H.P. of Machines	60	30	50	10	-
Light Points	10	15	20	10	5
Floor space (sq. ft).	2,000	2,500	3,000	2,000	500

	P1	P2	P3	S1	S2
S1	20%	30%	40%	-	10%
S2	40%	20%	30%	10%	-

Find out the total cost of a product which is processed for manufacture in Department P1, P2 and P3 for 4, 5 and 3 hours respectively, given that its Direct Material cost is Rs. 50 and Direct Labour Cost Rs. 30

Solution:

Overhead Distribution Summary

Particulars	Baisc of Apportionment	Total	Production Departments			Service Departments	
			P1 Rs.	P2 Rs.	P3 Rs.	S1 Rs.	S2 Rs.
Direct Wages	Actual	1,695	-	-	-	1,500	195
Rent and Rates	Area (1/2 of original)	5,000	1,000	1,250	1,500	1,000	250
General Lighting	Light Points (Rs. 10 per point)	600	100	150	200	100	50
Indirect Wages	Direct Wages (1/5 of direct wages)	1,939	600	400	600	300	39
Power	H.P. (Rs. 10 per H.P of machinery)	1,500	600	300	500	100	-

Depreciation on machines	Value of Machines (4% of value of Machines	10,000	2,400	3,200	4,000	200	200
Sundries	Direct Wages (100% on direct wages)	9,695	3,000	2,000	3,000	1,500	195
	Redistribution of	30,429	7,700	7,300	9,800	4,700	929
	S1[20:30:40:-:10]	4,700	940	1,410	1,880	(-4,700)	470
	S2[40:20:30:10:-]	1,399	559.6	279.80	419.70	139.90	(-1,399)
	S1[20:30:40:-:10]		0	41.97	55.96	(-139.9)	13.99
	S2[40:20:30:10:-]		27.98	2.80	4.20	1.40	(-13.99)
	S1[20:30:40:-:10]		5.60	0.42	0.56	(-1.40)	0.14
	S2[40:20:30:10:-]		0.28	0.03	0.05	-	(-0.14)
		Total	0.06	9,035.0	12,160.4		
	Working Hours		9,233.	2	7		
	Working rate per		52	4,475	2,419		
	hour		3,070				
			3.01	2.02	5.03		

Cost of Product "X"

Direct Material Cost		50.00
Direct Labour Cost		30.00
P1 4 x 3.01	= 12.04	
P2 5 x 2.02	= 10.10	
P3 3 x 5.03	= 15.09	37.23
		117.23

3.8 Absorption of Overheads by Production Units

It is necessary to learn the next step in the accounting of manufacturing overheads, that is how to recover this cost from the cost of production after learning the principles to be followed for allocation and apportionment of overhead costs to producing cost centres. The method and procedure of spreading of overhead expenses to the cost centres or cost units is known as overhead absorption. It is also referred to as levy, recovery or application of overhead. Actually, absorption means the distribution of the overhead expenses allotted to a particular department over the units produced in that department. The overhead related to suitable bases / factors must be determined in order to absorb the overhead in costs of jobs, processes or products. This called as overhead Rate. It will be calculated as given below:

Overhead Rate = Overhead expenses / Total quantity or value

Therefore,

Overhead absorbed in a product = (Overhead rate *Units of the base contained to the product)

The overhead absorption rate computed may be either based on i) actual cost or on the basis of ii) estimated cost / predetermined rate. iii) Moving average rate. & iv) Blanket and multiple rates.

i) **Actual Rate:** This rate is derived by dividing the overhead expenses incurred during the period by actual quantity or value produced during the period. Actual Overhead rate = (Actual overhead expenses during the period) / (Actual quantity or value of the products produced during the period).

ii) **Predetermined Rate:** It is determined in advance of the actual production and is computed by dividing the budgeted overheads by the budgeted production of units (or) by its value for the accounting period. Predetermined Rate = Budgeted overhead expenses for the period / Budgeted base for the period. These predetermined rates are used as yard stick against which actual rates may be watched and the variances and worked out the only limitation of such rate is that it may give rise to over or under absorption of overheads

iii) **Moving Average Rate:** The rate is a compromise between the actual rate and predetermined rate. This rate is generally calculated on monthly basis and is computed by dividing the average of the past twelve or six months average actual overhead by the estimated base for the following months. This rate removes to some extent the shortcomings of the overhead rate fixed on actual basis by equating the wide fluctuations but it cannot avoid them. Overhead expenses may increase or decrease because of change in the production activity and recovery on the basis of actual rate would result in excess or less charging of overhead to cost of production, the estimated expenses for the period are not taken into consideration.

iv. **Blanket and multiple rates:** When a single overhead rate is computed for the factory as a whole, it is called as single or blanket rate. It will be calculated by following the below given formula. Blanket Rate = Overhead cost for entire factory / Total quantity of the base selected. When different rates are computed for each producing department, service department, cost centre, each product or product line, each production facto and or fixed & variable overhead, then it is called as multiple rate.

The formula is

Multiple rate = Overhead cost allocated and apportioned to each cost centre / Corresponding base

The blanket rate is used in small concerns where multiple rate is used in large concerns.

Methods of Absorption of Overheads

The below mentioned methods are main methods for the absorption of manufacturing overheads. (For the discussion purpose estimated cost is assumed)

i) **Rate Per Unit of Production:** The very simplest direct and easiest method followed by mining and other extractive industries, foundries, brick laying industries where the output is measured in terms of physical units like number of items produced, weight, volume etc, is rate per unit of production method. The rate is calculated as under:

Overhead rate = Budgeted overhead expenses / Budgeted production

ii) **Direct Labour Cost / Direct Wages Method:** This method is as like as rate per unit of production method. But in this budgeted overhead expenses are divided by "Direct Labour Cost" instead of Budgeted Production. The formula is:

Overhead rate = Overhead expenses / Direct Labour Cost.

This method is suitable, only for those concerns where the direct labour constitutes a major proportion of the total cost of production Where the production and labour employed and types of work performed are uniform, where the ratio of skilled and unskilled labour is constant, and where there are no variations in the rates of pay, that is the rates of pay and methods are the same for the majority of the workers in the concern.

iii) **Direct Labour Hour or Production Hour Method:** From the below given formula this overhead rate is obtained.

Overhead rates = Overhead expenses / Direct labour hours.

For example, when overhead expenses per day is Rs. 40,000 and no. of workers in a day in 5,000 and their working hours is 8 hours per day, then the overhead rate is = Rs. 40,000 / (5,000 * 8hrs) = 40,000 / 40,000 = Re.1.

Re.1 will be the overhead labour cost.

This rate is suitable where labour constitutes the major factor of production and where the job is labour oriented, it is desired to take into consideration the time factor which is uniform in nature and the rate may not be affected by the method of wage payment or the grade or the rate of workers.

iv) **Machine hour rate:** The overhead costs of production may also be absorbed based on machine hour rate where the cost of machinery forms a greater element of total cost and the use of machinery influences production as well. Here the overheads mostly relate to the operating of the machines. For the purpose of computation of machine or a group of similar machines. All expenses, either factory general expenses or machine running expenses, are, then, allocated or apportioned to the machine cost centres, on equitable basis. Afterwards, the machine hour rate is calculated by dividing the estimated total overhead for the machine cost centre by the expected machine hours.

The formula is machine hour rate = Overheads / Machine hours for the period.

There are two methods of computation of machine hour rate namely

a) Ordinary machine hour rate and

b) Composite, comprehensive, or blanket rate

Calculation of Machine Hour Rate

Let us consider the steps to be followed in the calculation machine hour rate.

1. The machine cost centre are to be fixed first to identify overheads relating to such machine or group of machines taken as cost centre and to allot or apportion them accordingly.
2. The next step is to classify the overheads relating machine into two categories viz.
   i) Fixed or standing charges and
   ii) Machine running expenses or variable expenses.

i) Standing charges: Standing charges are not related to the machine operation time and they are constant in nature. Examples of such expenses are supervision, rent and rates, heating and lighting, Insurance, shop cleaners, consumable stores etc.

ii) **Machine expenses:** Machine expenses are generally related to the machine operating time, such expenses as depreciation of machines, power, fuel, repairs, etc.

3. Now the standing charges classified are estimated for the given period for each machine and then divided by total no.of normal working hours of the machine for the period to arrive at the machine hour rate for standing charges. But for machine expenses, hourly rate, for each item of expenses is computed separately, but dividing each of them by the total normal machine working hours. Of course, the total normal working hours for this purpose will not include the hours required for maintenance of machine, setting up, or setting off.
4. Then we get the ordinary or simple machine hour rate by adding the standing charges rate with the machine expenses rates.
5. Sometimes the machine operator's wages will also be included in overheads for computing machine hour rate, when he attends a number of machines at the same time. Such machine hour rate is known as composite of comprehensive machine hour rate. This method helps to compare the relative efficiency and cost extent of the preference of machines to man.

The following bases may be adopted for the apportionment different expenses to individual machines.

Expenses	Basis
1. Standing Charges	
a) Supervision	Machine hours devoted by supervisory staff of each machine.
b) Rent and Rates	Floor area occupied by each machine.
c) Heating and lighting	No. of light points used and cost of special lighting or heating for any machine or floor area used by each machine or number of

	operators.
d) Insurance on building	Floor area occupied by each machine.
e) Shop cleaners	Machine hour.
f) Consumable stores	Machine hour or on the basis of past experience.
2. Machine Expenses	
a) Depreciation	Asset value i.e. cost of machine including, cost of stand by equipment like spare motors, switch gear etc. less residual value spread over its working life.
b) Power, steam	Horsepower of the motor driving the machine or actual consumption as per metre reading for each machine.
c) Repairs	Cost of repairs spread over in working life.
d) Insurance on Machinery	Asset value or insurance value of each Machine.
e) Lubricating Oils	As per stores, requisition slips or the standard lubricating schedules.

Illustration: 5

(A) Compute comprehensive machine hour rate from the following data

a) Total of machine to be depreciated Rs. 2,70,000; Life 15 years; Depreciation on Straight line.

b) Departmental overheads (annual):

	Rs.
Rent	60,000
Heat and Light	40,000
Supervision	1,30,000

c) Departmental Area 80,000 square metres
   Machine Area 2,500 square metres

d) 26 machines in the department

e) Annual cost of reserve equipment for the machine = Rs. 1,500

f) Hours run on production = 2,000

g) Hours for setting and adjusting = 200

h) Power cost Rs. 0.50 per hour of running time.

i) Labour:

1. When Setting and adjusting, full time attention.
2. When machine is producing, one man can look after 3 machines.

j) Labour rate Rs. 6 per hour.

B) Using the machine hour rate as calculated value work out the amount of factory overhead to be absorbed on the following

	Total hours	Production time Hours	Setting up time hours
Job No. 605	100	80	20
Job No. 595	100	70	30

Solution:

A) Computation of Machine Hour Rate

	Rs.	Hrs.	Rs.
Standing Charges:			
Rent, Heat and Light (1,00,000 * 2,500)/80,000	3,125	2,000	1.56
Supervision 1,30,000 / 26	5,000	2,000	2.50
Depreciation Rs. 2,70,000 / Life 15 yrs.	18,000	2,000	9.00
Reserve Equipment Cost 1,500 / 26	58	2,000	0.03
Labour Cost during setting and adjustment			
200 Hrs. @ Rs.6	1,200	2,000	0.60
Hourly Rate for Standing Charges			13.69
Machine Charges:			
Power			0.50
Labour (1/3 of Rs.6)			2.00
Comprehensive Machine Hour Rate			**16.19**

Note: It is assumed that there is no power cost when the machine is being set or adjusted.

b) From the machine hour rate calculated in A, adopted the overheads absorbed over the various jobs will be

Job No. 605 = 16.19 * 80 = Rs. 1,295.20

Job No. 595 = 16.19 * 70 = Rs. 1,133.30

Advantages:

i. It helps to compare the relative efficiencies and cost of operating different machines.

ii. It brings to light the existence and extent of idle time of machines.

iii. It enables the management to decide how far the use of machine work is preferable to manual work.

iv. It is most scientific, practical, and accurate method of recovery of manufacturing overheads.

v. Cost reports prepared with the help of such rate are dependable and can help the management in decision-making.

vi. It provides useful data for estimating cost of production, setting standard and for fixing selling prices for quotations.

vii. It provides ready method for measuring the cost of idle machines if separate rates for fixed and variable overhead rates are calculated. When hourly rate is fixed based on anticipated running hours of the machine there is under absorption of fixed overhead expenses, if actual running hours are less than the estimates.

Disadvantages:

i. It involves additional work in assessing the working hours of machines and thus it is a costly method.

ii. It does not take into account expenses that are not proportional to the working hours of machines.

iii. It gives inaccurate results if hand labour is equally important.

iv. It is difficult to estimate the machine hours especially when production programme is not available in advance.

v. Blanket rate cannot be used and it makes the method more costly.

v) Direct material cost method: In this method, percentage of factory expenses to value of direct materials consumed in production is calculated to absorb manufacturing overheads. The formula is

Overheads rate = Budgeted overhead expenses / Budgeted Direct Material cost.

This method is suitable where output is uniform, where the prices of materials are stable and the proportion of overhead to total cost is significant.

vii) Prime cost method: The recovery rate is calculated in this method by dividing the budgeted overhead expenses by the aggregate of direct material and labour cost of all the products of a cost centre. The formula to calculate overheads recovery rate is = Budgeted overhead expenses / Anticipated direct material & labour.

This method is not usually used because.

- The cost of materials is predominating item of prime cost and adequate consideration is not given to the time factor.
- No distinction is drawn between the production of hand workers and machine workers.
- No distinction is drawn between fixed and variable expenses.
- It comprises of short-comings of direct material and direct labour methods.

vii) Sale price method: This method is more suitable for the application of administration, selling and distribution, research and development, cost to cost of product. It can also be used with advantage for the preparation of Joint product costs. In this method overhead rate is calculated as under.

Overhead rate = Budgeted overhead expenses / Sale price of the units of production.

This method is arbitrary and recovery made by this method is inequitable because overhead costs have practically no relationship with the sale price of the products. The apportionment is made on the basis of benefits rather on their ability to bear the costs.

3.9 Administration overhead:

The administration division of an organization lays down policies and oversees the implementation of policies. The function of this division is planning and organizing and control of various activities. This differentiates the administrative function from the other function of the organization namely manufacturing selling and distribution. The administration overheads constitute the costs incurred in formulating the policy, organizing, directing and controlling the operation of an undertaking. The administration overhead is mostly in the nature of indirect costs.

Administration overhead is defined by the I.C.M.A., London, as "the cost of formulating the policy, directing the organization and controlling the operations of an undertaking which is not related directly to production, selling, distribution, research or development activity or function". Thus, the administration overhead is incurred in connection with management and administration of an enterprise. The administration costs are general in nature and the benefit goes to the firm as a whole.

The administration overhead is classified, subject to codification, and collected as done in the case of manufacturing overhead. The administrative overheads are collected under standing order numbers or cost accounts numbers allocated and apportioned to departments on suitable basis. For effective control of administration overhead the amount of cost is departmentalized among general office, secretarial department, legal department, accounts department, personnel department, etc. The nature of administrative overhead is such that for many of the items of administration overhead it is difficult to fix suitable norms. Moreover the amount of administration overhead remains fixed regard less of volume of the production or sales. This is because the cost is incurred based upon the decisions of the management rather than activities of the concern.

The amount of overhead is generally small compared to manufacturing or selling and distribution overhead.

Treatment of Administration overhead:

The administration overhead is accounted for by one of the following methods:

(a) Write off to profit and loss account.

(b) Apportionment to manufacturing and selling and distribution divisions.

(c) Addition as separate item of cost.

(a) **Writing off to costing profit and loss account:** The assumption of this method is that administration overheads have no direct relationship with manufacturing and selling activities of an undertaking. The items of administration overhead are fixed in nature and therefore called 'period costs'. It is difficult to fix suitable bases for apportionment to cost units. They are to be transferred to costing profit and loss account as they are incurred for the whole organization and not related directly to production and sales. This method is criticized for three reasons. (a) Under statement of cost of products as administration overheads are excluded (b) Effective control of costs is not possible as the cost is excluded from production and total cost. (c) Accounting principle of charging full cost to output is not followed.

(b) **Apportionment of administration overhead to manufacturing selling and distribution functions:** This method is based on the assumption that there are two main activities of an undertaking i.e. (1) Manufacturing (2) Selling and distribution. All the other activities are incidental. Therefore all the costs are to be identified with these two main functions. Thus, administration overhead is apportioned between production and selling and distribution functions. The amount of administration overhead is debited to the administration overhead account and at the end of the period it is proportionately transferred to manufacturing overhead account and selling and distribution overhead account. The main limitation of this method is finding suitable bases for apportionment between manufacturing and selling overhead. Main criticism of this method is that the administration overhead loses its identity.

(c) **Addition of administration overhead as a separate item of cost:** Under this method the administration overhead is separately added to cost as is the case with production, selling and distribution overheads. Main argument in favour of this method is that administrative function is also equally important as production and selling and distribution. Therefore by following this method the administration overhead is added to works cost to arrive at cost of production. The bases followed are woks cost, sales value, units produced and gross profit on sales or conversions cost, etc. Generally, works cost is the basis of absorption.

$$\text{The absorption rate or percentage} = \frac{\text{Administration overhead}}{\text{Works cost}} \times 100$$

Examples of administration overhead

Office salaries	Insurance of office premises and equipment
Postage and Telegrams	Salaries of directors
Bank charges	Salaries of administrative managers
Legal charges	Depreciation of office equipment, buildings,
Director's fees	and furniture,
Office rent, lighting	office cleaning, etc.
Stationery	
Accounts office expenses	
Audit fees	
Telephone rent	

Control of administration overhead

Administration overhead is a period cost and fixed in nature. The cost is incurred in accordance with management policy. The administration overhead is non controllable. Some control of overhead is necessary to see that the amount does not grow disproportionately. The following are the methods of control used:

(1) Comparison with previous period: The administration overhead incurred during the period are collected under various standing order numbers or cost accounts numbers and compared with amounts of previous period. This helps in analyzing the reasons for the increase or decrease of items of cost over the previous period. If the amount has increased abnormally, suitable action is to be taken to prevent recurrence. Moreover it is helpful in deciding whether the benefit received by a department is more or less than the cost. If the cost is more than the benefit, the policy decision may be evolved to close the department.

(b) Budgets:

Administrative overhead budget is prepared for different department for a specific period. Actual figures are compared with budgets and differences are arrived at. The differences are enquired into and suitable action is taken.

(c) Standards:

The standards are fixed for various items of administration overhead. The actual expenses are compared with standards set and the variances are calculated. The variances are analysed and suitable action is taken to remove them and effective control is enforced.

3.10 SELLING AND DISTRIBUTION OVERHEAD

Intensive competition and large scale production has resulted in large amount of selling and distribution cost being incurred which makes it necessary for systematic analysis, accounting and control of these costs. Moreover selling and distribution costs constitute significant portion of total costs which makes it all the more necessary for enforcing effective control of these costs. I.C.M.A., London has described the selling and distribution costs as below:

Marketing cost: The cost incurred in publicizing and presenting to customers the products of the undertaking in suitably attractive forms and at acceptable prices together with the costs of all relevant research work, the securing of orders and usually delivery of goods to customers. In certain cases, after-sales services and/or order processing may also be included.

Selling cost: Marketing cost incurred for obtaining orders is the selling cost.

Publicity cost: Marketing cost incurred in publicity and advertising to assist the sales of products or services.

Distribution cost: The amount expended in warehousing of finished product and delivering it to customers. Selling overhead therefore is the cost incurred for creating and stimulating demand and obtaining orders.

Distribution overhead is incurred in performing all the activities for warehousing of products and it includes delivery of products to customers.

Selling and distribution have no direct relationship with production. Therefore they are indirect costs and thus called overhead.

Selling overheads are different from manufacturing overhead due to the distinct features of selling and distribution overhead.

(1) The costs are directly linked with output sold.

(2) Same product may be sold in local and other distant markets.

(3) The overhead cost also varies with regard to various terms and conditions of sales.

(4) Selling costs may not be necessarily related to volume of sales.

Examples of items of selling and distribution overhead:

Salesmen's salaries

Salesmen's commission

Salesmen's traveling expenses

Sales department rent, lighting insurance

Sales related stationary

Sales office staff salaries

Advertisement

Sales promotion expenses

Packing expenses

Show room expenses

Warehouse rent

Warehouse keeper's salary

Warehouse staff salaries

Delivery vehicles' depreciation and maintenance, etc.

Control of selling and distribution overhead

Since selling and distribution are not directly related to products, the control of selling and distribution is comparatively difficult. The incidence of the cost depends on terms of sales, marketing area and the extent of competition. The difficulties in control of selling and distribution overhead are as follows:

(1) Control over customers and competitors are not possible.

(2) Sales capacity of the organization is difficult to estimate.

(3) It is difficult to control sales staffs who work in the field. To increase their efficiency additional remuneration is to be offered, which will increase the cost.

(4) It is difficult to obtain market related data.

(5) Market capacity cannot be easily ascertained.

(6) Some of the items of overhead are incurred on account of policy decisions of management which are uncontrollable at lower levels of management.

Techniques of control of selling and distribution overhead

(1) Comparison with previous years' cost: The items of selling and distribution costs are compared with past expenditure incurred. The cost may be expressed as percentage of sales or works cost and the comparison is made. The increase or decrease of cost over the previous years is revealed and suitable action may be recommended to prevent abnormal increase of overhead cost. This is a rough method and has no significant value in practice. This is followed only when budgets and standards are not used.

(2) Budgets: Selling and distribution overheads are classified as fixed, variable and semi variable. Budgets are prepared and comparison with actuals is made periodically to reveal deviations, so that action is taken wherever it is warranted.

(3) Standard costing: This technique is used where the system is in operation Standard costs are determined. Comparison with actuals is made and various are ascertained accordingly to follow up with suitable action where necessary.

Absorption of selling overhead

(1) Rate Per unit: Under this method the total selling and distribution overhead is collected and divided by the units of sales. The result is rate per unit.

$$\text{Absorption rate per unit} = \frac{\text{Selling and distribution overhead}}{\text{Number of units sold}}$$

(2) A percentage on sales: The selling and distribution overhead of preceding years is taken as basis for absorption. The post expenditure incurred is ascertained as a percentage of sales and the same rate is applied on actual sales to recover selling and distribution overhead.

$$\text{Absorption percentage on sales} = \frac{\text{Selling and distribution overhead of a period}}{\text{Turnover of a period}} \times 100$$

(3) A percentage on works cost: Under this method the past selling and distribution overhead is ascertained as percentage of works cost and the same rate is applied for the current year.

$$\text{Absorption percentage on works cost} = \frac{\text{Selling and distribution overhead}}{\text{Works cost}} \times 100$$

Check your progress

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

a) All Direct Costs are together called overhead

b) All indirect costs incurred in office are called production overhead.

c) Fixed overhead cost is a committed cost.

d) Fixed expenses will move up by jumps if the output exceeds the capacity.

e) Depreciation is a semi-variable expense.

f) Variable overhead cost is a discretionary cost.

g) Basis for apportionment of cost of steam is wages of each department.

h) Basis of apportionment of depreciation of plants is values of plants in each department.

i) Predetermined rate of absorption of overhead helps in quick preparation of cost estimates and quoting prices.

j) The time factor is ignored when the cost of material is used as the basis for absorption of overhead.

k) Direct labour hour rate of absorption of overhead is suitable where most of the production is done by using machines.

2. Short Answer Type

a) Define overhead.

………………………………………………………………………………………………
……………………………………………………………………………………....

b) Define direct and indirect expenses.

………………………………………………………………………………………………
……………………………………………………………………………………...

c) Explain the methods of absorption of overheads.

……………………………………………………………………………………
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Summary

The expenses made for the production process occupy the cost of production next to materials and labour. These expenses are classified as direct and indirect expenses. The direct and indirect expenses play a vital role in the cost of production. These expenses are codified for the purpose of classification. Proper steps are followed while accounting these overhead expenses because direct expenses are charged directly to the job where the indirect expenses, which are also called as overheads expenses, are allocated, apportioned, and re-apportioned by suitable basis. Finally these overhead expenses are absorbed by production units, which take part in the cost of production. The expenses such as administration, selling and distribution expenses are to be charged in the accounting to its nature of occurance, value expended.

Key Words

- Chargeable expenses
- Overhead expenses
- Allocation
- Apportionment
- Overhead rate
- Blanket rate

Review Questions

1) Briefly explain the steps involved in overhead accounting.
2) Explain the methods of Re-apportionment
3) What are principles the of apportionment of overhead cost and what are the bases of Apportionment?
4) Explain Absorption of overheads by production units
5) Define "Administration Cost". Give a few examples and indicate how they may be dealt with in cost accounts and how best they may be controlled.
6) What are selling and distribution overhead? Describe a scheme of controlling selling and distribution costs.
7) The following data were obtained from the books of Bright Engineering Company for the half year ended 31st March 2007.

		Production Department			**Service Department**	
		A	**B**	**C**	**D**	**E**

Direct Wages	Rs.	7,000	6,000	5,000	1,000	1,000
Direct Material	Rs.	3,000	2,500	2,000	1,500	1,000
Employees	Nos.	200	150	150	50	50
Electricity	kWh.	8,000	6,000	6,000	2,000	3,000
Light points	Nos.	10	15	15	5	5
Asset Values	Rs.	50,000	30,000	20,000	10,000	10,000
Area occupied	(sq.metres)	800	600	600	200	200

The expenses for 6 months were: Stores Overhead Rs. 400; Motive Power Rs. 1,500; Electric Light Rs. 200; Labour Welfare Rs. 3,000; Depreciation Rs. 6,000; Repairs and Maintenance Rs. 1,200; General Overhead Rs. 10,000; Rent & Taxes Rs. 600.

You are required to prepare Primary Overhead Distribution Summary for the department showing clearly the basis of apportionment where necessary.

[Ans. A-Rs.8,340; B-Rs.6,220; C-Rs.5,100; D-Rs. 4,100; E-Rs. 3,640]

8. A company's production for the year ending 30-6-84 is given below:

Items	**Production Departments**			**Office**	**Stores**	**Work-shop**	**Total**
	P1	**P2**	**P3**	**S1**	**S2**	**S3**	
Direct Wages Rs.	20,000	25,000	30,000	-	-	-	75,000
Direct Material Rs.	30,000	35,000	45,000	-	-	-	1,10,000
Indirect Material Rs.	2,000	3,000	3,000	1,000	2,000	2,000	13,000
Indirect wages Rs.	3,000	3,000	4,000	10,000	10,000	5,000	35,000
Area in Square Metres	200	250	300	150	100	250	1,250
Book value of Machinery Rs.	30,000	35,000	25,000	-	-	15,000	1,05,000
Total H.P. of Machinery	15	20	25	-	-	5	65
Machine Hours Worked	10,000	20,000	15,000	-	-	5,000	50,000

General Expenses; Rent Rs. 12,500; Insurance Rs. 1,050; Depreciation 15% of value of machinery; Power Rs. 3,800; Light Rs. 1,250.

You are required to prepare an overhead analysis sheet for the departments showing clearly the basis of apportionment where necessary.

[Ans. P1-Rs. 22,268; P2-Rs. 29,780; P3-Rs. 30,302]

9. From the following information work out the production hour rate of recovery of overhead in departments P1, P2 and P3:

Particulars	Total	Production Department			Service Department	
		Rs.	Rs.	Rs.	Rs.	Rs.
Rent	1,000	200	400	150	150	100
Electricity	200	50	80	30	20	20
Fire insurance	400	80	160	60	60	40
Plant Depreciation	4,000	1,000	1,500	1,000	300	200
Transport	400	50	50	50	100	150
Estimated working hours		1,000	2,500	1,800		

Expenses of Service Departments S1 and S2 are to be apportioned as under:

	P1	P2	P3	S1	S2
S1	30%	40%	20%	-	10%
S2	10%	20%	50%	20%	-

[Ans. P1-Rs. 1.66; P2-Rs. 1.04; P3-Re. 0.96]

10. P Ltd. Is a manufacturing company having three production departments. 'A', 'B' and 'C' and two service departments 'X' and 'Y'. The following is the budget for December-2008.

Particulars	Total Rs.	A Rs.	B Rs.	C Rs.	X Rs.	Y Rs.
Direct material		1,000	2,000	4,000	2,000	1,000
Direct wages		5,000	2,000	8,000	1,000	2,000
Factory Rent	4,000					
Power	2,500					
Depreciation	1,000					
Other Overheads	9,000					
Additional information						
Area (sq. ft).		500	250	500	250	500
Capital value (Rs. lakhs) of assets		20	40	20	10	10

Machine hours		1,000	2,000	4,000	1,000	1,000
Horse power of machine		50	40	20	15	25

A technical assessment for the apportionment of expenses of service departments is as under:

	A	B	C	X	Y
Service Dept. 'X'	45%	15%	30%	-	10%
Service Dept. 'Y'	60%	35%	-	5%	-

1. A statement showing distribution of overheads to various departments
2. A statement showing re-distribution of service departments' expenses to production departments.

[Ans. i) A-Rs. 2,700; B-Rs. 3,700; C-Rs. 6,000; X-Rs.4,750; Y-Rs. 5,350 ii) A-Rs. 8,482; B-Rs. 6,505; C-Rs. 7,513]

11. Calculate Machine Hour Rate from the following

i. Cost of Machine Rs. 19,200.
ii. Estimated scrap value Rs. 1,200.
iii. Average Repair and Maintenance charges per month Rs. 150.
iv. Standing charges allocated to machine per month Rs. 50.
v. Effective working life of machine 10,000 hours.
vi. Running time per month 166 hours.
vii. Power used by machine: 5 units per unit @ 19 paise per unit.

12. Calculate Machine Hour Rate of A Machine

	Rs.	
Consumable Stores	600	for A Machine
Consumable Stores	1,000	for B Machine
Repairs	800	for A Machine
Repairs	1,200	for B Machine
Heat and Light	360	
Rent	1,200	
Insurance of Building	4,800	
Insurance of Machines	800	
Depreciation of Machine	700	
Room Service	60	
General Charges	90	

Additional Information

	Working Hours	Area (sq. metre)	Book Value (Rs.)

A Machine	10,000	100	12,000
B Machine	25,000	500	20,000

13. From the following information relating to the machine, "Kempress" installed in a factory, work out the Machine Hours Rate

Purchase price of the machine with scrap value of zero Rs. 90,000
Installation and incidental charges incurred on the machine Rs. 10,000
Life of the machine is 10 years of 2,000 working hours each.
Repairing charges-50% of depreciation.
Machine consumes 10 units of electric power per hour @ 10 P.per unit.
Oil expenses @ Rs. 2 per day of eight hours.
Consumable stores @ Rs. 10 per day of eight hours.
The operators are engaged on the machine @ Rs. 4 per day of eight hours.
[Ans. Rs.10]

14. Compute the Machine Hour Rate from the following data

	Rs.
Cost of machine	1,00,000
Installation charges	10,000
Estimated scrap value after the expiry of its life (15 years)	5,000
Rent and rates for the shop per month	200
General Lighting for the shop per month	300
Insurance Premium for the machine per annum	960
Repair and Maintenance expenses per annum	1,000
Power consumption-10 units per hour	----
Rate of power per 100 units	20
Estimated working hours per annum-2,200	
This includes setting up time to 200 hours	----
Shop supervisor's salary per month	600

The machine occupies 1/4th of the total area of the shop. The supervisor is expected to devote 1/5th of his time for supervising the machine. [Ans. Rs. 7.95]

Answers to check your progress:

1. a) False b) False c) True
d) Truee) Truef) False
g) False h) Truei) True
j) True k) False

Suggested Reading:

1. B.K. Chattergee, **Costing and Managerial Accounting for Managers**, Jaico Publishers, New Delhi.
2. S.P. Iyengar, **Costing and Management Accounting** Chand & Sons,

New Delhi.
3. B.S. Khanna, I.M. Pandey, **Practical Costing**, S. Chand & Co, New Delhi.
4. P.V. Rathnam – **Rathnam's Costing,** Kitab Mahal, Allahabad.

VALUATION OF INVETORIES

Learning Objectives

After studying this unit you should be able to express the meaning of Inventory.

State the problem of Inventory valuation.

Describe the significance of Inventory value.

Explain the Basic principle of Inventory valuation.

List out various methods of Inventory valuation.

Structure

1.1 Introduction
1.2 Meaning
1.3 Problem of Inventory valuation
1.4 Significance
1.5 Basic Principle
1.6 Methods of Inventory valuation
1.7 Actual price method
1.7.1 First in first out
1.7.2 Last in first out
1.7.3 Specific price
1.7.4 Base stock
1.7.5 Highest in first out
1.8 Average price Method.
1.8.1 Simple Average
1.8.2 Weighted Average
1.8.3 Periodic simple average
1.8.4 Periodic weighted average
1.9 Other methods
1.9.1 Standard price method
1.9.2 Market price method
1.9.3 Inflated price method
1.10 Choice of Material pricing method
1.11 ICAI'S Guidelines on Inventory valuation
1.12 Summary
1.13 Key words
1.14 Review Questions
1.15 Answers to Check your progress
1.16 Suggested Readings

1.1 Introduction

One of the main objectives of cost accounting is to ascertain the accurate cost. Material usage is a vital part of the business concerns engaged in manufacturing. The ascertainment of accurate cost largely depends upon the correct valuation of materials labour used in the particular product. The valuation of materials is divided into two parts: (a) valuation of materials received and (b) valuation of materials issued. The incoming materials should value at invoice price plus fright, carriage, cartage, insurance, taxes etc. Materials are issued to different jobs from the stores. These jobs are charged with the value of materials issued to them. But the stock of materials (Inventories) consist of different consignment received at different dates and prices and therefore it becomes necessary to decide about the price is to be charged from a particular job when materials are issued to it.

1.2 Meaning

The dictionary meaning of the word "Inventory" is a "detailed list of goods, furniture, etc; stock of goods". Many understand the word "inventory" as stock of goods. But, the generally accepted meaning of the word goods, in accounting language, is the stock of finished goods only. In a manufacturing organization, however, in addition to stocks of finished goods, there will be stocks of partly finished goods, raw materials and stores. The collective name for all these items is "inventory".

The AICPA committee on accounting procedures in its accounting research bulletin No. 43 used the word inventory to designate the aggregate of those items of tangible personal property which – (i) are held for sale in the ordinary course of business; (ii) are in process of production for such sale; and (iii) are to be currently consumed in the production of goods or services, to be available for sale. The Institute of Chartered Accountants of India defines (in AS-2) the term inventories as tangible property held.

(i) for sale in the ordinary course of business, or

(ii) in the process of production for such sale, or

(iii) for consumption in the production of goods or services for sale including maintenance supplies and consumables other than machinery spares.

The above usage of the term "inventory" confirms its composition as raw materials, stores, work-in-progress and finished goods. Some people include loose tools and spare parts also but that is not recommended.

1.3 Problem of Inventory valuation

At the end of each period for which final accounts are prepared, inventories on hand have to be valued and brought into the books. Otherwise, the Profit and Loss Account will not disclose the real profit and the Balance Sheet will not disclose the real financial position. Inventory valuation has vital impact on the reported profit or loss and the financial position as shown in the Balance Sheet. Valuation, therefore, must proceed on a systematic and logical basis. Obviously, no valuation is possible unless the quantities are first properly established. Proper stock records are, therefore, essential.

In a manufacturing organization, the cost of materials purchased ultimately remains as part of the closing inventory if such materials remain unused. The cost of materials used will constitute the materials cost of the finished goods or work-in-progress as the case may be. As long as a methodical system of cost accounting is adopted, it would be possible to determine the value of the inventory of materials, work-in-progress and finished goods with reasonable accuracy. If, however, there is no proper costing system in an organization it would be difficult task to evaluate the inventory at the close of an accounting period. Even, where a costing system is present, any method of pricing issues of materials and finished goods will have its impact on the value of the closing inventory of the items. For, after all, the cost of materials purchased has to be assigned either as consumed or as inventory on hand. Similarly, the cost of production should be shown either as inventory of work-in-progress and finished goods or as cost of goods sold. In other words,

(i) Opening inventory of raw materials + purchases = cost of materials consumed + closing inventory of materials.

(ii) Opening work-in-progress + cost incurred during the year = cost of goods produced + closing work-in-progress.

(iii) Opening inventory of finished goods + cost of goods produced = production cost of goods sold + closing inventory of finished goods.

In the first equation, in case there is a present costing system, the cost of materials consumed can be calculated by means of an appropriate method of pricing issues. Hence, the value of the closing inventory of raw materials is simply the balancing figure. In the second equation, if the cost of goods completed can be calculated by means of cost accounts the balancing figure is the value of incomplete items. In the third equation, the method of pricing out the complete goods from finished good stock will determine the cost of goods sold. Thus, the value of the closing inventory of work-in-progress and finished goods are simply balancing figures. The closing inventory so revealed can be checked up by a physical stock taking, hence the system is foolproof.

If in an organization there is no full-fledged costing system or there is no information based on systematic accounting, then the value of the closing inventory or raw materials, work-in-progress and finished goods will have to be reckoned by physically counting and evaluating the same. Hence, in such cases, the value of materials consumed, cost of goods produced and cost of goods sold stated in the above three equations will become balancing figures.

The above discussion is based on the rule that the cost of inputs has to be balanced by the cost of output. In practice, however, the outputs may not be valued at cost, but at valuations other than cost which may be more or less. Still their cost has to be worked out to ascertain whether it is more or less than market values. This would further complicate the problem.

1.4 Significance of Inventory value

The question of what value we assign to the inventory for a business influences the working result and the financial position of that business. The profit or loss of a business is

determined by matching the revenue with the cost. Cost includes, inter alia, the cost of materials consumed. The cost of goods sold determines the quantum of profit, given particular sales revenue. The cost of goods sold = opening inventory + costs incurred during the period – closing inventory. In this equation, if the closing inventory figure is varied it will influence the cost of goods sold and hence, the profit quantum. The cost of goods sold will depend on which units are assumed to remain on hand at the end of the period. Similarly, the value of the closing inventory will depend on units which are assumed to have been sold during this period. Thus, depending upon different rational assumptions, the profit figure will fluctuate.

Company law in India has made it obligatory on managements to disclose the broad method of valuation of inventories in their balance sheets. So far, auditors have relied on the inventory values as taken, valued and certified by the management. With effect from January 1, 1976 all manufacturing, mining, processing companies engaged in supplying, rendering services, trading and business of financing, investment, chit fund, or mutual benefit societies have come under more stringent rules regarding inventory verification and valuation. The Auditor has to report whether physical verification has been conducted by the management at reasonable periods in respect of finished goods, stores, spare part and raw materials and if any significant discrepancy has been noted on such verification as compared to book records; whether the same have been properly dealt with in the books of account; whether the auditor is satisfied that the valuation of those stocks is fair and proper in accordance with the normally accepted accounting principles and is on the same basis as in the earlier years; if there is any deviation in the basis of valuation the effect of such deviation, if material, is to be reported.

It may be worthwhile to note that the Sachar Committee on simplification of Company Law has recommended that in the case of companies with a paid-up capital of Rs. 25 lakhs and above the inventory values should be certified by a cost accountant. This again reiterates the significance of inventory valuation in the determination of profits. The recommendation, however, has not been made mandatory so far.

The closing inventory comprising raw materials, work-in-progress and finished goods will constitute a substantial portion of the assets of a business. Their values would be included in judging the financial position of the business on the balance sheet date. It their values fluctuate according to the method of valuation adopted, the financial position will also accordingly fluctuate.

The magnitude of the problem assumes bigger dimensions when there is no costing system to price the consumption/ issue of materials and finished goods. In such cases, the fluctuation of profit has a direct relationship with the value judgment of the closing inventory. Thus, the reliability of the profit figure is dependent upon how scientific the inventory valuation is. It can be noted that there is ample scope for influencing the profit fluctuation by manipulating the values of inventories. Consequently, there will be a corresponding distortion in the financial state of affairs of a business as presented by the balance sheet.

1.5 Basic Principle – cost or market value whichever is lower

There is a well established and well accepted principle that profits must not be anticipated – profits are brought into the books only if realized. But losses, if anticipated and arising out of transactions already entered into, should be taken into account. On this basis, inventories may be valued at market, prices if they are lower than the cost price. By doing so, automatically the figure of the cost of goods sold is inflated by the loss due to the value of the inventory being less than the cost price. Thus, the figure of the "cost of goods sold" in this case has two elements, namely (1) the actual cost of the items sold, and (2) the loss due to undervaluation of the inventory at market value instead of at cost. In a period, when the market value is higher than the cost, the inventory would be value, only at cost. On such occasions, "the cost of goods sold" will not contain the second element referred to above. Hence, if a company adopts the principles of "Lower of cost and market value" and if the market values go above or below the cost in different periods, strictly speaking, the "cost" of goods sold is net uniform over the different periods. As such the working results are also not comparable. To make them comparable, the loss if any, as a consequence of undervaluation of inventory will have to be adjusted separately.

Market value really means net realizable value, that is, the gross sale price less the expenses to be incurred on sale such as commission to agents, packing and forwarding expenses. The question as to what is to be included in cost is not so easy to decide. The general rule is that "Cost" includes all expenses necessary to place the goods in the condition and at the place in which they are to be sold – expenses not so necessary or incurred after the goods are ready for sale (e.g., advertising, warehousing, packing, other than primary packing, etc). are not be considered as part of cost for the purpose of valuation of inventories.

There is no doubt that material, labour and production overheads will be included in the term "Cost" for the purpose of valuing finished goods inventory. The question is whether fixed production expenses are also to be included. Here opinions differ. According to the International Accounting Standards Committee, such expenses should be included on the basis of normal capacity. The Institute of Chartered Accountants of India is of the opinion that is for the management to decide the question, i.e., the fixed production expenses may be excluded from inventory valuation and charged wholly to the revenue of the year or these may be included on the basis of normal level of production. The former method is called "Marginal Costing" and the latter "Absorption Costing". Some managements may include even Administration expenses as part of cost for valuing inventory but this is not really proper in normal cases, since such expenses have generally little to de with production.

The principle of cost or market price whichever is lower may be applied item by item or by each class of products. The latter method is quite appropriate – it will be improper to value the entire inventory first on cost basis and then on market value basis and choose the lower of the two values.

1.6 Methods of Inventory Valuation

When materials are issued for any production work or any job, they hence to be valued in the costing department. It materials are purchased for any particular job the total cost of the

materials can be charged to that job. But generally raw materials are purchased in anticipation and issued whenever they are heeded for production, assuming that the hate of materials is the same. But this is not the case always. Prices of every thing change on the prevailing condition of the market. The stock lying in the store consists of many purchases at different rates and when issued, they create problems as to the fixation of the price. Therefore the important methods of pricing of materials issued are:

(A) Actual Price Method
1. First in first out (FIFO)
2. Last in first out (LIFO)
3. Specific price
4. Base stock
5. Highest in first out (HIFO)

(B) Average Price Method
1. Simple average
2. Weighted average
3. Periodic simple average
4. Periodic weighted average

(C) Other Methods
1. Standard price method
2. Market price method
3. Inflated price method

No hard and fast rule can be laid down in selecting the pricing method. However a suitable system of pricing materials is to be selected by considering the following points:

1. The system of pricing materials must recover the cost price of the materials.
2. It must be as far as possible near to the market or current price.
3. Adopt a good system, so as to remove the wide fluctuations in the prices.
4. It depends upon the policy of the management.
5. Clerical work must be reduced to the minimum.

1.7 Actual price method

First in First Out (FIFO) Method

Under this system, materials are issued in the order in which they are received in the store. The materials received first will be issued first. "First come first served". In other words old stocks are issued first and new stocks will be issued afterwards. As a result of this system, when we value the closing stock of materials, that will be at the latest price.

Advantages

1. The method is simple and easy to operate.
2. Closing value of material will reflect at current market price.
3. This system is good for slow moving materials.

4. When prices are falling, this method gives better result.
5. "First come, first served" is a logical system.
6. Deterioration and obsolescence can be avoided.

Disadvantages

1. When prices fluctuate, calculation becomes complicated.
2. Complicated calculation will invite clerical errors.
3. Under fluctuating prices, materials charged to different but similar jobs vary, leading to non – comparison.
4. When prices fall, jobs are charged with higher price of earlier materials; the quotations are less competitive.
5. When materials are returned to the store, they are treated as new purchases, for the purpose of next issue.

Last In First Out (LIFO) Method

This method is opposite to FIFO. Here, materials received last are issued first. Issues are made from the latest purchases. The issues are priced at the unit cost of the latest lot or the most recent purchase. The issues are not in chronological order, and cost of the material reflects current market price.

Advantages

1. Material cost represents current price.
2. It facilitates complete recovery of material cost.
3. It is most suitable when prices are rising.
4. There is better matching of cost and revenue.

Disadvantages

1. It involves considerable clerical work.
2. Due to variation of prices, comparison of cost of similar jobs is non-comparable.
3. Stock of materials shown in balance sheet will not reflect market prices.
4. This system is not accepted by Income Tax authorities.

Specific Price (Identical Cost) Method

This is the price actually paid for the materials for a particular job or work or contract. Under this method, materials purchased for specific jobs, are kept separately and when issued, the job is charged with the actual price paid. Materials of special nature, costly items etc., when used for specific work, are priced at the actual price and charged to the work. This method is good on individual jobs, contracts etc., against specific orders.

Advantages

(i) True or actual price is charged.

(ii) It is suitable when the items are costly.

Disadvantage

Separate records have to be kept, which involves clerical work.

Base Stock Method

In almost all concerns, a minimum quantity of stock is always kept in store. A fixed minimum stock of the material is always maintained and is known as 'safety' or 'base stock'. This stock is valued at a price at which the first lot of materials is received. The stock should not be issued until emergency arises. The quantity in excess of this base stock may be valued either on FIFO or LIFO method.

Since the system operates in conjunction with FIFO and LIFO, the advantages and disadvantages relating to FIFO and LIFO are applicable. The following illustration will clear the points.

Highest In First Out (HIFO)

Under this method materials of the highest price are issued first. According to this method the closing stock will be of the minimum price or as low as possible. In short, materials purchased at the highest price will be first issued, irrespective of the order of purchase; when the whole lot of the highest price is exhausted, materials purchased at the next higher price are issued. This method is suitable for cost plus contracts, but is not common. It rather operates similar to FIFO and LIFO.

Average Price Method

Simple Average Method

Issue price of raw materials are fixed at the calculated average unit price. When new purchases are made at different rates, the average changes. This method of simple average is not generally followed, because it fails to recover the cost price of materials. For example:

$$\text{Issue Price} = \frac{\text{Total of unit prices of materials in stock}}{\text{Number of prices}}$$

100 units purchased @ Rs. 5

200 units purchased @ Rs. 6

300 units purchased @ Rs. 7 Average price = $\frac{5+6+7}{3}$

= Rs.6

When issues are made at the rate of Rs. 6, recovery from productions is equal to Rs. 3,600 (600 x Rs. 6); but the actual cost paid is Rs. 3,800 (100x 5+200 x 6 + 300 x 7). Therefore, there is an under recovery. Hence, this system is not followed. This defect is removed under the weighted average system.

Advantages

1. It is easy to operate.
2. It reduces clerical work.
3. When there are slight fluctuations in price, it gives good result.

Disadvantages

1. Costs are not fully recovered.
2. This system is not generally followed.

Weighed Average Method

This method gives weightage, apart from the price, to the quantity also. Weighted average price is a price obtained by dividing the total cost of materials in the stock by the total quantity of material in the stock; and issues are priced accordingly.

$$\text{Weighted Average price} = \frac{\text{Value of materials in stock}}{\text{Quantity in stock}}$$

Egs: 100 units purchased @ Rs. 5

200 units purchased @ Rs. 6

300 units purchased @ Rs. 7

The weighted average price is Rs. 6.33 which is calculated as follows:

$$\frac{100 \text{ units x Rs. } 5 + 200 \text{ units x Rs. } 6 + 300 \text{ units x Rs. } 7}{100+200+300} = \frac{3,800}{600}$$

= Rs. 6.33

This method can safely be followed, and is possible to recover the cost of materials purchased.

Advantages

1. It will smooth the fluctuations.
2. It facilitates recovery of the cost paid for materials.
3. It is accepted by all.

Disadvantages

1. When a large number of purchases is made at different rates, the calculation is tedious.

Periodic Simple Average Price

The simple average rate is calculated, for a particular period, ignoring the rate of opening stock. The computation of the issue rate is found out by totaling the unit prices of all purchases received during a period and dividing it by the number of prices ignoring the price of the opening stock. The rate thus computed is used for all issues of the period and for valuing the closing stock.

Advantages

1. Calculation is easy, as the rate is to be computed only once at the end of the period.
2. The issue price of materials does not change during the period.
3. Comparison of similar jobs, in respect of materials, is easy.

Disadvantages

1. Delay is involved.
2. Closing stock will not be in true value.

Periodic Weighted Average Price

Like the weighted average method, the rate is found out by computing the total cost paid for the materials, and dividing it by the total quantities purchased during a period, say a month, ignoring the opening stock. The rate thus calculated is used for issue as well as for closing stock of materials.

Advantages

1. This method is superior to the above.
2. Price fluctuations have been removed.

Disadvantages

1. The rate is calculated at the end of the period.
2. Pricing of material is delayed.

Other Methods

1. Standard Price Method

This is a method of valuing the issues on a pre-determined price. The standard price of the materials is decided, taking into account the quantity purchased, market conditions, future trend of the prices and all other matters connected with the materials. Under such circumstances, the cost of the issue of the materials will neither be at the cost price nor at the market price. There are two type of pre-determined (standard) prices; they are basic standard price and current standard price. Basic standard price is unaltered for an indefinite period or for a longer time. Current standard price is related to current market conditions, over a shorter period. And this facilitates permanent charges in cost on account of prevailing trends in the market. Under this method, issue has been made at the standard price. Purchases of raw materials have been made at the actual price and issue prices, at the standard price, fixed in advance.

There arises a difference between the actual cost of the materials and the standard cost of the materials. The difference is known as "variance" and it indicates the efficiency of the purchases. The variance is calculated as follows:

Variance = (Actual receipts x Standard price) – Actual amount

If positive answer is the result, then the variance is favourable; it means efficient buying. On the other hand, if negative answer is the result, then the variance is unfavourable; it means inefficient buying. A material price variance account to be opened, is credited with the favourable variances and debited with the unfavourable variances. The final balance of this account is transferred to costing profit and loss account.

Advantages

1. It is simple in working.
2. Material cost can be fixed in advance.
3. Comparison of jobs becomes easy.
4. Control over purchase is possible.

Disadvantages

1. Sometimes, it fails to recover the cost of materials.
2. It will reflect the market price.
3. Price variance account has to be created, in addition.

2 Market Price Method (Replacement price method)

This is based on the principle that materials issued to any job on a particular day, should be charged at the rate prevalent in the market. In other words, materials issued are valued at a price at which they can be replaced. After the issues, the closing stock is adjusted to the net value.

Advantages

1. Latest price is reflected.
2. Comparison is easy.

Disadvantages

1. Cost of production varies with the market trends.
2. It is not easy to know the latest prices.
3. Difference in value arises (purchase price and issue price), and needs adjustment.
4. Profit or loss may arise on account of rise and fall in prices of raw materials.

3 Inflated Price

When purchases are made, looking at the invoice, one is able to understand that the seller charges the cost of the materials and the expenses like packing, forwarding, freight etc. Then, after purchasing additional expenses – storing, preservation, issuing etc., are there. Apart from this, there may be unavoidable losses like evaporation, deterioration in quality, shrinkage, loss in

weight etc. Therefore, when issue of materials is made, the price is to be inflated to cover all the expenses or losses.

5. Choice of Material Pricing Method

The various methods which are in use have advantages and disadvantages. The selection of pricing method depends upon the accounting principles followed in that management both for the costing of products and valuation of stock. The different methods of material pricing are difficult to compare. Some firm prefer the use of market prices for charging materials into production; market prices are the prices prevailing at the time the materials are used. This method of material pricing has been gaining popularity over recent years. This method reflects the current position and current cost and efficiency of purchasing done by a firm. The method to be selected must satisfy the following factors:

1. The issue price should be near to the current market price.
2. The total issue price should recover the cost of the materials.
3. There should be no significant variation in issue price from period to period.
4. Cost of clerical work must be minimum.
5. Method of valuation of closing stock must be simple.

ICAI's Guidelines on Inventory Valuation

The Institute of Chartered Accountants of India has revised Accounting standard (AS) – 2: Valuation of Inventories in July 1999. The revised standard supersedes AS-2 issued in June 1981, and AS-2 (Revised) comes into effect in respect of accounting period commencing on or after 1 April 1999 and it is mandatory in nature. The AS-2 (Revised) has listed the following guidelines.

1. Inventories should be valued at the lower of cost and net realized value.
2. Net realizable value is defined as the estimated selling price in the ordinary course of business less the estimated cost of completion and estimated costs necessary to make the sale. An assessment is made of net realizable value as at each balance sheet date.
3. The cost means historical cost companising, (i) all costs of purchase (ii) cost of conversion and (iii) other costs incurred to bring the inventories to their present location and condition.
4. For the purpose of comparising historical cost with net realizable value each item in the inventory may be clear with separately, or similar items may be dealt with as a group.
5. The standards mentions the following formulas for determining the historical cost:
   (a) Specific identification of cost,
   (b) First in First out (FIFO) and
   (c) Weighted average cost

6. The cost of inventories of items that are not ordinarily interchangeable and goods or services produced and segregated for specific projects should be assigned by specific identification of their individual costs (para 14)
7. The cost of inventories, other than those dealt with in paragraph 14, should be assigned by using First in First out, or weight average cost formula.
8. Standard cost method or the retail method for the measurement of the cost of inventories, may be used for convenience if the results approximate the actual cost.
9. The historical cost of manufactured inventories may be arrived at on the basis of either direct costing or absorption costing where absorption costing has been used, the allocation of fixed assets of inventories should be based on the normal capacity of the production facilities.
10. When the costs of conversion of each product are not separately identifiable, they are allocated between the products on a rationa and consistent basis.
11. Inventory of by products should be valued at lower of cost and net realizable value where the by products, by their nature, are immaterial, they are measured at net realizable value and this value is deducted from the cost of main product.
12. The financial statements should disclose:
    (a) The accounting policies adopted in measuring inventories, including the cost formula used; and
    (b) The total carrying amount of inventories and its clarification appropriate to the enterprise.

FIFO METHOD

Illustration 1

The stock in hand of material as on 1st September was 500 units at Rs. 10 per unit. The following purchases and issues were subsequently made. Prepare the Stores Ledger Account showing how the value of the issues would be recorded under FIFO method.

Purchases

6th Sept. 100 units at Rs. 11
20th Sept. 700 units at Rs. 12
27th Sept. 400 units at Rs. 13
13th Oct. 1,000 units at Rs. 14
20th Oct. 500 units at Rs. 15
17th Nov. 400 units at Rs. 16

Issues

9th Sept. 500 units
22nd Sept. 500 units
30th Sept. 500 units
15th Oct. 500 units

22nd Oct. 500 units
11th Nov. 500 units

Solution:

STORES LEDGER (FIFO)

Name of Article:…….. Folio…………….
Code:……………….. Maximum Level………
Bin Card No……………… Minimum Level………..
Units……………. Reordering Level……….
Reordering Quantity….

Date	Particulars	Receipts			Issues			Balance		
		Qty.	Rate Rs.	Amount Rs.	Qty.	Rate Rs.	Amount Rs.	Qty	Rate Rs.	Amount Rs.
Sept. 1	Balance b/d	--	--	--	--	--	--	500	10	5,000
Sept.6	Goods Received Note No.	100	11	1,100	--	--	--	500 100	10 11	6,100
Sept. 9	Requisition Slip No.	--	--	--	500	10	5,000	100	11	1,100
Sept.20	Goods Received Note No.	700	12	8,400	--	--	--	100 700	11 12	9,500
Sept.22	Requisition Slip No.	--	--	--	100 400	11 12	5,900	300	12	3,600
Sept.27	Goods Received Note No.	400	13	5,200				300 400	12 13	8,800
Sept.30	Requisition Slip No.	--	--	--	300 200	12 13	6,200	200	13	2,600
Oct. 13	Goods Received	1,000	14	14,000				200 1,000	13 14	16,600

	Note No.									
Oct. 15	Requisition Slip No.				200 300	13 14	6,800	700	14	9,800
Oct. 20	Good Received Note No.	500	15	7,500	--	--	--	700 500	14 15	17,300
Oct. 22	Requisition Slip No.	--	--	--	500	14	7,000	200 500	14 15	10,300
Nov.11	Requisition Slip No.	--	--	--	200 300	14 15	7,300	200	15	3,000
Nov.17	Goods Received Note No.	400	16	6,400	--	--	--	200 400	15 16	9,400

Value of stock in hand Rs. 9,400 or 200 x Rs. 15+400 x Rs. 16 = Rs. 9,400.

LIFO METHOD

Illustration: 2

From the following particulars write up the priced states ladger under last-in-first+out.

Dec. 1 Stock in hand 500 units at Rs. 20
3 Issued 200 units
3 Purchased 150 units at Rs. 22
4 Issued 100 units
5 Purchased 200 units at Rs. 25
6 Issued 300 units
6 Returned to Store 10 units (Issued on 4th Dec.)
7 Issued 100 units
8 Issued 50 units
On 10th, it was noticed that there is a shortage of 10 units.

Solution:

STORES LEDGER ACCOUNT (LIFO)

Date	Particulars	Receipts			Issues			Balance		
		Qty.	Rate Rs.	Amount Rs.	Qty.	Rate Rs.	Amount Rs.	Qty	Rate Rs.	Amount Rs.

Dec. 1	Balance b/d	--	--	--	--	--	--	500	20	10,000
Dec.3	Requisition Slip No.	--	--	--	200	20	40,000	300	200	6,00
Dec. 3	Goods Received Note No.	150	22	3,300	--	--	--	300 150	20 22	9,300
Dec. 4	Requisition Slip No.	--	--	--	100	22	2,200	300 50	20 22	7,100
Dec. 5	Goods Received Note No.	200	25	5,000	--	--	--	300 50 200	20 22 25	12,100
Dec. 6	Requisition Slip No.	---	--	--	200 50 50	25 22 20	7,100	250	20	5,000
Dec. 6	Returned	10	22	220				250 10	20 22	5,220
Dec. 7	Requisition Slip No.	--	--	--	10 90	22 20	2,020	160	20	3,200
Dec. 8	Requisition Slip No.				50	20	1,000	110	20	2,200
Dec.10	Shortage	--	--	--	10	20	200	100	20	2,000

Value of stock: 100 units @ Rs. 20 = Rs. 2,000.

SIMPLE AVERAGE METHOD

Illustration: 3

The following particulars have been extracted in respect of material X. Prepare ledger account showing the receipts and issues, pricing the materials issued on the basis of Simple Average Method.

Receipts

3rd Oct. Purchased 500 units at Rs. 4.00 per unit

13th Oct. Purchased 900 units at Rs. 4.30 per unit

23rd Oct. Purchased 600 units at Rs. 3.80 per unit

Issues

5th Oct. issued 400 units

15th Oct. issued 400 units

25th Oct. issued 600 units

STORES LEDGER ACCOUNT (Simple Average Method)

Date	Particulars	Receipts			Issues			Balance		
		Qty.	Rate Rs.	Amount Rs.	Qty.	Rate Rs.	Amount Rs.	Qty	Rate Rs.	Amount Rs.
Oct.3	Goods Received Note No.	500	4	2,000	--	--	--	500	4	2,000
Oct. 5	Requisition Slip No.	--	--	--	400	4	1,600	100	--	400
Oct.13	Goods Received Note No.	900	4.30	3,870	--	--	--	1,000	--	4,270
Oct.15	Requisition Slip No.	--	--	--	600	4.15*	2,490	400	--	1,780
Oct.23	Goods Received Note no.	600	3.80	2,280	--	--	--	1,000	--	4,060
Oct.25	Requisition Slip No.	--	--	--	600	4.05[1]	2,430	400	--	1,630

Final Stock: 400 Materials: Rs. 1,630

* $\frac{\text{Rs. } 4 + \text{Rs. } 4.30}{2} = \text{Rs. } 4.15$

[1] $\frac{\text{Rs. } 4.30 + \text{Rs. } 3.80}{2} = \text{Rs. } 4.05$

Illustration: 8.4

By solving the illustration No. 8.3 under Weighted Average Method:

Solution:

STORE LEDGER ACCOUNT (Weighted Average Method)

Name of Article:…….. Folio……………

Code:………………..   Maximum Level………

Bin Card No………………   Minimum Level………..

Units…………….   Reordering Level……….

Reordering Quantity….

Date	Particulars	Receipts			Issues			Balance		
		Qty.	Rate Rs.	Amount Rs.	Qty.	Rate Rs.	Amount Rs.	Qty	Rate Rs.	Amount Rs.
Oct.3	Goods Received Note No.	500	4	2,000	--	--	--	500	4.00	2,000
Oct. 5	Requisition Slip No.	--	--	--	400	4.00	1,600	100	4.00	400
Oct.13	Goods Received Note No.	900	4.30	3,870	--	--	--	1,000	4.27	4,270
Oct.15	Requisition Slip No.	--	--	--	600	4.27	2,562	400	4.27	1,780
Oct.23	Goods Received Note no.	600	3.80	2,280	--	--	--	1,000	3.988	3,988
Oct.25	Requisition Slip No.	--	--	--	600	3.988	2,393	400	3.9875	1,595

Value of Stock: 400 units @ Rs. 3.9875 = Rs. 1,595

Workings

$$\text{Issue Price} = \frac{100 \text{ units x Rs. } 4 + 900 \text{ units x Rs. } 4.30}{100+900} = \frac{\text{Rs. } 4{,}270}{1{,}000} = \text{Rs.}4.27$$

$$\frac{400 \text{ units x Rs. } 4.27 + 600 \text{ units x Rs. } 3.80}{400+600} = \frac{\text{Rs. } 3988}{1{,}000} = \text{Rs. } 3.988$$

Check your progress

1. **Fill in the Blanks**

(a) Last in first out is suitable in times of ____________________

(b) Inflated price method of valuing material issue is suitable when_______

(c) First in first out method is suitable in times of ___________________

2. State True or False

(a) According to LIFO method, issues are close to current economic values.

(b) Weighted average cost method of valuing material issues involves adding all the different prices and dividing by the number of such prices.

(c) Base stock method of valuing material issues works with some other methods of valuing issues.

3. State the basic principle of Inventory valuation

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4. Give the names of methods of valuing material issues

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5. State the factors shared be considered in selecting a proper method of pricing.

Summary

The term inventory confirms its composition as raw-materials, stores, work-in-progress and finished goods. During the time of issue the price of issuing materials is made on the suitable basis. The methods of pricing is basically classified as actual price method, average price method, and other methods.

Further these items are subdivided into Twelve methods.

Key words

Inventory

Cost price

Market price

LIFO

FIFO

Weighted average

Review Questions

1. What factors should be taken into consideration in selecting a proper method of pricing?

2. Explain with examples the following methods of pricing issue of materials:

(a) FIFO (b) LIFO

3. What are the methods of pricing material issues? When do you advocate pricing the issues at the highest purchase price?
4. Explain the various circumstances under which the issue price of a stores material may be higher than the last purchase price
5. What are the advantages of using standard prices for issue of materials? What is the effect of the same from accounting angle and how is the same reconciled with financial accounts?
6. What do you understand by Inventory Control? State its objects.
7. Between FIFO and LIFO methods of pricing the issue of materials, which one do you think is better and why?
8. Write an essay on the internal procedure for the receipt and issue of materials.
9. From the following transactions, prepare stores ledger account (using the FIFO method):

April	1	Opening balance 100 units at Rs. 5 each
	2	Received 500 units at Rs. 6 each
	20	Issued 300 units
May	5	Issued 200 units
	6	Received 500 units at Rs. 5 each
June	10	Issued 300 units
	12	Issued 250 units.

(Ans: Value of stock: 50 units @ Rs. 5 = Rs. 250)

10. The following is the record of receipts and issues of a certain material in the factory during a week:

Jan.	1	Opening Balance 50 tonnes @ Rs. 10 per tonne
	1	Issued…30 tonnes
	2	Received… 60 tonnes @Rs. 10.20 per tonne
	3	Issued … 25 tonnes
	3	Stock verification reveals a loss of 1 tonne
	4	Received back from work orders… 10 tonnes (Previously issued at Rs. 9.15 per tonne)
	5	Issued… 40 tonnes
	6	Received… 22 tonnes @ Rs. 10.30 per tonne
	7	Issued … 38 tonnes

At what prices will you issue the materials? Use two important methods for this purpose and show and comparative results.

(Ans: Value of Stocks: 8 tonnes @ Rs. 10.30 = Rs. 82.40 (FIFO)
8 Tonnes @ Rs. 10.00 = Rs. 80.00 (LIFO)

11. The following is the record of receipts and issues of a certain materials in a factory during the first week of April

April 1 Opening balance 100 tonnes @ Rs. 10 per tonne issued 60 tonnes
2 Received 120 tonnes @ Rs. 10.10 per tonne
3 Issued 50 tonnes
4 Received back from work order 20 tonnes (originally issued at Rs. 9.90 per tonne)
5 Issued 80 tonnes
6 Received 44 tonnes @ Rs. 10.20 per tonne
7 Issued 66 tonnes

Prepare the Stores Ledger under (a) the FIFO, and (b) the LIFO methods of pricing issued.

(Ans: Value of stock: 28 Units @ Rs. 10.20 = Rs. 285.60 (FIFO)
28 Units @ Rs. 10.00 = Rs. 280.00 (LIFO)

12. From the following particulars, prepare Stores Ledger Account showing the pricing of material issue under (a) Simple Average, and (b) Weighted Average:

Jan 1 Opening stock 500 units at Rs. 2 each
3 Purchased 400 units at Rs. 2.10 each
5 Issued 600 units, vide M.R. No.15
7 Purchased 800 units at Rs. 2.40 each
9 Issued 501 units, vide M.R. No. 22
12 Returned from issue on 5th, 12 units
17 Purchased 400 units at Rs. 2.50 each
25 Issued 600 units, vide M.R. No. 30

(Ans: Value of stocks (a) 422 units, Rs. 1,058 Retures @ Rs. 2.05
(b) 422 @ Rs. 2.38 = Rs. 1,004.36)

Answers to check your progress

1.a) Rising Prices
b) Materials are subject to nature wastage
c) Falling prices
2. a) True (b) False (c) True

Suggested Readings

1. B.K. Chattergee, **Costing and Managerial Accounting for Managers**,

Jaico Publishers, New Delhi.
2. S.P. Iyengar, **Costing and Management Accounting** Chand & Sons, New Delhi.
3. B.S. Khanna, I.M. Pandey, **Practical Costing,** S. Chand & Co, New Delhi.
4. P.V. Rathnam – **Rathnam's Costing,** Kitab Mahal, Allahabad.

CHAPTER 4
MARGINAL COSTING

Learning Objectives:

After studying this unit, you should able to

- Define marginal cost and marginal costing.
- Describe how marginal costing differs from absorption costing.
- Discuss the relationship between selling price, variable costs and the contribution
- Calculate the contribution and profit volume ratio and use them to calculate Break even point
    - Draw the Break even chart
    - Apply cost-volume-profit analysis to solve problems involving decision making.

Structure:

4.1 Introduction
4.2 Marginal cost and marginal costing.
4.3 Characteristics of marginal costing
4.4 Advantages and limitations of marginal costing
4.5 Absorption costing Vs Marginal costing.
4.6 Cost volume profit Analysis.
    4.6.1 Marginal cost Equations
    4.6.2 Contribution
    4.6.3 Profit volume Ratio
    4.6.4 Break even analysis and break even point.
    4.6.5 Margin of safety
    4.6.6 Angle of Incidence
    4.6.7 Break even charts
    4.6.8 Significance of Break Even Chart
    4.6.9 Assumptions of Break Even Chart
    4.6.10 Contribution of break even chart
    4.6.11 Advantages of break even analysis and chart.
    4.6.12 Limitations of Break Even Chart
4.7 Illustrations.
4.8 Application of marginal costing Techniques
4.9 Illustrations – Decision making problems.

4.10 Summary
4.11 Key terms
4.12 Review questions
4.13 Answers to check your progress
4.14 Suggested Readings.

4.1 Introduction:

Two general approaches are used for costing products for the purpose of valuing inventories and cost of goods sold. One approach is called absorption costing. Absorption costing is generally used for external financial reports. The other approach called variable costing, is preferred by some companies for internal decision making and must be used when an income statement is prepared in the contribution format. Ordinarily, absorption costing and variable costing produce different figures for net income and the difference can be quite large. Under variable costing, only those cost of production that vary with output and treated as product cost. This would generally include direct material, direct labour and the variable portion of manufacturing overhead. Fixed manufacturing overhead is treated as cost of the period and charged to the period. Variable costing is sometimes referred to as direct costing, marginal costing, differential costing, incremental costing and comparative costing. The break even profit analysis examines the behaviour of total revenues, total costs and operating income as changes occur in the output level, the selling price, the variable cost per unit and/or the fixed costs of a product. Mangers use cost volume analysis to help answer questions such as. How will total revenues and total costs be affected if the output level changes. In this way marginal costing and break even analysis guides manager's planning.

4.2 Marginal Cost and Marginal Costing

The Institute of Cost and Management Accountants, London, has defined 'marginal cost' as "the amount at any given volume of output by which aggregate costs are changed a if the volume of output is increased or decreased by one unit". In this context, a unit may be a single unit, a batch of articles, an order, a stage of production capacity, a process or a department. Suppose the cost of production of 1,000 units is Rs. 6,000 and that of 1,001 units is Rs. 6,004, the marginal cost is Rs. 4. Marginal cost is the variable cost comprising the cost of direct materials consumed, direct wages paid and the variable overhead incurred for producing the additional unit.

The ICMA, England has defined marginal cost as "the cost for producing one additional unit of product". It has also been defined as, "the amount charges in the aggregate cost due to changes in the existing level production by one unit". An alalysis of these definitions reveals that the marginal cost is the cost producing an additional unit. That means, marginal cost refer to the extra costs for the production of an additional unit.

Marginal Costing:

The institute of Cost and Works Accountants of India (ICWAI) defines marginal costing as, "A method considers only the variable cost as cost of production, leaving out period costs to be absorbed from the marginal contribution." Batty defines marginal costing as, "a technique of cost accounting which pays special attention to the behaviour of costs with charges in the volume of output". When compared to the definition by the ICWAI, the definition by the chartered institute of Management Acountants (CIMA), England appears to be more comprehensive. Because, the ICWA, England defines marginal cost and effect of changes in volume or type of output on the company's profit, by segregating total costs into variable and fixed costs.

4.3 Characteristics of Marginal Costing:

1. Marginal costing is a technique or working of costing, which is used in conjunction with other methods of costing (process or job).
2. Fixed and variable costs are kept separate at every stage. Semi variable costs are also separated into fixed and variable.
3. As fixed costs are period costs, they are excluded from product cost or cost of production or cost of sales. Only variable costs are considered as the cost of the product.
4. When evaluation of finished goods and work-in-progress are taken into account, they will be only variable costs.
5. As fixed costs are period costs, they re charged to profit and loss account during the period in which they are incurred. They are not carried forward to the next year's income.
6. Marginal income or marginal contribution is known as the income or the profit.
7. The difference between the contributions is known as the income or the profit.
8. Fixed costs remain constant irrespective of level of activity.
9. Sales price and variable cost per unit remain the same.
10. Cost-volume-profit relationship is fully employed to reveal the state of profitability at various levels of activity.

4.4 Advantages of Marginal costing:

1. Constant in nature: Variable costs fluctuate from time to time, but in the long run, marginal costs are stable. Marginal costs remain the same, irrespective of the volume of production.

2. Effective cost control: It divides cost into fixed and variable. Fixed cost is excluded from product. As such, management can control marginal cost effectively.

3. Treatment of overheads simplified: It reduces the degree of over or under-recovery of overheads due to the separation of fixed overheads from production cost.

4. Uniform and realistic valuation: As the fixed overhead costs are excluded from product cost, the valuation of work-in-progress and finished goods becomes more realistic.

5. Helpful to management: It enables the management to start a new line of production which is advantageous. It is helpful in determining which is profitable – whether to buy or manufacture a product. The management can take decision regarding pricing and tendering.

6. Helps in production planning: It shows the amount of profit at every level of output with the help of cost volume profit relationship. Here the break-even chart is made use of.

7. Better result: When used with standard costing, it gives better results.

8. Fixation of selling price: The differentiation between fixed costs and variable costs is very helpful in determining the selling price of the products or services. Sometimes, different prices are charged for the same article in different markets to meet varying degrees of competition.

9. Helpful in budgetary control: The classification of expenses is very helpful in budgeting and flexible budget for various levels of activities.

10. Preparing tenders: Many business enterprises have to compete in the market in quoting the lowest price. Total variable cost, when separately calculated, becomes the 'floor price'. Any price above this floor price may be quoted to increase the total contribution.

11. "Make or Buy" decision: Sometimes a decision has to made whether to manufacture a component or a product or to buy it readymade from the market. The decision to purchase it would be have taken if the price paid recovers some of the fixed expenses.

12. Better presentation: The statements and graphs prepared under marginal costing are better understood by management executives. The break-even analysis presents the behaviour of cost, sales, contribution etc. in terms of charts and graphs. And, thus the results can easily be grasped.

Limitations of Marginal Costing:

1. Difficulty to analyse overhead: Separation of costs into fixed and variable is a difficult problem. In marginal costing, semi-variable or semi-fixed costs are not considered.

2. Time element ignored: Fixed costs and variable costs are different in the short run; but in the long run, all costs are variable. In the long run all costs change at varying levels of operation. When new plants and equipments are introduced, fixed costs and variable costs will vary.

3. Unrealistic assumption: Assumption of sale price will remain the same at different levels of operation. In real life, they may change and give unrealistic results.

4. Difficulty in the fixation of price: Under marginal costing, selling price is fixed on the basis of contribution. In case of cost plus contract, it in very difficult to fixprice.

5. Complete information not given: It does not explain the reason for increase in production or sales.

6. Significance lost: In capital – intensive industries, fixed caost occupy major portions in the total cost. But marginal costs cover only variable costs. As such, it loses its significance in capital industries.

7. Problem of variable overheads: Marginal costing overcomes the problem of over and under-absorption of fixed overheads. Yet there is the problem in the case of variable overheads.

8. Sales-oriented: Successful business has to go in a balanced way in respect of selling production functions. But marginal costing is criticized on account of its attaching over-importance to selling function. Thus it is said to be sales-oriented. Production function is given less importance.

9. Unreliable stock valuation: Under marginal costing stock of work-in-progress and finished stock is valued at variable cost only. No portion of fixed cost is added to the value of stocks. Profit determined, under this method, is depressed.

10. Claim for loss of stock: Insurance claim for loss or damage of stock on the basis of such a valuation will be unfavorable to business.

11. Automation: Now-a-days increasing automation is leading to increase in fixed costs. If such increasing fixed costs are ignored, the costing system cannot be effective and dependable.

Marginal costing, if applied alone, will not be much in use, unless it is combined with other techniques like standard costing and budgetary control.

4.5. Absorption costing and marginal costing:

Absorption costing is the practice of charging all costs, both fixed and variable to operations, process or products. In marginal costing, only variable costs are charged to production.

The Institute of Cost and Management Accountants (U.K.) defineds it as, "the practice of charging all costs, both variable and fixed to operations, processes or products". This explains why this technique is also called full costing. Administrative, selling and distribution overheads as much form part of total cost as prime cost and factory burden.

Distinction between absorption costing and marginal costing

Points of Distinction	Absorption Costing	Marginal Costing
1. Charging of costs	Fixed costs form part of total costs of production and distribution.	Variable costs alone form part of cost of production, and sales whereas fixed costs are charged against contribution for determination of profit.

2. Valuation of stocks	Stocks and work-in-progress are valued at both fixed and variable costs i.e., total cost.	Stocks are valued at variable cost only.
3. Variation in profits	When there is no sales the entire stock is carried forward and there is no trading profit or loss.	If there is no sales, the fixed overhead will be treated as loss in the absence of contribution. It is not carried forward as part of stock value.
4. Purpose	Absorption costing is more suitable for long-term decision making and for pricing policy over long-term.	Marginal costing is more useful for short-term managerial decision making.
5. Emphasis	Absorption costing lays emphasis on production.	Marginal costing emphasizes selling and pricing aspects.

4.6 COST-VOLUME-PROFIT ANALYSIS

Cost-volume-profit analysis is the analysis of three variables viz., cost, volume and profit. This analysis measures variations of costs and volumes and their impact on profit. Profit is affected by several internal and external factors which influence sales revenue and costs.

Cost-volume-profit analysis helps the management in profit planning. Profit of a concern can be increased by increasing the output and sales or reducing cost. If a concern produces to the maximum capacity and sell, contribution is also increased to the maximum level.

Heiser puts it is the following words: "The most significant single factor in planning of the average business is the relationship between the volume of business, its costs and profit".

Thus, cost volume and profit analysis is an attempt to measure the effect of changes in volume, cost, price and product mix on profits. With the increase in volume unit cost of production decreases and vice versa, because the fixed costs are constant. With the decrease in fixed cost per unit profit will be more. Cost-volume-profit analysis is made with the objective of ascertaining the following:

(1) The cost for various levels of production.

(2) The desirable volume of production

(3) The profit at various levels of production.

(4) The difference between sales revenue and variable cost.

To know the cost volume profit relationship, a study of the following is essential.

1. Marginal cost formulae,
2. Contribution,

3. Profit volume ratio,
4. Break-even analysis
5. Margin of safety
6. Angle of Incidence

4.6.1 Marginal Cost Equations

Sales = Variable Cost + Fixed Cost ± Profit or loss

Sales – Variable Cost = Fixed Cost ± Profit or loss

Sales – Variable Cost = Contribution

Contribution = Fixed Cost + Profit

From the above equation, we can understand that in order to earn profit, the contribution must be more than the fixed cost. To avoid any loss, the contribution must be equal to fixed cost.

4.6.2 Contribution

Contribution is the difference between sales and marginal cost. It is the contribution towards fixed cost and profit. In marginal costing technique contribution is a very important concept as it is used to find the profitability of products, processes, departments and divisions. Practically all decisions are based on and oriented towards contribution.

Contribution is different from the profit which is the net margin remaining after reducing fixed expenses from the total contribution. Contribution can be ascertained as given below:

Contribution = Selling price – Marginal cost

Contribution = Fixed cost + Profit

Contribution – Fixed Cost = Profit.

4.6.3 Contribution to Sales $\left(\frac{C}{S}\right)$ (or) P/V (Profit Volume) Ratio

This is the ratio of contribution to sales. It is an important ratio analysis the relationship between sales and contribution. A high P/V ratio indicates high profitability and low P/V ratio indicates low profitability. This ratio helps in comparison of profitability of various products. Since high P/V ratio indicates high profits, the objective of every organization should be to improve or increase the P/V ratio.

P/V Ratio can be improved by:

(1) Decreasing the variable cost by efficiently utilizing material, machines and men.

(2) Selecting most profitable product mix for production and sales.

(3) Increasing the selling price per unit.

Formula for P/V Ratio

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

(or) (or)

$$= \frac{Sales - Variable\cos ts}{Sales} \qquad = \frac{S-V}{S}$$

(or) (or)

$$= \frac{Fixed\cos ts + \Pr ofit}{Sales} \qquad = \frac{F+P}{S}$$

When two periods' profits and sales are given, the P/V ratio is calculated as given below:

$$\text{P/V Ratio} = \frac{\text{Change in profit}}{\text{Change in Sales}}$$

P/V Ratio is generally expressed as a percentage.

4.6.4 Break even Analysis and Break even Point

Break even analysis is a method of studying relationship between revenue and costs in relation to sales volume of a business enterprise and determination of volume of sales at which total costs are equal to revenue. According to Matz Curry and Frank "a break-even analysis determines at what level cost and revenue are in equilibrium". Thus, break even analysis refers to a system of determination of that level of activity where total sales are just equal to total costs. This level of activity is generally termed as break-even point (B.E.P). At the break even point a business man neither earns any profit nor incurs any loss. Break even point is also called "No profit, no loss point" or "Zero profit & zero loss point".

In the words. J. Wayne Keller "The Break-even point of a company or a unit of a company is the level of sales income which will equal the sum of its direct costs (variable costs) and its period expenses (fixed expenses)".

Formula for calculating break even point

$$\text{Break even point (in units)} = \frac{\text{Fixed expenses}}{\text{Selling price per unit – Marginal cost per unit}}$$

(or)

$$\frac{\text{Fixed cost}}{\text{Contribution per unit}}$$

(or)

$$\frac{\text{Break even sales value}}{\text{Selling price per unit}}$$

Break even point (in rupees)

(or)

Break even sales value

Break even sales value = Break even point in units x Selling price per unit

$$\text{(or)} \quad \frac{\text{Fixed Cost}}{\text{P/V Ratio}} = \frac{F}{P/V}$$

4.6.5 Margin of Safety

Break even analysis includes the concept of margin of safety. Margin of safety is the difference between actual sales and break even sales. Margin of safety is calculated in rupees, units or even in percentage form. Margin of safety indicates the value/volume of sales which directly contribute of profit, as fixed costs have already been recovered at break even point. Margin of safety is calculated by the following formula:

Margin of Safety = Actual sales – Break even sales

$$\text{(or)} \quad = \frac{Profit}{P/V Ratio} = \frac{P}{P/V}$$

`Margin of safety ratio: Sometimes margin of safety is expressed as a ratio. It is the ratio of margin of safety to actual sales.

$$\text{Margin of Safety ratio} = \frac{\text{Margin of safety}}{\text{Actual sales}} \times 100$$

4.6.6 Angle of Incidence

In graphic presentation of marginal cost data, i.e., a break-even chart, the total cost line and sales line cross each other. The point of their crossing is termed ‘Break-even point’. The angle at which the sales line crosses the total cost line is called the ‘Angle of incidence’.

The bigger is the angle, the more will be the contribution and profit with every additional sale. Firms with higher P/V ratio and comparatively less variable costs have a higher angle of incidence. Such firms can magnify their profits in high demand conditions.

The angle of incidence at a glance can signify or reveal the ability of a firm to earn higher profits with every increase in sales.

4.6.7 Break-even Chart

The technique of break-even analysis can be made with the help of graph. Graphical representation of break-even point (or cost colume-profit) is known as the break-even chart. Dr. Vance is of the opinion that “it is a graph showing the amounts of fixed variable costs and the sales revenue at different volumes of operation. It shows at what volume the firm first covers all costs with revenue of break-even.” B.E.C. shows the profitability or otherwise of an undertaking at various levels of activity, and indicates the point at which neither profit nor loss is made. Break-even point is known as “no profit, no loss point”. So the chart is also known as break-even chart. At this point, the total costs are recovered and profit begins.

4.6.8 Significance of Break-even Chart:

1. It will show the variable costs, fixed costs and total costs.
2. Sales unit or value can be known.
3. Profit or loss can be known.
4. Margin of safety can be known.
5. Angle of incidence or the intersection of sales line with costs line can also be known.

Thus, it is very useful for managerial decision.

4.6.9 Assumptions of Break-even Chart

1. Fixed costs remain the same and do not change with level of activity.
2. Costs are divided into fixed and variable costs. Variable costs change according to the volume of production.
3. Variable cost vary with the volume of output but price of variable costs such as wage rate, price of materials, supplies, will be unchanged.
4. Selling price remains the same at different levels of activity.
5. There is no change in the product mix.
6. There is no change in the level of efficiency.
7. Policies of management do not change.
8. No change in the manufacturing process is due to non-static operating efficiency.
9. As the number of units produced and sold are the same, there is no closing or opening stock.

4.6.10 Construction of Break-even Chart

1. On the graph the 'X' axis (horizontal axis) shows the volume of production and the 'Y' axis (Vertical axis) shows the cost and sales. A graph has two sides which are known as 'axes'. The horizontal side at the bottom of the graph is the X-axis. The left hand vertical side is the Y-axis. On the Y-axis, costs and revenues are exhibited. On the X-axis one or more of production quantity, capacity, in percentage form, sales volume etc. are shown.
2. Draw both axes on the suitable graph paper on the basis of appropriate scale.
3. Insert production quantity on X-axis and costs and sales revenues on Y-axis.
4. Draw the fixed cost line on the graph. Even at zero production, the fixed costs remain the same. At zero production, the fixed costs will be the loss.

5. The total cost line is drawn above the fixed cost line. For this purpose, the variable cost is added to the fixed cost to arrive at the total cost and drawn at each and every scale of production.
6. Sales revenue line is drawn commencing at zero and finishing at the last point.
7. Then the sales line cuts the total cost line i.e. sales equals the total cost. This is known as Break-Even Point. If dotted line is drawn from BEP to X-axis, it indicates BEP (Units) and if it is drawn towards Y-axis, it indicates BEP (Value).
8. The difference between the sales line and total cost line is marked as profit and it is to the right of BEP. The angle at which sales line cuts the total cost line is the angle of incidence.
9. The position to the left of the BEP on the graph indicates the loss which goes upto the total amount of fixed costs which is the maximum loss at the zero production.
10. Then the graph will indicate the BEP, profit or loss at different level of output, margin of safety, contribution and the relationship between the marginal cost, fixed cost and total cost.

4.6.11 Advantages of Break-Even Analysis and Chart

1. Total cost, variable cost and fixed cost can be determined.
2. B.E. output or sales value can be determined.
3. Cost, volume and profit relationship can be studied, and they are very useful to the managerial decision – making.
4. Inter-firm comparison is possible.
5. It is useful for forecasting plans and profits.
6. The best products mix can be selected.
7. Total profits can be calculated.
8. Profitability of different levels of activity, various products or profit, i.e., plans can be known.
9. It is helpful for cost control.

4.6.12 Limitations of Break Even Chart

B.E.C. is constructed under some unrealistic assumptions:

1. Exact and accurate classification of cost into fixed and variable is not possible. Fixed costs vary beyond a certain level or output.

   Variable cost per unit is constant and it varies in proportion to the volume.

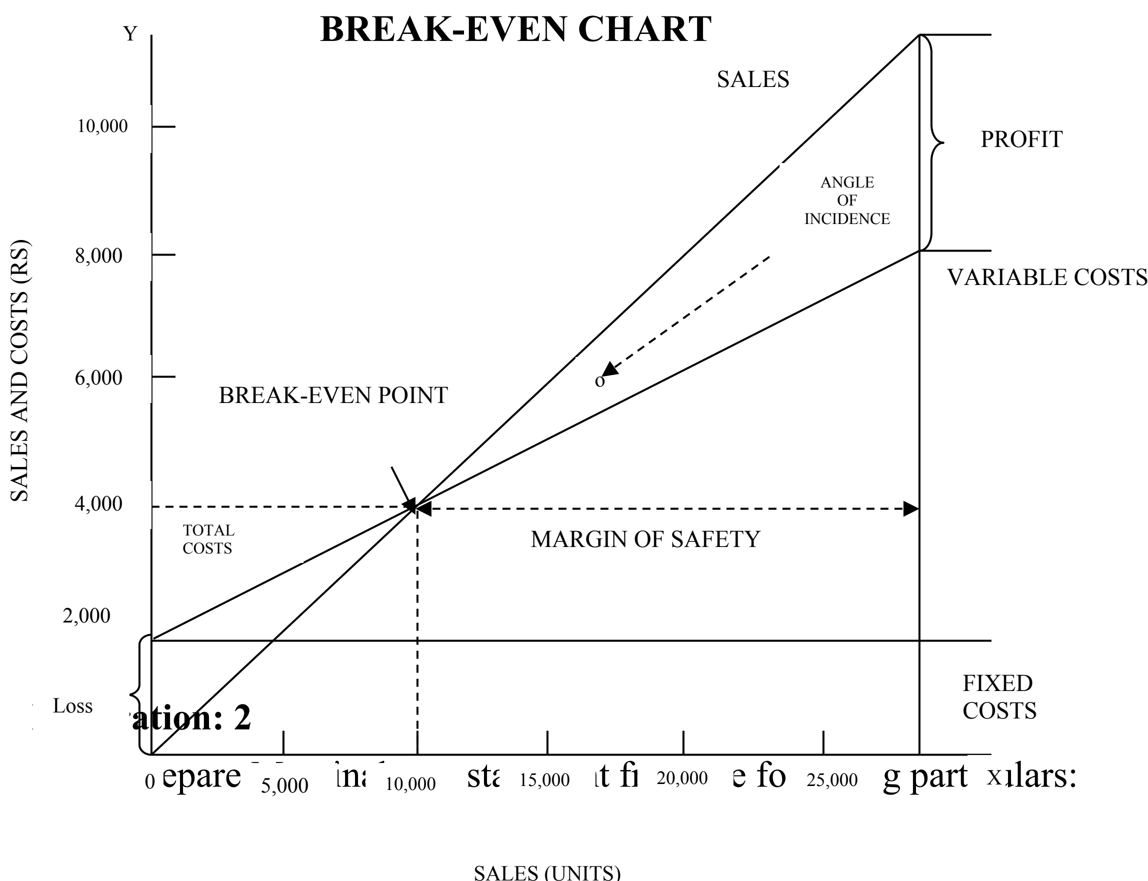
2. Constant selling price is not true.
3. Detailed information cannot be known from the chart. To know all the information about Fixed cost, Variable cost and Selling price, a number of charts must be drawn.

4. No importance is given to opening and closing stocks.
5. Various product mix on profits cannot be studied as the study is concerned with only one sales mix or product mix.
6. Cost, volume and profit relation can be known; capital amount, market aspects, effect of government policy etc., which are important for decision-making cannot be considered from B.E.C.
7. If the business conditions change during a period, the B.E.C becomes out of date as it assumes no change in business condition.

Illustration: 1

From the following data, construct a Break Even Chart.

1 Sales Units	2 Fixed Cost Rs.	3 Variable Cost (Re. 0.20 p.u.) Rs.	4 Total Cost Rs.	5 Sales value (Re. 0.40 p.u.) Rs.
5, 000	2,000	1,000	3,000	2,000
10,000	2,000	2,000	4,000	4,000
15,000	2,000	3,000	5,000	6,000
20,000	2,000	4,000	6,000	8,000
25,000	2,000	5,000	7,000	10,000



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	Rs.
Variable Cost:	
Direct Material	45,000
Direct Wages	25,000
Factory Overheads	15,000
	85,000
Fixed Cost:	
Administrative expenses	12,500
Total Cost	97,500
Profit	52,500
Sales	1,50,000

Solution:

Marginal Cost Statement

		Rs.	Rs.
	Sales		1,50,000
Less:	Variable Costs:		
	Direct Materials	45,000	
	Direct Wages	25,000	
	Factory Overheads	15,000	
			85,000
	Contribution		65,000
Less:	Fixed Cost:		
	Administrative expenses		12,500
	Profit		52,500

Illustration: 3

Calculate Break-Even Point from the following particulars.

	Rs.
Fixed Cost	1,50,000
Variable cost per unit	10

Selling price per unit 15

Solution:

Calculation of Break-even point:

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

Contribution per unit = Selling price p.u. – Variable cost p.u.

Rs. 15 - Rs. 10= Rs. 5

$$\text{B.E.P (in units)} = \frac{\text{Rs. } 1,50,000}{5} = 30,000 \text{ units}$$

B.E.P (in rupees) = B.E.P. in units x Selling price per unit

= 30,000 x Rs. 15

= Rs. 4,50,000

Illustration: 4

Calculate Break-Even Point:

	Rs.
Sales	6,00,000
Fixed Cost	1,50,000
Variable costs:	
Direct Material	2,00,000
Direct Labour	1,20,000
Other Variable expenses	80,000

Solution:

$$\text{B.E.P. (in Rs)} = \frac{\text{Fixed Cost}}{\text{Contribution}} \times \text{Sales}$$

Contribution = Sales – Variable cost

= Rs. 6,00,000 – Rs. 4,00,000 = Rs. 2,00,000

$$= \frac{1,50,000}{} \times 6,00,000 = \text{Rs. } 4,50,000$$

2,00,000

Note: When per unit cost and selling price are not given, B.E.P. can be calculated only in terms of Rupees.

Illustration:5

The following information are given for two companies.

	A Ltd	B Ltd
Sales	Rs. 1,70,000	Rs. 1,70,000
Fixed Costs	85,000	34,000
Variable cost	34,000	85,000

Find out the Break-Even Point each company

	A Ltd	B Ltd
	Rs.	Rs.
Sales	1,70,000	1,70,000
Less: Variable cost	34,000	85,000
Contribution	1,36,000	85,000

B.E.P. (in Rs). $= \dfrac{\text{Fixed Cost}}{\text{Contribution}} \text{ x Sales}$

X Ltd $= \dfrac{85,000}{1,36,000} x 1,70,000$ = Rs. 1,06,250

Y Ltd $= \dfrac{34,000}{85,000} x 1,70,000$ = Rs. 68,000

Illustration: 6

From the following information relating to X Ltd., you are required to find out (a) P.V. ratio (b) Break-even point (c) Profit (d) Margin of safety (e) the Volume of sales to earn profit of Rs. 60,000

Total Fixed Costs	Rs. 45,000
Total Variable cost	75,000
Total Sales	1,50,000

Solution:

a) Profit volume ratio $= \dfrac{Contribution}{Sales} x 100$

$$= \frac{75,000}{1,50,000} x100 = 50\%$$

b) Break even point (in Rs.) $= \frac{Fixed\ expenses}{P.V.ratio}$

$$= \frac{45,000}{50} x100 = Rs.90,000$$

c) Profit = Sales – Total cost

= Rs. 1,50,000 – Rs. 1,20,000 = Rs. 30,000

(or) = Contribution – Fixed expenses

= Rs. 75,000 – Rs. 45,000 = Rs. 30,000

d) Margin of safety = Present sales – Break even sales

= Rs. 1,50,000 – Rs. 90,000 = Rs. 60,000

(or) $= \frac{Profit}{P.V.ratio} = \frac{30,000}{50} x100 = 60,000$

e) Sales required to earn a profit of Rs. 60,000

$$= \frac{\text{Fixed expenses + Desired profit}}{\text{P.V. Ratio}}$$

$$= \frac{45,000 + 60,000}{50} x100 = Rs.2,10,000$$

Illustration: 7

Ahamed Ltd. has prepared the following budget estimates for the year 2008-2009

Sales (units)		15,000
Fixed Expenses	Rs.	34,000
Sales	Rs.	1,50,000
Variable costs		Rs. 6 per unit

You are required to:

(i) Find the P/V ratio, break-even point and margin of safety.

(ii) Calculate the revised P/V ratio, break-even point and margin of safety in each of the following cases:

(a) Decrease of 10% in selling price:

(b) Increase of 10% in variable costs:

(c) Increase of sales volume by 2,000 units:

(d) Increase of Rs. 6,000 in fixed costs.

Solution:

(1) At the existing level:

P.V. ratio = $\frac{Contribution}{Sales} x100$

Sales Value = Rs. 1,50,000

Sales Units = 15,000

/ Selling price per unit = $\frac{1,50,000}{15,000} = Rs.10$

Contribution = Rs. 10 – Rs. 6 = Rs.4

P.V. ratio = $\frac{4}{10} x100 = 40\%$

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

= $\frac{34,000}{4} = 8,500$ units

B.E.P (in Rs.) = B.E.P.in units X Selling price per unit

8,500 X Rs. 10 = Rs. 85,000

Margin of safety = Present Sales – B.E.P. Sales

= Rs. 1,50,000 – Rs. 85,000 = Rs. 65,000

II. (a) Decrease of 10% in selling price:

Selling price per unit	Rs. 10
Less: 10% Reduction	1
Revised selling price per unit	9

Contribution = Rs. 9- Rs. 6 = Rs. 3

P.V. Ratio = $\frac{3}{9} x100 = 33\frac{1}{3}\%$

B.E.P.(in units) = $\frac{34,000}{3} = 11,333$ units

B.E.P. (in Rs.) = 11,333 x 9 = Rs. 1,01,997

Margin of safety = (15,000 x 9) – 1,01,997

= Rs. 1,35,000 – Rs. 1,01,997 = Rs. 33,003

(b) Increase of 10% in variable costs:

Variable cost per unit = Rs. 6.00

Add: 10% increase = Rs. 0.60

Revised variable cost = Rs. 6.60

Contribution = Rs. 10 – Rs. 6.60 = Rs. 3.40

P.V. Ratio = $\frac{3.40}{10} x100 = 34\%$

B.E.P. (in units) = $\frac{34,000}{3.40} = 10,000$ units

B.E.P. (in Rs.) = 10,000 x 10 = Rs. 1,00,000

Margin of safety = Rs. 1,50,000 – Rs. 1,00,000 = Rs. 50,000

(c) Increase of sales volume by 2,000 units:

Sales	15,000 units
Add: Increase	2,000 units
Revised sales	17,000 units

P.V. ratio = $\frac{4}{10} x100 = 40\%$

B.E.P. (in units) = $\frac{34,000}{4} = 8,500$ units

B.E.P (in Rs.) = 8,500 x 10 = Rs. 85,000

Margin of safety = (17,000 x 10) – Rs. 85,000

= Rs. 1,70,000 – Rs. 85,000 = Rs. 85,000

(d) Increase of Rs. 6,000 in fixed costs:

P.V. ratio = $\frac{4}{10} x100 = 40\%$

Fixed costs	= Rs. 34,000
Add: increase	= Rs. 6,000
Revised Fixed costs	= Rs. 40,000

B.E.P. (in units) = $\frac{40,000}{4} = 10,000$ units

B.E.P. (in Rs.) = 10,000 x 10 = Rs. 1,00,000

Margin of safety = Rs. 1,50,000 – Rs. 1,00,000 = Rs. 50,000

Illustration: 8

The P.V. ratio of Ram Ltd is 50% and the margin of safety is 40%.

You are required to work out the B.E.P. and the net profit if sales volume is Rs. 50,00,000

Solution:

(i) Contribution:

P.V. ratio $= \frac{Contribution}{Sales} x100$

$50\% = \frac{Contribution}{50,00,000}$

/Contribution $= 50,00,000 \times \frac{50}{100} = Rs. 25,00,000$

(ii) Break-even Sales:

		Rs.
Sales	=	50,00,000
Less: Margin of safety 40% on sales	=	20,00,000
Sales at B.E.P.	=	30,00,000

(iii) Fixed cost:

$$\text{B.E.P. (in Rupees)} = \frac{\text{Fixed expenses}}{\text{P.V. ratio}}$$

$$30,00,000 = \frac{\text{Fixed expenses}}{50\%}$$

/ Fixed expenses = 30,00,000 x 50% = Rs. 15,00,000

(iv) Profit:

Contribution	= Rs. 25,00,000
Less: Fixed expenses	= Rs. 15,00,000
Profit	= Rs. 10,00,000

Illustration: 9

The sales turnover and profit during two years were as follows:

Year	Sales Rs.	Profit Rs.
2006	1,40,000	15,000
2007	1,60,000	20,000

Calculate:

(a) P/V ratio

(b) Brea-even point

(c) Sales required to earn a profit of Rs. 40,000

(d) Fixed expenses and

(e) Profit when sales are Rs. 1,20,000

Solution:

When sales and profit or sales and cost of two periods are given, the P/V Ratio is obtained by using the 'Change formula'.

Fixed cost can be found by ascertaining the contribution of one of the periods given by multiplying sales with P/V ratio. Then, contribution – Profit can reveal the fixed cost.

Ascertaining P/V ratio using the change formula and finding fixed cost are the essential requirements in these types of problems.

(a) P/V Ratio $= \dfrac{\text{Change in profit}}{\text{Change in sales}} \times 100$

Change in profit = 20,000 – 15,000 = Rs. 5,000

Change in sales = 1,60,000 – 1,40,000 = Rs. 20,000

/ P/V Ratio $= \dfrac{5{,}000}{20{,}000} x100 = 25\%$

(b) Break even point $= \dfrac{\text{Fixed expenses}}{\text{P/V Ratio}}$

Fixed expenses = Contribution – Profit

Contribution = Sales x P/V Ratio

Using 1991 sales, contribution $= 1{,}40{,}000 x \dfrac{25}{100} = Rs.35{,}000$

Fixed expenses = 35,000 – 15,000 = Rs. 20,000

Note: The same fixed cost can be obtained using 1992 sales also.

Break even point $= \dfrac{20{,}000}{25\%} = Rs.80{,}000$

(c) Sales required to earn profit of Rs. 40,000

Required sales $= \dfrac{\text{Required profit + Fixed cost}}{\text{P/V Ratio}}$

$= \dfrac{40{,}000 + 20{,}000}{25\%} = Rs.2{,}40{,}000$

(d) Fixed expenses = Rs. 20,000 (as already calculated)

(e) Profit when sales are Rs. 1,20,000

Contribution = Sales x P/V Ratio

$= 1{,}20{,}000 x \dfrac{25}{100} = Rs.30{,}000$

Profit = Contribution – Fixed cost

= 30,000 – 20,000

= Rs. 10,000

Illustration: 10

Y Ltd furnished you the following related to the year 2006.

	First half of the year Rs.	Second half of the year Rs.
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 2 half year periods, calculate for the year 2006.

(a) The profit volume ratio

(b) Fixed expenses

(c) Break even sales and

(d) % of margin of safety.

Solution:

	First half Rs.	Second half Rs.	Change in sales and profit
Sales	45,000	50,000	5,000
Less cost	40,000	43,000	3,000
Profit	5,000	7,000	2,000

(a) P/V Ratio $= \dfrac{\text{Change in profit}}{\text{Change in sales}} \times 100$

$= \dfrac{2{,}000}{5{,}000} x100 = 40\%$

Contribution During the first half = Sales x P/V Ratio

= Rs. 45,000 x 40%

= Rs. 18,000

(b) Fixed cost = Contribution – Profit

For 1st half year = 18,000 – 5,000 = Rs. 13,000

Fixed cost for the full year = 13,000 x 2 = Rs. 26,000

(c) Break even sales for the year 1996 = $\frac{\text{Fixed cost}}{\text{P/V Ratio}}$

$= \frac{26,000}{40\%} = Rs.65,000$

(d) Margin of safety for the year 1996

MOS = Sales – Break even sales

= 95,000 – 65,000 = Rs. 30,000

Percent of margin of safety = $\frac{\text{Margin of safety}}{\text{Sales for the year}}$ x 100

$= \frac{30,000}{95,000} x100$

= 31.58%

Note: (1) Since fixed expenses are incurred equally in the 2 half years, Rs. 13,000 is multiplied with 2 to get fixed cost of the full year.

(2) Sales of both 1st and 2nd half years are added and are taken as actual sales i.e., Rs. 95,000 to calculate margin of safety.

4.8 Application of Marginal Costing Techniques

Marginal costing is an extremely valuable technique with the management. The cost-volume-profit relationship has served as a key to locked storehouse of solutions to many situations. It enables the management to tackle many problems which are faced in the practical business. "All the introduction of marginal cost principles does is to give the management a fresh, and perhaps a refreshing, insight into the progress of their business". Now, we explain the application of the techniques of marginal costing in certain important areas.

Marginal Costing helps the management in decision-making in respect of the following areas:

1. Cost control
2. Fixation of Selling Price
3. Closure of a Department or Discontinuing a Product
4. Selection of a Profitable Product Mix
5. Profit Planning
6. Decision to make or buy

7. Decision to accept a bulk order
8. Introduction of a new product
9. Choice of technique
10. Evaluation of performance
11. Maintaining a desired level of profit
12. Level of activity planning
13. Alternative methods of production
14. Introduction of product line

4.9 Illustrations

We have already seen CVP analysis helps in the decision making process. Particularly it is very useful in profit planning, selling price determination, selection of optimum volume of production, studying the effect of increase and decrease in the price of the product etc.

Now we see some solved problems on these areas.

Illustration: 11 (Selection of a Suitable Production / Sales Mix)

Following information has been made available from the cost records of X Ltd.

	Product	Price Unit (Rs)
Direct Material	A	10
Direct Material	B	9
Direct Wages	A	3
Direct Wages	B	2
Fixed Expenses……Rs. 800		

	Product	Price Unit (Rs)
Sale Price	A	20
Sale Price	B	15
Sales Mixtures: (a) 100 units of product A and 200 of B (b) 150 units of product A and 150 of B		

(c) 200 units of product A 100 of B.		

State which of the alternative sales mixes you would recommend to the Management?

Solution:

Marginal Cost Statement

	Product A (Rs.)	Price Unit B (Rs)
Selling Price (per unit)	20	15
Less: Marginal / Variable Cost:		
Direct Material		
Direct wages		
Variable Expenses (100% wages)	16	13
Contribution (per unit)	4	2
Sales Mixtures		
(a) 100 units of product A and 200 to B		Rs.
Contribution:		
A = 100 x 4		400
B = 200 x 2		400
Total Contribution		800
Less: Fixed Expenses		800
Profit		Nil
(b) 150 units of product A and 150 to B		Rs.
Contribution:		
A = 150 x 4		600
B = 150 x 2		300
Total Contribution		900
Less: Fixed Expenses		800
Profit		100
		Rs.

(c) 200 units of product A and 100 of B		800
Contribution:		200
A = 200 x 4		1000
B = 100 x 2		800
Total Contribution		200
Less: Fixed Expenses		
Profit		

As sales mixture (c) i.e., 200 units of A and 100 units of B gives the maximum profit, it is more profitable.

Illustration: 12 (Acceptance of Special order)

A plant is running at present at 50% of its capacity. The following details are available.

	Cost of production per unit
Direct materials	Rs. 2
Direct Labour	Rs. 1
Variable overhead	Rs. 3
Fixed Overhead	Rs. 2
TC Per Unit	Rs. 8
Production per month	20,000 units
Total cost of production	Rs. 1,60,000
Sales Price	Rs. 1,40,000
Loss	Rs. 20,000

An exporter offers to buy 5,000 units per month at the rate of Rs. 6.50 per unit and the company hesitates to accept the offer for fear of increasing its already operating losses.

Advise whether the company should accept or decline this offer.

Solution:

	Existing (20,000 units) Rs.	Offer (5,000 units) Rs.	Total Rs.
Sales	1,40,000	32,500	1,72,500
Variable Cost:			
Materials	40,000	10,000	50,000
Labour	20,000	5,000	25,000

Variable Overhead	60,000	15,000	75,000
Total variable cost	1,20,000	30,000	1,50,000
Contribution (S-V)	20,000	2,500	22,500
Less Fixed Cost	40,000	-	40,000
	-20,000	2,500	-17,500

The firm must accept the offer because the amount of loss stands reduced from Rs. 20,000 to Rs. 17,500.

Illustration: 13 (Product Elimination (or) Discontinuation Decision)

A company is engaged in three distinct lines of production. Their production cost per unit and selling prices are as under:

	X	Y	Z
Production (Units)	3,000	2,000	5,000
	Rs.	Rs.	Rs.
Material Cost	18	26	30
Wages	7	9	10
Variable overheads	2	3	3
Fixed Overheads	5	8	9
	32	46	52
Selling price	40	60	61
Profit	8	14	9

The management wants to discontinue one line and gives you the assurance that production in two other lines shall be raised by 50%.

They intend to discontinue the line which produces Article X as it is less profitable.

(a) Do you agree to the scheme in principle?

(b) Offer your comments and show the necessary statements to support your decision.

Solution:

The decision should be taken on the relative profitability of various alternatives as ascertained below:

Total fixed Expenses		Rs.
X 3,000 x 5	=	15,000
Y 2,000 x 8	=	16,000
Z 5,000 x 9	=	45,000
Total Fixed Expenses	=	76,000

Contribution per unit of different products: (S-V)

X	40-27	=	Rs. 13 per unit
Y	60-38	=	Rs. 22 per unit
Z	61-43	=	Rs. 18 per unit

Profit from different production arrangements may be found as under:

a) If 'X' is given up sale of 'Y' and 'Z' will increase by 50%. The sales of Y would be i.e., Y – 3000 units, Z – 7,500 units.

Contribution Y = 3,000 x 22 =	66,000
Contribution Z = 7,500 x 18 =	1,35,000
Total	2,01,000
Less: Fixed Cost	76,000
Profit	1,25,000

b) If Y is discontinued production X and Z will be more by 50% i.e., X-4,500 units, Z 7,500 units.

ContributionX = 4500 x 13	=	58,500
Contribution Z = 7500 x 18	=	1,35,000
		1,93,000
Less: Fixed Cost		76,000
Profit	=	1,17,500

c) If Z is given up production of 'X' and 'Y' will be is X – 4500 units, Y – 3000 units.

ContributionX = 4500 x 13	=	58,500
ContributionY = 3000 x 22	=	66,000
		1,24,500
Less: Fixed Cost		76,000
Profit		48,500

Under these three alternatives the profit is maximum (Rs. 1,25,000) when 'X' is discontinue. Therefore, we may agree with the management's decision to discontinue articles 'X'.

Illustration: 14 (Make or Buy Decision)

The management of a company finds that while the cost of making a component part is Rs. 10, the same is available in the market at Rs. 9 with an assurance of continuous supply.

Give a suggestion whether to make or buy this part. Give also your views in case the supplier reduces the price from Rs. 9 to Rs.8.

The cost information is as follows:

	Rs.
Material	3.50
Direct Labour	4.00
Other Variable expenses	1.00
Fixed expenses	1.50
Total	10.00

Solution:

To take a decision on whether to make or buy the component part, fixed expenses should not be added to the cost because these will be incurred even if the part is not produced. Thus, additional cost of the part will be as follows:

Materials	Rs. 3.50
Direct Labour	4.00
Other Variable expenses	1.00
Total	8.50

The company should produce the part if the part is available in the market at Rs. 9.00 because the production of every part will give to the company a contribution of 50 paise (Rs. 9.00 – Rs. 8.50)

The company should not manufacture the part if it is available in the market at Rs. 8 because additional cost of producing the part is 50 paise (Rs. 8.50 – Rs. 8) more than the price at which it is available in the market.

Check your Progress:

1. Indicate whether the following statements are True or False

a) Contribution is the excess of sales over Total cost

b) P/V Ratio of a product indicate its profit potential

c) Make or buy decisions ignores fixed cost

2. Fill in the blanks:

a) Under ______________ costing, Fixed cost is ignored for decision making.

b) At Break Even point, Total cost is equal to ___________________

c) Margin of safety is the sales above the ______________ level of sales.

4.10 Summary

In costing products companies use either absorption costing or marginal costing. All costs fixed and variable are charged to product in absorption costing. In marginal costing only variable cost are charged to products, fixed costs are transferred to profit and loss account.

The Break Point is the point of no profit no loss. A break chart is a shaphical device to show cost volume profit relationship between the contribution and sales margin of safety is the difference between the actual sales and the break even sales.

The marginal costing technique furnishing all possible facts relating to a particular issue which is under the consideration of management. It is the most powerful and popular technique is and of marginal decision making.

4.11 Key Terms

Break even point

Profit volume ratio

Margin of safety

Angle of incidence.

4.12 Review Questions

1. Define marginal costing. How does it differ from absorption costing?
2. What is marginal costing? What are its characteristics?
3. Explain the meaning and significance of 'contribution'.
4. Explain the Advantages and Limitations of marginal costing.
5. "Marginal costing is a valuable and for managerial decisions" Discus.
6. What is Break even analysis? Enumerable its merits and demerits.
7. List out assumptions advantages and imitations of Break even charts.
8. "Cost volume profit analysis is helpful for profit planning" – Explain.
9. Calculate the P/V ratio and Break-even point from the following particulars.

	Rs.
Sales	50,000
Fixed cost	10,000
Profit	15,000

(Ans: 50%, 20,000)

10. From the following information calculate

a) Break-even point
b) Number of units that must be sold to earn a profit of Rs. 60,000 per year.
c) Number of units that must be sold a net income 10% sales
a net income 10% on sales
Sales price Rs. 20 per unit

Variable cost Rs. 14 per unit

Fixed cost Rs. 79,200

Ans. a) 13,200 units, Rs. 2,64,000

b) 23,200 units

c) 19,800 units

11. Assuming that the cost structure and selling prices the same in periods I and II find out:

a) P/V ratio

b) Break-even sales

c) Profit when sales are Rs. 1,00,000

d) Sales required to earn a profit of Rs. 20,000

e) Margin of safety in II period.

Period	Sales Rs.	Profit Rs.
I	1,20,000	90,000
II	1,40,000	13,000

Ans: a) 20% b) Rs. 75,000 c) Rs. 5,000

d) Rs. 1,75,000 e) Rs. 65,000

12 X Ltd, a multi product company furnishes you the following data relating to the year 2007.

Period	Sales Rs.	Profit Rs.
I	1,20,000	90,000
II	1,40,000	13,000

	First half of the year Rs.	Second half of the year Rs.
Sales	1,80,000	2,00,000
Profit	20,000	28,000

Assuming that there is no charge in prices and variable costs and that the fixed expenses are incurred equally is the two half years periods calculate for the year 2007

a) The profit volume ratio

b) Fixed cost

c) Break even sales

d) Margin of safety.

Ans: a) 40% b) Rs. 1,04,000 c) Rs. 2,60,000 d)Rs. 1,20,000

13. Following information has been made available from the cost records of X Ltd.

Direct Materials	Per unit
A	Rs. 8
B	Rs. 6

Direct Wages

A 24 Hours at 25 paise per hour

B 16 Hours at 25 paise per hour

Variable overheads 150% of wages.

Fixed over heads Rs. 750

Selling Price

A Rs. 25

B Rs. 20

Which of the alternative sales mixes you would recommend to the management?

a) 250 units of A and 250 units of B

b) 400 units of B only

c) 400 units of A and 100 units of B

d) 150 units of A and 350 units of B.

Ans: The alternative d is most profitable since is give the maximum profit of Rs. 950.

14. The costs per unit of three products, X, Y and Z of a company are given below

	Products		
	X	Y	Z
Direct Materials	20	16	18
Direct Labour	12	14	12
Variable Over head	8	10	6
	6	6	4
Fixed expenses	46	46	40

Profit Selling Price	18 64	14 60	12 52
No of units produced	10000	5000	8000

Production arrangements are such that of one product is given up the production of they can be raised to 50%. The directors propose that Z should be given up because the contribution from that product is the lowest. Do you agree?

(Ans. If product B is given up the profit is maximum is Rs. 4,30,000. Therefore the proposal to give up product Z is not advisable).

15. An automobile manufacturing company finds that the cost of making part No. 105 in its own workshop is Rs. 6. The same part is available in the market at Rs. 5.60 with an assurance of continuous supply. The cost data to make the part are:

Material	Rs. 2.00
Direct Labour	Rs. 2.50
Other variable cost	Rs. 0.50
Fixed cost	Rs. 1.00
	Rs. 6.00

a) Should the part be made of bought?

b) Will your answer be different if the market price is Rs. 4.60?

Show your calculations clearly.

Ans: When supply price is Rs. 5.60 per unit: The component part should be made when supply price is Rs. 4.60, it should be bought.

4.13 Answers to check your progress

1. a) False b) True c) True
2. a) Marginal b) Sales c) Break even

4.14 Suggested Readings.

1. B.K. Chattergee, **Costing and Managerial Accounting for Managers,**Jaico Publishers, New Delhi.
2. S.P. Iyengar, **Costing and Management Accounting** Chand & Sons, New Delhi.
3. B.S. Khanna, I.M. Pandey**, Practical Costing**, S. Chand & Co, New Delhi.
4. P.V. Rathnam – **Rathnam's Costing**, Kitab Mahal, Allahabad.

CHAPTER 5
BUDGETARY CONTROL SYSTEMS

Learning Objectives

After completing this unit you should be able to

- define budget and budgetary control
- List out advantages and limitations of budgetary control system
- Explain the techniques of preparing various types of budgets.
- Prepare various types of budgets.

Structure

5.1 Introduction
5.2 Definition of Budget and Budgeting
5.3 Budgetary control
    5.3.1 Steps involved in Budgetary control
    5.3.2 Objectives of Budgetary control
5.4 Essentials of Budgeting and Budgetary control
5.5 Advantages and Limitations of Budgetary control system
5.6 Organization for budgetary control system.
5.7 Classification of Budgets
5.8 Zero Base Budgeting
5.9 Control Ratios
5.10 Illustrations
5.11 Summary
5.12 Key words
5.13 Review Questions
5.14 Answers to check your progress
5.15 Suggested Readings

5.1 Introduction

Modern business world is full of competition, uncertainty and exposed to different types of risks. This complexity of managerial problems has led to the development of various managerial tools, techniques and procedures useful for the management in managing the business successfully. Budgeting is the most common, useful and widely used standard device of planning and control. The budgetary control has now become an essential tool of the management for controlling costs and maximizing profit. Costs can be reduced, wastage can be prevented and proper relationship between costs and incomes can be established only when the various factors of production are combined in profitable way. The resources of a business can be effectively utilized by efficient conduct of its operations. This requires careful working out of proper plans in advance, co-ordination and control of activities on the part of management.

A proper planning and control are essential for an efficient management. A good number of tools and devices are available. Of all these, the most important device used is budget. Cost accounting aims not only at cost ascertainment, but also greatly at cost control and cost reduction. Thus the management aims at the proper and maximum utilization of resources available. It is possible when there is a pre-planning. Modern management aims that all types of operations should be predetermined in advance, so that the cost can be controlled at every step. The more important point is that the actual programme is compared with the preplanned programme and the variances are analyzed and investigated. All are familiar with the idea of budget, at every walk of life – state, firm, business etc.

5.2 Definition of Budget and Budgeting

A budget is a plan of action expressed in figures. It is a planned estimate of future business conditions such as the income, probable cost and profit. It acts as a business barometer as it is a complete programme of activities of the business for the period covered. It may be stated in financial terms or non-financial terms. It is defined as "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 of time for the purpose of attaining a given objective"

Budgeting refers to the mechanism of preparing budgets according to J. Batty, "The entire process of preparing the budgets is known as budgeting" Formation of business budgets involves a careful study of the conditions of the business the objectivies of the management and the capacity of the business concern for attain these objectives.

5.3 Budgetary Control:

Budgetary control is a system of management and accounting control. It means the control of operations with the aid of budgets. It is one of the important tools of control. The Institute of Cost and Management Accounts, England, defines budgetary control as "the establishment of budgets relating to 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 objectives of that policy or to provide a basis for its revision.

5.3.1 Steps involved in the budgetary control: Budgetary control involves the following steps.

1. Preparation of budgets for each function and section of the organization.
2. Recording of actual performance.
3. Continuous comparison of actual performance with the budgets and the ascertainment of deviations.
4. Prompt investigations into differences.
5. Prompt remedial action when required.
6. Revision of budgets in the light of changed circumstances.

5.3.2 Objectives of Budgetary control

The important objectives of budgetary control can be summarized as follows.

(i) To plan the policy of a business for the coming period for achievement of the firm is objectives and its translation into monetary and quantitative terms.

(ii) To determine the responsibility of each department and executive so that they are made accountable for definite and precise results.

(iii) To coordinate the activities of a business so that each is a part of an integral total.

(iv) To provide for continuous comparison of actual and budgeted performance in terms of results achieved and costs incurred so that cause for any inefficiency is immediately detected and removed.

(v) To control and direct each function so that best possible results may be obtained.

(vi) To provide for the revision of budgets for future in the light of experience gained.

5.4 Essentials of Effective Budgeting and Budgetary Control

The main essentials for an effective and successful system of budgetary control can be given as follows:

1. **Support of Top Management:** In order to make the budgeting system successful, it is necessary that it must have the whole hearted support of every person involved in the organizational set up. In this regard, the initiative must come from the top management.
2. **Definite and Reasonable Targets or Goals:** For the successful operations of the budgetary control system, the targets fixed in the budgets should be definite, realistic and attainable. This feeling should come from the various executives who have been assigned the responsibility of various budget centers.
3. **Well-defined Organization:** In order to ensure maximum benefits from budgeting system, well defined budget centers should be created within the organization so that the responsibility of each executive in the organization may be clearly laid down.
4. **Well-defined Policy:** The budgets are prepared to establish the responsibilities of executives to the requirements of a particular policy. As such the policy of the business to be followed during budget period should be clearly defined.
5. **Active Participation by Executives:** The various executives who are made responsible for different budget centers, should be actively involved in the preparation of the budget.

6. **Efficient Budget Education:** The various executives responsible for putting into effect the budgetary proposals, should take active interest in the operation of the budgeting system. It is possible if these executives are constantly educated about the objectives, potentials and techniques of budgeting.
7. **Adequate Accounting System:** Budgeting is closely related to accounting since compilation of budget is done on the basis of historical data provided by the Accounting Department. These data form the basis for making estimates. As such the accounting system should be designed to the requirements of responsibility accounting.
8. **Cost of the Budgeting System:** The cost of operation of the budgeting system should be within the financial capacity of the business and should not exceed, in any case, the total benefits accruing from it to the organization.
9. **Efficient Reporting:** It is necessary that prompt reports on the comparison of actual performance with the budgeted figures should be made available to the management for ensuring timely action on the points of inefficiency.
10. **Flexibility:** The budget programme of the business concern should not be too rigid. It should be flexible and should provide for possible contingencies.
11. **Integration with Standard Costing System:** If the business concern decides to introduce standard costing system, it should be completely integrated with budgetary control system in respect of compilation of budget and analysis of variances.

5.5 Advantages and Limitations of Budgeting control:

Advantages of Budgetary Control: Budgetary control offers many advantages. It has become an essential tool of the management for controlling cost and maximizing profit. It uncovers uneconomies in operations, weaknesses in the organization structure and minimizes wasteful, spending. It acts as a friend, philosopher and guide to the management. Its important advantages are as follows:

1) **Efficiency and economy in the conduct of business:** Budgetary control brings efficiency and economy in the working of the business. Wastages and losses of all types are avoided. As Sickle says "The budget in an impersonal policeman that maintains ordered effort and brings about efficiency in results".
2) **Establishes responsibility:** Budgetary control establishes divisional and departmental responsibility. It thus prevents alibis and "buck passing" when the budgeted results are not achieved.
3) **Ensures Co-ordination:** It co-ordinates the various divisions of a business, namely, the production, marketing financial and administrative divisions. It forces executives to think, and think as a group. Thus it ensures team work.
4) **Safety single for the management:** It acts as a safety signal for the management. It shows when to proceed cautiously and when manufacturing expansion can be safely

undertaken. It acts as a magic eye to the management who can always watch over the performance of the business.

5) **Ensures effective utilization of factors of production:** It ensures effective utilization of men, materials, machines and money because production is planned according to the availability of these items.

6) **Setting up standard costing system:** Budgetary control creates conditions for setting up a system of standard costing.

7) **Cost consciousness:** It helps in promoting a feeling of cost consciousness and in restricting expenditure to the minimum.

8) **Acts as a measure of efficiency:** Budget acts as a tool for measuring the managerial performance. The budget targets are compared with actual ones, variations are singled out and responsibility fixed. It is therefore, an instruments of control. It helps in measuring the efficiency of all departments.

9) **Favour from credit agencies:** Budgets confirm the existence of plans and bring light their profitability. Financial institutions are willing to lend on easy terms for the concerns having a budgetary programme.

10) **Prompt and profitable decisions by management:** By furnishing periodical adequate accounting data, budgetary control assists the management in taking prompt and profitable decisions.

Limitations of Budgetary Control: The Budgetary control system is not a perfect tool. It has its own limitations. They are as follows:

1) Opposition against the very spirit of budgeting: There will be always active and passive resistance to budgetary control as it points out at the efficiency or inefficiency of individuals.

2) Budgeting and changing economy: The preparation of a budget under inflationary pressure and changing Government policies is really difficult. Thus the accurate position of the business cannot be estimated.

3) Time factor: Accuracy in budgeting comes through experience. Management must not expect too much during the development period.

4) Not a substitute for management: Budget is only a management tool. It is not a substitute for management. It can not replace management in decision-making.

5) Co-operation required: The success of budgetary control depends upon willing co-operation and team work. Budget officer must get co-operation from all departmental managers.

6) Heavy expenditure: Budgeting involves heavy expenditure which small concerns cannot afford.

5.6 Organization for Budgetary control system:

The following steps should be taken in a sound system of budgetary control:

1) Preparation of an organization chart: Before successful installation of budgetary control, it is necessary that the concern should prepare a definite plan of organization. Authority and responsibility of each executive should be clearly defined.

2) Establishment of Budget centres: A budget centre is a section of the organization of an undertaking for the purpose of the budgetary control. Budget centres should be established for cost control and all budgets should be related to cost centres. Budget contres will disclose the sections of the organization where planned performance is not achieved.

3) Establishment of Budget Committee: A budget committee should be established with functional heads as members. A top executive should be appointed known as budget controller or budget officer. The functional managers will prepare the budgets and submit to the committee for approval. The budget committee make necessary adjustments in the budgets, coordinate all the budgets can finally approve the budgets.

4) Introduction of adequate Accounting records: The accounting system should be able to record and analyse the information required. A chart of accounts corresponding with the budget centre should be maintained.

5) Preparation of Budget manual: The budget manufacturing is a written document or booklet which specifies the objective of the budgeting organization and procedures. It guides executives in preparing various budgets. It is the reasonability of the budget officer to prepare and maintain this manufacture.

6) Fixation of Budget period: Budget period means the period for which a budget is prepared and employed. The budget period will depend upon. a) the nature of the business, and b) the costing techniques to be applied. For example, in case of continuous or mass production industries, it is necessary to compare continuously the actual with budgets and therefore, the budget period should be a short one. But in case of heavy engineering works, a longer period will be suitable.

7) Determination of Key Factor: Key factor means "the factor the extent of whose influence must first be assessed in order to ensure that functional budgets are reasonably capable of fulfillment". Key factor is also known as "Principal budget" or "limiting" or "governing factor". It is necessary to locate the factor before the preparation of budgets because it influences all other budgets. The key factor will differ from concern to concern. In some concerns the key factor might be sales, while in others it might be production, materials, labour, machinery or capital. The budget relating to key facto should be prepared first and the other budgets should be based upon it. A co-ordinated plan should then be finally approved. Most often shortage of sales is the key factor in industry. This limiting factor can be overcome by taking sales promotion steps such as increasing sales staff and advertising.

5.7 Classification of Budgets

The budgets are classified according to their nature. The following are the types of budgets which are commonly used.

A. Classification According to Time:

i) **Short period Budget:** These budgets are usually for a period of one year.

ii) **Long period Budget:** These budgets are for a longer period say 5 to 10 years.

iii) **Current Budget:** These budgets are for a very short period, say, a month or a quarter and are related to current conditions.

B. Classification According to Function:

A functional budget is a budget which relates to any of the functions of an organization. The following are the commonly used functional budgets.

1. Sales Budget: A sales budget is an estimate of expected sales during the budget period. It may be stated in terms of money or quantity or both. It contains information relating to sales, month-wise, product wise and area wise. Sales budgets should be carefully prepared as the preparation of other budgets is dependent on it.

1. Past sales figures
2. Salesmen's estimates
3. Plant capacity
4. Availability of raw materials
5. Seasonal fluctuations
6. Availability of finance
7. Competition
8. Orders on hand
9. Other factors like political conditions, government policies etc.

2. Production Budget: The preparation of production budget is dependent on the sales budget. Production budget is an estimate of quantity of goods that must be produced during the budget period. It may be stated in terms of money or quantity (weights, units etc.) or both. Production may be calculated as follows:

Units to produced = Budgeted Sales + Desired closing stock – Opening stock

3. Materials Budget: Materials may be direct or indirect. The materials budget deals with only the direct materials. Indirect materials are included in the factory overhead budget. Materials budget can be classified into two categories – Materials Requirement Budget and Materials Purchase Budget. Materials Requirement Budget is an estimate of total quantities of material required for production during the budget period. The Material purchase Budget is an estimate of quantities of raw materials to be purchased for production during the budget period.

4. Direct Labour Budget: This indicates detailed requirements of direct labour and its cost to achieve the production target. This budget is classified into two categories namely, labour requirement and labour recruitment budget. The labour requirement budget gives information regarding the different classes of labour required for each department, their rates of pay and the hours to be spent. The labour recruitment budget states the additional direct workers to be recruited.

5. Factory Overhead Budget: Factory overheads include indirect material, indirect labour and indirect expenses. Factor overhead budget indicates the factory overheads to be incurred in the budget period. The expenses included in the budget are classified into fixed, variable and semi-variable expenses. Fixed expenses are estimated on the basis of past records. Variable expenses are estimated on the basis of budgeted output.

6. Administrative Expenses Budget: The budget is an estimate of administrative expenses to be incurred in the budget period. E.g. rent, salaries, insurance etc.

7. Selling and Distribution Overhead Budget: The budget gives an estimate of selling and distribution expenses to be incurred in the budget period. For example, Salesmen's salary, commission, advertisement, transportation costs etc. It is prepared by the sales executive. It is closely linked with sales budget.

8. Capital Expenditure Budget: This budget shows the estimated expenditure on fixed assets during the budget period. Separate budgets may be prepared for each item of assets, if necessary. For example, building budget, plant and machinery budget etc. This budget is prepared for a longer period say 5 years or 10 years.

9. Cash Budget: This budget gives an estimate of receipts and payments of cash during the budget period. It is prepared by the chief accountant. It shows the cash available and needed from time to meet the capital requirements of the organization. This budget is prepared in two parts – one showing an estimate of receipts and the other showing an estimate of payments.

Cash budget can be prepared by any of the following methods:

(a) Receipts and Payments method

(b) The Adjusted Profit and Loss Account method

(c) The Balance Sheet method.

10. Master Budget: Finally, master budget is prepared incorporating all functional budgets. It is defined as, "the summary budget incorporating the functional budgets which is finally approved, adopted and employed", The budget may take the form of budgeted profit and loss account and balance sheet. It contains sales, production cost, cash position, debtor, fixed assets, bills payable etc. It also shows the gross and net profits and the important accounting ratios. It has to be approved by the board of directors before it is put into operation.

C. Classification According to Flexibility:

1. Fixed Budget: Fixed budget is also called static budget. It may be defined as, "a budget designed to remain unchanged irrespective of the level of activity actually attained". This budget is most suited for fixed expenses, which have no relation to the volume of output. It is ineffective for cost control purposes. It is useless for comparison with actual performance when the level of activity changes.

2. Flexible Budget: Flexible budget is also called variable budget. It may be defined as, "A budget designed to change in accordance with the level of activity actually attained". It shows estimated costs and profit at different levels of output. It facilitates comparison of actual performance with the budget at any level of output. To prepare flexible budget, all costs should be classified into fixed, variable and semi-variable. It is more elastic, useful and practical. It is used for the purpose of control.

5.8 Zero base budgeting:

To streamline the allocation, to curb this tendency of equalizing the expenditure with budgeted figures and to control the costs, a new technique called "Zero Base Budgeting" or "Zero Base budgeting" emerged. Under this technique, no special budget is prepared but the approach is changed.

The use of Zero-base budgeting (ZBB) as a managerial tool has become increasingly popular since the early 1970's. It first came into being when Ex-President Jimmy Carter of the United States of America introduced it as a means of controlling state expenditure. The underlying idea of ZBB is that there is no given base figure for a budget. A fresh budgeted figure is to be determined keeping the circumstances and requirements. This basic concept of ZBB is simple: budgeting starts from scratch or zero. That is, every activity in an organization must be examined and justified, any alternatives must be considered and the results evaluated. It is a method whereby all activities are re-evaluated each time when a budget is formulated:

It implies that:

1. Every budget starts with a zero base.
2. No previous figure is to be taken as a base figure for adjustments.
3. Each activity is to be examined afresh.
4. Every budget allocation is to be justified in the light of anticipated circumstances.
5. Alternatives are to be given due consideration.

Benefits

1. Effective cost control can be exercised.
2. Careful planning is facilitated.
3. Management by objectives becomes a reality.
4. Uneconomical activities are identified.
5. Inefficiencies are controlled.
6. Scarce resources are allocated and used beneficially.
7. Each activity is thoroughly examined and justified.

5.9 Control Ratios

The management wants to know whether performance of its business is going as per schedule or not. With this purpose in view some control ratios are calculated. If the ratios are more than 100%, then the performance will be favourable but if these ratios are less than 100%, then the performance will be unfavourable or unsatisfactory. The following control ratios are calculated:

(i) $$\text{Capacity Ratio} = \frac{\text{Actual Hours Worked}}{\text{Budgeted Hours}} \times 100$$

This ratio indicates how much budgeted hours have been actually utilized. If the ratio is 80%, then it means that 80% budgeted hours have been utilized and the remaining 20% capacity remains idle.

$$\text{(ii) Activity Ratio} = \frac{\text{Standard Hours for Actual Production}}{\text{Budgeted Hours}} \times 100$$

This ratio shows the level of activity attained during the period.

$$\text{(iii) Efficiency Ratio} = \frac{\text{Standard Hours for Actual Production}}{\text{Actual Hours Worked}} \times 100$$

This ratio shows the level of efficiency attained during a particular period. If this ratios is 140%, then it shows that the efficiency is more by 40% or it has gone up by 40%.

5.10 Illustrations:

Production Budget:

Prepare a production budget for three months ending March 31, for a factory producing four products, on the basis of the following information:

Type of Product	Estimated Stock on January 1, 2008 Units	Estimated Sales during January – March 2008 Units	Desired closing Stock March 31, 2008 Units
M	2,000	10,000	5,000
N	3,000	15,000	4,000
O	4,000	13,000	3,000
P	5,000	12,000	2,000

Solution:

Production Budget for 3 months ending 31.3.2008

Particulars	M (Units)	N (Units)	O (Units)	P (Units)
Estimated Sales	10,000	15,000	13,000	12,000
Add: Desired closing stock	5,000	4,000	3,000	2,000
	15,000	19,000	16,000	14,000
Less: Opening stock	2,000	3,000	4,000	5,000
Estimated production	13,000	16,000	12,000	9,000

Illustration: 2

Sales Budget:

X & Co. Ltd. produces two products, and there are two sales division, East and West. Budgeted sales for the year ended 31st December 2008 were as follows:

Division	Products	Units	Price per unit Rs.
East	A B	25,000 15,000	10 5
West	A B	24,000 30,000	10 5

Actual sales for the said period were:

Product	East	West
A	28,000 units @ Rs. 10 each	25,000 units @ Rs. 10 each
B	18,000 units @ Rs. 5 each	33,000 units @ Rs. 5 each

On the basis of assessments of the salesmen the following are the observations of sales division for the year ending 31st December, 2009.

East Zone A Budgeted increase of 40% on 2008 budget.

B Budgeted increase of 10% on 2008 budget.

West Zone A Budgeted increase of 12% on 2008 budget.

B Budgeted increase of 15% on 2008 budget.

It was further decided that because of the increased sales campaign in East an additional sales of 5,000 units of product will result.

Solution:

X & Co. Ltd

Sales Budget for the year 2009

Division	Product	Budget for 2009			Budget for 2008			Actual Sales for 2008		
		Quantity	**Price Rs.**	**Value Rs.**	**Quantity**	**Price Rs.**	**Value Rs.**	**Quantity**	**Price Rs.**	**Value Rs.**
East	A B	38,125 18,375	10 5	3,81,250 91,875	25,000 15,000	10 5	2,50,000 75,000	28,000 18,000	10 5	2,80,000 90,000
	Total (A)	56,500		4,73,125	40,000		3,25,000	46,000		3,70,000
West	A B	26,880 34,500	10 5	2,68,800 1,72,500	24,000 30.000	10 5	2,40,000 1,50,000	25,000 33,000	10 5	2,50,000 1,65,000
	Total (B)	61,380		4,41,300	54,000		3,90,000	58,000		4,15,000
	Total A Total B	65,005 52,875		6,50,050 2,64,375	49,000 45,000		4,90,000 2,25,000	53,000 51,000		5,30,000 2,55,000
Total (A+B)		**1,17,880**		**9,14,425**	**94,000**		**7,15,000**	**1,04,000**		**7,85,000**

Working:

BUDGET FOR 2009

East	A	25,000 + (40% Increase) 10,000 + 3,125	= 38,125 units
	B	15,000 + (10% Increase) 1,500 + 1,875	= 18,375 units
West	A	24,000 + (12% Increase) 2,880	= 26,880 units
	B	30,000 + (15% Increase) 4,500	= 34,500 units

Note: Additional sales of 5,000 units in East division is distributed for A and B in the proportion of 25,000 : 15,000 (budgeted quantity for 2008).

Illustration: 3

Cash Budget:

Summarized below are the Income and Expenditure forecasts of X Ltd. for the months of March of August, 2008.

Month	Sales (all credit) Rs.	Purchases (all credit) Rs.	Wages	Manufacturing Expenses Rs.	Office Expenses Rs.	Selling Expenses Rs.
March	60,000	36,000	9,000	4,000	2,000	4,000
April	62,000	38,000	8,000	3,000	1,500	5,000
May	64,000	33,000	10,000	4,500	2,500	4,500
June	58,000	35,000	8,500	3,500	2,000	3,500
July	56,000	39,000	9,500	4,000	1,000	4,500
August	60,000	34,000	8,000	3,000	1,500	4,500

You are given the following further information:

(a) Plant costing Rs. 16,000 is due for delivery in July payable 10% on delivery and the balance after three months.

(b) Advance Tax of Rs. 8,000 is payable in March and June each.

(c) Period of credit allowed (i) by suppliers 2 months and (ii) to customers 1 month.

(d) Lag in payment of manufacturing expenses ½ month.

(e) Lag in payment of all other expenses 1 month.

You are required to prepare a cash budget for three months starting on 1st May, 2008 when there was a cash balance of Rs. 8,000.

Solution: X Ltd Cash Budget for the three months ending 31 July 2008.

Particulars	May Rs.	June Rs.	July Rs.
Receipts:			
Opening Balance	8,000	15,750	12,750
Debtors	62,000	64,000	58,000
Total	70,000	79,750	70,750
Payments:			
Creditors	36,000	38,000	33,000
Wages	8,000	10,000	8,500
Manufacturing Expenses	3,750	4,000	3,750
Office Expenses	1,500	2,500	2,000
Selling Expenses	5,000	4,500	3,500
Advance Tax	-	8,000	-
Delivery of Plant (10% Payment on delivery)	-	-	1,600
Total	54,250	67,000	52,350
Closing Balance	15,750	12,750	18,400

Illustration: 4

Flexible Budget

The expenses for budgeted production of 10,000 units in a factory are furnished below:

	Per Unit Rs.
Material	70
Labour	25
Variable Overheads	20
Fixed Overheads (Rs. 1,00,000)	10
Variable Expenses (Direct)	5
Selling Expenses (10% Fixed)	13
Distribution Expenses (20% Fixed)	7
Administration Expenses	5
Total Cost per unit	155

Prepare a budget for production of:

(a) 8,000 units

(b) 6,000 units

(c) indicate cost per unit at both the levels.

Assume that administration expenses are fixed for all levels of production.

Solution:

Flexible Budget

	10,000 Units		**8,000 Units**		**6,000 Units**	
	Per unit Rs.	**Total Amount Rs.**	**Per Unit Rs.**	**Total Amount Rs.**	**Per Unit Rs.**	**Total Amount Rs.**
Production Expenses:						
Materials	70.00	7,00,000	70.00	5,60,000	70.00	4,20,000
Labour	25.00	2,50,000	25.00	2,00,000	25.00	1,50,000
Overheads	20.00	2,00,000	20.00	1,60,000	20.00	1,20,000
Direct variable expenses	5.00	50,000	5.00	40,000	5.00	30,000
Fixed Overheads: (Rs. 1,00,000)	10.00	1,00,000	12.50	1,00,000	16.667	1,00,000
Selling Expenses:	1.30	13,000	1.625	13,000	2.167	13,000
Fixed	11.70	1,17,000	11.700	93,600	11.700	70,200
Variable						
Distribution Expenses:	1.40	14,000	1.750	14,000	2.334	14,000
Fixed	5.60	56,000	5.600	44,800	5.600	33,600
Variable	5.00	50,000	6.250	50,000	8.333	50,000
Administration Expenses						
Total Cost	155.00	15,50,000	159.425	12,75,400	166.801	10,00,800

Working:

Fixed expenses remain fixed irrespective of the level of output. Selling expenses Rs. 13. Variable expenses per unit is constant

Fixed 10% i.e $13x\frac{10}{100} = Rs.1.30$

for 10000 units = 10000 x 1.30 = Rs. 13000.

Variable 90% ie $13x\frac{90}{100} = Rs.11.70$

Illustration: 5

Mater Budget

A Glass Manufacturing Company requires you to calculate and present the budget for the next year from the following information:

Sales:

Toughened Glass Rs. 3,00,000

Bent Toughened Glass Rs. 5,00,000

Direct Material Cost 60% of sales

Direct wages 20 workers @ Rs. 150 per month

Factory Overheads:

Indirect labour:

Works manager Rs. 500 per month

Foremen Rs. 400 per month

Stores and spares 2 ½ % on sales

Depreciation on machinery Rs. 12,600

Light and Power Rs. 5,000

Other sundries 10% on direct wages

distribution Rs. 14,000 per year

Repairs and maintenance Rs. 14,000 per year

Rs. 8,000

Solution:

MASTER BUDGET

For the period ending …………………..

			Rs.
Sales (as per sales budget) Thoughened glass Bent Thoughened glass			 3,00,000 5,00,000 8,00,000
Less: Cost of production (as per production cost budget) Direct Materials Direct wages		 4,80,000 36,000	
Prime Cost		5,16,000	
Factory Overheads: Variable: Stores and spares (2 ½ % on sales)	20,000		

Light and power	5,000		
Repairs and maintenance	8,000	33,000	
Fixed:			
Works manager's salary	6,000		
Foreman's salary	4,800		
Depreciation	12,600		
Sundries	3,600		
		27,000	
Works cost			5,76,000
Gross profit			2,24,000
Less: Administration, selling and distribution overheads			14,000
Net Profit			2,10,000

Illustration: 6

CONTROL RATIOS

A factory produces 2 units of a commodity in one standard hour. Actual production during a particular year is 17,000 units and the budgeted production for the year is fixed at 20,000 units. Actual hours operated are 8,000. Calculate the efficiency and activity ratios.

Solution:

2 units are produced in one standard hour

For actual production of 17,000 units, standard hours will be

$$\frac{17{,}000}{2} = 8{,}500$$

For budgeted production of 20,000 units, budgeted hours will be

$$\frac{20{,}000}{2} = 10{,}000$$

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

$$= \frac{8{,}500}{8{,}000} x 100 = 106.25\%$$

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

$$= \frac{8{,}500}{10{,}000} x 100 = 85\%$$

Check your progress

1. **State whether the following statements are True or False**
   - (a) Fixed cost should never be included in Flexible Budget
   - (b) A budget prepared for a single level activity is called a static budget.
   - (c) Efficiency ratio determines the capacity used by the factory.
2. **Fill in the blanks**
   - (a) Budgetary control is a system of controlling ________________________
   - (b) Master budget incorporates all ________________________ budgets
   - (c) ZBB was first used by __________________________.

5.11 Summary

Budgeting is an essential phase of managing the activities of any type of organization. A budget is detailed plan that shows how resources should be acquired and used during a specific period. The master budget is a set of interrelated budgets, which in turn, are classified as either operating or financial budgets. The operating budget is a detailed description of the revenues and costs required for the profit goals of the firm. The financial budget shows the cash flows and financial position required to achieve these goals.

The real advantage of budgetary control well materialize when budget preparation is followed by feed back system. Reporting through well designed performance report is an internal part of budgetary control.

5.12 Key words

Budget
Budgetary Control
Fixed Budget
Flexible Budget
Zero Base Budget
Master Budget.

5.13 REVIEW QUESTIONS

1. Define budget and budgetary control. Give a description of important budgets.
2. Define budgetary control and state its objectives.
3. What is ‘budgetary control’? and how is it exercised?

   Discuss advantages and essentials for the success of budgetary control.
4. What is master budget? What are its components?
5. How and why cash budgets are prepared?
7. What is a sales budget and how is it prepared?
8. What do you understand by Zero Base budgeting? How is it different from traditional budgeting?
9. Explain any three control ratios.

10. From the following particulars, prepare a production Budget of Sales Corporation for the year ended on 30th June 2008.

	Sales (units)	**Estimated stock (units)**	
Product	**(As per Sales Budget)**	**1 July 2008**	**30 July 2008**
X	1,50,000	14,000	15,000
Y	1,00,000	5,000	4,500
Z	70,000	8,000	8,000

(Ans. Units to be produced:

X - 1,51,000 units

Y - 99,500 units

Z - 70,000 units)

11. A Company wishes to arrange overdraft facilities with its Bankers during the period April to June when it will be manufacturing most for stock. Prepare cash budget for the above period from the following data, indicating the extent of bank facilities the company will require at the end of each month:

	Sales Rs.	**Purchases Rs.**	**Wages Rs.**
February	1,80,000	1,24,800	12,000
March	1,92,000	1,44,000	14,000
April	1,08,000	2,43,000	11,000
May	1,74,000	2,46,000	10,000
June	1,26,000	2,68,000	15,000

50% of credit sales are realized in the month following sales and the remaining 50% in the second month following. Creditors are paid in the month following the month of purchase.

Wage are paid on the first of very next month.

Cash at bank on 1st April Rs. 25,000

[Ans. Cash on hand Rs. 53,000 (April)

Overdraft Rs. 51,000 (May)

Overdraft Rs. 1,66,000 (June)]

12. 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% capacity levels.

	At 80% capacity Rs.
Variable Overheads:	
Indirect labour	12,000
Indirect material	4,000
Semi-variable overheads:	
Power (30% fixed and 70% variable)	20,000
Repairs and maintenance	
(60% fixed and 40% variable)	2,000
Fixed overheads:	
Depreciation	11,000
Insurance	3,000
Others	10,000
Total overheads	62,000
Estimated direct labour hours	1,24,000

(Ans: Overhead Rate of recovery: Re 0.54 at 70% , Re. 0.50 at 80% and Re. 0.47 at 90%)

5.14 answers to Check your progress

1. a) False
   b) True
   c) True
2. a) Costs
   b) Functional
   c) Jimmy carter

5.15 Suggested Readings:

1. B.K. Chattergee, **Costing and Managerial Accounting for Managers,** Jaico Publishers, New Delhi.
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3. B.S. Khanna, I.M. Pandey, **Practical Costing,** S. Chand & Co, New Delhi.
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