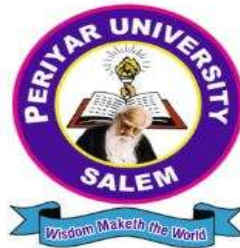


PERIYAR UNIVERSITY

**(NAAC 'A++' Grade with CGPA 3.61 (Cycle - 3)
State University - NIRF Rank 59 - NIRF Innovation Band of 11-50)
SALEM - 636 011**

CENTRE FOR DISTANCE AND ONLINE EDUCATION (CDOE)

BACHELOR OF COMMERCE SEMESTER - VI



CORE COURSE: MANAGEMENT ACCOUNTING

(Candidates admitted from 2024 onwards)

PERIYAR UNIVERSITY

CENTRE FOR DISTANCE AND ONLINE EDUCATION (CDOE)

B.Com 2024 admission onwards

CORE – XIV

MANAGEMENT ACCOUNTING

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UNIT-I**UNIT OBJECTIVES**

Management accounting provides internal decision-making support through cost analysis, budgeting, and performance evaluation. It differs from financial accounting, which focuses on external reporting. Financial statement analysis involves tools like ratios and comparative statements to assess a company's performance and financial health over time, aiding in strategic decision-making.

**NATURE AND SCOPE OF
MANAGEMENT ACCOUNTING**

1.1 INTRODUCTION

In the simplest sense, Management is defined as ‘what a manager does’ and such as, Marketing Management is ‘what a marketing manager does?’, Financial Management is ‘what a financial manager does?’, and Human Resource Management is ‘what a human resource manager does?’. Accordingly, a question is posed to us. The question is ‘what a manager does?’ The answer is obvious, and the answer is ‘a manager does make decisions’. Financial manager takes decision with regard to financial affairs of an organization, and human resource manager is making decisions pertaining to human resources of an organization.

Decision making is a process to arrive at a decision; the process by which an individual or organization selects one position or action from several alternatives. Decision making is an integral part of not only an individual’s life but also of an organization’s whole span of life.

Accounting is an art of science with discipline which records, classifies, summarizes and interprets financial information about the activities of a concern, so that intelligent decisions can be made about the concern. Thus, it is clear that accounting is great use in arriving at decisions as to activities of an organization.

The American Institute of Certified Public Accountants (AICPA) has defined Accounting as “The art of recording, classifying and summarizing in a significant manner and in terms of money transactions and events which are, in part at least, of a financial character and interpreting the results.”

1.2 Management Accounting

1.2 BRANCHES OF ACCOUNTING

Accounting is broadly classified into three branches. They are:

1. Financial Accounting , and
2. Management Accounting
3. Cost Accounting

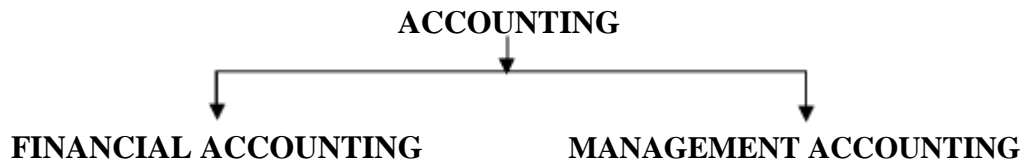


Figure 1.1 Branches of Accounting

1. Financial Accounting

Financial Accounting is concerned with the preparation of financial statements, namely trading account, profit & loss account and balance sheet. This accounts called final account or other name position statement. The financial statement is income and expenditure or fund inward and outward position, calculated and measurement of an organization this position statements.

Financial account help to business results are both of external and internal users of accounting information. This information useful to investor, creditors, governments, consumers and research scholars.

Financial accounting provided information helpful in strategic decision making for future development of an organization. These limitations of financial accounting gave birth to this new branch of accounting called management accounting.

2. Management Accounting

Management accounting provides necessary and useful information give to the managers for efficiently decision made. Management accounting is internally financial oriented. The primary purpose of management accounting is enabling the management decision by managerial position. The accounting information to management so that planning, organizing, directing and controlling of a dynamic business operation can be done in an orderly manner.

Management accounting begins ends from financial accounting or financial statements or final accounts. Management accounting is primarily concerned with the analysis and interpretation of financial statement namely profit and loss account and balance sheet.

Management accounting assists to managerial decision for future oriented to make dynamic decisions and there by active oriented control and enhance organizational effectiveness, management accounting is also known as “accounting for managers” and “accounting for managerial decisions”. Further, it is called “internal accounting” as it focuses more on effective internal management of an organization.



Cost accounting which is responsible for cost ascertainment and cost control is an integral part of management accounting.

Origin And Growth of Management Accounting

The term “Management Accounting” was first coined and used by the British team of accountants that visited the U.S.A. in 1950 under the auspices of Anglo-American Productivity Council. Since then, Management Accounting has grown into a fullfledged subject and is looked upon a separate and unique subject distinct form historical accounting (financial accounting) in recent years.

3. Cost Accounting

Introduction

A business concern is concerned with producing and providing of goods and services. No goods and services are produced at cost free. Expenses are incurred in producing and distributing goods and services. Cost means the total expenses incurred in producing a product or rendering a service. Costing is the process of ascertaining the total cost incurred in producing and distributing goods and services.

Cost accounting is an integral part of management accounting. It was born in response to the varied needs of managers for controlling costs and thereby maximizing profits.

Definition of Cost

The Costing Terminology of the Institute of Cost and Works Accountants, London defines cost as “the amount of expenditure (actual or notional) incurred on or attributable to a given thing”.

Definition of Costing

In the words of StaroldJ.Wheldon, “Costing is the classifying, recording and appropriate allocation of expenditure for the determination of the cost of products or services, and for the presentation of suitably arranged data for the purpose of control and guidance of management”.

Definition of Cost Accounting

The costing terminology of I.C.M.A , London defines cost accounting as “ the process of accounting for cost from the point at which expenditure is incurred or

1.4 *Management Accounting*

committed to the establishment of its ultimate relationship with cost centres and cost units. In its widest range it embraces the preparation of statistical data, the application of cost control methods and the ascertainment of the profitability of activities carried out or planned”.

1.3 DEFINITIONS OF MANAGEMENT ACCOUNTING

- 1) *“Management Accounting includes the methods and concepts necessary for effective planning, for choosing among alternatives business actions and for control through the evaluation and interpretation of performances”*
- American Accounting Association
- 2) *“Management accounting is the term used to describe the accounting methods, systems and techniques which coupled with special knowledge and ability, assist management in its task of maximizing profits or minimizing losses.”*
- Batty. J
- 3) *“Management Accounting is accounting for effective management.”*
- Bose N.K
- 4) *“Management Accounting is concerned with management”.*
- Harper. W.M
- 5) *“Any form of accounting which enables a business to be conducted more efficiently can be regarded as management accounting”*
- Institute of Chartered Accountants of England and Wales
- 6) *“Management Accounting is the presentation of accounting information in such a way as to assist management in the creation of policy and in the day-to-day operations undertaking.”*
- Institute of cost and Management Accountants
- 7) *“Management accounting is concerned with accounting information that is useful to management”.*
- Robert N. Antony
- 8) *“Management accounting is the adoption and analysis of accounting information and its diagnosis and explanation in such a way as to assist management.”*
- Rose.T.J
- 9) *Management accounting refers to “the application of accounting knowledge to the purpose of producing and of interpreting accounting and statistical informations designed to assist management in its functions of promoting maximum efficiency and in formulating and co-ordinating future plans and subsequently in measuring their execution.”*
- Treasury H.M

1.4 NATURE AND CHARACTERISTICS OF MANAGEMENT ACCOUNTING

We are done, keenly and carefully look in to the above definitions of management accounting, we can clearly identify certain characteristics or features of management accounting.

The salient treasures or characteristic of management accounting are:

1. Provides necessary information

Management accounting provides necessary information to the management level to managerial efficiently decisions for arrived at. Further, the main focus of management accounting lies in providing right information, at the right time and in the right manner.

2. Assists to management

Management primarily aims is maximizing benefits and minimizing costs. It is true that when cost is curtailed profit is enhanced. Management accounting paves a better way for adopting several tools of analysis and interpretation of financial statements such as ratio analysis, fund analysis and techniques of cost control like marginal costing and budgetary control. Thus, eventually, it helps the management in performing its functions most effectively and efficiently.

3. Enables to Achieves organizational objectives/ goal/ aims

Management accounting enables an organization achieve its objectives. An Organizational objectives such as providing better customer services, enhancing workers' efficiency and using resources optimally could be achieved through management accounting.

4. Enhances efficiency

Management accounting acts as a source for enhancing the overall efficiency of an organization. As different alternatives are weighed, measured and evaluated in selecting the best course of action, efficiency goes up. With the help of standard costing another technique used in management accounting, differences between standard cost and actual cost are found and necessary actions are taken as regards negative variances. This will eventually result into better performance and enhanced efficiency.

5. Employs concepts and techniques

Management accounting employs both relevant concepts and appropriate techniques so as to enable the management in making better managerial decisions. The concept of fund flow and the technique of fund flow statement also marginal cost concept and the technique of marginal costing are some of such examples in this regard.

6. Drives decision making

Management accounting converts the complex process of decision making as an easy affair. To manage future is managing data. Required data are supplied in the right form. Thus, managers at the top as well as middle levels could make timely decision wisely.

7. Facilitates forecasting

Management accounting is chiefly concerned with the future and it uses not only past data but also projected data. And to forecast the future performance and thereby to provide projected data, management accounting serves as a forecaster. For example, trend analysis is of great use in predicting the future trend as to sales and profit.

8. Follows no fixed norms

While financial accounting is governed by rigid rules, management accounting has no fixed norms. There are certain common tools of analysis of financial statements for drawing inferences, Yet, in using such tools and in drawing inferences, there are variations caused by the analysts' perception and personal judgment.

9. Covers cause and effect analysis

Management accounting includes both the causes for the occurrence of certain events along with their effects in business. Financial accounting deals with what had happened in the past. But, management accounting deals with the reasons why such things had happened and also deals with the effects of the happening of such things. For example, cost-volume-profit analysis, an important technique in management accounting, states the causes of change in volume of output and also its effect in cost and profit.

10. Focuses on internal use

Management accounting focuses on providing accounting information to the management for using them internally. Management accounting supplies data so as to suit the informational needs of the management.

11. Involves flexibility

Management accounting has great amount of flexibility in presenting information. No fixed format has been prescribed/followed. Varied formats have been used so as to suit the varied needs of organizations.

12. Encompasses fastness

Fastness is one of the uniquenesses of management accounting. Data/reports are presented to the management as and when they are warranted. Not only daily reports even hourly reports are made and presented. Such is the fastness of management accounting.

1.5 SCOPE OF MANAGEMENT ACCOUNTING

Management accounting aims are enabling the management for making managerial decisions. Accordingly, the scope of management accounting is so wide and very vast. Several disciplines and aspects come under the purview of management accounting as managerial decision making involves many subjects.

However, the following are some of the major areas included within the ambit of management accounting:

1. Financial Accounting

As we have seen earlier, management accounting begins where financial accounting ends. Thus, management accounting is an extension of financial accounting. Indeed, financial accounting is the base for management accounting. The end product of financial accounting namely financial statements forms the core aspect of management accounting. Though management accounting is mainly concerned with the future, financial accounting, which provides historical data, has become an integral part of management accounting.

2. Cost Accounting

Cost accounting is an internal part of management accounting. It is concerned with the ascertainment of cost and cost control. The techniques of cost accounting such as marginal costing and standard costing are also used in management accounting for arriving at managerial decisions such as make or buy decision, selecting the suitable product mix and avoiding negative cost variances.

3. Statistical methods and quantitative techniques

Statistical tools such as percentages, charts, diagrams and graphs are of great use in management accounting for presenting data in the most appropriate and desired form. Thus, statistical methods have become an integral part of management accounting. So also quantitative techniques such as probability distribution, regression analysis, linear programming, decision tree analysis are of great use in arriving at managerial decisions. In this way, quantitative techniques come under the purview of management accounting.

4. Financial Management

Financial management is concerned with financial decisions such as an investment decision, financial decision and dividend decision. All the financial decisions are basically managerial decisions in the sense such are the decisions taken by the managers helm of affairs in general and by financial managers in specific.

5. Budgeting and Forecasting

Budgeting and forecasting are the two major areas that are closely associated with management accounting. To set aside funds for performing several business activities like

1.8 Management Accounting

advertising, investment, advertising budget and capital budgeting are of great help. The management of any business concern is very much concerned with the aim of satisfying the needs and wants of its customers. In fulfilling this end, forecasting plays a vital role. For example, demand forecasting and sales forecasting are the essentials for achieving success in this highly dynamic and competitive business world.

6. Inventory Management

The term 'inventory' refers to stock of raw materials, stock of work in progress and stock of finished goods. Indeed, inventories involve huge amount of working capital. The success of an organization heavily relies upon its inventory management. Inventory management includes activities like determining inventory levels, arriving at economic order quantity. Thus, the study of inventory management will be assisting management accountants in arriving at relevant inventory decisions.

7. Tax Accounting

Business concerns do exist to serve and eventually to earn profit. And, income earned by a business concern is taxable as per tax laws. Tax accounting includes arriving at taxable income, filing of tax returns, paying tax to the respective authorities like central government, state government and local bodies. Tax accounting has become an integral part of management accounting since acts and laws relating to business income such as direct taxes, indirect taxes and goods and service taxes do affect managerial decision-making.

8. Internal Audit

In internal accounting i.e management accounting, internal audit plays an important role. Internal audit is concerned with the development of a suitable audit system for internally controlling both business operations and managerial activities.

9. Management Information System

Management accounting is primarily concerned with the provision of accounting and qualitative information for making complex decision making process ease. Management information system deals with the provision of required information in the most suitable form. In management accounting, reports are presented to the management as to many aspects in many forms. For instance, reports are presented in the form of funds flow statement, quantitative statement, statement of proprietors' funds. Further, interim reporting is another important aspect of management accounting. Thus, management information system has become an indispensable part of management accounting.

10. Office Management

The main or general office is the pivot point of any organization as it is the reservoir of information. The effective way of disseminating right information to the right manager at the right time and in the right place heavily depends upon proper office management. Office management is concerned with filing and indexing of records,

circulars and the like. Office methods and procedures are closely related to the functions of management accountant.

11. Computer Applications

Managers of today arrive in managerial decisions with the support of computer – aided data analysis. Management accountants are expected to possess knowledge and skill as to accounting packages like Tally and wings and they are also expected to be good at SPSS (Statistical Packages for Social Sciences). Basically, management accountants are expected to have sound knowledge and adequate skill on 'excel'. Thus, the study of computer application in business and computer – aided analysis of financial statements has become an integral part of management accounting.

1.6 OBJECTIVES OF MANAGEMENT ACCOUNTING

The primary objective of management accounting is to assist management in formulating policies and also in arriving at managerial decisions. In the process of achieving this primary objective, some other objectives have been fulfilled by management accounting. The main objectives of management accounting are following:

1. To formulate plans and policies

Planning is the first and foremost function of management. Planning precedes decision-making. Plans are the tools through which organizational goals are achieved. Management accounting aims in formulation of plans that are essential to carry out business operations. Further, management accountants formulate policies as to production and marketing with the help of both past and projected data.

2. To assist the process of interpretation

Analysis of financial statements is one of the crucial aspects of management accounting. Interpretation is possible only with analysis and analysis becomes useless without interpretation. Management accounting aims in analysis of financial statements and business situations by using appropriate tools and techniques like ratio analysis, funds analysis and capital budgeting. And such analysis is of great use in interpreting business results and eventually in drawing inferences and conclusion.

3. Help to Managerial Decisions

Managerial decisions are the end product of management accounting. It helps to management accountants for managerial decisions like product decision, pricing decision, channel decision and decision as to promotion of the business. Formation of centres like cost centres and profit centres is a hallmark of management accounting. And, such centres are made responsible in cost estimation cost control and also in profit planning.

4. To direct and motivate to employees

Employees' morale is an essential in enhancing organizational efficiency. To boost employees' morale, they must be duly directed and persistently motivated. As targets are laid down by the management with the help of data given by management accountant, employees are encouraged to achieve such set targets.

5. To present reports

Management accounting is presenting reports to the managers concerned. The performance of the organization as a whole and also the performance of each division/department of an organization are presented in the form of varied reports. Interim reports are also presented to the management wherever and whenever such reports are required.

6. Help to Organization

Organizing the activities of an organization is one of the functions of management. To help an organization in organizing its operation is one of the objectives of management accounting. Business operations need to be organized in a systematic and scientific manner. Management accounting by establishing responsibility centres and also by establishing methods and procedures helps a lot in organizing business operations.

7. To co-ordinate operations

Management accounting has the objective of co-ordinating business operations so that organization's efficiency could be enhanced. Business operations begin with the task of identifying customers' needs and end with the task of fulfilling them with competitive advantage. Management accounting provides necessary tools such as budgets and reports for co-ordinating various business operations.

8. To facilitate effective control

Management accounting is useful not only for making decisions but also for exercising control over business operations and workers' performance. Management accounting includes devices like variance analysis to control cost, break-even analysis to control volume of output, flexible budget to control the desired level of activity. With the help of various tools and techniques of management accounting, complete control is made possible.

9. To increase productivity and efficiency

Management accounting aims is maximizing profits and minimizing losses. In the processing of achieving this end, workers' productivity and organizational efficiency must have been enhanced. Without enhancing workers' productivity and organizational efficiency no organization could increase its profits. Management accounting ensures increased productivity and efficiency by adopting suitable methods and measures, tools and techniques.

Objectives of Management Accounting

- ❖ To formulate plans and policies
- ❖ To assist the process of interpretation
- ❖ Help to managerial & decision
- ❖ To direct and motivate employees
- ❖ To present reports
- ❖ Help to organizing
- ❖ To co-ordinate operations
- ❖ To facilitate effective control
- ❖ To increase productivity and efficiency

1.7 FUNCTIONS OF MANAGEMENT ACCOUNTING

Every business concern is composed of resources. The major resources are: men, machines, materials, methods, markets and money. They are called 6 M's of an organization. In general, such resources are not found in plenty but always there is paucity in such resources. Accordingly, there are resource constraints and the management has the challenge of using them the appropriate level. It is in this context, modern management accounting focuses more on function that will eventually ensure better solution and appropriate course of action so that business problems could be solved with sound decisions.

Management accounting performs the following functions are:

1. Planning and forecasting

Management accounting provides information in such a way which is useful for proper planning and forecasting both for short-term as well as long-term and forecasting is done with the help of tools of management accounting like budgetary control, standard costing, marginal costing and trend analysis.

2. Presentation of modified data

Financial accounting just provides past or historical data which are not enough to take appropriate managerial decisions. Management accounting modifies such historical data through devices like comparative statements, common-size statements, trend analysis, ratio analysis and fund analysis. And, such as modified data are duly presented to the management through relevant reports.

3. Analysis and interpretation of data

Management accounting does perform the function of analysis and interpretation of data. Analysis is done by several tools like variance analysis, cost-volume profit analysis, ratio analysis, for giving due interpretation to the management about business progress and performance of a department/division. Based on such as analysis and interpretation, inferences, i.e. managerial decisions are taken.

4. Helpful in strategic decision making

The role of management accountant is chiefly concerned with making strategic decisions. Such decisions may be related to expansion of business, increasing volume of output, keeping of inventory and the like. Several decision tools are being used for arriving in strategic decisions. For example, flexible budget is helpful in taking decision as to expanding volume of output, ABC analysis (Always Best Control), VED analysis (Vital, Essential and Desirable), and JIT technique (Just – in –time) are helpful in taking decision with regard to inventory management.

5. Facilitates Managerial Control

Management accounting is for managerial decisions and managerial control. Decision – making and controlling are the two managerial functions which go hand in hand. Cost is controlled through budgetary control, standard costing and responsibility accounting. With the help of strategic decisions that are made possible by management accounting, managerial control is made possible eventually.

6. Use of qualitative data

Financial accounting uses only the data which are quantifiable. In other words, it does not include non-monetary transactions and events that occur in the ordinary course of every business concern. To arrive in managerial decisions and also to facilitate managerial control, management accounting uses qualitative information too. For example, the work environment that prevails within the organization, degree of competition that exists in the market are being taken into account in management accounting.

7. Communicating management policies

Management accounting is also responsible for effective managerial communication. On the other hand, management accounting is an instrument for formulating management policies like production policy, pricing policy and on the other hand, such formulated management policies are duly communicated to all the managers who are concerned with such policies. For instance, the newly formulated production policy is communicated to the manager in-charge of production department.

8. Monitoring business results

Management accounting is accounting for effective management. Exercising effective management demands monitoring business results. Management accounting

paves a better way for monitoring business results through progress reports, interim reports, performance budgets, variance analysis and the like.

9. Adopting remedial measures

With the help of continuous monitoring system of management accounting, necessary remedial measures could be easily adopted. To make error is human So every organization which is composed of human beings. Committed errors could be corrected by adopting remedial measures. Management accounting provides enough scope for adopting remedial measures mainly through perpetual inventory system, internal control, revised budgets and the like.

10. Helpful in tax administration

Management accountants play an important role in administering issues related to tax. In the determining taxable income and in filing tax returns, management accountants contribute a lot. Tax administration is carried out of course by the company auditor but always in consultation with the management accountant.

Functions of Management Accounting	
<ul style="list-style-type: none"> ❖ Planning and forecasting ❖ Analysis and interpretation of data ❖ Facilitates managerial control ❖ Communicating management policies ❖ Adopting remedial measures 	<ul style="list-style-type: none"> ❖ Presentation of modified data ❖ Helpful in strategic decision making ❖ Use of qualitative data ❖ Monitoring business results ❖ Helpful in tax administration

1.8 TOOLS AND TECHNIQUES OF MANAGEMENT ACCOUNTING

Management accounting consists of tools and techniques that are used for analysing of data and drawing inferences. One cannot imagine management accounting without such tools and techniques. Management accounting directs the management as to the areas where the management should pay immediate and more attention. Further, management accounting aims in solving problems which exist in the course of carrying out business operations. In performing these tasks, application of tools and techniques has become an indispensable one. The important tools and techniques used in management accounting are given below:

1. Cash Flow Analysis

This is a technique for analyzing the movement of cash between two dates of balance sheets. It deals with both cash inflows and cash outflows for a given period of time. Cash from operation is also found out while preparing cash flow statement. Cash flow analysis is of great help for short term financial planning. The various sources

1.14 Management Accounting

through which cash comes into business and the various purposes for which cash goes out of business have been located and accordingly due control is exercised as to cash control.

2. Fund Flow Analysis

‘Funds’ refers to many things. While in a narrow sense funds refers to ‘cash’, in a broader sense funds means ‘all financial resources’. Nevertheless, by funds what we popularly mean is net working capital. Funds flow analysis is done by preparing a statement of changes in financial position called ‘funds flow statement’. This statement consists of both sources of funds and uses of funds. Funds from operations are also arrived in analyzing the movement of funds between two dates of balance sheets. It is of great use for long-term financial planning and decision- making.

3. Ratio Analysis

Ratio refers to mathematical relationship between two variables. There are various types of ratios. Liquidity ratios such as current ratio, quick ratio are useful for ascertaining the liquidity position of a firm at a given period of time. Activity ratio like inventory turnover ratio, debtors velocity, creditors velocity are of great use in determining the efficiency of an organization. Solvency ratios such as debt-equity ratio and interest coverage ratio are helpful in deciding upon the ability of a firm in settling its long-term liabilities. Eventually, profitability ratios like net profit ratio and return on investment are useful in deciding upon the profit earning capacity of an organization.

4. Trend Analysis

As the name implies trend means the position and progress of something over a certain period of time. Trend might be of either upward trend or downward trend. For example, the trend of sales and profit could be assessed over a particular range of time say 2005 – 2010. Thus, trend analysis is of great use in predicting and forecasting future sales, profit and the like.

5. Marginal Costing

Marginal cost is the additional cost incurred in producing an extra unit. The process of ascertaining marginal cost is called marginal costing. Marginal costing technique is useful in determining the point of no profit and no loss called break – even point. This technique is widely applied in making many managerial decisions like make or buy, key or limiting factor, whether to expand or shut – down business and etc.

6. Standard Costing

Standard cost is the pre-determined cost. In other words, it is the cost set in advance by the management as to producing some goods and/or some services. The whole process of ascertaining stand cost is called standard costing. This technique is very much useful in controlling costs. Differences between the standard costs and actual costs called variances are found out with regard to all elements of cost namely material, labour and

overheads. And remedial measures could be taken in order to redress negative or unfavorable variances.

7. Budgetary Control

Controlling costs by preparing budgets is called budgetary control. A budget is a quantitative statement as to something prepared for a definite period of time. For example: Production and sales budgets are prepared for a certain period say for the first quarter ending 30th June, 2017.

8. Responsibility Accounting

Responsibility accounting is an accounting system under which managers are given decision-making authority and responsibility for each activity occurring within a specific area of the company. Under this system, managers are made responsible for the activities of their own segments. These segments may be called departments or divisions or sections. In responsibility accounting, responsibility centres are made and this technique gives focus on such established responsibility centres. The managers of different responsibility centres are responsible for controlling the costs of their centres. Thus, responsibility accounting is used as a controlling device.

9. Inflation Accounting

Inflation accounting deals with changes in prices of assets of a company. Rise in general price level is termed inflation. The direct effect of inflation is the reduction in the purchasing power of money. The following are the generally accepted methods of inflation accounting: Current Purchasing Power Method, Current Cost Accounting Method, and Hybrid Method. Inflation accounting shows current profit based on current prices and the balance sheet under inflation accounting exhibits a fair view of the financial position of a firm.

10. Capital budgeting

Capital budgeting is concerned with capital expenditure proposals. Capital expenditure is long-term in nature. Examples of capital expenditure are construction of a new building, purchasing a sophisticated machine, launching a new product and the like. This technique of capital budgeting is of great use in choosing the best capital expenditure proposals by using appraisal tools like pay-back period and net present value method.

11. Management Information System

Information is the input to managerial decisions. In the process of enabling managers in taking decision in their respective departments, information should be presented in an appropriate form and at the right time and place. To disseminate and present information in such a way that works are carried out smoothly and decisions are arrived at effectively, a management information system is the tool used in management accounting. MIS takes care of presentation of right information to the right manager in the right form at the right place and at the right time.

12. Statistical Tools and Techniques

Management accounting includes a lot of tools and techniques including statistical tools which facilitate the process of decision making. There are statistical tools like percentages, charts, diagrams, and statistical techniques like probability distribution, decision-tree analysis that have been used by management accountants in arriving at managerial decisions.

1.9 INSTALLATION OF MANAGEMENT ACCOUNTING SYSTEM

Management accounting system is properly installed in the organization.

The installation of management accounting system will depend upon the many factors such as nature of business, accounting needs, scale of operations etc. Further, the installation of management accounting system should be done in a comprehensive manner under the guidance of management accountant who is otherwise called controller of accounts.

The following steps will have to be taken for installation of an efficient and effective management accounting system:

- 1) An appropriate organizational manual should be prepared for the entire organization. This scope of authority and responsibility of each managerial level. Thus, it prevents overlapping of function.
- 2) The required staff should be recruited, trained, placed and developed.
- 3) Appropriate forms, returns, statements should be designed, prepared and made available.
- 4) A complete integration of all systems such as cost accounting, financial accounting, financial planning, economics and statistics must be given effect.
- 5) Cost-centres, investment centres, profit-centres and budget-centres should be clearly set up.
- 6) The appropriate system of budgetary control should be introduced.
- 7) The technique of standard costing laying down standards of performance should also be set up.
- 8) Adopting operational research techniques so as to cope with the changing need of the hour.

1.10 MANAGEMENT ACCOUNTANT STATUS, FUNCTIONS AND DUTIES

The executive who is entrusted with the functions of management accounting is known as Management Accountant. Management accounting provides significant economic and financial data to the management and the management accountant is the channel through which this information efficiently and effectively flows to the management.

The Management Accountant has a very significant role to perform in the installation, development and functioning of an efficient and effective management accounting system.

In large concerns, his designation may be that of a “Controller”, “Chief Accountant”, “Chief Accounts Officer”, “Finance Controller”. Management accountant plays an important role in gathering, compiling, reporting and interpreting internal accounting information.

Status of Management Accountant

The organizational status of management accountant varies from concern to concern depending upon the individual character of the management accountant and upon the pattern of management system that prevails in that concern. Shri P.C. Tandon has vividly described the status of management accountant as under:

“The Management accountant is exactly like the spokes in a wheel, connecting the rim of the wheel and the hub receiving the information. He processes the information and then returns the processed information back to where it came from.”

However, the Controllers’ Institute (now known as Financial Executive Institute) has suggested the following organizational status of the controller (Management Accountant):

- (i) He should be an executive officer at the policy-making-level responsible directly to chief executive officer of the business. His appointment or removal should require the approval of the Board of Directors.
- (ii) He should be required by the Board of Directors to present directly periodic reports covering the operating results and financial conditions of the business.
- (iii) He should preferably be a member of Board of Directors and all other top policy-making groups. At the minimum, he should be invited to attend all meetings of such groups with a right to be heard.
- (iv) Dr. Don Barker “sees a very bright future for the management accountants. According to him “management accountants will be presented with many opportunities for innovative actions in the global economic environment. In addition to their role of providing accurate, timely and relevant information, management accountants will be expected to participate as business consultants and partners with management in the strategic planning process.”

1.18 Management Accounting

A management accountant or controller can exercise better influence and control more by his personality, mental ability, industrial background, competence and integrity than by virtue of his holding the office.

Functions of Management Accountant

The functions of management accountant heavily depend upon the concern and also upon the individual needs of the concern. Yet, the Financial Executive Institute of America has laid down the following functions of a management accountant:

1. *Planning for control of accounting functions*

The management accountants will plan, co-ordinate and control the accounting functions by using various tools and techniques. Manager can establish an effective system of internal control with the help of budgets, sales forecasts, capital budgeting and tax planning.

2. *Interpreting and reporting*

The management accountant has to analyze and interpret the financial data and the inferences have to be reported by managerial levels of management. This function will include integration of financial accounting and cost accounting and recording of actual performance to ascertain deviations.

3. *Evaluating and counseling*

The management accountant evaluates various plans and programmes. This account operations and activities in order to establish their relative importance for managerial interpretation. In the account provides counseling service to the management and the manager educates the executives on the need and importance of management information system.

4. *Tax administration*

The management accountant is expected to look after all matters relating to taxes. The manager has to report to government agencies a required under different tax laws.

5. *Protection of assets*

The management accountant is the custodian of the assets of the business concern. The manager protects the assets of the business concern through an efficient system of internal check and also by exercising internal audit.

6. *Economic appraisal*

The management accountant is expected to have a comprehensive study on the socio-economic factors affecting business operations. The manager to report the impact of such varying socio-economic factors and government policies to the economic policy of the concern.

7. Government reporting

The management accountant supervises the returns and reports to be sent to the government agencies.

Duties of Management Accountant

The primary duty of management accountant is to help management in arriving at appropriate managerial decisions. Further, it is the duty of the management accountant to keep all levels of management informed of their real position.

Controllers' Institute of America has defined the following duties of Management Accountant or Controller:

- 1) The installation and supervision of all accounting records.
- 2) The preparation and interpretation of financial reports and statement.
- 3) The continuous audit of accounts and records.
- 4) The compilation of production cost.
- 5) The compilation of costs of distribution.
- 6) The taking and costing of all physical inventories.
- 7) The preparation and filing of tax returns and the supervision of all matters relating to taxes.
- 8) The preparation of annual budget as budget director covering all activities for submission to the Board of Directors.
- 9) The ascertainment that all properties are properly and adequately insured.
- 10) The initiation, preparation and issuance of standard practices relating to all accounting matters and procedures and the co-ordination of the system.
- 11) The maintenance of adequate records of authorized appropriations and the determination that all sum expended pursuant thereto are properly accounted for.
- 12) The ascertainment that financial transactions covered by minutes of the Board of Directors and/or executive committees are properly executed and recorded.
- 13) The maintenance of adequate records of all contracts and leases.
- 14) The approval for payment (and/or countersigning) of all cheques, promissory notes and other negotiable instruments.

- 15) The examination of all warrants for the withdrawal of securities from the vaults and the determination that such withdrawals are made in conformity with the by-laws and regulations established.
- 16) The preparation or approval of the regulations or standard practices required to assure compliance with orders of regulations issued by duly constituted government agencies.

1.11 ADVANTAGES OF MANAGEMENT ACCOUNTING

In the present day complex business world, management accounting has become an integral part of the management. Further, management accounting has become an indispensable part of the management. The following are the advantages of management accounting:

1. Proper Planning

Proper planning and effective implementation of formulated plans are made possible by management accounting. By formulating, policies, preparing budgets and establishing norms and procedures planning function is effectively carried out in management accounting.

2. Effective Organization

Effective organization is one of the end products of management accounting. Organizing involves grouping of business activities in a way as to identify the authority and responsibility within the organization. The entire organization is divided into suitable cost and/or profit centres, responsibility and/or investment centres. A sound system of internal control for cash of such centre paves way for effective organization.

3. Continuous Co-ordination

The purpose of management accounting i.e. maximization of profit/benefit and minimization of loss/cost is made possible mainly by continuous co-ordination of all the business activities of a concern. Through departmental budgets and reports, effective co-ordination is achieved.

4. Competitive Controlling

Every business concern is expected to exercise competitive control over its operations. Competitive controlling refers to controlling the activities of an organization in the more appropriate manner than that of its competitors. By arriving in variances and also by evaluating performance of each department, competitive controlling is made possible.

5. Maximum Return

Maximum return on capital employed is ensured by the use of management accounting because it helps in the functions of planning, co-ordination and control.

6. Regular Motivation

Employee morale is one of the essentials of successful business concern. Based on the interim reports and performance budget, the management duly honours the authorities who are responsible for optimum achievement. The under achievers are given necessary punishment for improving their efficiency in the days to come.

7. Better and Improved Service

Better and improved services by management to customers are assured by management accounting. This is made possible by management information system performance budgeting and responsibility accounting.

8. Improved Industrial Relations

Unacceptable standards or sub-standard which often is responsible for unhealthy and bad relations between management and labour class can be removed by the use of management accounting. Thus, industrial relations may be improved and made healthier.

9. Commendable Communication

Management accounting helps in communicating up to date information to various parties interested in successful functioning of the business concern. Through proper reporting system, necessary data are given to managers concerned. By providing right information to the right manager at the right place in the right time and in the right form, management accounting paves way for commendable communication.

10. Helps to Decision – Making

Management accounting helps the management in decision-making process by taking into account the effect of changes in socio-economic and commercial conditions by using both quantitative and qualitative information.

Advantages of Management Accounting

- Proper Planning
- Effective Organization
- Continuous Co-ordination
- Competitive Controlling
- Maximum Return
- Regular Motivation
- Better and Improved Services
- Commendable Communication
- Helps in Decision-Making

1.12 LIMITATIONS OF MANAGEMENT ACCOUNTING

Like every coin has two sides, management accounting too has its own negative aspects. It is true that management accounting promotes efficiency and eventually it leads to effective management. Nevertheless, it suffers from certain limitations. Some limitations are due to its reliance on financial accounting. Yet, the other limitations are due its evolutionary stage.

The major limitations which limit the effectiveness of management accounting are given below:

Limitations of Management Accounting

- Evolutionary Stage
- Limitations of Basic Records
- Warrants persistent efforts
- It is only a tool
- Costly installation
- Wide Scope
- Personal Bias
- Resistance from many quarters
- Lack of knowledge
- Presents only data

1. Evolutionary Stage

Management accounting is comparatively a new concept in accounting. It is still in a developing stage. It is not a perfectly developed discipline. Thus, it has the same impediments as a new discipline will have e.g. fluidity of concepts, raw techniques and imperfect analyzing tools.

2. Limitations of Basic Records

Management accounting is nothing but an extension of financial accounting. Financial accounting is the base for management accounting. Therefore, almost all the limitations of financial accounting have become the limitations of management accounting.

3. Warrants Persistent Efforts

The inferences and conclusions drawn by a management accountant are not implemented automatically. Continuous and concerted efforts are warranted to execute such inferences and conclusions. In this regard, the management accountant has to take a lot of efforts in convincing all the managers concerned before a final decision is taken as to the execution of such inferences and conclusions.

4. It is only a tool

It is true that management accounting acts as a tool to arrive at managerial decisions. However, it is not an alternative of management. Management accountant just provides data and presents information. The final decisions and corrective steps are taken by the management.

5. Costly Installation

The installation of management accounting systems requires huge costs on account of an elaborate organization and numerous rules and regulations. Thus, it can be adopted only by big concerns.

6. Wide scope

The scope of management accounting is very wide and diverse. It includes several disciplines like quantitative techniques, managerial economics, financial management etc. Management accounting considers both monetary as well as non-monetary factors. If the knowledge in any of these subjects is adequate, the genuiness and authenticity of the inferences drawn are impaired.

7. Personal Bias

Though management accounting facilitates managerial decision making, the final decision is taken by the managers concerned. So the objectivity of the decision is influenced by such persons' capacity to judge and ability to make decisions. As final decision is taken by responsible persons, personal prejudices and biases are always there which eventually affect the objectivity of such decision.

8. Resistance from many quarters

The installation of management accounting system does require radical changes at almost all levels in the entire organization. It calls for a rearrangement of the personnel and the activities which is generally not liked by the people concerned. Moreover, it involves complete mental change over the preview pattern, in the absence of which psychological resistance is but inevitable.

9. Lack of Knowledge

A management accountant is expected to have complete knowledge in related subjects like accounting, management, law, statistics, managerial economics etc. which is generally not possible. The imperfect and inadequate knowledge of such subjects may lead to wrong decisions.

10. Presents only data

Management accounting is primarily concerned with the presentation of data to the management. Management accountant can only inform and of course advise the management at the maximum. But the final decision is not taken by manager.

1.13 DISTINCTION BETWEEN FINANCIAL ACCOUNTING AND MANAGEMENT ACCOUNTING

Financial accounting and management accounting are closely interrelated since management accounting is an extension of financial accounting. Management accounting is basically based on the historical data provided by financial accounting. Management accounting is made possible mainly by financial accounting and without management accounting no managerial decision is made possible. While financial accounting ends with the preparation of financial statements, management accounting begins with the analysis of given financial statements.

In spite of the close relationship that exists between financial accounting and management accounting, there are several points of distinction between these two branches of accounting and they are given below:

Point of Distinction	Financial Accounting	Management Accounting
Objective	The primary objective is to make periodical reports to external parties like owners is a internal party, creditors and government.	The primary objective is to assist internal management.
Accounting Principles	Governed by Generally Accepted Accounting Principles (GAAPs)	There are no such GAAPs in management accounting.
Audit	Under the company law, auditing is compulsory.	Auditing is not possible as there are no GAAPs.
Coverage	Covers the entire range of business	Covers only certain parts of the business which are relevant to managerial decision- making.
Data used	Actual and past data	Projected and estimated data
Description	Anything which cannotbe	Anythingwhichcannotbe

	described in accounting figures is outside the scope of financial accounting.	described in accounting figure is also included in the scope of management accounting
Development	Financial accounting has been developed as a full-fledged discipline.	Management accounting is still in its evolutionary stage.
Flexibility	Existence of rigid rules makes financial accounting less flexible.	As there are no GAAP, management accounting has greater flexibility.
Focus	Focus is on external parties. It is externally oriented. It is otherwise called external accounting.	Internally oriented. Focus is on internal management. It is also known as internal accounting.
Information applied	Only quantitative information is used.	Both quantitative and qualitative information are used.
Legal compulsion	Financial accounting has become compulsory for every business.	Management accounting is optional. It is adopted on voluntary basis to enhance managerial efficiency.
Performance	Financial accounting merely shows the overall performance (results achieved during a particular period)	Management accounting tells the divisions/departments which underperform.
Period	Financial statements are prepared for a particular period say for one year.	Management accounting provides information whenever it is required during the whole year.
Precision	Financial accounting provides precise and accurate data and there is more emphasis on precision.	Management accounting allows approximation and there is less emphasis on precision.
Presumptions	Financial accounting does not presume the existence of management accounting.	Management accounting presumes the existence of financial accounting.
Publication	Financial statements like profit and loss account and balance sheet are published for the use of general public.	All the reports, statements and forecasts made by management accounting are for the internal use of management and they are not published.
Quickness	Reporting of financial accounting is slow and time consuming.	Reporting of management accounting is very quick and so fast.

Reporting	Reporting is done for the outsiders like bankers, investors and government agencies.	Reporting is done for internal use only and for the benefit of different level of management.
Values	Financial accounting lays emphasis on certain values such as objectivity, validity and accuracy.	Management accounting lays emphasis on certain values like flexibility, comparability and relevancy.

1.14 DIFFERENCES BETWEEN FINANCIAL ACCOUNTING AND COST ACCOUNTING

1. Purpose

The purpose of financial accounting is to provide information to external parties. But, the purpose of cost accounting is to provide cost data to the authorities concerned in the organization.

2. Mandatory requirement

As per the Companies Act and Income Tax Law, financial accounting is obligatory/mandatory for all business concerns. For certain industries, cost accounting is mandatory/obligations as per the Companies Act.

3. Purview

All commercial transactions come under the purview of financial accounting. In cost accounting, focus is on transaction relating to manufacturing and sales of goods and services.

4. Reveal of results

Financial accounting reveals the results of the business as a whole. Cost accounting shows profit and profitability of each product, process and operation.

5. Reporting

Financial accounting provides financial data once in a year. Cost accounting provides cost data at different intervals. Reports are presented bi-annually, quarterly, monthly, fortnightly, weekly and even daily.

6. Beneficiaries

Financial accounting is primarily beneficial to external parties. Cost accounting is chiefly beneficial to managers at different levels in the organization.

7. Pricing

Financial accounting fails to provide information useful for pricing. Cost accounting provides adequate and necessary data useful for formulating pricing policies.

8. Evaluating efficiency

Financial accounting has no scope for evaluating efficiency of the different department/division of a business concern. In cost accounting, there is enough room for measuring/evaluating efficiency of each department division of a business concern.

1.15 DISTINCTION BETWEEN MANAGEMENT ACCOUNTING AND COST ACCOUNTING

Management Accounting and Cost Accounting

Both management accounting and cost accounting are the expanded forms of financial accounting. There are similarities among these two branches of accounting on certain aspects like periodicity of reporting, use of techniques. Nevertheless, on certain other aspects, there are differences between management accounting and cost accounting. While cost accounting focuses on cost control, management accounting pays emphasis on managerial decisions. Indeed, the limitations of financial accounting first gave birth to cost accounting and then the inadequacy of cost accounting for arriving at managerial decisions caused the emergence of management accounting.

The following are certain important points of distinction between cost accounting and management accounting:

Point of Distinction	Cost Accounting	Management Accounting
Purpose	The main purpose is to provide data as to current and projected cost of product, service or process	The main purpose is to provide required data to the management in specific for arriving at managerial decisions.
Principles	A few principles and procedures are followed in cost accounting.	No much principles and procedures are being followed in management accounting. The data are prepared and presented as they are wanted by the management.
Scope	The scope of cost accounting is primarily concerned with cost ascertainment and control.	The scope of management accounting is very wide. It includes both financial accounting and cost accounting. Further, it includes tax planning and analysis and interpretations of financial

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		data.
Data used	Cost accounting considers only quantitative data. Further, cost accounting uses past and present data.	Management accounting uses both qualitative as well as quantitative data. Further, management accounting uses past, present and projected data.
Beneficiaries	Both the internal management and the external parties are benefited from cost accounting	Management accounting serves only the needs of internal management. So, the only beneficiary of management accounting is the internal management.

SELF ASSESMENT QUESTIONS
Answers for Check Your Progress**I.Choose the correct answer from the given options:**

1. Financial accounting is also known as
 - a) Historical accounting
 - b) External accounting
 - c) Internal accounting
 - d) Both (a) and (b)
2. Financial accounting deals with
 - a) Past data
 - b) Present data
 - c) Past and present data
 - d) Past, present and projected data.
3. Cost accounting deals with
 - a) Past data
 - b) Present data
 - c) Past and present data
 - d) past, present and projected data.
4. Management accounting deals with
 - a) Past data
 - b) Present data
 - c) Past and present data
 - d) Past, present and projected data.
5. Management accounting is also called
 - a) External accounting
 - b) Internal accounting
 - c) Accounting of managerial decision
 - d) Both (b) and (c)
6. The term 'Management Accounting' was first used in:
 - a) 1930
 - b) 1940
 - c) 1950
 - d) 1960
7. Management accounting is concerned with
 - a) Recording of accounting data
 - b) Recording of cost data
 - c) Recording of financial data
 - d) Presentation and interpretation of accounting data

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8. Which of the following branches of accounting is statutory?
- a) Financial accounting b) Cost accounting
c) Management accounting d) All the above
9. The purpose of management accounting is
- a) Revealing business results b) Controlling cost
c) Maximizing profit d) Managing business effectively
10. Management accounting is suitable for
- a) Small business concerns b) Medium – sized business
c) Large business concerns d) All sorts of business concerns

Answers : 1. (d) 2. (a) 3. (c) 4. (d) 5. (d) 6. (c) 7. (d) 8. (a) 9. (d) 10. (c)

II Fill in the blanks with appropriate words.

1. Management accounting is an _____ of financial accounting.
2. Financial accounting serves the needs of _____ parties.
3. Cost accounting is concerned with the ascertainment and _____ of cost.
4. Management accounting assists management in arriving at managerial _____.
5. Management accounting is concerned with _____ information that is useful to the management.
6. Cost accounting and management accounting are _____ in nature.
7. Management accounting has a _____ scope than cost accounting.

Answer: 1.extension 2.external 3.control 4.decisions 5.accounting 6.complementary 7.wider.

III State whether the following statements are true or false:

1. Financial accounting involves no analysis and interpretation of data.
2. Cost is the expenses incurred in producing a product.
3. Management accounting is more precise than financial accounting.
4. Reporting is done more frequently and quickly in financial accounting.
5. Management accounting includes both quantitative and qualitative data.

Answers: 1. True 2.True 3.False 4.False 5.True.

IV Short Answer Questions

1. Define Accounting
2. Define Management Accounting

V Essay Type Questions

1. Explain the scope of Management Accounting.
2. What are the advantages and limitations of cost accounting?
3. Briefly explain the functions of management accounting.
4. What are the points of differences between financial accounting and management accounting?
5. Distinguish between:
 - a) Financial Accounting and Cost Accounting
 - b) Cost Accounting and Management Accounting
6. Explain the system of installation of management accounting in an organization.
7. Explain the objectives of management accounting.
8. Explain the functions and duties of management accountant.
9. Explain the advantages and limitations of management accounting.

VI .Case Study Questions

1. “While financial accounting is external management accounting is internal to business” Discuss.
2. “Management accounting is accounting for effective management”. Explain
3. “Management Accounting is the best tool for the management to achieve higher profits and efficient operations”. Discuss.
4. “Management accounting is an extension of financial accounting” Discuss
5. “Management accounting begins where financial accounting ends”.
6. In the light of the above statement, discuss the functions of financial accounting and management accounting.
7. Any form of accounting which enables business to be conducted more efficiently can be regarded as management accounting. Elucidate.

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8. “Management accounting provides immense help in managerial decision making”
Discuss.
9. “Cost accounting is an aid to management”. Discuss the main points in support of this statement.
10. “There are no externally imposed generally accepted accounting principles for management accounting”.
11. In the light of the above statement, discuss the nature and scope of management accounting.

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Glossary

- **Financial Ratios:** Quantitative metrics used to assess various aspects of a company's financial performance and health.
- **Income Statement:** A financial statement that shows a company's revenues, expenses, and profits or losses over a period.
- **Balance Sheet:** A snapshot of a company's assets, liabilities, and equity at a specific point in time.
- **Cash Flow Statement:** Reports the cash generated and used during a specific period by a company.
- **Liquidity Ratios:** Measure a company's ability to meet its short-term obligations using its liquid assets.
- **Profitability Ratios:** Indicate a company's ability to generate profit relative to its revenue, assets, or equity.
- **Solvency Ratios:** Assess a company's ability to meet its long-term debt obligations.
- **Comparative Statements:** Show financial data for different periods side by side for comparison.
- **Common Size Statement:** Presents each line item on a financial statement as a percentage of a base figures.

UNIT II RATIO ANALYSIS

UNIT OBJECTIVES

Ratio analysis is a powerful tool in financial analysis, providing insights into liquidity, profitability, turnover efficiency, solvency, and leverage of a company. While it offers advantages such as quick assessment and benchmarking, it also has limitations due to its reliance on historical data and varying industry standards. The types of ratios include liquidity, profitability, turnover, solvency, and leverage ratios, each serving specific analytical purposes. Financial statements can be reconstructed from ratios by reversing the calculations used to derive them, facilitating a deeper understanding of a company's financial performance.

PRELUDE

We have already seen that there are many tools to analyse financial statement such as comparative statements, common-size statements, trend analysis, funds analysis and ratio analysis. Ratio analysis is one of the most powerful tools of analyse financial statements and draw inferences. A ratio is nothing but the mathematical/arithmetical relationship between two variables or accounting figures. Ratio analysis is the process of establishing relationship between two figures or groups of figures and interpreting such relationship in order to arrived from the managerial decisions.

MEANING OF RATIO ANALYSIS

Ratio is relationship expressed in mathematical terms between two accounting figures which are connected with each other in some way or other.

For example:

Profit is an absolute term but profitability is a relative term.

Let us assume the following:

	Firm E	Firm F
Net Profit for 2017	1,20,000	80,000
Net investment	7,40,000	4,00,000

On the basis of profit which is an absolute term, Firm E is better as its net profit is bigger

2.2 Management Accounting

than that of firm F. But while looking at profitability i.e Net profit to Net investment, it is evident that Firm F is better.

$$\text{PROFITABILITY} = \frac{\text{Net Profit}}{\text{Net Investment}} \times 100$$

$$\text{Firm E} = \frac{1,20,000}{7,40,000} \times 100 = 16.21\%$$

$$\text{Firm F} = \frac{80,000}{4,00,000} \times 100 = 20\%$$

In managing a firm better, no decision should be taken arbitrarily by considering the absolute terms. To arrived from the prudent managerial decisions, firms should consider accounting ratios which are in relative terms.

Ratios can be expressed in two ways namely 'Times' and 'Percentage'.

When one accounting figure is divided by another, the unit used to express the (relationship) quotient is termed as 'Times'. For example, when EBIT is (Earnings Before Interest and Tax) Rs. 10,00,000 and fixed interest charges amounts to Rs. 1,00,000, the interest

$$\text{coverage ratio} = \frac{10,00,000}{1,00,000} = 10 \text{ times.}$$

The point is that the firm's EBIT is ten times of its fixed interest charges. In other words, the firm's amount of fixed interest charges has been included ten times in its EBIT.

Ratio can also be expressed in percentage. For instance, in the above case the percentage of interest coverage out of /among the total EBIT is as follows:

$$= \frac{10,00,000}{10\% \ 10,000} \times 100 =$$

Accounting ratios are Mathematical relationships expressed between two inter-related accounting figures.

Ratio can also be expressed as a proportion. For example, ratio of current assets to current liabilities is, say, 4,00,000: 2,00,000 or 2:1

CLASSIFICATION OF RATIO ANALYSIS

Accounting Ratios can be classified into different categories depending upon the basis of classification.

I. TRADITIONAL CLASSIFICATION

The traditional classification has been on the basis of the financial statements (income statement and position statement) to which the determinants of a ratio belong. On this basis, the ratios could be classified as:

1. Profit and loss Account Ratios (Income Statement Ratios)

Ratios calculated on the basis of the items of profit and loss account only are called profit and loss account ratios. For example: Gross Profit ratio; Net profit ratio, Stock Turnover ratio.

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

Here, both the variables and/or determinants of this ratio namely gross profit and net sales are belonging to income statement i.e. Profit and loss account only.

2. Balance Sheet Ratios (Position Statement Ratios)

Ratio calculated on the basis of the figures of balance sheet only are called balance sheet ratios. For example: current ratio, debt – equity ratio.

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

Here, both the variables and/or determinants of this ratio namely current assets and current liabilities are belonging to balance sheet only.

3. Composite Ratios (Inter –Statement Ratios)

Ratio based on figures of both profit and loss account as well as balance sheet are known as composite ratios. For example: ROI (Return on Investments)

$$\text{Return on Investment (ROI)} = \frac{\text{Net Profit}}{\text{Net Investment}} \times 100$$

Here, net profit is a figure belonging to profit and loss account whereas net investment is an item of balance sheet.

II. Functional Classification

The main function of ratio is to test a firm's liquidity, efficiency, solvency and profitability. On the basis of functions of ratios or under functional classification, there are four groups of ratios. They are:

2.4 Management Accounting

1. Liquidity Ratio
2. Efficiency Ratio
3. Solvency Ratio
4. Profitability Ratio

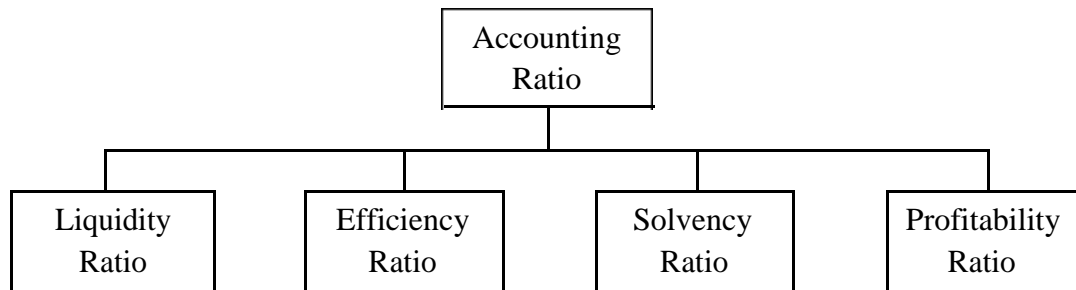


Fig. 4.1 Functional Classification of Ratios

1. Liquidity Ratio

The ratio that are used to test the liquidity position of a firm are called liquidity ratio.



Liquidity refers to the ability of a firm in settling its current liabilities as and when they become due. It is also known as short-term solvency.

- (i) Current Ratio
- (ii) Quick Ratio
- (iii) Super –quick Ratio

(i) Current Ratio

Current ratio establishes relationship between current assets and current liabilities. Current assets are those assets that can be converted into cash say within a year. And, current liabilities are those liabilities that should be settled within a short period say one year.

$$\text{Current Ratio} = \frac{\text{Current Assets, Loans and Advances}}{\text{Current Liabilities, and Provision}}$$

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

Current ratio is also known as working capital ratio as the excess of current assets over current liabilities is called working capital.

Components of Current Ratio	
Current Assets	Current Liabilities
1. Cash in hand	1. Outstanding expenses (accrued expenses)
2. Cash at bank	2. Bills Payable
3. Marketable securities	3. Sundry creditors
4. Temporary investments	4. Short-term loans and advances
5. Bills Receivable	5. Income –tax Payable
6. Sundry Debtors	6. Dividends Payable
7. Inventories (Stocks)	7. Income Received in advance
8. Short –term loans and advances	8. Bank overdraft.
9. Outstanding incomes (accrued incomes)	
10. Prepaid expenses.	

- Bank overdraft should be excluded from current liabilities when it is a permanent or long-term arrangement with the bank.

Illustration: 1

Calculate current ratio from the following:

Sundry debtors	1, 00,000	Outstanding salaries	20,000
Bills receivable	80,000	Prepaid expenses	2,000
Stock	50,000	Marketable securities	20,000
Sundry creditors	80,000	Bank Overdraft	30,000
Bills Payable	40,000	Cash in hand and at bank	1, 00,000

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

$$\begin{aligned} \text{Current Assets} &= 1, 00,000 + 80,000 + 50,000 + 2,000 + 20,000 + 1, 00,000 \\ &= \text{₹}3,52,000 \end{aligned}$$

$$\begin{aligned} \text{Current Liabilities} &= 80,000 + 40,000 + 20,000 + 30,000 \\ &= \text{₹}1,70,000 \end{aligned}$$

$$\text{Current Ratio} = \frac{\text{₹}3,52,000}{\text{₹}1,70,000} = 2.07 \text{ or } 207\% \text{ or } 2.7:1$$

2.6 *Management Accounting*

Interpretation of Current Ratio

As it is stated earlier, no interpretation is possible without analysis and analysis becomes useless without interpretation. Therefore, in ratio analysis, interpretation is of great importance and in interpreting a ratio standard norm or rule of thumb is of great use. In the case of current ratio, the standard norm or rule of thumb is 2:1. It means that let the total amount of current assets be twice of the total amount of current liabilities. When a firm's current ratio is 2 or more it means that its liquidity position is considered to be sound or good.

Significance and Set Back of Current Ratio

Current ratio is a general measure of liquidity of a firm. It implies the level of "cushion" available to the external parties like creditors. It is widely used for assessing a firm's short-term solvency position.

The two severe limitations of current ratio are –

- Its crudeness and
- It leads to window dressing.

Current ratio is a crude ratio since it measures only the quantity aspect and not the quality aspect of current assets.

Window Dressing

Window dressing refers to showing a better position (rosy picture) than what it actually is. It is done in the following ways:

- Over – valuation of closing stock
- Obsolete or worthless stocks are included in the closing stock instead of writing them off.
- Treating a short-term liability as a long-term liability
- Insufficient provision for bad and doubtful debts
- Including advance payments for purchase of fixed assets in the list of debtors
- Due to window dressing, current ratio does not present the real financial position (liquidity position) of the concern. Thus, the inference drawn on such a ratio may be faulty and deceptive.

(ii) Quick Ratio

Quick Ratio or Liquid Ratio or Acid Test Ratio

Quick ratio is a more rigorous test of liquidity than the current ratio. Quick ratio

establishes relationship between quick assets and current liabilities. Quick assets are those assets which could be easily and quickly converted into cash within a short period without loss of value.

$$\text{Quick ratio} = \frac{\text{Quick Assets}}{\text{Quick Liabilities}}$$

Illustration: 2

From the following figures, calculate quick ratio:

Short-term investments	50,000
Sundry Debtors	80,000
Stock	1,00,000
Bills Receivable	60,000
Sundry Creditors	50,000
Bills Payable	30,000
Bank overdraft	40,000
Prepaid expenses	10,000
Outstanding expenses	10,000
Cash in hand and at bank	60,000
Short-term loan (cr.)	70,000

Solution:

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

Quick Assets = Current assets except or minus stock and prepaid expenses

$$\begin{aligned} \text{Quick Assets} &= ₹50,000 + 80,000 + 60,000 + 60,000 \\ &= ₹2,50,000 \end{aligned}$$

$$\begin{aligned} \text{Quick Liabilities} &= ₹50,000 + 30,000 + 40,000 + 10,000 + 70,000 \\ &= ₹2,00,000 \end{aligned}$$

$$\begin{aligned} \text{Quick Ratio} &= \frac{2,50,000}{2,00,000} \\ &= \mathbf{2.25 \text{ or } 125\% \text{ or } 1.25:1} \end{aligned}$$

Alternate way of arriving in quick or liquid ratio:

Some authors are of the opinion that in arriving in quick ratio, the amount of quick assets is to be compared with quick liabilities not with current liabilities. And, such as quick

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ratio can be found out with the help of the following formula:

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

$$\text{Quick Liabilities} = \text{Current Liabilities} - \text{Bank overdraft}$$

Considering this alternative way, quick ratio as for as illustration 2 is given below:

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

$$\text{Quick Assets} = \text{Current liabilities} - \text{Bank overdrafts}$$

$$= \text{`2,00,000} - \text{`40,000}$$

$$= \text{`1,60,000}$$

$$\text{Quick Ratio} = \frac{\text{`2,50,000}}{\text{`1,60,000}}$$

$$= \mathbf{1.56}$$

Note: Bank overdraft is not included in quick liabilities since it is made as a permanent arrangement with the bank in general.

Interpretation of Quick Ratio

In general, a high liquid ratio (quick ratio) indicates that the firm is so sound as regards its liquidity is concerned whereas a low liquid/quick ratio indicates that the firm's liquidity position is not good.

Ideal Quick Ratio or Standard norm for quick ratio

The ideal quick ratio or the standard norm for quick ratio is 1:1. When a firm's quick ratio is greater than this rule of thumb called 1:1, then the firm's liquidity position is said to be sound or good. However, a quick ratio of 1:1 does not necessarily mean sound liquidity position if all the debtors cannot be realized and when much cash is required to meet the current obligations.

Significance of Quick Ratio

The quick ratio is very much useful in measuring a firm's liquidity position. It measures a firm's ability to pay off current obligations when they become due. As stated earlier, this is a more rigorous test of liquidity than the current ratio as it is used as a complementary ratio to the current ratio.

(iii) Super Quick Ratio or Absolute Liquid Ratio

It is true that debtors, bills receivables are more liquid than stock. Nevertheless, there may be doubts regarding their realization into cash immediately or in time.

Hence, some authorities are of the opinion that super quick ratio (Absolute Quick Ratio) should also be calculated along with the earlier two ratios namely current ratio and quick ratio so as to establish relationship between super quick assets and current liabilities.

Super quick ratio establishes the relationship between super quick assets and current liabilities.

Super quick assets are cash in hand, cash at bank and marketable securities or temporary investments. As the name implies, marketable securities or temporary investments or investment in Govt. securities are encashable very quickly. Therefore, Marketable securities are included under super quick assets.

Illustration:3

From the given below accounting figures, calculate super quick ratio:

Cash in hand	50,000	Sundry creditors	2,80,000
Cash at bank	1,00,000	Bills payable	40,000
Marketable securities	2,00,000	Outstanding expenses	20,000
Sundry debtors	1,20,000	Short term Loan (cr.)	80,000
Bills receivables	80,000	Accrued income	10,000
Stock	1,50,000	Bank overdraft	1,20,000
Prepaid expenses	20,000		

Solution:

$$\text{Super Quick Ratio or Absolute Liquid Ratio} = \frac{\text{Absolute Liquid Assets}}{\text{Current Liabilities}}$$

$$\begin{aligned} \text{Super Quick Assets} &= ₹ 50,000 + 1,00,000 + 2,00,000 \\ &= ₹ 3,50,000 \end{aligned}$$

$$\begin{aligned} \text{Quick Liabilities} &= ₹ 2,80,000 + 40,000 + 20,000 + 80,000 + 1,20,000 \\ &= ₹ 5,40,000 \end{aligned}$$

$$\begin{aligned} \text{Quick Ratio} &= \frac{3,50,000}{5,40,000} \\ &= \mathbf{0.65 \text{ or } 65\% \text{ or } .65:1} \end{aligned}$$

Interpretation of Absolute liquid Ratio

The standard norm of absolute liquid ratio is .5:1 or 50%. The point is that when a firm has super quick assets to the tune of 50% of its current liabilities, it is said to be sound as far as its liquidity position is concerned.

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Absolute liquid ratio and super quick ratio is also known as cash ratio.

Sl.No	Liquidity Ratios	Formula	Standard Norm
1	Current Ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{7,00,000}{3,00,000} = 2.33$	2:1 or 200%
2	Quick Ratio	$\frac{\text{Quick Assets}}{\text{Current Liabilities}}$	1:1 or 100%
3	Super Quick Ratio	$\frac{\text{Absolute Liquid Assets}}{\text{Current Liabilities}}$	5:1 or 50%

Illustration:4

The following is the Balance Sheet of New Bharath Limited for the year ending 31st Dec 2018.

Liabilities		Assets	
Equity share capital	5,00,000	Fixed assets	10,00,000
Preference share capital	1,00,000	Investments	3,00,000
Reserves & Surplus	4,00,000	Current assets :	
Debentures	7,00,000	Cash	50,000
Current liabilities		Debtors	1,50,000
Sundry creditors	60,000	Marketable securities	2,00,000
Bills payable	1,00,000	Stock	3,00,000
O/S expenses	10,000		
Bank overdraft	1,30,000		
	20,00,000		20,00,000

Solution:

(a)

$$\text{Current Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}} = \frac{7,00,000}{3,00,000} = 2.33$$

	\`
Current assets:	
Cash	50,000
Debtors	1,50,000
M. Securities	2,00,000
Stock	3,00,000
	7,00,000

	\`
Current liabilities:	
S. Creditors	60,000
Bills Payable	1,00,000
O/S Expenses	10,000
Bank Overdraft	1,30,000
	3,00,000

(b)

$$\text{Quick or Acid Test ratio} = \frac{\text{Quick or Liquid Assets}}{\text{Current Liabilities}} = \frac{4,00,000}{3,00,000} = 1.33$$

$$\begin{aligned} \text{Quick Assets} &= \text{Current Assets} - \text{Stock} \\ 7,00,000 - 3,00,000 &= \text{\`}4,00,000 \end{aligned}$$

(c)

$$\text{Absolute Liquid Ratio} = \frac{\text{Absolute Liquid Assets}}{\text{Current Liabilities}} = \frac{2,50,000}{3,00,000} = 0.83$$

Absolute liquid assets:	\`
Cash	50,000
Marketable Securities	2,00,000
	2,50,000

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Illustration: 5

Following information is given to you:

- i. Current Ratio = 2.5
- ii. Working Capital = ₹90,000

Find out: (a) Current Assets, and (b) Current Liabilities

Solution:

$$\begin{aligned} \text{Working Capital} &= \text{Current Assets} - \text{Current Liabilities} \\ \text{Current Ratio} &= \frac{\text{Current Assets}}{\text{Current Liabilities}} \end{aligned}$$

Let current liabilities be x and current assets will be 2.5

$$x \text{ Working Capital} = 2.5x - 1.0x$$

$$\begin{aligned} ₹90,000 &= 1.5x \\ x &= \frac{90,000}{1.5} = ₹60,000 \end{aligned}$$

So Current Liabilities = ₹60,000

$$\begin{aligned} \text{(b) Current Assets} &= ₹60,000 \times 2.5 \\ &= ₹1,50,000 \end{aligned}$$

Illustration: 6

The Following information of a company is given:

Current Ratio 2.5:1; Acid-test ratio 1.5:1; Current liabilities ₹.50,000. Find out:

- a. Current Assets
- b. Liquid Assets
- c. Inventory

Solution:

$$\begin{aligned} \text{Current ratio} &= \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{7,00,000}{3,00,000} = 2.33 \\ 2.5 &= \frac{\text{Current Assets}}{\text{Rs.50,000}} \end{aligned}$$

(a)

$$\text{Current ratio} = 50,000 \times 2.5 = \text{`1,25,000}$$

$$\text{Acid-test Ratio} = \frac{\text{Liquid Assets}}{\text{Current Liabilities}}$$

$$1.5 = \frac{\text{Liquid Assets}}{\text{`50,000}}$$

$$(b) \text{ Liquid Assets} = 50,000 \times 1.5 = \text{`75,000}$$

$$\begin{aligned} (c) \text{ Inventory} &= \text{Current Assets} - \text{Liquid Assets} \\ &= \text{`1,25,000} - \text{`75,000} \\ &= \text{`50,000} \end{aligned}$$

Illustration: 7

Given:

$$\text{Current Ratio} = 2.8; \text{Acid-Test Ratio} = 1.5; \text{Working Capital} = \text{Rs. 1,62,000}$$

Find out:

- Current Assets
- Current Liabilities
- Liquid Assets

Let current Liabilities be x.

$$\begin{aligned} \text{Working Capital} &= \text{Current Assets} - \text{Current} \\ \text{liabilities} \quad \text{`1,62,000} &= 2.8x - 1.0x \end{aligned}$$

$$\text{`1,62,000} = 1.8x$$

$$\text{Or, } x \text{ (Current Liabilities)} = \frac{\text{`1,62,000}}{1.8} = \text{`90,000}$$

$$\text{Current Assets} = 90,000 \times 2.8 = \text{`2,52,000}$$

$$\begin{aligned} \text{Acid-test Ratio} &= \frac{\text{Liquid Assets}}{\text{Current Liabilities}} \\ 1.5 &= \frac{\text{Liquid Assets}}{\text{`90,000}} \end{aligned}$$

$$1.5 = \frac{\text{Liquid Assets}}{\text{`90,000}}$$

$$\text{Liquid Assets} = 90,000 \times 1.5 = \text{`1,35,000}$$

Illustration: 8

Current liability of a company is ₹ 3,00,000. If Current ratio is 3:1 and Quick ratio is 1:1, Calculate value of stock.

Solution :

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

It is given in the problem that current liability is ₹3,00,000. Therefore, current assets must be ₹9,00,000 i.e. 3 times current liabilities as current ratio is 3:1.

$$\text{Liquid ratio} = \frac{\text{Liquid Assets}}{\text{Current Liabilities}}$$

Liquid ratio as given in the problem is 1:1. Therefore, when current liability is ₹3,00,000, the liquid assets must also be ₹3,00,000.

$$\begin{aligned} \text{Stock} &= \text{Current Assets} - \text{Liquid Assets} \\ &= 9,00,000 - 3,00,000 \\ &= 6,00,000 \end{aligned}$$

Illustration 9:

The working capital position of ABC Co. Ltd stands as under on 31.12.2018.

Current Liabilities	₹	Current Assets	₹
Sundry Creditors	4,50,000	Cash	1,00,000
Bank Overdraft	2,50,000	Debtors	5,00,000
		Stock	4,50,000
		Bills Receivable	50,000
	7,00,000		11,00,000

- i. Calculate current ratio and quick ratio from the above information.
- ii. Calculate the revised current ratio and quick ratio assuming that Bank overdraft of ₹1,00,000 is discharged during the year.
- iii. Calculate current ratio and quick ratio when the book-debts were bad to the extent of 20%.

1. (a)

$$\begin{aligned} \text{Current ratio} &= \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{7,00,000}{3,00,000} = 2.33 \\ &= \frac{11,00,000}{7,00,000} = 1.57 \end{aligned}$$

(b)

$$\begin{aligned} \text{Quick Ratio} &= \frac{\text{Liquid Assets}}{\text{Current Liabilities}} \\ &= \frac{11,00,000 - 4,50,000}{7,00,000} = \frac{6,50,000}{7,00,000} = 0.92 \end{aligned}$$

2. (a)

$$\begin{aligned} \text{Revised Current Ratio} &= \frac{11,00,000}{7,00,000 - 1,00,000} \\ &= \frac{11,00,000}{6,00,000} = 1.83 \end{aligned}$$

(b)

$$\text{Revised Quick Ratio} = \frac{6,50,000}{6,00,000} = 1.08$$

3. (a)

$$\text{Current Ratio} = \frac{11,00,000 - 1,00,000}{7,00,000} = 1.42$$

(b)

$$\text{Quick Ratio} = \frac{5,50,000}{7,00,000} = 0.78$$

Working :

Total Current assets		11, 00,000
Less: Stock	4,50,000	
Bad debts @ 20% of 5,00,000	1,00,000	5,50,000
∴ Quick assets		<u>5, 50,000</u>

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Illustration: 10

Calculate (i) current Assets,(ii) liquid asset and (iii) current liabilities when the current ratio is 2.5, liquid ratio is 1.5, stock ` 67,500 and prepaid expenses `2,500.

Solution:

(a) Current Assets

$$\begin{aligned}\text{Stock \& Prepaid expenses} &= \text{Current assets} - \text{Liquid Assets} \\ &= 2.5 - 1.5\end{aligned}$$

When stock & Prepaid expenses (1.0) = ` 70,000 (67,500+2,500)

Current Assets (2.5) = ?

$$= \frac{2.5}{1.0} \times 70,000 = ` 1,75,000$$

(b) Liquid Assets

$$\begin{aligned}\text{Liquid Assets} &= \text{Current Assets} - \text{Stock \& Prepaid Expenses} \\ 1,05,000 &= 1,75,000 - 70,000\end{aligned}$$

(c) Current Liabilities

When Current Assets (2.5) = `

1,75,000 Current Liabilities = ?

$$= \frac{1.0}{2.5} \times 1,75,000 = 70,000$$

Illustration: 11

The following information of a company is given: Current ratio 2.2; Liquid ratio 1.2; Current liability `75,000 and prepaid expenses – nil.

Find out (a) Current assets (b) Liquid assets and (c)

Inventory Solution :

(a)

$$\text{Current Assets} = \frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{7,00,000}{3,00,000} = 2.33$$

It is given that current liabilities are ` 75,000

∴ If Current Liabilities (1.0) = ` 75,000 Current Assets (2.2) = ?

$$= \frac{2.2}{1.0} \times 75,000 = ₹1,65,000$$

(b)

$$\text{Liquid ratio} = \frac{\text{liquid Assets}}{\text{Current Liabilities}} = 1.2$$

$$\begin{aligned} \therefore \text{If Current Liabilities (1.0)} &= ₹75,000 \\ \text{Liquid Assets (1.2)} &= ? \\ &= \frac{1.2}{1.0} \times 75,000 = ₹90,000 \end{aligned}$$

(c) Inventory

$$\begin{aligned} \text{Inventory \& Prepaid Expenses} &= \text{Current Assets} - \text{Liquid Assets} \\ &= ₹1,65,000 - ₹90,000 \end{aligned}$$

$$\therefore \text{Inventory} = ₹75,000$$

EFFICIENCY RATIOS / ACTIVITY RATIO

The efficiency or activity ratio are those ratio calculated to measure the operational efficiency of a business concern. Indeed, these ratio are of much useful in measuring the speed with which assets are converted into sales. Therefore, these ratios are also called '**Velocity**' ratio. As efficiency ratio or activity ratio indicate the speed with which assets are turned over into sales, these ratio are also called **turnover ratio**. As these ratio reveal the performance of a business concern, they are also called '**performance ratio**'.

The movement of assets in general and the movement of current assets in particular exhibit the efficiency of business concern. For example, if stock is quickly moved into cash it shows that the firm performs well so also when debtors are quickly realized or converted into cash it shows that the firm is so efficient. Thus, the other name of efficiency ratios is "**current assets movement ratio**".

All the ratio coming under this category are calculated with reference to either sales or cost of goods sold (i.e, cost of sales). And, the result is generally expressed in number of times.

The Important Turnover Ratios are:

1. Inventory Turnover Ratio
2. Debtors Turnover Ratio
3. Creditors Turnover Ratio

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4. Working capital Turnover Ratio
5. Total capital Turnover Ratio
6. Fixed assets Turnover Ratio
7. Total Assets Turnover Ratio

1. Inventory Turnover Ratio (or) Stock Turnover Ratio (or) Stock Velocity

This ratio indicates whether investment in inventory is efficiently used or not. It indicates the number of times the stock has been turned over during the period and as such it evaluates the efficiency with which a firm is able to manage its inventory.

$$\text{Inventory Turnover ratio (ITR)} = \frac{\text{Cost of goods sold}}{\text{Average Inventory}}$$

$$\text{Cost of goods sold} = \text{Sales} - \text{Gross profit}$$

Or

$$\text{Cost of goods sold} = \text{Opening stock} + \text{Purchases} - \text{returns} + \text{All direct expenses like wages minus closing stock}$$

$$\text{Average Inventory} = \frac{\text{Inventory at the beginning} + \text{Inventory at the end}}{2}$$

Or

$$\text{Average Inventory} = \frac{\text{Opening stock} + \text{Closing stock}}{2}$$

Illustration: 12

Trading account of Skyline Ltd. Calculate the Stock Turnover Ratio.

Trading Account

To Opening Stock	80,000	By Sales	4,00,000
To Purchase	2,00,000	By Closing Stock	40,000
To Carriage inwards	20,000		
To Wages	20,000		
To gross profit	1,20,000		
	4,40,000		4,40,000

$$\begin{aligned} \text{Stock Turnover Ratio} &= \frac{\text{Cost of goods sold}}{\text{Average Inventory}} \\ \text{Cost of goods sold} &= \text{Sales} - \text{Gross profit} \\ &= ₹ 4,00,000 - 1,20,000 \\ &= ₹ 2,80,000 \\ \text{Average Stock} &= \frac{\text{Opening stock} + \text{Closing stock}}{2} \\ &= \frac{₹ 80,000 + 40,000}{2} \\ &= \frac{₹ 1,20,000}{2} \\ &= ₹ 60,000 \\ \text{STR} &= \frac{2,80,000}{60,000} = 4.67 \text{ times} \end{aligned}$$

Significance and Interpretation of Stock Turnover Ratio:

A high inventory turnover ratio indicates brisk sales. A low inventory turnover ratio results in blocking of funds in inventory which may ultimately result in heavy loss due to inventory becoming obsolete.

There is no standard norm or ideal ITR because it will differ from industry to industry.

However, higher the ITR better the efficiency.

Inventory Conversion Period

The stock velocity may also be calculated in terms of period. This is done to know the time taken to clear the stock.

$$\text{Inventory Conversion Period (ICP)} = \frac{\text{No. of Days in a year}}{\text{ITR}}$$

Illustration: 13

The following information relating to M/s. Sasidharan & Co. is given.

	₹
Cost of goods sold	4,50,000
Opening stock	1,75,000
Closing Stock	1,25,000

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No. of days in the year 365. Calculate:

- (a) Inventory Turnover Ratio
(b) Inventory Conversion Period

Solution:

$$\begin{aligned} \text{(a) Inventory Turnover Ratio} &= \frac{\text{Cost of goods sold}}{\text{Average Inventory}} \\ \text{Average Inventory} &= \frac{\text{`1,75,000} + \text{1,25,000}}{2} \\ &= \text{`1,50,000} \\ \therefore \text{ITR} &= \frac{4,50,000}{1,50,000} = 3 \text{ times} \end{aligned}$$

$$\begin{aligned} \text{(b) Inventory Conversion Period} &= \frac{\text{No. of Days in a year}}{\text{ITR}} \\ &= \frac{365}{3} = 122 \text{ Days (Approximately)} \end{aligned}$$

Interpretation of ICP

Though there is no rule of thumb, shorter the period the performance.

Illustration: 14

M/s. Rakesh & Co., supplies you the following information for the year ending 31st Dec. 2004: Credit sales: `1,50,000; Cash sales : ` 2,50,000; Returns inward: `25,000; Opening stock; `25,000; Closing stock `35,000.

Find out (i) Inventory Turnover when Gross Profit Ratio is 20% (ii) Inventory Conversion Period.

Solution:

(i)

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of goods sold}}{\text{Average stock}}$$

First of all, cost of goods sold will be calculated.

$$\begin{aligned} \text{Net Sales} &= \text{`1,50,000} + \text{`2,50,000} - \text{`25,000} \\ &= \text{`3,75,000} \end{aligned}$$

$$\begin{aligned}
 \text{Gross Profit on Sales} &= \frac{3,75,000 \times 20}{100} \\
 &= \text{`75,000} \\
 \text{Cost of Goods Sold} &= \text{Net sales} - \text{Gross profit} \\
 &= \text{`3,75,000} - \text{`75,000} \\
 &= \text{`3,00,000} \\
 \text{Average Stock} &= \frac{\text{Opening stock} + \text{Closing stock}}{2} \\
 &= \frac{\text{`25,000} + \text{`35,000}}{2} = \text{`30,000} \\
 \text{Inventory Turnover} &= \frac{\text{Rs. 3,00,000}}{\text{Rs. 30,000}} \\
 &= 10 \text{ times}
 \end{aligned}$$

(ii)

$$\begin{aligned}
 \text{Inventory Conversion Period} &= \frac{365}{\text{Inventory Turnover}} \\
 &= \frac{365}{10} = 36.5 \text{ or } 37 \text{ days}
 \end{aligned}$$

1. Debtors Turnover Ratio or Debtors velocity or Receivable Turnover Ratio:

Debtors turnover indicates the velocity of debt collection of firm. In other words, it indicates the number of times average debtors (receivables) are turned over during a year.

$$\text{Debtors Turnover Ratio (DTR)} = \frac{\text{Net annual credit sales}}{\text{Average Trade Debtors}}$$

Note: Trade Debtors or Accounts Receivables include “Sundry Debtors” and “Bills Receivables”

$$\text{Average Trade Debtors} = \frac{\text{Opening Trade Debtors} + \text{Closing Trade debtors}}{2}$$

Note: Debtors should always be taken at gross value. Hence, no provision for bad and doubtful debts be deducted from them.

Illustration: 15

Calculate the Debtors Turnover Ratio from the following figures:

Total sales for the year 2012	1,00,000
Cash sales for the year 2012	20,000
Debtors as on 1.1.2012	10,000
Debtors as on 31.12.2012	15,000
Bills Receivable as on 1.1.2012	7,500
Bills Receivable as on 31.12.2012	12,500

Solution:

$$\text{Debtors Turnover Ratio (DTR)} = \frac{\text{Net annual credit sales}}{\text{Average Trade Debtors}}$$

$$\begin{aligned} \text{Net Annual Credit sales} &= \text{Total sales of the year} - \text{Cash sales during the year} \\ &= ₹ 1,00,000 - ₹ 20,000 \\ &= ₹ 80,000 \end{aligned}$$

$$\begin{aligned} \text{Average Trade Debtors} &= \frac{\text{Opening Trade Debtors} + \text{Closing Trade debtors}}{2} \\ &= \frac{₹ 10,000 + 15,000 + 7,500 + 12,500}{2} \\ &= \frac{45,000}{2} \end{aligned}$$

$$\therefore \text{DTR} = \frac{₹ 80,000}{₹ 22,500} = 3.56 \text{ Times}$$

Significance and interpretation of DTR

Debtors constitute an important constituent of current assets and therefore the quality of debtors to a great extent determines a firm's liquidity. This ratio indicates the efficiency of the staff that are entrusted with collection of book debts.

There is no standard norm. Yet, the higher the ratio, the better the quality of debtors and the efficiency.

Average collection period (or) Debt Collection period Ratio

As the name signifies, average collection period indicates the average number of days for which the firm has to wait to collect amount from its debtors.

$$\text{Average Collection Period (ACP)} = \frac{\text{Months or Days in a year}}{\text{DTR}}$$

Or

$$= \frac{\text{Average Trade Debtors} \times \text{Months (or days) in a year}}{\text{Net Annual credit sales}}$$

Illustration: 16

Net Annual Credit Sales	75,000
Total Debtors	18,000
Bills Receivable	6,000

$$\begin{aligned} \text{(a) Debtors' turnover} &= \frac{\text{Net Annual credit sales}}{\text{Average Trade Debtors}} = 3.56 \text{ Times} \\ &= \frac{75,000}{18,000 + 6,000} = 3.12 \text{ times} \end{aligned}$$

$$\begin{aligned} \text{(b) Average Collection Period} &= \frac{\text{Average Trade Debtors} \times \text{No. of days in a year}}{\text{Net annual credit sales}} \\ &= \frac{18,000 + 6,000 \times 365}{18,000 + 6,000} = 117 \text{ days (Approx) OR} \\ &= \frac{\text{No. of working days}}{\text{D.T.O}} = \frac{365}{3.12} = 117 \text{ days (Approx)} \end{aligned}$$

Illustration: 17

Wise Ltd provides you the following information:

Debtors on 1.1.2009	30,000
Debtors on 31.12.2009	40,000
Provision for Bad debts	1,500
Sales Return	5,000
Total Sales	3,50,000
Cash sales	1,00,000
No. of working days in a year	360

Compute: (a) Debtors' Turnover ratio and (b) Average collection period

Solution

$$\begin{aligned}
 \text{(a) Debtors' turnover} &= \frac{\text{Net Annual credit sales}}{\text{Average Trade Debtors}} = \frac{3,50,000 - 1,00,000 - 5,000}{\frac{30,000 + 40,000}{2}} \\
 &= \frac{\text{No of working days}}{\text{D.T.O}} = \frac{360}{35,000} = 7 \text{ times} \\
 &= \frac{365}{7} = 52.14 \text{ days (Approx)}
 \end{aligned}$$

Interpretation of Average Collection Period:

Average collection period reveals the quality of debtors since it measures the rapidity or slowness with which amount is collected from debtors. A shorter collection period implies prompt payment by debtors and it reduces the chances of debt becoming bad. A longer collection period implies inefficient credit collection performance.

Creditors Turnover Ratio / Payable Turnover Ratio (or) Creditors Velocity

Generally firms buy goods or raw materials on credit. By making credit purchases, firms create short-term liabilities. How efficiently or quickly firms make payments to creditors matters a lot as regards liquidity is concerned.

$$\text{Creditors Turnover Ratio(CTR)} = \frac{\text{Net Annual credit Purchase}}{\text{Average Trade Creditors}}$$

Note: Trade creditors or Accounts payables include both sundry credits and bills payable

$$\text{Average Trade Debtors} = \frac{\text{Opening Trade Debtors} + \text{Closing Trade debtors}}{2}$$

Illustration: 18

From the following figures, calculate the creditors Turnover Ratio:

Credit Purchases during 2017	1,00,000	Bills Payable on 1.1.17	4,000
Creditors on 1.1.17	20,000	Bills Payable on 31.12.17	6,000
Creditors on 31.12.17	10,000		

Solution:

$$\text{Creditors Turnover Ratio (CTR)} = \frac{\text{Net Annual Credit Purchase}}{\text{Average Trade Creditors}}$$

$$\text{Average Trade Creditors} = \frac{20,000 + 10,000 + 4,000 + 6,000}{2}$$

$$= \frac{40,000}{2} = 20,000$$

$$\text{Average Trade Creditors} = \frac{1,00,000}{20,000}$$

$$\therefore \text{CTR} = 5 \text{ times.}$$

Interpretation of Creditors Turnover Ratio

In general, higher the CTR, better the efficiency and vice versa. A higher CTR implies that the creditors are being paid promptly. Thus, the firm's credit worthiness is eventually enhanced.

Average age of accounts Payable (or) Average Payment Period Ratio (APP)

This ratio indicates the velocity with which the creditors are turned over in relation to purchases. APP is calculated as follows:

$$\text{Average Payment Period} = \frac{\text{No. of months or days in a year}}{\text{CTR}}$$

(Or)

$$\text{APP} = \frac{\text{Average Trade Creditors} \times \text{No. of working days in a year}}{\text{Net Annual Credit Purchases}}$$

Interpretation of Average Payment Period Ratio :

The average payment period ratio represents the average number of days taken by the firm to pay its creditors. Generally, lower the ratio, the better is the efficiency and liquidity position of the firm and vice versa.

Illustration: 19

From the following information, find out (a) Creditors turnover ratio and (b) Average payment period.

Cash purchases during 2009	1,00,000
Credit purchase during 2009	1,50,000
Creditors on 01.01.2009	25,000
Bills payable 01.01.2009	8,000
Creditors on 31.12.2009	20,000
Bills Payable on 31.12.2009	7,000

Solution:

$$\begin{aligned} \text{(a) Creditors turnover} &= \frac{\text{Net Annual Credit Purchase}}{\text{Average Trade Creditors}} \\ &= \frac{1,50,000}{\frac{(25,000 + 8000) + (20,000 + 7,000)}{2}} \\ &= \frac{1,50,000}{30,000} = 5\text{times} \end{aligned}$$

$$\begin{aligned} \text{(b) Average Payment Period} &= \frac{\text{Average Trade Creditors} \times \text{No.of working days in a year}}{\text{Net annual Creditor Purchases}} \\ &= \frac{30,000 \times 365}{1,50,000} = 73 \text{ days} \end{aligned}$$

Alternatively,

$$= \frac{\text{No. of working days}}{\text{Creditor turnover ratio}}$$

$$= \frac{365}{5} = 73 \text{ days}$$

Illustration: 20

From the following information, calculate creditors turnover ratio and average payment period:

	₹
Total Purchases	4,00,000
Cash Purchases (included in above)	50,000
Purchase Returns	20,000
Creditors at the end	60,000
Bills Payable at the end	20,000
Reserve for discount on Creditors	5,000
Take 365 days in a year	

Solution:

$$(a) \text{ Creditors turnover} = \frac{\text{Net Annual Credit Purchase}}{\text{Average Trade Creditors}}$$

	₹
<u>Net Credit Purchases:</u>	
Total Purchase	4,00,000
Less: Cash Purchase	50,000
	3,50,000
Less: Returns	20,000
Net Credit Purchases	3,30,000

$$\text{Creditors turnover Ratio} = \frac{3,30,000}{\frac{60,000 + 20,000}{2}}$$

(Trade creditors include creditors and bills payable)

2.28 *Management Accounting*

$$= \frac{`3,30,000}{`80,000} = 4.13 \text{ times}$$

$$\begin{aligned} \text{Average Payment Period} &= \frac{\text{No. of months or days in a year}}{\text{CTR}} \\ &= \frac{365}{4.13} = 88 \text{ days (Approx)} \end{aligned}$$

Alternatively

$$\begin{aligned} \text{Average Payment Period} &= \frac{60,000 + 20,000}{3,30,000} \times 365 \\ &= \frac{80,000}{3,30,000} \times 365 = 88 \text{ days} \end{aligned}$$

4. Working Capital Turnover Ratio

This ratio indicates whether or not working capital has been efficiently and effectively used in making sales. In case a company can achieve higher volume of sales with relatively small amount of working capital, it is an indication of the high level of operating efficiency of the company.

$$\text{Working Capital Turnover Ratio(WCTR)} = \frac{\text{Cost of goods sold}}{\text{Average Working capital}}$$

$$\text{Average Working Capital} = \frac{\text{Opening Working Capital} + \text{Closing Working Capital}}{2}$$

Illustration: 21

Find out working capital turnover ratio:

		₹
Cash		10,000
Bills Receivable		5,000
Sundry Debtors		25,000
Stocks		20,000
Sundry Creditors		30,000
Cost of Sales		1,50,000

$$\text{Working Capital Turnover Ratio(WCTR)} = \frac{\text{Cost of goods sold}}{\text{Average Working capital}}$$

$$\text{Current assets} = ₹ 10,000 + 5,000 + 25,000 + 20,000$$

$$= ₹ 60,000$$

$$\text{Current liabilities} = 30,000$$

$$\text{Net working capital} = \text{CA} - \text{CL} = ₹ 60,000 - 30,000$$

$$= ₹ 30,000$$

$$\text{So, Working Capital Turnover Ratio} = \frac{1,50,000}{30,000} = 5 \text{ times}$$

5. Fixed Assets Turnover Ratio:

This ratio indicates the extent to which the amount invested in fixed assets contributes towards sales.

$$\text{Fixed Asset Turnover Ratio} = \frac{\text{Cost of goods sold}}{\text{Net Fixed Assets}}$$

Illustration: 22

Sales Rs.10,00,000; Gross Profit ratio = 25%; Fixed Assets ₹1,50,000

Find out Fixed assets turnover ratio :

$$\begin{aligned} \text{Fixed Asset Turnover Ratio} &= \frac{\text{Cost of goods sold}}{\text{Net Fixed Assets}} \\ \text{Cost of goods sold} &= \text{Sales} - \text{Gross Profit} \\ &= ₹ 10,00,000 - 2,50,000 \\ &= ₹ 7,50,000 \\ \therefore \text{FATR} &= \frac{₹ 7,50,000}{₹ 1,50,000} = 5 \text{ Times} \end{aligned}$$

Illustration: 23

The following details have been given to you for Messrs. Redders Ltd. for two years. You are required to find out the Fixed Assets Turnover Ratio and comment on it.

$$\text{Fixed Asset Turnover Ratio} = \frac{\text{Cost of goods sold}}{\text{Net Fixed Assets}}$$

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2007	2008
6,00,000	8,00,000
1,50,000	3,00,000
= 4 times	= 2.67 times

Comment.

There has been a decline in the FATR though absolute figures of sales have gone up. It means increase in the investment in fixed assets has not brought about commensurate (proportionate) gain.

SOLVENCY RATIOS

Solvency refers to the ability of a firm in meeting its long-term obligations. By solvency, we mean long-term solvency of a firm. This is because liquidity means short-term solvency.

Solvency ratios are those ratios calculated to determine or test the firm's ability to meet its long-term liabilities. The long-term liabilities of a firm includes bonds and debentures, long-term loans from banks and financial institutions and other long-term creditors.

The solvency position of a firm can be determined/tested with the help of the following ratios:

1. Debt-equity Ratio
2. Proprietary Ratio
3. Fixed Assets to Net Worth Ratio
4. Fixed Assets to Long-term Funds Ratio
5. Capital Gearing Ratio
6. Current Assets to Net-worth Ratio
7. Interest Coverage Ratio
8. Solvency Ratio

Let us see the concept, computation and significance of various solvency ratios one by one

1. Debt – Equity Ratio

Debt- Equity ratio is calculated to know the extent of outsiders funds and share holders funds used in acquiring the assets for a firm. In other words, it is calculated to measure the relative claim of outsiders and owners against the assets of a firm. It is also known as **external- internal equity ratio** or **debt-to net-worth ratio**.

This ratio indicates the relationship between the external equities or the outsiders funds and the internal equities or the shareholders funds, thus, Debt – Equity ratio is calculated as follows:

$$\text{Debt – Equity Ratio} = \frac{\text{Outsiders' Funds}}{\text{Shareholders' Funds}}$$

OR

$$\text{Debt – Equity Ratio} = \frac{\text{External Equities}}{\text{Internal Equities}}$$

- Outsider's Funds = All debts/liabilities to outsiders both short – term and Long – term in all forms like bonds, Mortgages and bills.
- Shareholders' Funds = Equity share capital + Preference share capital + Capital and revenue reserves + Accumulated profits and surpluses – Accumulated losses if any.

Note :

1. Redeemable preference share capital may be included in outsiders funds and irredeemable preference shares in shareholders' funds
2. Current liabilities should be included in outsiders' funds. The ratio calculated on the basis of outsiders' funds excluding current liabilities may be termed as 'Ratio of long-term debt to Share holders' funds.

$$\text{Ratio of long-term Debt to Equity} = \frac{\text{Long-term Debt}}{\text{Share holders funds}}$$

Interpretation of Debt – Equity Ratio

A ratio of 1:1 is usually considered to be a satisfactory ratio although there cannot be any 'rule of thumb' or 'standard norm' for all types of business.

$$\text{Debt – Equity Ratio} = \frac{\text{Outsiders' Funds}}{\text{Shareholders' Funds}}$$

Illustration: 24

Liabilities		Assets	
2,000 Equity Shares of Rs. 100 each	2,00,000	Fixed Assets	4,00,000
1000 9% Preference Shares of Rs.100 each	1,00,000	Current Assets	2,00,000
1000 10% Debenture of Rs. 100 each	1,00,000		
Reserves:			
General Reserve	50,000		
Reserves for Contingencies	50,000		
Current Liabilities	1,00,000		
	6,00,000		6,00,000

Calculate Debt – Equity Ratio

Solution:

$$\begin{aligned}
 \text{(a) Debt – Equity Ratio} &= \frac{\text{Outsiders' Funds}}{\text{Shareholders' Funds}} \\
 &= \frac{1,00,000(\text{Debentures}) + 1,00,000 (\text{Current Liabilities})}{2,00,000 + 1,00,000 + 50,000 + 50,000} \\
 &= \frac{2,00,000}{4,00,000} = 1:2
 \end{aligned}$$

(b) Debt – Equity Ratio (excluding current liabilities). I.e. ratio of long-term debt to shareholders' fund

$$\begin{aligned}
 &= \frac{\text{Long-term Debt}}{\text{Shareholders' Funds}} \\
 &= \frac{1,00,000}{4,00,000} = 1:4
 \end{aligned}$$

2. Proprietary Ratio

A variant to the debt- equity ratio is the proprietary ratio which is also known as Equity Ratio or Shareholders' Funds to Total Equities Ratio or Net worth to total Assets Ratio. This Ratio establishes relationship between shareholder's funds and the total assets of the firm.

Proprietary ratio is calculated as follows:

$$\text{Proprietary Ratio} = \frac{\text{Shareholders' Funds (Networth)}}{\text{Total Assets}}$$

Significance and interpretation of proprietary Ratio:

This ratio focuses on the general financial strength of the business enterprise. The higher the ratio, the better it is. A ratio below 50% may be alarming for the creditors since they may have to lose heavily in the event of company's liquidation on account of heavy losses.

Note: Some authorities are of the opinion that proprietary ratio establishes relationship between the proprietor's funds and the total tangible assets.

Illustration: 25

From the following data, calculate the proprietary ratio:

Preference share Capital	1,00,000	Fixed assets	2,00,000
Equity share capital	2,00,000	Current assets	1,00,000
Reserves and surplus	50,000	Goodwill	50,000
Debentures	1,00,000	investments	1,50,000
Creditors	50,000		
	5,00,000		5,00,000

Solution:

$$\begin{aligned} \text{Proprietary Ratio} &= \frac{\text{Shareholders' Funds (Networth)}}{\text{Total Assets}} \\ &= \frac{3,50,000}{5,00,000} = 7 \text{ or } 70 \% \end{aligned}$$

3. Fixed Assets to Net worth Ratio (or) Fixed Assets to Proprietor's Funds Ratio

This ratio establishes relationship between fixed assets and proprietors' funds. This ratio indicates the extent to which the fixed assets are financed by owners' funds.

This ratio can be calculated as follows:

Significance and interpretation of Fixed Assets to Net worth Ratio.

$$\text{Fixed Assets to Net worth Ratio} = \frac{\text{Fixed Assets (After depreciation)}}{\text{Shareholder's funds}}$$

Generally, the purchase of fixed assets should be financed by shareholders' funds. If the ratio is less than 100%, it signifies that owner's funds are more than total fixed assets and a part of the working capital is provided by the shareholders. When the ratio is more than 100%, it indicates that owners' funds are not enough to finance the fixed assets and the firm has to depend upon outsiders to finance the fixed assets.

There is no 'rule of thumb' to interpret this ratio but 60 to 65 percent is considered to be a satisfactory ratio in the case of industrial undertakings.

Illustration: 26

From the following figures, calculate Fixed Assets to Net Worth Ratio:

Equity Share Capital	2,00,000	Land and Building	2,00,000
Preferential Share Capital	2,00,000	Plant and Machinery	2,00,000
Reserves and Surplus	1,50,000	Furniture	1,00,000
Debentures	1,00,000	Stock	1,00,000
Creditors	50,000	Debtors	50,000
		Cash in hand and at bank	50,000
	7,00,000		7,00,000

$$\begin{aligned} \text{Fixed Assets to Net worth Ratio} &= \frac{\text{Net Fixed Assets}}{\text{Shareholder's fund}} \\ &= \frac{5,00,000}{5,50,000} = 91 \text{ or } 91 \% \end{aligned}$$

4. Fixed Assets to long-term Funds Ratio (or) Fixed Assets Ratio

A variant to the ratio of fixed assets to net worth is the ratio of fixed assets to total long-term funds which is calculated as below:

$$\text{Fixed Assets to Net worth Ratio} = \frac{\text{Fixed Assets (After depreciation)}}{\text{Shareholder's funds}}$$

Significance and interpretation of fixed assets ratio

This ratio explains whether the firm has raised adequate long-term funds to meet its fixed assets requirement.

The ratio should not be more than 1. If it is less than 1, it shows that a part of the working capital has been financed through long-term funds. This is desirable to some extent because a part of working capital termed as “core working capital” more or less of a fixed nature. The ideal ratio is 0.67

Illustration: 27

From the following balance sheet calculate, the Fixed Assets Ratio:

	\		\
Share Capital	1,00,000	Land and Building	1,00,000
Reserves	50,000	Plant and Machinery	1,00,000
12% Debentures	1,00,000	Furniture	35,000
Trade Creditors	50,000	Trade Debtors	50,000
Bills Payable	20,000	Cash	15,000
		Stock	20,000
	3,20,000		3,20,000

Solution:

$$\begin{aligned} \text{Fixed Assets Ratio} &= \frac{\text{Fixed Assets}}{\text{Long-term Funds}} \\ &= \frac{2,35,000}{2,50,000} = 0.94 \end{aligned}$$

5. Capital Gearing Ratio

Capital gearing or leverage refers to the proportion between fixed interest or dividend bearing funds and non-fixed interest or dividend bearing funds in the total capital employed in the business. Capital gearing ratio indicates the relationship between equity shareholders funds and fixed interest bearing debentures/ loans and fixed dividend bearing preference share capital.

This ratio is calculated as follows:

$$\text{Capital Gearing Ratio} = \frac{\text{Equity share capital} + \text{Reserves and surplus}}{\text{Preference capital} + \text{Long-term debt bearing fixed interest}}$$

Capital Gearing Ratio can also be calculated as below:

$$\text{CGR} = \frac{\text{Fixed interest, dividend bearing funds}}{\text{Equity shareholders' Funds}}$$

OR

$$\text{CGR} = \frac{\text{Fixed interest, dividend bearing funds}}{\text{Total Capital Employed}}$$

Significance and interpretation of Capital Gearing Ratio

This ratio is used to describe the relationship between equity shareholders funds and fixed interest and dividend bearing funds. If fixed interest and dividend bearing funds exceeds the equity shareholders' funds, the firm is said to be highly geared. The firm is said to be in low gear when fixed interest and dividend bearing funds are less than equity shareholders funds.

A proper proportion between the two funds is necessary to keep the cost of capital at the minimum. Cost of capital is the cost incurred by a firm in mobilizing capital.

There is no 'rules of thumb' or standard norm to interpret this ratio. However, a firm is expected to be geared optimally.

Illustration: 28

Calculate Capital gearing ratio from the information given below:

	X .Co (₹)	Y. Co (₹)
Equity Share Capital	1,00,000	1,00,000
5% Preference share Capital	50,000	1,00,000
6% Debentures	20,000	50,000
General Reserves	30,000	25,000
Profit and loss A/c	20,000	25,000

Solution:

$$\begin{aligned} \text{Capital Gearing Ratio} &= \frac{\text{Equity share capital} + \text{Reserves and surplus}}{\text{Preference capital} + \text{Long-term debt bearing fixed interest}} \\ \text{X Co.} &= \frac{1,00,000 + 30,000 + 20,000}{50,000 + 20,000} \\ &= 2.14:1 \text{ (Lowly Geared)} \\ \text{YCo.} &= \frac{1,00,000 + 25,000 + 25,000}{1,00,000 + 50,000} \\ &= 1:1 \text{ (Evenly Geared)} \end{aligned}$$

Illustration: 29

Find out capital gearing ratio from the information given below:

	2017	2018
Equity share capital	5,00,000	4,00,000
Reserves and surplus	3,00,000	2,00,000
8% Preference share capital	2,50,000	3,00,000
6% debentures	2,50,000	4,00,000

Solution:

$$\text{Capital Gearing Ratio} = \frac{\text{Equity share capital} + \text{Reserves and surplus}}{\text{Preference capital} + \text{Long-term debt bearing fixed interest}}$$

$$2017 = \frac{5,00,000 + 3,00,000}{2,50,000 + 2,50,000} = 8.5 \text{ (Lowly Geared)}$$

$$2018 = \frac{4,00,000 + 2,00,000}{3,00,000 + 4,00,000} = 6.7 \text{ (Highly Geared)}$$

6. Current Assets to Net Worth Ratio:

This ratio is calculated by dividing the total current assets by the amount of shareholders' funds. It is calculated to measure the proportion of current assets financed by shareholders' funds (i.e. net worth). It is expressed as:

$$\text{Fixed Assets to Net worth Ratio} = \frac{\text{Fixed Assets (After depreciation)}}{\text{Shareholder's funds}}$$

Significance and interpretation of current Assets to Net worth Ratio:

This ratio indicates the extent to which proprietors' funds are invested in current assets. There is no 'rule of thumb' for this ratio and depending upon the nature of the business the desirable current assets to net worth ratio differs.

Illustration: 30

From the following balance sheet, calculate current assets to net worth ratio.

Balance Sheet as on 31-12-17

Equity Share Capital	2,00,000	Land and Building	2,50,000
10% Preference Share capital	1,50,000	Plant and Machinery	1,20,000
Reserves	1,00,000	Furniture	80,000
7% Debentures	1,00,000	Debtors	50,000
Sundry Creditors	50,000	Stock	50,000
Bills Payables	20,000	Bills Receivable	40,000
		Cash	30,000
	6,20,000		6,20,000

Solution:

$$\text{Current Assets to Net worth Ratio} = \frac{\text{Current Assets}}{\text{Shareholder's funds}}$$

$$\text{Current Assets} = 50,000 + 50,000 + 40,000 + 30,000$$

$$= 1,70,000$$

$$\text{Shareholder's Fund} = 2,00,000 + 1,50,000 + 1,00,000$$

$$= 4,50,000$$

$$\therefore \text{CA to NW Ratio} = \frac{1,70,000}{4,50,000}$$

$$= 38 \text{ or } 38\%$$

7. Interest Coverage Ratio (or) Debt service Ratio:

This ratio indicates whether the business earns sufficient profit to pay periodical interest on debentures, interest on loan from banks and financial institutions. It is calculated to know whether the creditors and lenders of money are secured or not in respect of their periodical interest income.

A firm is expected to provide due service in the form of interest to its providers of debt capital. It is for this reason, interest coverage ratio is also known as 'debt service ratio'.

$$\text{Interest Coverage Ratio} = \frac{\text{EBIT}}{\text{Fixed Interest Charges}}$$

EBIT = Earnings Before interest and Taxes

Significance and interpretation of ICR

This ratio is used to test the debt-servicing capacity of a firm. The higher the number, the more secure the lender is in respect of his periodical interest income.

The standard norm of this ratio for an industrial firm is that fixed interest charges should be covered 6 to 7 times.

This ratio (ICR) is also known as 'fixed charges cover' or 'times interest earned'.

PROFITABILITY RATIOS

Profitability is different from profit. Profit is the excess of revenue earned over the cost incurred and as such it is an abstract term. Profitability is the ability of a firm in earning profit. It is a relative term. A firm's profitability is related with both its sales and investments.

2.40 *Management Accounting*

Let us deal with both profitability ratios in relation to sales as well profitability ratios in relation to investment in the following passages:

Profitability Ratios in Relation to Sales**(i) Gross Profit Ratio**

Gross profit ratio measures the relationship of gross profit to net sales and is usually represented as a percentage.

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

$$\text{Gross Profit} = \text{Sales} - \text{Cost of Goods sold}$$

Illustration: 31

Calculate Gross profit ratio from the following:

Sales	6,00,000	Purchases	4,00,000
Sales returns	50,000	Purchases returns	20,000
Opening stock	40,000	Closing stock	1,00,000

Solution**Trading Account**

To Opening stock	40,000	By sales	6,00,000	
To Purchases	4,00,000	Less : returns	50,000	5,50,000
Less : returns	20,000	By Closing stock		1,00,000
	3,80,000			
To Gross profit	2,30,000			
	6,50,000			6,50,000

$$\begin{aligned} \text{Gross Profit ratio} &= \frac{2,30,000}{5,50,000} \times 100 \\ &= 41.82\% \end{aligned}$$

(ii) Operating Ratio

Operating ratio establishes the relationship between cost of goods sold and other operating expenses on the one hand and the sales on the other.

$$\text{Operating ratio} = \frac{\text{Cost of Goods sold} + \text{Operating expences}}{\text{Net sales}} \times 100$$

Illustration: 32

Find out Operating ratio from the following :

Cost of goods sold	2, 50,000
Selling & distribution expenses	25,000
Office & administrative expenses	37,500
Net sales	3,75,000

Solution

$$\text{Operating ratio} = \frac{\text{Cost of Goods sold} + \text{Operating expences}}{\text{Net sales}} \times 100$$

$$\text{Operating ratio} = \frac{2,50,000 + 25,000 + 37,500}{3,75,000} \times 100$$

$$= \frac{3,12,500}{3,75,000} \times 100$$

$$= 83.33\%$$

(iii) Operating Profit Ratio

This ratio establishes the relationship between the operating profit and sales. The operating profit is calculated as follows:

$$\text{Operating profit ratio} = \frac{\text{Operating expences}}{\text{Net sales}} \times 100$$

(or)

$$\text{Operating profit ratio} = 100 - \text{operating ratio}$$

2.42 *Management Accounting*

Operating profit = Net profit + Non-operating expenses – Non-operating income

(or)

= Sales – (Cost of goods sold + Administrative expenses + Selling & distribution expenses)

Illustration: 33

From the information given below, calculate Operating profit ratio:

Cost of goods sold	₹ 4,00,000
Office & administrative expenses	₹ 40,000
Selling & distribution expenses	₹ 50,000
Net sales	₹ 7,00,000

Solution

$$\text{Operating profit ratio} = \frac{\text{Operating expenses}}{\text{Net sales}} \times 100$$

$$\text{Operating profit} = \text{Sales} - (\text{Cost of goods sold} + \text{Administrative expenses} + \text{Selling \& distribution expenses})$$

$$\text{Operating profit ratio} = 2,10,000/7,00,000 \times 100 = 30\%$$

(iv) Expenses Ratios

Expenses ratios indicate the relationship of various expenses to net sales. Lower the ratio, the greater is the profitability and higher the ratio, lower is the profitability. Individual or specific expense ratio may also be calculated as follows :

$$(a) \text{ Operating profit ratio} = \frac{\text{Cost of goods sold}}{\text{sales}} \times 100$$

$$(b) \text{ Office \& administration expenses ratio} = \frac{\text{Office \& administration expenses}}{\text{sales}} \times 100$$

$$(c) \text{ Office \& administration expenses ratio} = \frac{\text{Office \& administration expenses}}{\text{sales}} \times 100$$

(v) The net profit ratio

This net profit ratio establishes a relationship between net profit (after taxes) and net sales. This ratio is the overall measure of a firm's profitability and is calculated as follows:

$$\text{Net Profit Ratio} = \frac{\text{Net Profit after Tax}}{\text{Net sales}} \times 100$$

Profitability in Relation to Investment**(Overall profitability ratios)**

The profitability ratios in relation to investment are given below:

- ❖ Return on shareholders' investment or Net worth or
- ❖ Return on Shareholders' Equity (ROSE)
- ❖ Return on Equity capital
- ❖ Return on Capital Employed (ROCE)
- ❖ Earnings Per Share (EPS)
- ❖ Price Earnings Ratio
- ❖ Dividend Pay-out Ratio
- ❖ Dividend yield Ratio

Let us deal with each of the above profitability ratios in the ensuing passages:

Return on Shareholders' investment or Net worth:

This ratio is also known as 'Overall Profitability Ratio'. It is popularly called "Return on investment" (ROI). This ratio reveals the relationship between return i.e., net profit after interest and tax and the proprietors' funds. It is expressed as:

$$\text{ROI} = \frac{\text{Net Profit}}{\text{Shareholders' Fund}} \times 100$$

This ratio is also called 'Return On shareholders' Equity' (ROSE)

Note: Shareholders' Funds = Equity share capital + Preference share Capital + Reserves and Surplus – (Accumulated losses, if any)

Significance and interpretation of ROI

This ratio is one of the most important ratios used to measure the overall profitability of a firm. This ratio is of great importance to the present and potential shareholders as well as to the management of the company.

In general, higher the ratio, better the results/profitability.

Illustration: 34

Calculate Return on Investments from the following information:

Subscribed & paid up capital 25,000 Equity shares of Rs. 10 each	2, 50,000
10,000 5% preference shares of Rs. 10 each	1, 00,000
Reserve Fund	25,000
Share Premium	10,000
Capital Reserve	15,000
Net profit before tax	1, 50,000
Tax rate	50%

$$\text{ROI} = \frac{\text{Net Profit}}{\text{Shareholders' Fund}} \times 100$$

Shareholders' Funds:	Equity Share Capital	2, 50,000
	5% preference share capital	1, 00,000
	Accumulated profits	50,000
	(25,000+10,000+15,000)	<u>4,00,000</u>

$$\text{Net Profit after tax} = 1, 50,000 - 50\%$$

$$= \text{Rs. } 75,000$$

$$\text{ROI} = \frac{75,000}{4,00,000} \times 100 = 18.75\%$$

Return on Equity Capital:

Equity shareholders being the real owners of a company are much interested in the progress and of profitability of company. Hence, the profitability of a company should be

measured and judged on the basis of return on equity capital. This ratio is calculated as follows:

$$\text{Return on Equity Capital} = \frac{\text{NPAT-Preference Dividend}}{\text{Equity Share Capital(paid up)}} \times 100$$

NPAT= Net Profit After Tax

Significance and interpretation of Return Equity capital

This ratio is of great use for the present equity shareholders to measure the profitability of their business and for the potential equity shareholders, it is a decision input as regards whether to invest in the company or not.

Interpretation of this ratio is similar to the interpretation of 'ROI' i.e., "Higher the ratio, better the return on equity capital".

Illustration: 35

Following information is given for a company whose accounting year ends on 31st March 2016

10,000 equity shares of Rs. 10 each Rs. 8 paid	80,000
11% 5,000 preference shares of Rs. 20 each	1,00,000
Profit before tax	80,000
Rate of tax	50%

Calculate: Return on Equity Capital.

Solution:

$$\text{Return on Equity Capital} = \frac{\text{NPAT-Preference Dividend}}{\text{Equity Share Capital(paid up)}} \times 100$$

Profits available for equity shareholders:

Profits	80,000
Less tax @ 50%	40,000
Profit after tax	<u>40,000</u>
Less Preference dividend	11,000
Net profit available to equity shareholder	<u>29,000</u>

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$$\text{Return on Equity Capital} = \frac{\text{Rs. 29,000}}{\text{Rs. 80,000}} \times 100 = 36.25$$

Return on Capital Employed (ROCE)

Return on Capital Employed (ROCE) establishes the relationship between return (i.e., Profit) and the capital employed. It is the prime ratio in measuring a company's overall profitability. The term 'capital employed' refers to the total of investments made in a business. The term capital employed is defined in many ways. However, the three most widely used definitions are:

- ❖ Gross Capital Employed
- ❖ Net Capital Employed
- ❖ Proprietors' Net Capital Employed

$$\text{Gross Capital Employed} = \text{Fixed Assets} + \text{Current Assets}$$

$$\text{Net Capital Employed} = \text{Total Assets} + \text{Current Liabilities}$$

OR

$$= \text{Fixed Assets} + \text{Net working capital}$$

$$\text{Net Working Capital} = \text{Total Current Assets} - \text{Total Current Liabilities}$$

$$\text{Proprietors' Net Capital Employed (both long-term and short-term)} = \text{Fixed Assets} + \text{Current Assets} - \text{Outside Liabilities}$$

OR

$$\text{Proprietors' Net Capital} = \text{Total Assets} - \text{Total Outside Liabilities Employed}$$

Note: Sometimes average capital employed is preferred since earnings are on an average for a particular period.

OR

$$\text{ACE} = \text{Opening Capital Employed} + \frac{1}{2} \text{ of profit earned during the year}$$

OR

$$\text{ACE} = \text{Closing Capital Employed} - \frac{1}{2} \text{ of profit earned during the year}$$

Computation of Return on Capital Employed (ROCE)

- (a) Return on Gross Capital Employed = $\frac{\text{Adjusted Net Profit}}{\text{Gross Capital Employed}} \times 100$
- (b) Return on Net Capital Employed = $\frac{\text{Adjusted Net Profit}}{\text{Net Capital Employed}} \times 100$
- (c) Return on Average Capital Employed = $\frac{\text{Adjusted Net Profit}}{\text{Average Capital Employed}} \times 100$
- (d) Return on Proprietors' Net Capital Employed = $\frac{\text{Adjusted Net Profit}}{\text{Net Capital Employed}} \times 100$

Points to be considered while calculating adjusted net profits and capital employed.**Computation of Adjusted Net Profits**

- ❖ For return on gross capital employed, adjusted net profit means EBIT
- ❖ For return on net capital employed, adjusted Net profit means EBT
- ❖ Interest on long-term borrowing only should be added back to the net profit in case of return on net capital employed
- ❖ Interest on both long-term and short-term borrowing should be added back to the net profit in the case of return on gross capital employed.
- ❖ If any income from investments outside the business is included in the net profit, the same must be excluded in arriving at adjusted net profit.
- ❖ Abnormal or non-recurring profits, if any should be excluded from given net profit and abnormal losses if any, should be added back to given net profit.
- ❖ Additional depreciation, if any, required to be charged based on replacement cost of any fixed asset should be excluded from given net profit.

Computation of Capital Employed**1. Assets Approach**

As capital employed consists of the total assets used in the business (except current liabilities in the case of NCE), it can be computed by adding the following:

2.48 *Management Accounting*

- ❖ All fixed assets should be included at their net values (i.e., cost minus depreciation)
- ❖ Investments inside the business
- ❖ All current assets

The total of these will be gross capital employed. When current liabilities are deducted, the resultant figure will be net capital employed.

Note: Idle assets, intangible assets, fictitious assets, obsolete assets and investment made outside the business should be excluded while calculating capital employed.

2. Liabilities Approach:

Under this approach, capital employed can be calculated as follows:

		\
	Total of all liabilities	xxx
Add:	Increase in the value of assets on replacement cost	xxx
		xxx
Less:	Accumulated losses	xx
	Fictitious assets	xx
	Intangible assets	xx
	Idle and obsolete assets	xx
	Investment outside the Business	xx
	Gross Capital Employed	xxx
Less:	Current Liabilities	xx
	Net Capital employed	xxx

Illustration: 36

The following is the Balance Sheet of M/s Kishore Ltd. for the year ending Dec. 31st 2018.

Liabilities	`	Assets	`
50,000 Equity shares of Rs. 10 each fully paid	5,00,000	Goodwill	50,000
20,000 Preference shares of Rs. 20 each fully paid	4,00,000	Freehold Property	1,00,000
P& L A/c (including RS. 40,000 current year's Profits)	1,00,000	Plant and Machinery	2,00,000
5% Debentures	1,00,000	Land and Building	4,00,000
Sundry creditors	40,000	Furniture	45,000
Bills Payable	60,000	Stock	1,75,000
		Debtors	55,000
		Cash at bank	1,50,000
		Preliminary Expenses	25,000
	12,00,000		12,00,000

The value of Land and Building will be ` 4,50,000 and plant and Machinery ` 1,80,000 Calculate.

- i. Gross Capital employed
- ii. Net Capital employed
- iii. Average Capital Employed

Solution:

While calculating capital employed the revised values of assets if given, should be taken instead of balance sheet values.

2.50 Management Accounting

Capital Employed		₹
Freehold Property		1,00,000
Plant and Machinery		1,80,000
Land and Building		4,50,000
Furniture		45,000
Stock		1,75,000
Debtors		55,000
Cash at Bank		1,50,000
i. Gross Capital Employed		
ii. Net Capital Employed = All tangible assets – Current Liabilities		
Total Tangible Assets		11,55,000
Less: Sundry Creditors	40,000	
Less: Bills Payable	60,000	
		1,00,000
Net Capital employed		10,55,000

iii. Average Capital Employed = Capital employed – One-half of current year's profits

Average Capital Employed

$$\begin{aligned}
 \text{(a) Gross} &= \text{Gross Capital Employed} - \frac{1}{2} \text{ of current year's profits} \\
 &= ₹ 11,55,000 - \frac{1}{2} (40,000) \\
 &= ₹ 11,35,000 \\
 \text{(b) Net} &= \text{Net Capital Employed} - \frac{1}{2} \text{ of current year's profits} \\
 &= ₹ 10,55,000 - \frac{1}{2} (40,000) \\
 &= ₹ 10,35,000
 \end{aligned}$$

Illustration: 37

The following are the summarized Profit and Loss Account and Balance Sheet of J.K.J.P Ltd. for the year ended 31st December 2012

Profit and Loss Account

	\		\
To Opening Stock	1,50,000	By Sales	13,00,000
“ Purchases	8,50,000	“ Closing stock	2,00,000
“ Wages	50,000		
“ Freight and Carriage	20,000		
“ Gross profit c/d	4,30,000		
	15,00,000		15,00,000
To Office and administrative expenses	2,00,000		
“ Selling and distribution expenses	10,000	By Gross Profit	4,30,000
“ Interest on debentures	10,000	“ Interest on Govt. securities”	12,000
“ Interest on bank overdraft	5,000	“ Profit on sale of plant”	8,000
“ Depreciation	15,000		
“ Loss on sale of machine	10,000		
“ Provision for tax	1,00,000		
“ Net Profit	1,00,000		
	4,50,000		4,50,000

Balance Sheet

Liabilities	\	Assets	\
Equity Share Capital	4,00,000	Land and Building (Net)	2,50,000
8% Preference Share Capital	2,00,000	Plant & Machinery (Net)	3,00,000
Reserves	60,000	Investments in Govt. Securities	1,00,000
Profit & Loss A/c	40,000	Stocks	2,00,000
10% Debentures	1,00,000	Sundry Debtors	1,00,000
Bank Overdraft	50,000	Cash	40,000
Other Current Liabilities	1,50,000	Discount on Issue of Shares	10,000
	10,00,000		10,00,000

2.52 *Management Accounting*

You are required to calculate:

- i. Return on Gross Capital Employed
- ii. Return on Net Capital Employed.
- iii. Return on Proprietors' Net Capital Employed

Solution:

Calculation of Capital Employed

Land and Building	2,50,000
Plant and Machinery	3,00,000
Stocks	2,00,000
Sundry Debtors	1,00,000
Cash	40,000
Gross capital employed	8,90,000

$$\begin{aligned} \text{Net capital employed} &= \text{Gross Capital Employed} - \text{Current Liabilities} \\ &= \text{₹ } 8,90,000 - (50,000 + 1,50,000) = \text{₹ } 6,90,000 \end{aligned}$$

Calculation of Adjusted Profits

Net profit as per P/L A/c	1,00,000
Add: Loss on sale of machine	10,000
Interest on debentures	10,000
Provision for tax	1,00,000
	2,20,000
Less: Interest on Govt. securities	12,000
Profit on sale of Plant	8,000
	20,000
Adjusted Profit for Return on Net Capital employed	2,00,000

To find out the adjusted profits for return on gross capital employed, further Rs. 5,000 should be added back to Rs. 2,00,000 for interest on bank overdraft as current liabilities are included in gross capital employed.

$$\text{Return on Gross Capital Employed} = \frac{\text{Adjusted Net Profit}}{\text{Gross Capital Employed}} \times 100$$

$$= \frac{2,05,000}{,90,000} \times 100 = 23.03\%$$

$$\begin{aligned} \text{Return on Net Capital Employed} &= \frac{\text{Adjusted Net Profit}}{\text{Net Capital Employed}} \times 100 \\ &= \frac{2,00,000}{6,90,000} \times 100 = 28.98\% \end{aligned}$$

$$\text{Return on Proprietors Net capital Employed} = \frac{\text{Adjusted Net Profit}}{\text{Net Capital Employed}} \times 100$$

$$\begin{aligned} \text{PNCE} &= \text{Total Assets} - \text{Total outside liabilities} \\ &= 8,90,000 - 3,00,000 \\ &= 5,90,000 \\ &= \frac{4,00,000}{5,90,000} \times 100 ; \text{Return on PNCE} = 33.89\% \end{aligned}$$

(iv) Earnings Per Share (EPS)

Earnings per share is a variant of return on equity capital and is calculated by dividing the net earnings available to equity shareholders by the total number of equity shares.

$$\text{EPS} = \frac{\text{Net Earnings Available to Equity Shareholders}'}{\text{Total Number of equity shares}}$$

Net Earnings available to equity shareholders = Net earnings after interest, tax and preference dividend.

Significance and interpretation of EPS

The earnings per share helps in determining the value or worth of the shares of the company. It is very useful to know whether the net earning capacity of the company is being improved or declined. It also helps in estimating the company's capacity to pay dividend to its equity shareholders.

Illustration: 38

Calculate the earnings per share from the following data: Net profit before tax ₹ 2,00,000
Taxation at 50% of net profit
10% of preference share capital (of ₹ 10 each) ₹ 2,00,000
Equity share capital (₹ 10 share) ₹ 1,00,000

Solution:

$$\text{EPS} = \frac{\text{Net Earnings Available to Equity Shareholders'}}{\text{Total Number of equity shares}}$$

Earnings available to equity shareholders = Net profit after tax minus preference dividend.

$$\begin{aligned}\text{NPAT} &= ₹ 2,00,000 - 50\% \\ &= ₹ 2,00,000 - ₹ 1,00,000 \\ &= ₹ 1,00,000\end{aligned}$$

$$\begin{aligned}\text{Preference dividend} &= 10\% \text{ of } ₹ 2,00,000 \\ &= ₹ 20,000\end{aligned}$$

$$\begin{aligned}\therefore \text{EPS} &= \frac{₹ 1,00,000 - ₹ 20,000}{10,000} \times 100 \\ &= \frac{₹ 80,000}{10,000} = ₹ 8 \text{ per share}\end{aligned}$$

(v) Price Earnings Ratio (P/E ratio)

Price earnings ratio is the relationship between the market price per equity share and earnings per share. This ratio indicates the number of times the earnings per share is covered by the market price. This is calculated as follows:

$$\text{Price Earnings Ratio} = \frac{\text{Market price per equity Share}}{\text{Earning per Share}}$$

Illustration: 39

From the following data, calculate price earnings ratio:

Net profit after Tax ₹ 50,000
Preference Dividend ₹ 10,000
Equity share capital of ₹ 10 each ₹ 1,00,000
Market price per equity share ₹ 20

Solution:

$$\text{Price Earnings Ratio} = \frac{\text{Market price per equity Share}}{\text{Earning per Share}}$$

$$\text{Earnings Per share} = \frac{\text{Earnings available equity shoreholders}}{\text{Total number of equity Shares}}$$

$$\begin{aligned} \therefore \text{EPS} &= \frac{\text{₹}50,000 - \text{₹}10,000}{10,000} \\ &= \frac{\text{₹}40,000}{10,000} = \text{₹}4 \text{ per share} \end{aligned}$$

$$\therefore \text{P/E ratio} = \frac{\text{₹}20}{4} = 5 \text{ times}$$

Significance and interpretation of P/E Ratio:

Price earnings ratio helps the investor in deciding whether to buy or not the shares of a company at a given market price. This ratio is useful in analysing whether the shares of a company are under-valued or over-valued.

There is no standard norm for judging the price earnings ratio of a company. However, the higher the ratio, the better the value/ result is.

(vi) Dividends Yield Ratio

The equity shareholders who are the real owners of the company are much interested in the earnings distributed and paid to them as dividends. This ratio establishes the relationship between dividends per share and market value per equity share.

$$\text{Dividend Yield Ratio} = \frac{\text{Divident Per Share}}{\text{Market Value per Share}}$$

$$\text{Dividend per share} = \frac{\text{Dividend Paid to Shareholders}}{\text{Total Number of Shares}}$$

Significance and interpretation of DYR

This ratio is useful to assess the possible yield to equity shareholders. For potential investors, it is of great use in arriving at investment decision. Although there is no ‘rule of thumb’, the higher dividend yield ratio is generally desirable.

(vii) Dividend Pay-out Ratio or Pay- out Ratio

Equity shareholders are not only interested in knowing the yield called dividend yield but they are equally interested in knowing how much is actually paid to them as dividend. This ratio indicates the relationship between dividend per share and earnings per share.

$$\text{Dividend Pay-out Ratio} = \frac{\text{Divident Per Share}}{\text{Earnings per Share}}$$

Significance and interpretation of DPR

This ratio is helpful to find out the extent to which earnings per share have been paid out as dividend. In other words, this ratio indicates the extent to which earnings have been retained in the business. When the dividend pay-out ratio is 40%, it means that the retention ratio is 60%.

$$\text{Retention Ratio} = 100 - \text{Dividend payout ratio}$$

$$\text{Dividend payout ratio} = 100 - \text{Retention ratio}$$

From the point of view of both the present and potential equity shareholders, the higher the dividend pay-out ratio, the better the result is.

Illustration: 40

From the following details, calculate the below methods:

- i. Return on capital employed
- ii. Return on shareholders' funds
- iii. Return on total assets

Balance Sheet

Liabilities	`	Assets	`
Share Capital	2,00,000	Fixed assets	8,50,000
Reserves	2,50,000	Current assets	2,50,000
10% Debentures	5,00,000		
Creditors	1,50,000		
	11,00,000		11,00,000

Profit before tax is 1,50,000. Tax rate is 25%

Solution:

$$(i) \text{ Return on capital employed} = \frac{\text{Profit after Tax + Interest + Tax}}{\text{Or Profit before Tax + interest}} \times \frac{\text{Capital Employed}}{\text{Capital Employed}} \times 100$$

Profit before tax	1,50,000
Add: Interest on Debentures (5,00,000 x 10/100)	<u>50,000</u>
	<u>2,00,000</u>

$$\begin{aligned} \text{Capital employed} &= \text{Share capital} + \text{Reserves} + \text{Debentures} \\ &= 2,00,000 + 2,50,000 + 50,000 \\ &= 9,50,000 \end{aligned}$$

$$\text{Return on capital employed} = \frac{2,00,000}{9,50,000} \times 100 = 21.05\%$$

$$(ii) \text{ Return on shareholder's funds} = \frac{\text{Net Profit after Tax}}{\text{Shareholder's funds}} \times 100 = \frac{1,12,500}{4,50,000} \times 100 = 25\%$$

$$(iii) \text{ Return on total assets} = \frac{1,12,500}{11,00,000} \times 100 = 10.23\%$$

Illustration: 41

Calculate earnings per share from the following:

Net profit before tax	` 50,000
Tax rate	50%
8% of pref. share capital (` 10 each)	` 50,000
Equity share capital (` 10 each)	` 50,000

Solution:

$$\text{Earnings per share} = \frac{\text{Net profit after Tax - pref.dividend}}{\text{No.of equityshares}}$$

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Net profit before tax	50,000
Less: Tax @ 50%	25,000
Net profit after tax	25,000
Less: pref. dividend (8% on Rs. 50,000)	4,000
Net earnings available to equity shareholders	21,000

$$\text{Earning pershare} = \frac{21,000}{5,000} = \text{`4.20 pershare}$$

Illustration: 42

Compute the payout ratio and retained earnings ratio from the following data:

Net profits `10,000	Provision for tax `5,000
No.of equity shares 3,000	Preference dividends `2,000
Dividend per equity share 40 paise	

Solution

$$\begin{aligned} \text{Earning pershare} &= \frac{\text{Net profit} - \text{Tax} - \text{Pref.dividend}}{\text{No.of equityshares}} \\ &= \frac{10,000 - 5,000 - 2,000}{3,000} = \frac{3,000}{3,000} = \text{`1} \end{aligned}$$

Dividend per equity share = 40 paise

$$\text{Payout Ratio} = \frac{\text{Divident per equity Share}}{\text{Earnings per share}} = \frac{0.40}{1} = 40\%$$

$$\text{Retaining earnings ratio} = \frac{\text{Retained earnings}}{\text{Net profit} - \text{Tax pref dividend}}$$

$$\begin{aligned} \text{Retained earnings} &= \text{Net profit} - \text{Tax} - \text{Pref. dividend} - \text{Equity dividend} \\ &= 10,000 - 5,000 - 2,000 - 1,200 = 1,800 \end{aligned}$$

$$\text{Equity dividend} = 40\% \text{ of } 3000 \text{ shares} = \text{`1,200}$$

$$\begin{aligned} \text{Retained earnings ratio} &= \frac{1,800}{10,000 - 5,000 - 2,000} = \frac{1,800}{3,000} = 0.60(\text{or})60\% \\ &\text{(OR)} \end{aligned}$$

$$\text{Retention Ratio} = 100\% - \text{Payout Ratio} = 100\% - 40\% = 60\%$$

Note: Net Profit – Tax – Pref. dividend is the profit available to equity share holders.

Illustration: 43

The capital of Samy Co, Ltd is as follows

9% Pref shares of Rs. 10/ each	3,00,000
Equity shares of Rs. 10/each	8,00,000
	11,00,000

The accountant has ascertained the followings:

Profit after tax at 60%	` 2,70,000
Depreciation	` 60,000
Equity dividend paid	20%
Reserves	` 77,000
Market price per Equity share	` 40

Calculate:

- | | |
|-------------------------------------|-----------------------------------|
| (a) Dividend yield on equity shares | (b) Cover for preference dividend |
| (c) Earnings per share | (d) The price Earnings ratio |
| (e) Dividend payout ratio | |

Solution:

$$\begin{aligned}
 \text{(a) Dividend yield} &= \frac{\text{Dividend (Rs.)}}{\text{Market price per equity share}} \times 100 \\
 &= 20\% \text{ of } `10 = 2 \\
 &= \frac{2}{4} \times 100 = 5\%
 \end{aligned}$$

$$\begin{aligned}
 \text{(b) Preference dividend over} &= \frac{\text{Profit after Tax}}{\text{Annual Preference Dividend}} \\
 &= \frac{2,70,000}{27,000} = 10 \text{ times}
 \end{aligned}$$

2.60 *Management Accounting*

$$\begin{aligned}
 \text{(c) Earnings per share} &= \frac{\text{Market Price per equity share}}{\text{Earnings per share}} \\
 &= \frac{2,70,000 - 27,000}{80,000} = ₹3.04
 \end{aligned}$$

$$\begin{aligned}
 \text{(d) The price earnings ratio} &= \frac{\text{Market Price per equity share}}{\text{Earnings per share}} \\
 &= \frac{₹40}{₹3.04} = 13.16 \text{ times}
 \end{aligned}$$

$$\begin{aligned}
 \text{(e) Dividend Pay-out Ratio} &= \frac{\text{Dividend per Share}}{\text{Earnings per share}} \\
 &= \frac{2}{₹3.04} = 0.66
 \end{aligned}$$

ADDITIONAL ILLUSTRATIONS

1) **The current ratio of the company is 2:1. Which of the following situations would improve, reduce or leave unchanged the current ratio?**

- i. To pay off a current liability
- ii. To sell a motor car for cash at a slight loss
- iii. To borrow money on an interest bearing promissory note
- iv. To purchase stocks for cash
- v. To give an interest bearing promissory note to a creditor to whom money was owed on current account
- vi. To discount account receivables

Solutions

(i) Improve (ii) Improve (iii) Reduce (iv) No change (v) No change (vi) Reduce

2) **From the following details, prepare statement of Proprietary Funds with as many details as possible:**

- i. Stock Velocity = 6
- ii. Capital Turnover Ratio (on Cost of Sales): 2
- iii. Fixed Assets Turnover Ratio (on Cost of Sales) : 4
- iv. Gross Profit Turnover Ratio: 20 percent
- v. Debtors' Velocity: 2 months
- vi. Creditors Velocity: 73 days

The gross profit was ₹60,000. Reserves and surplus amount to ₹20,000. Closing Stock was ₹5,000 in excess of Opening stock

Solution**Statement of proprietary's fund**

	₹	₹
Fixed assets		60,000
Working capital: Stock	42,500	
Debtors	50,000	
Cash	16,500	
	1,09,000	
Less: Creditors	49,000	60,000
Proprietary Funds		1,20,000
Represented by Share capital		1,00,000
Reserves & Surplus		20,000
		1,20,000

Working notes:

i. Total Sales $60,000 \times 100/20$		₹ 3,00,000
ii. Cost of sales $3,00,000 \text{ less } ₹ 60,000$		2,40,000
iii. Average Stock $2,40,000 \div 6$		40,000
iv. Closing Stock $40,000 + 5,000/2$		42,500
v. Debtor's 2 months' sales		50,000
vi. Creditors		₹
Purchase: Cost of sales	2,40,000	
Add: increase in stock	5,000	
	2,45,000	
Creditors: $73 \text{ days' Purchase } 2,45,000 \times 73/365$		49,000
vii. Fixed Assets $(2,40,000 \div 4)$		60,000
viii. Total Capital $(2,40,000 \div 2)$		1,20,000
ix. Cash in the balancing figure: Total capital		1,20,000
Creditors		49,000

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	1,69,000
Less: Total of all other assets (42,500+50,000+60,000)	<u>1,52,500</u>
Cash in hand	<u>16,500</u>

3) From the following particulars, prepare a statement showing the proprietors' funds as at 31st December 2012 with as much details as possible.

a. Current ratio	2.5:1
b. Acid test ratio	1.5:1
c. Fixed assets to Proprietors' funds	0.75:2
d. Working capital	` 90,000
e. Reserve and surplus	` 60,000
f. Bank O/D	` 20,000

(a) **Current assets and Current liabilities:**

$$\text{Current Ratio} = \frac{(\text{Current Assets})}{(\text{Current Liabilities})} = \frac{2.5}{1}$$

$$\text{Current assets} - \text{Current liabilities} = \text{Working capital}$$

$$2.5 - 1 = 1.5$$

$$\text{Working capital} = 1.5 = `90,000$$

$$\text{Current assets} = (`90,000) / 1.5 \times 2.5$$

$$= `1,50,000$$

$$\text{Current liabilities} = (`90,000) / (1.5) \times 1 = `60,000$$

(b) **Liquid assets:**

$$\text{Liquid ratio} = \frac{\text{Liquid assets}}{(\text{Current Liabilities})} = \frac{1.5}{1}$$

$$\text{Working capital} = 1 = `60,000$$

$$\text{Liquid assets} = (`60,000) / (1) \times 1.5 = `90,000$$

(c) **Liquid assets:**

$$\text{Current assets} - \text{Liquid assets} = \text{Stock}$$

$$`1,50,000 - `90,000 = `60,000$$

(d) Liquid assets:

$$\begin{aligned} \text{Current liabilities} &= \text{Sundry creditors} + \text{Bank overdraft} \\ \text{Sundry creditors} &= \text{Current liabilities} - \text{Bank overdraft} \\ &= ₹60,000 - ₹20,000 = ₹40,000 \end{aligned}$$

(e) Fixed assets to shareholders' funds:

$$\begin{aligned} \text{Fixed assets to proprietors funds} &= \frac{\text{Fixed assets}}{\text{Shareholders' funds}} = \frac{0.75}{2} \\ \text{Shareholders' funds} &= \text{Fixed assets} + \text{working capital} \\ 2 &= 0.75 + 1.25 \\ \text{Working Capital} &= 1.25 = ₹90,000 \\ \text{Fixed assets} &= (₹90,000)/1.25 \times 0.75 = ₹54,000 \\ \text{Shareholders' funds} &= (₹90,000)/1.25 \times 2 = ₹1,44,000 \end{aligned}$$

(f) Share capital

$$\begin{aligned} \text{Shareholders' funds} &= \text{share capital} + \text{Reserves \& surplus} \\ \text{Share capital} &= \text{Shareholders' funds} - \text{Reserves \& surplus} \\ &= ₹1,44,000 - ₹60,000 = ₹84,000 \end{aligned}$$

Particulars	₹	₹
Proprietors' Funds:		
Share capital	84,000	
Reserves & Surplus	60,000	1,44,000
Proprietors' funds represented by:		
Fixed assets (A)	54,000	
Current assets:		
Stock	60,000	
Other current assets	90,000	1,50,000
Less: Current liabilities		
Bank O/D	20,000	
Sundry creditors	40,000	60,000
Working Capital (TCA-TCL) (B)	90,000	
Capital employed (A+B)	1,44,000	
Less: Long-term debt	Nil	
Proprietors' fund		1,44,000

2.64 Management Accounting

“From the following information, prepare a balance sheet

- | | |
|--|----------|
| i. Current ratio | 2.5 |
| ii. Liquid ratio | 1.5 |
| iii. Fixed assets/proprietary funds | 0.75 |
| iv. Working capital | ₹ 60,000 |
| v. Reserve and surplus | ₹ 40,000 |
| vi. Bank O/D | ₹ 15,000 |
| vii. There is no long term loan or fictitious assets | |

Solution**Balance Sheet as on....**

.Liabilities		₹	Assets		₹
Share capital		2,00,000	Fixed assets		1,80,000
Reserves & surplus		40,000	Current assets :		
Current liabilities:			Liquid assets	37,500	
Liquid liability	25,000		Stock	62,500	1,00,000
Bank O/D	15,000	40,000			
		2,80,000			2,80,000

Workings

$$\text{Working capital} = \text{Current assets} - \text{Current liabilities}$$

$$60,000 = 2.5 - 1$$

$$60,000 = 1.5$$

$$(i) \text{ Current assets} = \frac{60,000}{1.5} \times 2.5 = ₹ 1,00,000$$

$$(ii) \text{ Current Liabilities} = \frac{60,000}{1.5} \times 1 = ₹ 40,000$$

$$\text{Liquid liability} = \text{Current liability} - \text{Bank O/D}$$

$$\text{Liquid liability} = ₹ 40,000 - 15,000 = 25,000$$

$$\text{Liquid assets} = +25,000/1 \times 1.5 = ₹ 37,500$$

$$(iii) \text{ Stock} = \text{Current Assets} - \text{Liquid Assets}$$

$$\text{Stock} = 1,00,000 - 37,500 = ₹ 62,500$$

(iv) Fixed Assets

Fixed assets /Proprietary funds 0.75:1

Total liabilities = Total Assets

Current liability + Prop. = Fixed assets + Current assets Prop. Funds –

Funds Fixed assets = Current assets – Current liability

$$1.0 - 0.75 = 1,00,000 - 40,000$$

$$0.25 = ₹ 60,000$$

$$\text{Fixed assets} = \frac{60,000}{1.5} \times 2.5 = ₹ 1,00,000$$

$$\text{Prop. Funds} = \frac{60,000}{1.5} \times 1 = ₹ 40,000$$

$$\begin{aligned} \text{Share Capital} &= \text{Prop. Funds} - \text{Reserves \& Surplus} \\ &= 2,40,000 - 40,000 \end{aligned}$$

$$\text{Share Capital} = ₹ 2,00,000$$

4) The following data represent the ratios pertaining to Emerson Co. Ltd., for the year ending 31st March, 2016

Annual sales = ₹ 40,00,000

Sales to Net worth = 4 times

Current liabilities Net worth = 50%

Total debts to Net worth = 80%

Current ratio = 2.2 times

Sales to inventory = 8 times

Average collection period = 40 days

Fixed assets to Net worth = 70%

From the above particulars, prepare the balance sheet of Emerson Co. Ltd., as on 31st March, 2017. Assume that all sales are made on credit.

Solution:

Let us calculate the various figures for preparing balance sheet

(i) Net Worth:

$$\text{Sales to Net Worth} = \frac{\text{Sales}}{(\text{Net worth})} = \frac{4}{1}$$

$$\text{Sales} = 4 \text{ times} = \text{`}40,00,000$$

$$\text{Net Worth} = \frac{\text{`}40,00,000}{4} = \text{`}10,00,000$$

(ii) Current Liabilities:

$$\text{Current Liabilities to Net Worth} = \frac{(\text{Current liabilities})}{(\text{Net worth})} = \frac{(50\%)}{(100\%)}$$

$$\text{Net Worth} = 100\% = \text{`}10,00,000$$

$$\text{Current Liabilities} = \frac{(\text{`}10,00,000)}{(100\%)} \times 50\% = \text{`}5,00,000$$

(iii) Current Assets:

$$\text{Current Ratio} = \frac{(\text{Current Assets})}{(\text{Current Liabilities})} = \frac{2.2}{1}$$

$$\text{Current Liabilities} = 1 = \text{`}5,00,000$$

$$\text{Current Assets} = \frac{(\text{`}5,00,000)}{1} \times 2.2 = \text{`}11,00,000$$

(iv) Inventory:

$$\text{Sales to Inventory} = \frac{\text{Sales}}{\text{Inventory}} = 8 \text{ times}$$

$$= (\text{`}40,00,000)/\text{Inventory} = 8$$

$$\text{Inventory} = (\text{`}40,00,000)/8 = \text{`}5,00,000$$

(v) Fixed Assets :

$$\text{Fixed Assets to Net worth} = (\text{Fixed assets})/(\text{Net worth}) =$$

$$(70\%)/(100\%) \text{ Net worth} = 100\% = \text{`}10,00,000$$

$$\text{Fixed Assets} = (\text{`}10,00,000)/(100\%) \times 70\% = \text{`}7,00,000$$

(vi) Debtors :

$$\text{Average collection period} = \text{Debtors}/(\text{Credit sales}) \times 365 \text{ days} = 40 \text{ days}$$

$$= \text{Debtors}/(\text{`}40,00,000) \times 365 \text{ days} = 40 \text{ days}$$

$$\text{Debtors}/(\text{Rs.}40,00,000) = 40/365$$

$$\text{Debtors} = \text{`}40,00,000 \times 40/365 = \text{`}4,38,356$$

Emerson Co. Ltd

Balance sheet as on 31-03-2017

Liabilities		Assets	
Net worth	10,00,000	Fixed assets	7,00,000
Long-term debts	3,00,000	Current assets :	
Current Liabilities	5,00,000	Debtors	4,38,365
		Inventory	5,00,000
		Cash (Bal. fig.)	1,61,645
	18,00,000		18,00,000

DU PONT CONTROL CHART

Return on Investment (ROI) represents the earning power of the company. ROI depends on two ratios: (a) Net Profit Ratio, and (b) Capital Turnover Ratio. A change in any of these ratios will change the firm's earning power. These two ratios are affected by many factors. A change in any of these factors will change this ratio also. The various factors affecting the ROI can be put through a chart given below. This chart is known as the Du Pont Control Chart since it was first used by Du Pont Company of the USA.

The chart shows that return on capital employed is affected by a number of factors. Any change in these factors will affect the return on capital employed. For example, if the cost of goods sold increases, without any corresponding increase in the selling price of the goods, the net profit would decrease and consequently, ROI would also decrease. Similarly if there is increase in working capital, the total capital employed would increase and, therefore, in the absence of any increase in the net profit, ROI would decrease.

The chart helps the management in paying attention on different forces affecting profit. An increase in profit can be achieved either by more effective use of capital which will result in higher turnover ratio or better sales efforts which will result in a higher net profit ratio. The same rate of return can be obtained either by a low net profit ratio but a higher turnover ratio or a low turnover ratio but a high net profit ratio.

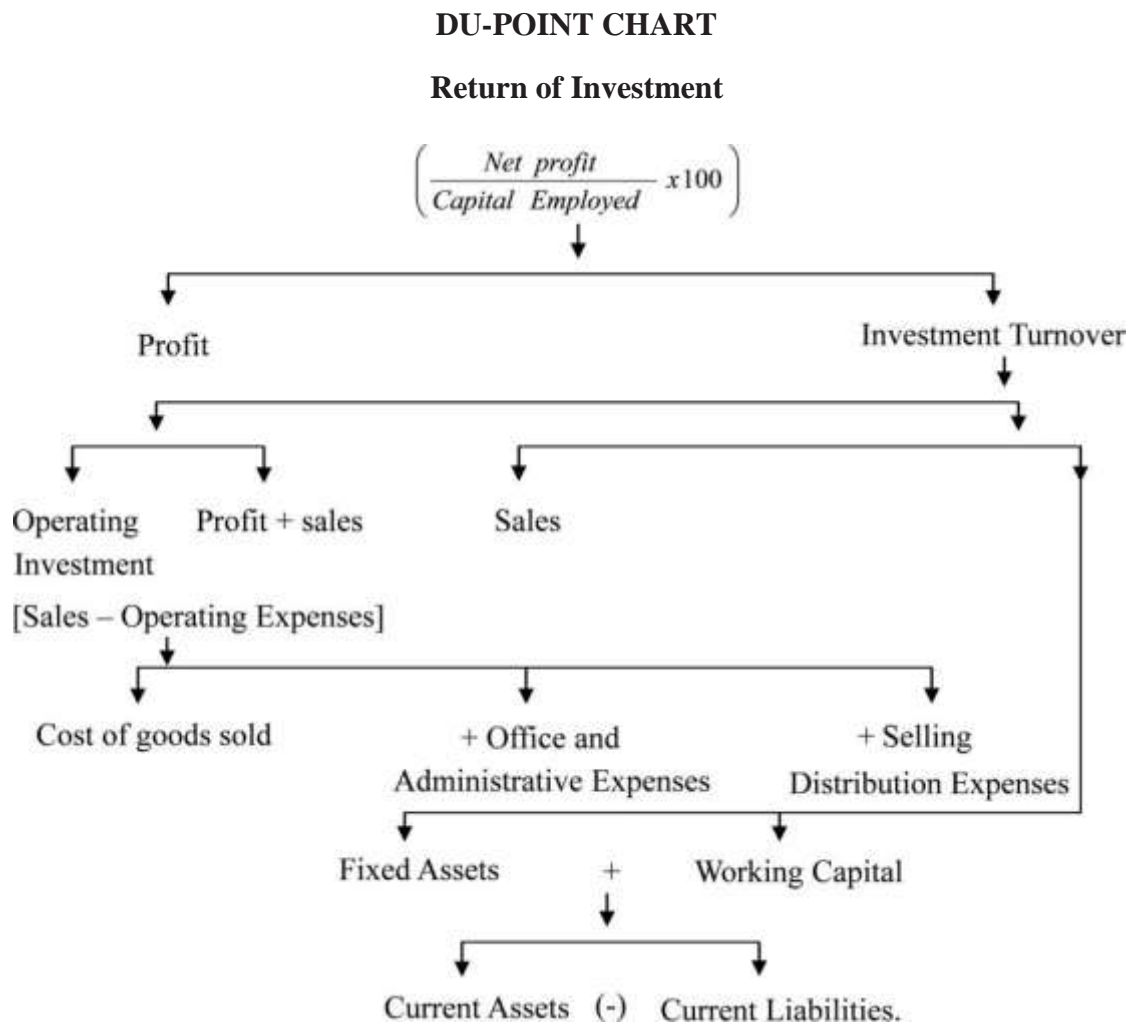


Figure 4.2 DU-POINT CHART

INTER- FIRM AND INTRA-FIRM COMPARISON

The process by which one firm is compared with other firm is called inter-firm comparison. When one department of a firm is compared with other departments of the same firm. It is called intra-firm comparison.

Meaning of Inter-firm Comparison

Inter-firm comparison means a comparison of two or more firms organized by a Trade Association with the objective of providing information regarding the competitive position of participating companies to improve the profitability and productivity of those companies. It thus focuses attention on both the areas of strength and weakness of each of the member organizations. Centre for Inter-firm comparison, a non-profit-making organization, established

by the British Institute of Management, has beautifully explained this aspect in the following words:

‘Inter-firm comparison is concerned with the individual firm, its success and the part played by the management in achieving it. The end-product of a properly conducted inter-firm comparison is not a statistical survey but the flash of insight in the mind of the Managing Director of a firm which has taken part in such exercise. The results of this give him an instant and vivid picture of how his firm’s profitability, its cost, its stock turnover and other key factors affecting the success of a business where compared with those of the other firms in his industry.’

Meaning of Intra-Firm Comparison

The term intra-firm comparison means comparison of two or more Departments or Divisions belonging to the same firm with the objective of making meaningful analysis for the purpose of increasing the effectiveness or efficiency of the Departments or Divisions involved.

Thus, both inter-firm and intra-firm comparisons have the same objective with the difference that while former compares the performance of the firm with other firms, the latter compares the performance of the firm within itself. The comparison may cover the financial position or operating results or both.

REQUISITES FOR INTER-FIRM OR INTRA-FIRM COMPARISON

The following are the requisites for a meaningful and effective inter-firm or intra-firm comparison:

- i. Similarly of Firms or Departments.** In order to make an effective inter-firm (or) intra-firm comparison, it is necessary that the firms or divisions to be compared are completely alike. This means that the age, character of production and the market to which the firms or divisions are catering should be the same. For example, there can be no comparison between a textile firm manufacturing superfine cloth for export and another textile firm manufacturing coarse cloth only. Similarly, there can be no comparison between Bokaro Steel Plant established only a few years ago and TISCO established more than 70 years ago. In case comparisons are made between dissimilar divisions or departments, the results may be meaningless and misleading.
- ii. Use of Accounting Ratios.** Absolute figures are unfit for comparison. Accounting ratios should preferably be used to signify the various figures in relation to others and to indicate the areas of strength and weakness. However, before making a selection of accounting ratios for inter-firm comparison, the concerned trade association should take into consideration the following data:
 - (a) The practical issues involved in introducing an inter-firm comparison scheme in the industry.
 - (b) The best ratios to express the information required.
 - (c) The relationship that can be established in the ratios chosen to assist interpretation and

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corrective action where necessary.

(d) The adjustment necessary to accounting information to ensure comparability in the ratios so produced.

iii. Similarity in Accounting Policies. The firms or divisions selected for inter-firm or intra-firm comparison should have uniform accounting policies regarding valuation of inventories, depreciation, provision of gratuity, etc. In the absence of such similarities, the accounting ratios used for comparison will not give proper results.

iv. Adjustment for Inflation. Accounting ratios usually do not take into account the effect of inflation. The ratios calculated may greatly be distorted on account of inflationary conditions. It is, therefore, desirable that the effects of inflation are adjusted before making any comparison.

ADVANTAGES OF INTER-FIRM OR INTRA-FIRM COMPARISON

Inter-firm or intra-firm comparison offers the following advantages:

- i. It provides comparative data to the business/ departments to assess the performance.
- ii. It provides the companies/ departments with information regarding profitability and production relevant to the specific industry and for companies/departments of similar type and size.
- iii. It identifies specific areas in the business which may need managerial attention.
- iv. It provides information to management on a uniform basis.

LIMITATIONS OF INTER-FIRM OR INTRA-FIRM COMPARISON

The following are some of the limitations of the inter-firm or intra-firm comparison.

These limitations are more predominant in case of inter-firm comparison.

- i. The success of inter-firm or intra-firm comparison depends on sincere co-operation by the member-firms or departments (within the company.) In case co-operation is not forthcoming, it is not possible to have meaningful comparison.
- ii. In case of inter-firm comparison, it is usually assured by the association collecting the figures from the member-firms that the information supplied by them will be kept confidential. In spite of such assurance, there is usually reluctance on the part of some firms to part with information of a confidential nature. This creates problems for the association in compiling data for computation of different accounting ratios. Of course, this difficulty is generally not faced in case of intra-firm comparison.

USES AND LIMITATIONS OF RATIO ANALYSIS

Ratio analysis is used as a device to analyse and interpret the financial health and soundness of an enterprise. The use of ratios is not confined to management accountant or financial managers only. There are different parties interested in the ratio analysis for knowing the financial position of a firm for varied purposes.

Advantages of Ratio Analysis

Following are some of the advantages of ratio analysis:

- i. Simplifies Financial Statements.** Ratio analysis simplifies the comprehension of financial statements. Ratios tell the whole story of changes in the financial condition of the business.
- ii. Facilities Inter-firm Comparison Possible.** Ratio analysis provides data for inter-firm comparison. Ratio highlights the factors associated with successful and unsuccessful firms. They also reveal strong firms and weak firms, over-valued and under-valued firms.
- iii. Makes Intra-firm Comparison Possible:** Ratio analysis also makes possible comparison of the performance of the different divisions of the firm. The ratios are helpful in deciding about their efficiency or otherwise in the past and likely performance in the future.
- iv. Helps in Planning.** Ratio analysis helps in planning and forecasting. Over a period of time a firm or industry develops certain norms that may indicate future success or failure. If relationship changes in firm's data over different time periods, the ratios may provide clues on trends and future problems.
- v. Helps in decision-making.** Financial statements are prepared primarily for decision-making. But the information provided in financial statements is not an end in itself and no meaningful conclusion can be drawn from these statements alone. Ratio analysis helps in making decisions from the information provided in these financial statements.
- vi. Helps in financial forecasting and planning:** Ratio analysis is of much help in financial forecasting and planning. Planning is looking ahead and the ratios calculated for a number of years work as a guide for the future. Meaningful conclusions can be drawn for future from these ratios. Thus, ratio analysis helps in forecasting and planning.
- vii. Helps in Communication.** The financial strength and weakness of a firm are communicated in a more easy and understandable manner by the use of ratios. The information contained in the financial statement is conveyed in a meaningful manner to the one for whom it is meant. Thus, ratios help in communication and enhance the value of the financial statements.

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viii. Helps in co-ordination. Ratios even help in co-ordination which is of utmost importance in effective business management. Better communication of efficiency and weakness of an enterprise results in better co-ordination in the enterprise.

Thus, “ratios can assist management in its basic function of forecasting, planning, co-ordination, control and communication.

Limitations of Ratio Analysis

Ratio analysis is of great use in arriving at managerial decisions. Nevertheless, it suffers from following limitations:

- 1. Limited Use of Single Ratio.** A single ratio, usually, does not convey much of a sense. To make a better interpretation a number of ratios have to be calculated which is likely to confuse the analyst than help him in making any meaningful conclusion.
- 2. Lack of Adequate Standards.** There are no well accepted standards or rules of thumb for all ratios: It renders interpretation of the ratio difficult.
- 3. Inherent Limitations of Accounting.** Like financial statements, ratios also suffer from the inherent weakness of accounting records like their historical nature. Ratios of the past are not necessarily true indicators of the future.
- 4. Window Dressing:** Financial statements can easily be window dressed to present a better picture of its financial and profitability position to outsiders. Hence, one has to be very careful in making a decision from ratios calculated from such financial statements. But it may be very difficult for an outsider to know about the window dressing made by a firm.
- 5. Personal Bias.** Ratios are only means of financial analysis and not an end in itself. Ratios have to be interpreted and different people may interpret the same ratio in different ways.
- 6. Incomparable.** Not only industries differ in their nature but also the firms of the similar business widely differ in their size and accounting procedures, etc. It makes comparison of ratios difficult and misleading. Moreover, comparisons are made difficult due to differences in definitions of various financial terms used in the ratio analysis.
- 7. Price Level Changes.** While making ratio analysis, no consideration is made to the changes in price levels and this makes the interpretation of ratios invalid.
- 8. Ratios are not Substitutes.** Ratio analysis is merely a tool of financial analysis. Hence, ratios become useless if separated from the statements from which they are computed.

SELF ASSESSMENT QUESTIONS**Answer Check your Progress****I Choose the correct answer from the given options:**

1. Current ratio is an element of
 - (a) Liquidity ratios
 - (b) Activity ratios
 - (c) Solvency ratios
 - (d) Profitability ratios
2. The standard norm for current ratio is
 - (a) 1:1
 - (b) 2:1
 - (c) .5: 1
 - (d) 1:2
3. The 'rule of thumb' for quick ratio is
 - (a) 2:1
 - (b) 1:2
 - (c) 1:1
 - (d) .5:1
4. Activity ratio is also known as
 - (a) Efficiency ratio
 - (b) Turnover ratio
 - (c) Velocity ratio
 - (d) All of these.
5. Debt-equity ratio is a
 - (a) Liquidity ratio
 - (b) Solvency ratio
 - (c) Efficiency ratio
 - (d) Profitability ratio
6. Interest coverage ratio is calculated by
 - (a) $\frac{\text{EAT}}{\text{Interest Charges}}$
 - (b) $\frac{\text{NPAT}}{\text{Interest Charges}}$
 - (a) $\frac{\text{EBIT}}{\text{Interest Charges}}$
 - (b) $\frac{\text{NPAT}}{\text{Interest Charges}}$
7. When a company has more amount of fixed interest and dividend bearing capital, it is called
 - (a) Low geared company
 - (b) High geared company
 - (c) Under-geared company
 - (d) None of these
8. Which of the following is a profitability ratio in relation to investment?
 - (a) Gross profit Ratio
 - (b) Net profit Ratio
 - (c) ROI
 - (d) Operating Ratio
9. 100 – Operating ratio is called
 - (a) Gross Profit Ratio
 - (b) Net Profit Ratio
 - (c) Operating Profit Ratio
 - (d) All of these

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10. Fixed asset + Current asset – Current Liabilities amounts to
- (a) Gross Capital Employed (b) Net Capital Employed
(c) Average Capital Employed (d) Proprietors' Net Capital Employed
11. 100 – Dividend pay –out ratio is known as
- (b) Dividend Yield Ratio (b) Retention Ratio
(c) Price Earnings Ratio (d) Earnings per share
12. When total current assets is ` 1, 00,000 and total current liabilities amounts to ` 60,000 gross working capital will be __.
- (a) ` 1, 00,000 (b) ` 40,000
(c) ` 1, 60,000 (d) ` – 40,000
13. If total current assets are the double of total current liabilities which amounts to `75,000, Net working capital will be ____ .
- (a) ` 75,000 (b) ` 1, 50,000
(c) ` 37,000 (d) ` 2, 25,000
14. Assume current assets ` 1, 20,000 quick assets ` 80,000 and prepaid expenses `10,000. The amount of stock will be __.
- (a) ` 1, 20,000 (b) ` 40,000
(c) ` 30,000 (d) ` 70,000
15. Current ratio is a
- (c) Profit and Loss a/c ratio (b) Balance sheet ratio
(c) Composite ratio (d) None of these
16. ROI is an example of
- (d) Profit and Loss a/c ratio (b) Balance sheet ratio
(c) Composite ratio (d) Position statement ratio
17. When a company's price – earning ratio is higher than the P/E ratio of similar companies, it is called
- (e) Under valuation of share (b) Over valuation of share
(c) Optimal valuation of share (d) None of these
18. EPS is calculated by
- (a) $\frac{\text{EAT}}{\text{No. of equity shares}}$ (b) $\frac{\text{EBIT}}{\text{No. of equity shares}}$
(a) $\frac{\text{NPAT}}{\text{Interest Charges}}$ (b) $\frac{\text{NPAT} - \text{Preference Divident}}{\text{No. of equity shares}}$

19. Share holders' fund equal to
- Equity share capital
 - Equity share capital Plus preference share capital
 - Equity share capital plus preference share capital and Reserves
 - Equity share capital plus preference share capital, reserves and accumulated profits.
20. Assume a firm's present current ratio is 2:1 If it collects Rs. 20,000 from its debtors, the new current: ratio will be-
- Increasing
 - Decreasing
 - The previous one
 - None of these.

Answers: 1(a) 2. (b) 3. (c) 4. (d) 5. (b) 6. (c) 7. (b) 8. (c) 9. (c) 10. (b) 11. (b) 12.(a) 13.(a) 14.(c) 15. (b) 16.(c) 17.(b) 18.(d) 19. (d) 20.(c)

II Fill in the blanks with the appropriate words.

- Ratio is a _____ relationship between two variables.
- Debt – equity is a _____ ratio.
- Debtors' velocity is concerned with average _____ period.
- Liquidity is otherwise known as _____ solvency.
- Fixed assets plus net working capital is called _____ capital employed.
- Sales – gross profit equal to _____.
- Cash in hand, cash at bank and marketable securities constitute _____ assets.
- The standard norm for super quick ratio is _____ .
- Opening capital employed + $\frac{1}{2}$ of profit earned during the period is _____ known as capital employed.
- Proprietary ratio is a part of _____ ratios.

Answer: 1. Mathematical 2. Solvency 3. Collection 4. Short-term 5. Net
6. Cost of sales 7. Super-quick 8. 5:1 9. Average 10. Solvency

III State whether each of the following statements is true or false.

- Current ratio results in window dressing.
- Longer the average payment period is a desirable one.

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3. Higher the stock turnover ratio indicates the better/efficient movement of stock.
4. Lower the interest coverage ratio better than solvency.
5. The ability to pay long- term liabilities is called liquidity.
6. ‘Acid-test’ denotes liquidity.
7. Long-term solvency ratios are also called ‘leverage’ ratios.
8. In arriving at net capital employed, fictitious assets should be excluded.
9. Net profit ratio is a composite ratio.
10. When depreciation is added back with net profit it is called cash profit.

Answer: 1. True 2. False 3. True 4. False 5. False 6. True
7. True 8. True 9. False 10. True

IV Short Answer Questions

1. What do you mean by liquidity?
2. What are efficiency ratios?
3. What is meant by solvency?
4. What is ratio analysis?
5. What do you mean by ‘capital gearing ratio’?
6. State any three advantages of ratio analysis.
7. Mention any three limitations of ratio analysis.
8. Write short notes on ROI.
9. Name profitability ratios in relation to sales.
10. How would you calculate EPS?

V Essay Type questions

1. What are liquidity ratios? Explain their significance.
2. Briefly explain activity ratios.
3. Explain the significance of solvency ratios.
4. Explain the importance of ratio analysis to different category of users.
5. Explain the advantages and limitations of ratio analysis.
6. Examine the relationship between liquidity and activity ratios.
7. Explain the relationship between liquidity, solvency and profitability.

8. Briefly explain profitability ratios.
9. What do you understand by inter-firm comparison? Explain how accounting ratios are useful in the inter-firm comparison.
10. How would you analyse the financial position of a company from the point of view of –
 - (a) an investor
 - (b) a creditor.

VI Discussion questions:

1. “Ratio analysis is a tool to examine the soundness of a business with a view to make financial results more intelligible” Discuss.
2. “Accounting ratios are mere guides and complete reliance on them in decision-making is judicial”.’ comment.
3. “Higher profit margins need not necessarily lead to higher rate of return on investments.” Elucidate.
4. “ROI is a single comprehensive measure that contains everything happening within the organization.” Discuss with illustrations.
5. “Ratios are indicators – sometimes pointers but not in themselves powerful tools of management.” Discuss.

VII .Case Analysis

1. Following is the Balance sheet of ABC Ltd., as in 30-6-2017

Liabilities	\	Assets	\
Equity Shares of Rs. 10 each	1,50,000	Good will	1,00,000
Reserves	25,000	Fixed Assets	1,50,000
Profit & Loss A/c	40,000	Stock	40,000
Secured Loan	70,000	Sundry Debtors 50,000	
Sundry Creditors	50,000	(-) Reserve for doubtful debts 1,000	49,000
Bank Overdraft	30,000	Advances	10,000
Provision for Taxation	20,000	Bank Balance	20,000
		Cash in hand	16,000
	3,85,000		3,85,000

Calculate

- (i) Current Ratio (ii) Liquid Ratio (iii) Absolute Liquid Ratio

[Ans: (i) 1.35; (ii) 0.95; (iii) 0.36]

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2. Following is the Balance sheet of Sunshine Ltd. for the year ending December 31, 2018

Liabilities	\`	Assets	\`
Equity Shares Capital	5,00,000	Land and Building	3,70,000
5% Debentures	2,20,000	Plant and Machinery	2,50,000
Bank Loan	1,50,000	Cash in hand	25,000
Sundry Creditors	75,000	Cash at Bank	55,000
Bills Payable	50,000	Sundry Debtors	85,000
Outstanding Expenses	5,000	Bills receivable	1,05,000
		Stock	1,00,000
		Prepaid expenses	10,000
	10,00,000		10,00,000

From the information given above, calculate:

- i. (a) Current Ratio; (b) Acid-test Ratio; (c) Absolute Liquid Ratio.
- ii. Comment on the short-term financial positions.

[Ans. (i) (a) 2.92; (b) 2.076; (c) 0.615 (ii) Short-term financial position of the company is quite satisfactory Note: Bank loan is a long-term liability

3. The current ratio of a company is 2:1 Which of the following situations would improve the ratio, which would reduce it and which would not change it.

- (a) To pay a current liability.
- (b) To sell a motor car for cash at a slight loss.
- (c) To borrow money for a short time on an interest bearing promissory note.
- (d) To purchase stock for cash.
- (e) To give an interest bearing promissory note to a creditor to whom money was to be paid.

[Ans: (a) & (b) improve ;(c) reduce; (d) & (e) no change.]

4. Ruby Ltd. gives you the following Balance sheet for the year ending 31st December 2017:

Liabilities	Rs.	Assets	Rs.
Equity Capital 20,000 Shares of Rs. 10 each	2,00,000	Good will	50,000
Preference Capital 5,000 Shares of Rs. 20 each	1,00,000	Plant & Machinery	2,50,000
Reserve fund	50,000	Furniture & Fittings	70,000
Dividend Equalization Fund	60,000	Trade Investment	1,50,000
Profit & Loss A/c	40,000	Cash	20,000
5% Debentures	1,50,000	Sundry Debtors	1,25,000
7% Mortgage Loan	70,000	Bills Receivable	65,000
Sundry Creditors	50,000	Advance Tax	20,000
Bank Overdraft	30,000		
	7,50,000		7,50,000

Calculate Following ratios:

- (a) Debt – Equity Ratio
(b) Funded Debt to Total Capitalization
(c) Proprietary Ratio
(d) Solvency Ratio
(e) Fixed Assets To Net Worth Ratio
(f) Current Assets to Proprietor's Funds Ratio

[Ans: (a) 0.67; (b) 0.33; (c) 0.6; (d) 0.4; (e) 0.82; (f) 0.51]

Note: Trade investment have been excluded from fixed assets as these are investment outside the business.

5. The following is the Trading and Profit and Loss Account of a concern for the year ending Dec. 31, 2019.

To opening Stock	76,250	By Sales	5,00,000
To Purchases	3,15,250	By Closing Stock	98,500
To Factory Expenses	7,000		
To Gross Profit c/d	2,00,000		
	5,98,500		5,98,500
To Administrative Expenses	1,01,000	By Gross Profit b/d	2,00,000
To Selling & Distribution Expenses	12,000	By Non-operating Income	6,000
To Non-operating Expenses	9,000		

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To Net Profit	84,000	
	2,06,000	2,06,000

You are required to calculate:

- | | | |
|----------------------------|------------------------|---------------------|
| (a) Expenses Ratio | (b) Gross Profit ratio | (c) Operating ratio |
| (d) Operating profit ratio | (e) Net profit Ratio | |

[Ans: (a) Factory exp : 1.4%; Administrative Exp. 20.2% Selling & Distribution Exp. 2.4% ; Non-operating exp: 1.8% (b) 40 % (c) 82.6% (d) 17.4% (e) 16.8%]

6. From the following information, make out a statement of proprietors funds with as many details as possible:

(i) Current Ratio	2
(ii) Liquid Ratio	1.25
(iii) Proprietary Ratio (Fixed Assets/ Proprietors' Funds)	0.60
(iv) Working Capital	`50,000
(v) Reserve and Surplus	`25,000
(vi) Bank overdraft (Liquid Liability)	10,000
(vii) There is no Long-term loan or fictitious assets.	

[Ans: Proprietors' Fund: ` 1,25,000; C.A : ` 1,00,000; Inventory: ` 37,500; C.L.Rs.50,000]

7. The following are the ratios relating to the activities of Modern Traders Limited:

Stock Velocity	:	6 months
Creditors velocity	:	2 months
Debtors Velocity	:	3 months
Gross Profit Ratio	:	25%

Gross profit for the year ended 31st Dec. 2004 amounts to `4,00,000. Closing stock of the year is `10,000 above the opening stock . Bills receivable amounts to `25,000 and bills payable to `10,000.

Find out:

- i. Sales
- ii. Purchases
- iii. Sundry Creditors
- iv. Sundry Debtors
- v. Closing stock.

[Ans: (i) ` 16,00,000; (ii) ` 12,10,000; (iii) ` 1,91,667; (iv) ` 3,75,000; (v) ` 6,05,000]

8. The following information is given about a limited company:

Profit after tax at 60%	₹ 3,00,000
Market price of equity share	₹ 50
Depreciation	₹ 40,000
Equity dividend paid at	20%,
Equity Capital of Rs.10 shares	₹ 4,00,000,
9% Preference Share capital	₹ 2,00,000.

Calculate:

- Dividend yield on Equity Shares
- Cover for Preference and Equity Dividend
- Earnings per Share
- Price Earnings Ratio

[Ans: (a) 4% (b) 16.67 times, 3.5 times; (c) ₹7.05; (d) 7.09 times.]

9. Calculate

- current ratio
- Liquid ratio
- Proprietary ratio
- Debt equity ratio and
- Capital gearing ratio

Liabilities	₹	Assets	₹
5,000 Equity Shares of Rs. 100 each	5,00,000	Buildings	6,00,000
2,000 8% Preference Shares of Rs. 100 each	2,00,000	Machinery	5,00,000
4,000 9% Debentures of Rs. 100 each	4,00,000	Stock	2,40,000
Reserves	3,00,000	Debtors	2,00,000
Bank Overdraft	50,000	Bank	55,000
Creditors	1,50,000	Prepaid expenses	5,000
	16,00,000		16,00,000

Ans: (a) Current ratio 2.5 :1 (b) Liquid ratio 1.7:1 (c) Proprietary ratio 0.63: 1
(d) Debt equity ratio 0.6:1 (e) Capital gearing ratio 0.75:1

10. The following is the balance sheet of Mariappan Ltd. as on 31st March 2015.

Liabilities		Assets	
Equity share Capital	2,00,000	Land & Building	1,50,000
Preference share Capital	2,00,000	Plant & Machinery	2,50,000
General Reserve	80,000	Furniture	50,000
Profit & Loss A/c	40,000	Stock	1,50,000
12% Debentures	2,20,000	Debtors	70,000
Creditors	1,00,000	Bills Receivable	80,000
Bills Payable	50,000	Cash	1,40,000
	8,90,000		8,90,000

(a) Current ratio (b) Liquid ratio (c) Debt equity ratio (d) Proprietary ratio

(e) Fixed assets to net worth Ratio (f) Capital gearing ratio

[Ans: (a) 2.93: 1 (b) 1.93 : 1 (c) 0.71:1 (d) 0.58 :1 (e) 0.86 : 1
(f) 1.31:1]

11. Calculate: (i) Creditors Turnover Ratio (ii) Average Payment Period

	2008	2009
Annual Credit Purchase	6,80,000	7,50,000
Creditors on January 1	80,000	60,000
Creditors on December 31	60,000	90,000
Take 360 days in a year		

[Ans: 2008 (i) 9.71 times (ii) 37 days 2009 (iii) 10 times (iv) 36 days]

12. Calculate:

- (i) Gross Profit ratio (ii) Operating ratio
(iii) Operating profit ratio (iv) Net profit ratio

Sales	21,000	Income from investment	200
Sales returns	1,000	Administration expenses	1,300
Cost of sales	16,400	Selling expenses	700
Interest expenses (non operating)	100	Depreciation	200

[Ans: (i) 18% (ii) 93% (iii) 7% (iv) 7.5%]

13. From the following information calculate interest coverage

Net Income tax	` 3,12,740
Depreciation	` 40,000
Tax rate	50% of income
Fixed interest charges	` 29,500

[Ans: Interest coverage ratio 21.2 times]

14. Current ratio 2.5; Liquid ratio; 1.5 Working capital ` 90,000;
From the above information Calculate (a) current assets (b) current liabilities (c)
Liquid assets stock

Ans: (a) Current assets ` 1,50,000 (b) Current Liabilities ` 60,000 (c)
Liquid assets ` 90,000 (d) Stock ` 60,000

15. From the following information, prepare balance sheet of Rajan Ltd., when sales are
` 23,00,000

Sales/net worth	2.3 times
Current debt/ net worth	42%
Total debt / net worth	75%
Current ratio	2.9 Times
Net sales/ inventory	4.6 times
Average collection period	90 days
Fixed assets/ net worth	53.2 %

Proforma Balance Sheet

Liabilities	`	Assets	`
Net worth	?	Fixed assets	?
Long term debt	?	Stock	?
Current Liabilities	?	Debtors	?
		Cash	?

Ans:	Net worth	10,00,000	Fixed assets	5,32,000
	Long term debt	3,30,000	Stock	5,00,000
	Current Liabilities	4,20,000	Debtors	5,75,000
			Cash	1, 43,000
		17, 50,000		17, 50,000

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E-Content

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Glossary -Ratio Analysis: The process of evaluating and interpreting financial ratios derived from a company's financial statements to assess its financial performance and position.:

- **Quick Assessment:** Provides a snapshot of financial health.
 - **Benchmarking:** Facilitates comparison with industry standards.
 - **Identifies Trends:** Helps track performance over time.
 - **Decision-Making:** Assists in informed decision-making by highlighting strengths and weaknesses.
-
- **Accounting Policies:** Differences in accounting methods can affect ratios.
 - **Context Requirement:** Ratios may need context from qualitative factors.
 - **Historical Data:** Past performance may not predict future outcomes accurately.
 - **Industry Variations:** Standards vary across industries, impacting ratio interpretation.
1. **Liquidity Ratios:** Measure a company's ability to meet short-term obligations.
 - Examples: Current Ratio, Quick Ratio (Acid-Test Ratio).
 2. **Profitability Ratios:** Assess profitability relative to sales, assets, or equity.
 - Examples: Gross Profit Margin, Net Profit Margin, Return on Assets (ROA), Return on Equity (ROE).
 3. **Turnover Ratios:** Evaluate efficiency in using assets or resources to generate revenue.
 - Examples: Inventory Turnover Ratio, Accounts Receivable Turnover, Asset Turnover Ratio.
 4. **Solvency Ratios:** Gauge long-term financial stability and ability to meet obligations.
 - Examples: Debt-to-Equity Ratio, Interest Coverage Ratio.
 5. **Leverage Ratios:** Measure the proportion of debt in a company's capital structure.
 - Examples: Debt Ratio, Debt-to-Asset Ratio.

Preparation of Financial Statements from Ratios: Reverse-engineering ratios to estimate components of financial statements:

- **Income Statement:** Derive revenues, expenses, and net income from profitability ratios.
- **Balance Sheet:** Estimate assets, liabilities, and equity using solvency and leverage ratios.
- **Cash Flow Statement:** Adjust cash flows based on changes in working capital and turnover ratio

UNIT III

FUNDS FLOW STATEMENT (FUNDS ANALYSIS)

UNIT OBJECTIVES

Both the Funds Flow Statement and Cash Flow Statement are essential tools in financial analysis. The Funds Flow Statement focuses on changes in financial position and working capital, while the Cash Flow Statement tracks actual cash movements. Each statement has advantages in assessing financial health and liquidity, though they also come with limitations related to non-cash items and timing differences. Preparation involves meticulous analysis and categorization of financial data to provide meaningful insights for decision-making and financial planning.

Fund Flow & Cash Flow Analysis

Introduction, Meaning of Funds Flow Statement-Ascertainment of Flow of Funds-Schedule of Changes in Working Capital-Adjusted Profit and Loss Account - Preparation of Funds Flow Statement.

Cash Flow Statement: Meaning-Advantages-Limitations-Preparation of Cash Flow Statement as per AS 3 –Cash Flow from Operating, Financing and Investing activities

INTRODUCTION

Financial statements are the outcomes of financial accounting. Financial statements include income statement (i.e. Profit and loss account) and position statement (i.e. Balance sheet). The financial statements reveal the essential aspects of a business concern. Income statement shows the amount of income generated in an accounting year and it also shows the amount of expenses incurred in generally such income for the accounting year. The position statement reveals the assets and liabilities of a concern on a certain date. The assets side shows the permanent and current assets. In other words the assets side reveals the various purposes for which cash has been deployed as on certain elate. The liabilities side show, both the long term and short term liabilities. In other words, it reveals the sources from which such amount of capital has been mobilized. Thus, the use of traditional financial statements is limited and the nature of such financial statement is static in nature. For example, in the current year suppose a firm buys a new machine worth ` 2,80,000 by loan from bank for the same amount. It is shown in both sides of the balance sheet in the name of machine in the benefits size and loan from bank in the liabilities side of the balance sheet as on that particular date. But this fact cannot be reveled and known until this current year balance sheet is compared with that of the previous year.

Thus, traditional financial statements do not show be changes that have been occurred between two dates of balance sheets or between two points of time. It is in this backdrop, a statement of changes in financial position is warranted by financial analyst and management accountants to analyse the changes that have been taken place between two dates of balance sheets and thereby eventually to arrive at wise managerial decision.

3.2 *Management Accounting*

A statement of changes in financial position is a statement which is prepared in order to find out the changes that have been effected as regards, assets and liabilities between two dates of balance sheets.

FUNDS FLOW STATEMENT

The funds flow statement is a financial statement which shows the sources by which the business has been financed and the purposes for which its funds have been used between the opening and closing balance sheet date.

In the words of Foulke, a statement of sources and applications of funds is a technical device designed to analyse the changes in the financial condition of a business enterprise between two dates.

Meaning of Funds

The term fund has different meanings. There are three senses as to the concept of 'funds'.

They are narrow sense, broader sense and popular sense.

In a narrow sense, 'funds' refers to just cash.

In a broader sense, 'funds' refers to all financial resources. In a popular sense, 'funds' refers to net working capital.

The narrow sense is one extreme where cash alone is considered as 'funds'. The broader sense is another extreme where all the financial resources are considered as 'funds'. In between these two extremes, the popular sense lies where net working capital is considered as 'funds'. As the name implies, the popular sense is popular and by 'funds' we mean net working capital. Working capital is the capital which is required to carry out day to day business operations. In other words, the capital which is required to meet out day-to-day expenses is called working capital.

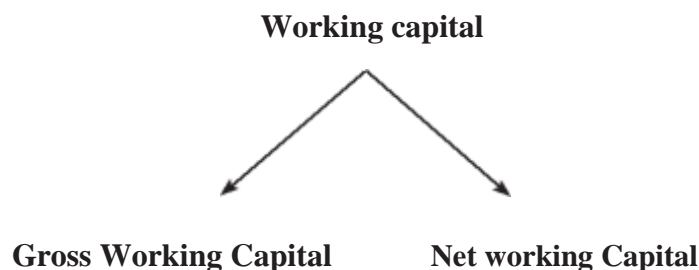


Fig. 3.1 Concept of working Capital

Gross Working Capital refers to the total of current assets
 Gross Workings Capital
 = Total Current Assets

Net Working Capital is the excess of current assets over current liabilities

Net Working Capital = Total Current Assets – Total Current Liabilities



Funds flow statement is a statement of changes in financial position which is prepared.

Meaning of Flow of Funds

The term ‘flow’ means movement or change and therefore the term ‘flow of funds’ means movement of funds or change in funds i.e. change in net working capital. In other words, any increase or decrease in net working capital means and causes ‘flow of funds’.

Current Accounts Vs Non-Current Accounts

To understand the concept of flow of funds, one must know very well the classification of current accounts and non-current accounts. Current accounts include both current assets and current liabilities. Further, Non-Current accounts include both Non-Current Assets (fixed assets) and Non-Current Liabilities (long-term liabilities).

Currents Assets Vs Non-Current Assets

Current assets are those assets which are easily convertible into cash say within a year. In other words, the assets which are acquired with the intention of converting them into cash during the accounting year are called current assets.

Current liabilities are those liabilities which are payable within an accounting year. In other words, the liabilities those are paid out of the current assets or out of the income of the business are called current liabilities.

The following is the list of Current Assets and Current Liabilities:

S.No	Current Assets	Current Liabilities
1.	Cash in hand	Outstanding expenses
2.	Cash at bank	Bills payable
3.	Marketable or temporary investments	Sundry creditors
4.	Short-term loans and advances	Short-term loans and advances
5.	Bills receivable	Dividends payable
6.	Sundry debtors	Bank overdraft
7.	Stock	Provision against current assets
8.	Accrued incomes	Provision for taxation
9.	Prepaid expenses	Proposed dividend

3.4 Management Accounting

- ❖ Provision for taxation is a current liability if it does not account to appropriation of profits if not it will be of a non-current liability.
- ❖ Proposed dividend may also be taken as a non-current liability.

The following table gives the full list of Non-Current Assets and Non-Current Liabilities:

S.No	Non-Current (fixed) Assets	Non-Current (long term) Liabilities
1.	Goodwill	Equity share capital
2.	Land	Preference share capital
3.	Building	Redeemable preference share capital
4.	Plant and machinery	Debentures
5.	Tools and equipments	Bonds
6.	Furniture and fittings	Long term loans and advances
7.	Trade marks	Share premium account
8.	Patent rights	Share forfeiture account
9.	Long-term investment	Capital reserve
10.	Long-term loans and advances	Capital redemption reserve
11.	Discount on issue of shares/ Debentures	Provision for depreciation against fixed assets
12.	Deferred expenses: ➤ Preliminary expenses ➤ Heavy advertising expenses	Appropriation of profits: ➤ General reserve ➤ Provision for taxation/dividend
13.	Debit balance of profit and loss Account	Credit balance of profit and loss account

TRANSACTIONS WHICH CAUSES FLOW OF FUNDS

It is true that a business is composed of transactions. Numerous transactions take place in a business concern. Further it is the fact that every transaction has two accounts. All transactions do not cause flow of funds. To make change or flow in fund position, of the two accounts involved in a business transaction, one must be of current in nature and another must be of non-current in nature. In other words, when a transaction involves either only current accounts or only non-current accounts then there will be no flow of funds.

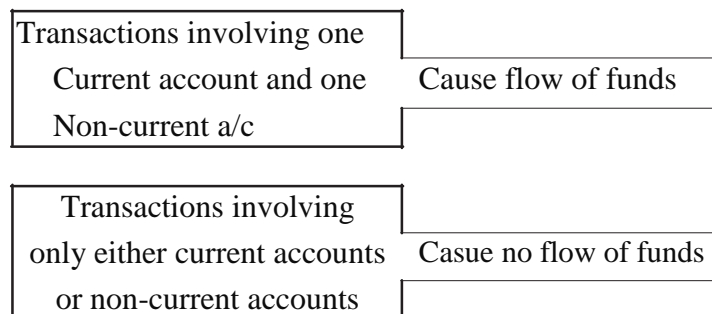


Fig. 3.2 Transactions influencing flow of funds

Transaction involving only current accounts and do not result in flow of funds
The following transactions do not make any change in funds flow (position).

Transactions	Entry	Accounts involved
Cash collected from debtors	Cash a/c Dr To Debtors	(Current asset) (Current asset)
Cash paid to creditors	Creditors a/c Dr To Cash	(Current Liability) (Current Asset)
Bills received from debtors	Bills Receivable a/c Dr To Debtor a/c	(Current Asset) (Current Asset)
Issued bills to creditors	Creditors a/c Dr To Bills payable a/c	(Current Liability) (Current Liability)
Received cash against bills receivable	Cash a/c Dr To Bills Receivable a/c	(Current Asset) (Current Asset)
Cash paid against bills payable	Bills payable a/c Dr To Cash a/c	(Current Liability) (Current Asset)
Raising of short-term loan	Cash a/c Dr To short-term loan a/c	(Current Asset) (Current Liability)
Selling of temporary investments	Cash a/c Dr To Temporary investments	(Current Asset) (Current Asset)

Let us deal with the implication/influence of any one of the above mentioned transactions on net working capital say cash collected from debtors.

3.6 *Management Accounting*

For example, a firm's net working capital as on certain date say 12-10-2014 is ₹10,50,000 (total current assets ₹20,50,000 and total current liabilities ₹10,00,000). Now the firm collects ₹25,000 from its debtors. As cash comes in to the tune of ₹25,000, total current assets increases by ₹25,000 i.e. ₹20,75,000. But at the same time as the amount of total debtors comes down, total current liabilities decreases by ₹25,000 (i.e. ₹9,75,000). Thus, there is no change or movement in total current assets and eventually there is no change in funds i.e. net working capital.

Transactions involving only non-current accounts and causing no change in funds

Transactions	Entry	Accounts involved
Purchase of fixed assets say plant and machinery by issuing shares	Plant and Machinery a/c Dr To Share capital a/c	(Non-current asset) (Non-current liability)
Redemption of preference shares in exchange of debentures	Preference share capital a/c Dr To Debentures a/c	(Non-current liability) (Non-Current liability)
Conversion of debentures into shares	Debentures a/c Dr To Share capital a/c	(Non-current liability) (Non-current liability)
Writing off of fictitious assets like goodwill	Profit and loss a/c Dr To Goodwill a/c	(Non-current) (Non-current asset)
Transfer of general reserve	Profit and loss (appropriation) a/c Dr To Share Capital a/c	(Non-current) (Non-current)
Payment of bonus in the form of shares	Profit and loss (appropriation) a/c Dr To share capital a/c	(Non-current) (Non-current)

The above said transactions involve only non-current accounts and thus cause no change in flow of funds. For example, when fixed assets (Land and Building) are purchased by issuing shares then there is no involvement of cash as in the case of purchase of fixed assets for cash. Thus, there is no movement of funds.

Illustration:1

A firm has total current assets of ₹24,20,000 and total current liabilities of ₹12,00,000 as on 01-07-2016. On 1st July 2016, the firm has purchased fixed assets of ₹15,000 for which no cash was paid but shares were issued. Compute the change in the net working capital of the firm.

Soluion:

$$\begin{aligned}
 \text{Net working capital} &= \text{Total current assets} - \text{Total current liabilities} \\
 \text{Net working capital} &= 24,20,000 - 12,00,000 \\
 &= ₹ 12,20,000
 \end{aligned}$$

Effect of purchase of fixed assets by shares on net working capital The journal entry is:

Fixed assets a/c Dr
To Share capital a/c

As both the accounts involved in this transaction are non-current and as such there is no change in either total current assets or total current liabilities ultimately there is no change in net working capital of the firm. The net working capital of the firm still remains the same amount of ₹ 12,20,000.

Transactions which include both current accounts and non-current accounts and thus result in the flow of funds

1. Introduction of additional capital
2. Purchase of fixed assets for cash or on credit
3. Issue of shares for cash
4. Redemption of preference shares by cash
5. Issue of debentures for cash
6. Redemption of debentures by cash
7. Raising of long-term loan
8. Sale of fixed assets for cash or on credit
9. Purchase of long-term investments
10. Sale of long-term investments
11. Repayment of long-term loan
12. Payment of bonus in cash
13. Purchase of stock for shares

All the above listed transactions include both current and non-current accounts and thus result in the flow of funds.

3.8 *Management Accounting*

Let us see the journal entries for the above mentioned transactions

1. Introduction of additional capital

Cash/Bank a/c	Dr	(Current asset)
	To Capital a/c	(Non-Current liability)

2. Purchase of fixed assets for cash or on credit

Fixed assets a/c	Dr	(Non-Current asset)
	To Cash/Creditors a/c	(Current assets/liability)

3. Issue of shares for cash

Cash/Bank a/c	Dr	(Current assets)
	To Share capital a/c	(Non-Current liability)

4. Redemption of preference shares by cash

Preference share capital a/c	Dr	(Non-Current liability)
	To cash/Bank a/c	(Current assets)

5. Issue of debentures for cash

Cash/Bank a/c	Dr	(Current assets)
	To Debentures a/c	(Non-Current liability)

6. Redemption of debentures by cash

Debentures a/c	Dr	(Non-Current liability)
	To Cash/Bank a/c	(Current assets)

7. Raising of long-term loan

Cash/Bank a/c	Dr	(Current assets)
	To Long-term loan a/c	(Non-Current liability)

8. Sale of fixed assets for cash or on credit

Cash/Creditor a/c	Dr	(Current asset/liability)
	To Fixed assets	(Non-Current asset)

9. Purchase of long-term investments

Long-term investments a/c	Dr	(Non-Current asset)
To Cash/Bank a/c		(Current assets)

10. Sale of long-term investments

Cash/Bank a/c	Dr	(Current assets)
To Long-term investments a/c		(Non-Current asset)

11. Repayment of long-term loan

Long-term loan a/c	Dr	(Non-Current Liability)
To Cash/Bank a/c		(Current assets)

12. Payment of bonus in cash

Profit and loan appropriation a/c	Dr	(Non-Current)
To Cash/Bank a/c		(Current assets)

13. Purchase of stock for shares

Stock a/c	Dr	(Current asset)
To Share Capital a/c		(Non-Current liability)

Flow of Funds and No Flow of Funds

Current Assets ↔ Current liabilities

Example: Cash collected from debtor. No flow of fund

Current Assets ↔ Non-Current Assets

Example: Purchase of fixed assets for cash. Flow of funds

Current Assets ↔ Non-Current Liabilities

Example: Issue of Debentures. Flow of fund

Non-Current Assets ↔ Non-Current Liabilities

Example: Purchase of fixed assets by issuing shares. No flow of funds

Fig. 4.3 Flow of funds

DEFINITIONS OF FUNDS FLOW STATEMENT

“The funds flow statement describes the sources from which additional funds were derived and the uses to which these sources were put”.

- Robert N. Anthony

“A statement of sources and applications of funds is a technical device designed to analyse the changes in the financial condition of a business enterprise between two dates”

- Foulke.



Funds flow statement is a statement of changes in financial position which shows the sources from which additional funds was obtained and the purposes for which such additional funds was used between two dates of balance sheet.

The other names of funds flow statement are:

- Statement of sources and uses of funds
- Statement of changes in financial position
- Statement of sources and applications of funds
- Statement of movement of working capital
- Statement of funds, received and funds disbursed
- Statement of funds, generated and expended

FUNDS FLOW STATEMENT AND INCOME STATEMENT

Funds flow statement is not an alternative of an income statement i.e. profit and loss account. Income statement or profit and loss account reveals the net result of operating business transactions. The net result might be either net profit or net loss. Income statement does not show the changes that have been occurred in the financial position between two dates of balance sheet.

DIFFERENCES BETWEEN FUNDS FLOW STATEMENT AND INCOME STATEMENT

S.No	Funds Flow Statement	Income Statement
1.	Funds flow statement exhibits whether there is any increase or decrease in net working capital.	Income statement shows whether there is a net profit or net loss.
2.	There is no specified format for preparing funds flow statement.	There is a prescribed format for income statement.

3.	Funds flow statement includes both capital and revenue items.	Income statement includes only revenue items.
4.	Funds flow statement is a complementary to income statement.	It is a mandatory statement/ and an integral part of final accounts.
5.	It is prepared with the help of income statement.	Income statement is prepared independently i.e. without the help of funds flow statement.
6.	It shows the inflow and outflow of fund between two dates.	It does not include inflow and outflow of funds. It includes only expenses and income for a year.

FUNDS FLOW STATEMENT VS POSITION STATEMENT

Funds flow statement is not a substitute of position statement i.e. balance sheet. A balance sheet is prepared at the end of an accounting period and it shows the financial position of an organization as on a particular date. A balance sheet does not reveal the changes in financial position between two points of time. But a fund, flow statement exhibits the changes in financial position between two dates of balance sheet.

DIFFERENCES BETWEEN FUNDS FLOW STATEMENT AND BALANCE SHEET

S.No	Funds Flow Statement	Balance Sheet
1.	It succeeded balance sheet.	It precedes fund, flow statement.
2.	It discloses the changes in financial position between two points of time. Thus, it is dynamic in nature.	It just shows assets and liabilities at a particular point of time. Thus, it is static in nature.
3.	It shows the changes in financial position by exhibiting the changes in inflows and outflows of funds between two dates of balance sheet.	It does not show change in inflow and outflow of fund. It just shows assets and liabilities as on a particular date.
4.	It is useful in financial analysis and also in arriving at managerial decisions.	It is not helpful in financial analysis and also in managerial decision mating.
5.	A schedule of changes in working capital has to be prepared before the preparation of funds flow statement.	It does not involve the preparation of such schedule rather profit and loss account has to be prepared.

PREPARATION OF FUNDS FLOW STATEMENT

Preparing a fund, flow statement is quite interesting and of course more challenging. There are four steps in the whole process of preparing a fund, flow statement.

Step 1: Preparing a schedule of changes in working Capital.

The very first step in preparing a funds flow statement is preparing a schedule or statement of changes in working capital. As net working capital is the excess of current assets over current liabilities, only the current assets and the current liabilities are to be taken into account while preparing this schedule of changes in working capital. This statement of changes in working capital is prepared to ascertain and show the changes in net working capital between two points of time.

As Net working capital = Current assets – Current liabilities,

- ❖ An increase in current assets increases net working capital
- ❖ A decrease in current assets decreases net working capital
- ❖ An increase in current liabilities decreases net working capital
- ❖ A decrease in current liabilities increases net working capital
In other words,
 - When current assets increase net working capital increases
 - When current assets decrease net working capital decreases
 - When current liabilities increases net working capital decreases
 - When current liabilities decreases net working capital increases

Therefore, for preparing the schedule/statement of changes in working capital, current year's current assets and current liabilities are to be compared with the current assets and current liabilities of yester year. A positive change in current year's total current assets results in increased net working capital and negative change in current year's total current assets results in decreased net working capital. Thus, every individual current asset item and current liability item of current year is to be compared with previous year's current asset item and current liability item and accordingly the change has to be reworked. The change might be either increase in net working capital (funds) or decrease in net working capital (funds). For example, when current year's debtors amounts to `1,60,000 and previous year's debtors were `1,40,000, there is an increases in debtors by `20,000 so also there is an increase in networking capital (funds) to the tune of `20,000.

A typical form of statement or schedule of changes in working capital is given below:

Statement/Schedule of changes in working capital				
Particulars	Previous Year	Current Year	Changes in working Capital	
			Increase	Decrease
<u>Current Assets:</u>				
Cash in hand				
Cash at bank				
Temporary investments				
Marketable securities				
Bills receivables				
Sundry debtors				
Short-term advances				
Stocks/inventories				
Accrued incomes				
Prepaid expenses				
Total Current Assets				
<u>Current Liabilities:</u>				
Bills payable				
Sundry creditors				
Outstanding expenses				
Bank overdraft Short-term loans				
Income received in advance				
Dividend payable				
Provision against current assets				
Proposed dividends				
Provision for taxation				
Total Current Liabilities				
Net working Capital				
Net increase or decrease in working capital				

Both proposed dividend and provision for taxation may be taken either as a current liability or as a non-current liability.

3.14 *Management Accounting*

There is no hard and fast rule in this regard. However, when there are adjustments and additional information with regard to these two items, then it is better to treat them as non-current liabilities.

Step 2: Preparation of Ledger Accounts for Necessary Non-Current Accounts

The next step in the whole process of preparing fund, flow statement is preparing ledger accounts not for all non-current accounts but only for necessary non-current accounts. In other words, for non-current accounts which have adjustments and additional information ledger accounts need to be prepared.

For Example:

Illustration: 2

The following the balance sheets of XYZ ltd, as on 31-03-2016 and 31-03-2017:

Balance Sheet as on 31-03-2016 & 31-03-2017					
Liabilities	31-3-2016	31-3-2017	Assets	31-3-2016	31-03-2017
Share Capital	7,00,000	9,00,000	Land and Buildings	8,00,000	8,00,000
Debentures	4,00,000	1,00,000	Plant & Machinery	4,50,000	4,00,000
P and L a/c	1,20,000	1,50,000	Investments	2,00,000	3,30,000
General Reserve	2,00,000	2,00,000	Debtors	50,000	40,000
Creditors	50,000	40,000	Bills receivable	25,000	20,000
Bills Payable	25,000	32,000	Stock	50,000	20,000
Bank O/D	1,00,000	2,00,000	Cash	20,000	12,000
	15,95,000	16,22,000		15,95,000	16,22,000

Additional information:

1. Charge depreciation on plant and machinery at 10%
2. During the year 2017 machinery worth `50,000 was sold for `40,000.

In the above problem or given balance sheets, there are additional information only with regard to plant and machinery. Therefore, opening up of an account called plant and machinery a/c is required and the a/c has to be duly balanced in order to find out the actual movement of funds in relation to plant and machinery.

Plant and Machinery A/C			
	`		`
To balance b/d	4,50,000	By Depreciation a/c ($\text{` } 40,000+5000$)	45,000
To Cash a/c (Purchase)	40,000	By Cash a/c	40,000
		By Profit and loss a/c (loss on Sale)	5,000
		By Balance c/d	4,00,000
	4,90,000		4,90,000

It is found out with the help of this plant and machinery a/c that there was additional purchase of machinery for `40,000 during the year. This ($\text{` } 40,000$) has to be shown in the applications side of the funds flow statement.

Thus, it is concluded and inferred that for those non-current accounts which have adjustments/additional information preparation of ledger accounts is necessary.

Alternatively, instead of preparing an account, necessary computation can be done as given below:

Value of Machinery at the beginning:		4,50,000
Less: Depreciation		
10% on 4,00,000 for one year i.e. $4,00,000 \times 10/100$	40,000	
10% on 50,000 i.e. $50,000 \times 10/100$	<u>5000</u>	
		45,000
Less: WDV of the machinery that was sold		
($\text{` } 50,000-5000$) = `		45,000
So, the closing value of plant and machinery must be		3,60,000
But, the given closing value is `		4,00,000

The gap amount of `40,000 has been taken as additional purchase of machinery during the year.

Step 3: Computation of Funds From Operations (FFO)

Funds from operations is one of the major sources of funds to an organization. As the name indicates, it includes only fund items as well as funds generated from business operations only. Hence, non-fund items and non-operating items should be duly adjusted while computing funds from operations. FFO can be arrived at in two forms namely statement form or adjusted profit and loss account form. Let us see both the forms/ways in the succeeding passages/pages.

Computation form**Illustration: 3**

Compute FFO from following P and L a/c

Particulars	₹	Particulars	₹
To Expenses Paid	3,00,000	By Gross profit	4,50,000
To Depreciation	70,000	By Gain on Sale of Land	60,000
To Loss on Sale of Machine	4,000		
To Discount	200		
To Goodwill	20,000		
To Net profit	1,15,800		
	5,10,000		5,10,000

Solution:**Computation of funds from operations.**

Particulars	₹	₹
Net Profit		1,15,800
Add: Non-fund or Non operating Expenses		
Depreciation	70,000	
Loss on Sale of Machine	4,000	
Discount Goodwill	200	
	20,000	
		94,200
		2,10,000
Less: Non Fund or Non-Operating Income		
Gain on Sale of Land		60,000
Funds from Operations		1,50,000

Illustration: 4

Calculate funds from operation from the following P & L account.

Particulars	₹	Particulars	₹
To Expenses Paid	1,50,000	By Gross profit	2,25,000
To Depreciation	35,000	By Gain on Sale of	30,000
To Loss on Sale of Machine	2,000	Land	
To Discount	100		
To Good will	10,000		
To Net profit	57,900		
	2,55,000		2,55,000

Solution

Calculation of Funds From Operations

Particulars	₹	₹
Net Profit		57,900
Add: Non-fund or Non operating Expenses		
Depreciation	35,000	
Loss on Sale of Machine	2,000	
Discount Goodwill	100	
	10,000	
		47,100
		1,05,000
Less: Non Fund or Non-Operating Income		
Gain on Sale of Land		30,000
Funds from Operations		75,000

Illustration: 5

Calculate funds from operations from the following income statement.

Income statement

Particulars	\`	Particulars	\`
To Salaries paid	1,00,000	By Gross profit	5,00,000
To Rent paid	25,000	By Profit on sale of vehicle	3,000
To Provision for Depreciation	50,000	By Refund of tax	2,000
To Commission paid	5,000	By Dividend received	10,000
To Provision for tax	1,50,000		
To General Reserve	3,000		
To Loss on Sale of Investment	10,000		
To Cost of issue of shares written off	2,000		
To Provision for legal damages	5,000		
To Net Profit	1,65,000		
	5,15,000		5,15,000

Solution:**Calculation of Funds From Operations**

Particulars	\`	\`
Net Profit		1,65,000
Add: Non-fund or Non operating Expenses		
Provision for depreciation	50,000	
General Reserve	3,000	
Loss on Sale of Investment	10,000	
Provision for tax	1,50,000	
Cost of issue of shares written off	2,000	
Provision for legal damages	5,000	2,20,000
		3,85,000
Less: Non Fund or Non-Operating Income		
Profit on sale of vehicle	3,000	
Dividend received	10,000	
Refund of tax	2,000	15,000
Funds from Operations		3,70,000

Adjusted Profit and Loss Account From

Under this approach, FFO can be calculated by preparing an adjusted profit and loss account. As the name implies, in this account all the non-fund items and non-operating items are duly adjusted so as to arrive at FFO.

A specimen of such Adjusted Profit and Loss A/C is given below:

Adjusted Profit and Loss Account

To Depreciation	xxx	By Balance b/d	xxx
To Goodwill Written Off	xxx	By Dividends received	xxx
To Preliminary expenses Written off	xxx	By Appreciation in the value	xxx
To Transfer to Reserve	xxx	of fixed assets.	
To Provision for tax	xxx	By Commission received	xxx
To Dividend Paid	xxx	By Interest received	xxx
To Discount on issue of shares	xxx	By Refund of tax	xxx
written off	xxx	By Funds from Operation	xxx
To Patents written off	xxx	(b/f)	
To Loss on sale of fixed assets	xxx		
To Funds lost in operation	xxx		
To Balance c/d	xxx		xxx
	<u>xxx</u>		<u>xxx</u>

Illustration: 6

S Company presents the following information and you are required to calculate funds from operations.

Profit and Loss Account

Particulars		Particulars	
To Expenses:		By Gross profit	2,00,000
Operating – Depreciation	40,000	By Gain on Sale of Plant	20,000
To Loss on Sale of Building	10,000		
To Advertisement Suspense a/c	5,000		
To Rent	500		
To Discount on Issue of Shares written Off	500		
To Good will	12,000		
To Net profit	52,000		
	2,20,000		2,20,000

Solution:**Calculation of Funds From Operations**

Particulars	\`	\`
Net Profit		52,000
Add: Non-fund or Non operating expenses		
Depreciation	40,000	
Loss on Sale of Building Advertisement written off	10,000	
Discount on issue of shares written off	5,000	
Goodwill written off	500	
	12,000	
		67,500
		1,19,500
Less: Non Fund or Non-Operating Income Gain on sale of Plant	20,000	20,000
Funds from Operations		99,500

Alternatively:**Adjusted Profit and Loss Account**

Particulars	\`	Particulars	\`
To Depreciation	40,000	By Balance b/d	–
		By Gain on Sale of Plant	20,000
To Loss on Sale of Building	10,000	By Funds from Operations	99,500
To Advertisement Suspense a/c	5,000	(balancing figure)	
To Discount on Issue of Shares written Off	500		
To Goodwill	12,000		
To Balance c/d	52,000		
	1,19,500		1,19,500

Step 4: Preparation of Funds Flow Statement

As it was seen earlier, the funds flow statements describes the sources from which additional funds were derived and the uses to which these funds were put.

A funds flow statement may be prepared either in statement/report form or in 'T' form/ account form.

The specimen of funds flow statement under both the forms is given below.

Specimen of Statement or Report form of Funds of Fund Statements	`
Sources of Funds:	
Funds from operations	xxx
Issue of shares for cash	xxx
Issue of debenture for cash	xxx
Raising of long-term loans.	xxx
Sale of fixed or non-current assets.	xxx
Sale of long-term or trade investments	xxx
Non-trading income – dividends received.	xxx
Decrease in working capital (as per schedule of changes in working capital)	xxx
Total	xxx
Uses of Fund :	
Funds lost in operations.	xxx
Redemption of preference shares.	xxx
Redemption of debentures.	xxx
Repayment of long-term loans.	xxx
Purchase of fixed or non-current assets.	xxx
Purchase of long-term Investments	xxx
Payment of divided in cash.	xxx
Payment of tax in cash.	xxx
Increase in working capital (as per schedule of changes in working capital)	xxx
Total	-

(B) Specimen of 'T' or 'Account' form of Funds Flow Statement

Sources of funds		Applications of funds	
Funds from operations	xxx	Funds lost in operations	xxx
Issue of Shares for cash	xxx	Redemption of preference shares.	xxx
Issue of debentures	xxx	Redemption of debentures.	xxx
Raising of long-term loans	xxx	Repayment of long-term loans.	xxx
Sale of fixed/non-current assets	xxx	Purchase of fixed or non-current assets.	xxx
Sale of long-term investments	xxx	Purchase of long-term Investments	xxx
Non-trading income received – dividend received	xxx	Payment of dividend in cash.	xxx
Decrease in working capital (as per schedule of changes in working capital)	xxx	Payment of tax in cash.	xxx
		Increase in working capital (as per schedule of changes in working capital)	xxx
Total	xxx	Total	xxx

Illustration: 7

From the following details, find out funds from operations:

Profit and Loss A/c for the Year Ended 21.03.2017

Particulars			Particulars		
To salaries		1,20,000	By gross profit		3,00,000
To rent		45,000	By profit on sale of buildings	30,000	
To provision for bad debts		15,000	Sold for		
To preliminary expenses written off		30,000	Book value	15,000	15,000
To goodwill written off		15,000			
To depreciation on machinery		15,000			
To loss on sale of plant:					
Book value Rs.	30,000				
Sold for Rs.	24,000				
To Provision for tax		6,000			
To Net profit		15,000			
		54,000			
		3,15,000			3,15,000

Solution:

Statement showing funds from operations

Particulars	\`	\`
Net profit (as per profit and loss a/c)		54,000
Add: Non-fund or non-operating items which have been debited to profit and loss account:		
Provision for bad debts	15,000	
Preliminary expenses written off	30,000	
Goodwill written off	15,000	
Depreciation on machinery	15,000	
Loss on sale of plant	15,000	
Provision for tax	6,000	
Less: Non-fund or non-operating items which have been credited to profit and loss account.	15,000	96,000
Profit on sale of buildings		1,50,000
	15,000	15,000
Funds from operations		1,35,000

Alternatively, the funds from operations may be derived by preparing an adjusted profit and loss account:

Adjusted Profit and Loss Account

Particulars	\`	Particulars	\`
To provision for bad debts	15,000	By balance b/d	
To preliminary expense Written off	30,000	By profit on sale of buildings	15,000
To goodwill written off	15,000		
To deprecation on machinery	15,000	By funds from operations	1,35,000
To loss on sale of plant	6,000	(Bal.fig)	
To provision for tax	15,000		
To balance c/d	54,000		
	1,50,000		1,50,000

Note: Adjusted profit and loss includes only non fund and non-operating items. The balancing figure represents funds from operations.

3.24 Management Accounting

Illustration: 8

A company's reported current profit of `90, 000 after incorporating the following:

	`
Profit on sale of non-current assets	55,000
Profit on revaluation of investments	3,000
Dividend income on investments	5,000
Loss on sale on equipment	11,000
Premium on redemption of debentures	2,000
Discount on issue of debentures	2,500
Deprecation on machinery	30,000
Depletion of natural resources	11,500
Amortization of goodwill	25,000
Interim dividend	12,500
Excess provision of taxation	21,000
Transfer to general reserve	8000
Preliminary expense written off	1,500

You are required to calculate the net inflow of funds from operations.

Solution:**Statement showing funds from the Operations**

	`	`
Net profit for the current year		90,000
Add: Non-cash charges or non-fund and Non-operating debits:		
Loss on sale of equipment	11,000	
Discount on issue of debentures	2,500	
Deprecation on machinery	30,000	
Depletion of natural resources	11,500	
Amortization of goodwill	25,000	
Excess provision for taxation	21,000	
Transfer to general reserve	8000	
Preliminary expenses written off	1,500	
Premium on redemption of debentures	2,000	
Interim dividend	12,500	1,25,000
		2,15,000
Less: Non-trading gains (or) Non-operating credits:		
Profit on sale of non-current assets	55,000	
Profit on revaluation of investments	3,000	
Dividend income on investment	5,000	63,000
Net inflow of fund from operation		1,52,000

Illustration: 9

Following the extracts balance sheets of John Davis Co.Ltd., as on 31st Dec. 2017 and 31st Dec. 2018, you are required to compute funds from operations:

	As on 31 st Dec. 2017	As on 31 st Dec. 2018
Profit and loss appropriation a/c	90,000	2,20,000
General reserve	60,000	70000
Goodwill	30,000	15000
Preliminary expenses	18,000	13000
Provision for depreciation on machinery	30,000	36000

Solution (Statement form)**Statement showing funds from operations**

Particulars	\	\
Profit and loss appropriation a/c		
Balance as on 31.12.2018		220000
Add: Non-cash charges:		
Transfer to general reserve	10000	
Good will written off	15000	
Preliminary expense written off	5000	
Depreciation on machinery	6000	
		36000
		256000
Less: Non-operating Income	-	
Less: Profit and loss appropriation a/c		
Balance as on 31.12.2017		90,000
Funds from operations		166000

Second method (Account Form)**Adjusted profit and loss A/c**

Particulars	₹	Particulars	₹
To transfer to general reserve	10,000	By Balance B/d	90,000
To goodwill written off	15,000		
To preliminary expenses Written off	5,000		
To Depreciation on machinery	6000	By funds from operation	1,66,000
To balance c/d	2,20,000	(Bal.fig)	
	2,56,000		2,56,000

Illustration: 10

Calculate the funds from operations from the information given below as on 31st Dec.2018.

1. Net profit for the year ended 31.12.2018 ₹13,00,000
2. ₹2,50,000 have been transferred to the general reserve fund
3. Deprecation has been provided during the year on machinery and furniture at 20% whose total cost is ₹13,00,000.
4. Old machinery worth ₹16,000 has been sold for ₹13,000 during the year.
5. Goodwill appears in the books at ₹3,60,000 out of that 10% has been written off during the year.
6. Gain on sale of building ₹71,000.

Solution (Statement form)**Statement showing funds from operations**

Particulars	₹	₹
Net profit of the current year	–	13,00,000
Add: Non-cash charges (or) items which do not decrease funds:		
Transfer to general reserve fund	2,50,000	
Depreciation on machinery and furniture	2,60,000	
Loss and sale of old machinery	3,000	
Goodwill written off	40,000	
		5,53,000

		18,53,000
Less: Non-fund/Non-operating incomes:		
Gain on sale of building	75,000	75,000
Funds from operations		17,78,000

COMPREHENSIVE ILLUSTRATIONS**Illustration :11**

From the following balance sheets of ABC Ltd. as on 31st December 2015 and 2016, you are required to prepare:

- A Schedule of Changes in Working Capital
- A Funds Flow Statement.

Liabilities	2015	2016	Assets	2015	2016
Share Capital	1,00,000	1,00,000	Goodwill	12,000	12,000
General Reserve	14,000	18,000	Building	40,000	36,000
Profit & Loss a/c	16,000	13,000	Plant	37,000	36,000
Sundry Creditors	8,000	5,400	Investments	10,000	11,000
Bills Payable	1,200	800	Stock	30,000	23,400
Provision for Taxation	16,000	18,000	Bills Receivable	2,000	3,200
Provision for Doubtful	400	600	Debtors	18,000	19,000
Debts			Cash at Bank	6,600	15,200
	1,55,600	1,55,800		1,55,600	1,55,800

The following additional information has also been given:

- Depreciation charged on plant was `5,000 and on Building `4,000.
- Provision for taxation of `19,000 was made during the year 2016.
- Interim dividend of `8,000 was paid during the year 2016.

Solution:**Schedule of Changes in Working Capital**

	2015	2016	Increase (+)	Decrease (-)
Current assets				
Cash at Bank	6,600	15,200	8,600	
Debtors	18,000	19,000	1,000	
Bills Receivable	2,000	3,200	1,200	
Stock	30,000	23,400		6,600
Current Liabilities:				
Provision for Doubtful Debts	400	600		200
Bills Payable	1,200	800	400	—
Sundry creditors	8,000	5,400	2,600	—
Total			13,800	6,800
Net Increase in Working Capital			7,000	

Funds Flow Statement – Report Form

Sources:	
Funds from operations	37,000
Total Sources	37,000
Applications:	
Purchase of Plant	4,000
Tax paid	17,000
Investments purchased	1,000
Interim Dividend Paid	8,000
Total Applications	30,000
Net Increase in Working Capital	7,000

Working Notes:

1. Funds from Operations:		
Profit & Loss Account balance on 31 st Dec. 2016		13,000
Add: Items which do not decrease funds from operations		
Transfer to General Reserve	4,000	
Provision for tax	19,000	
Depreciation:		
Plant	5,000	
Building	4,000	
Interim Dividend Paid	8,000	40,000
		53,000
Less: Profit & Loss a/c balance on 31 st Dec. 2015		16,000
Funds from operations for the year		37,000

2. Purchase of Plant. This has been found out by preparing the Plant

Account. Plant Account

To Balance b/d	37,000	By Depreciation	5,000
To Bank		By Balance c/d	36,000
(Purchase of Plant – balancing figure)	4,000		
	41,000		41,000

3. Tax paid during the year has been found out by preparing a provision for Tax Account.

Provision for Tax Account

To Bank	17,000	By Balance b/d	16,000
(being tax paid – balancing figure)		By Profit & Loss a/c	19,000
To balance c/d	18,000		
	35,000		35,000

4. ‘Investments’ have been taken as a fixed asset presuming that they are long-term investments.

Illustration: 12

Balance sheets of M/s Blue and Green as on 1.1.2018 and 31.12.2018 were as follows:

Balance Sheet

Liabilities	1.1.2018	31.12.2018	Assets	1.1.2018	31.12.2018
Bills Payable	10,000	10,000	Cash	10,000	7,000
Creditors	40,000	44,000	Debtors	30,000	50,000
Mrs. Green’s Loan	25,000	–	Stock	35,000	25,000
Loan from IOB	40,000	50,000	Machinery	80,000	55,000
			Land	50,000	60,000
Capital	1,25,000	1,53,000	Building	35,000	60,000
	2,40,000	2,57,000		2,40,000	2,57,000

During the year machine costing ` 10,000 (accumulated depreciation ` 3,000) was sold for ` 5,000. The provision for depreciation against machinery as on 1.1.2018 was ` 25,000 and on 31.12.2018 ` 40,000. Net profit for the year 2018 amounted to ` 45,000. You are required to prepare Funds (working capital) Flow Statement.

3.30 Management Accounting

Solution:**Funds Flow Statement for the year ending 31.12.2018**

Sources:	\
Loan from IOB	10,000
Sale of Plant	5,000
Funds from Operations (See Working Note 2)	65,000
Total Sources	80,000
Applications:	
Mrs. Green's loan repaid	25,000
Partners' Drawings	17,000
Purchase of land	10,000
Purchase of Building	25,000
Total Applications	77,000
Increase in Working Capital	3,000

Working Notes:**1. Schedule of Changes in Working Capital**

	Increase	Decrease
Cash		3,000
Debtors	20,000	
Stock		10,000
Creditors		4,000
	20,000	17,000
Increase in Working Capital	3,000	

2. Funds from Operations

Profit made during the year	45,000
Add: Loss on Sale of Machine sold	2,000
Depreciation on Machinery	18,000
	65,000

3. Machinery Account

	\		\
To Balance b/d	1,05,000	By Provision for depreciation on machinery sold	3,000
		By Bank	5,000
		By Loss on Machinery sold	2,000
		By Balance c/d	95,000
	1,05,000		1,05,000

4. Provision for Depreciation on Machinery A/C

	\		\
To Machinery a/c	3,000	By balance b/d	25,000
To Balance c/d	40,000	By Profit & Loss a/c (Depreciation provided during the year- balancing figure)	18,000
	43,000		43,000

5. Capital Account

	\		\
To Drawings b/f	17,000	By Balance b/d	1,25,000
To Balance c/d	1,53,000	By Profit and Loss a/c	45,000
	1,70,000		1,70,000

Illustration: 13

The Non-current assets and equities of Southern Traders Ltd., are given at the beginning and at the end of the year 2018:

	1st Jan. 2018	31st Dec. 2018
Plant assets net of depreciation	1,27,000	2,85,000
Investment in the shares of Eastern Traders	2,64,000	5,80,000
Bonds Payable	6,00,000	15,00,000
Capital Stock	8,00,000	8,00,000
Retained Earnings	4,76,000	8,21,000

You are unable to obtain complete balance sheet data or an income statement for the year but you have obtained the following Information:

- i. Dividends of `80,000 were paid.
- ii. A gain on the sale of equipment of `26,000 has been included in net income. The gross plant assets increased by `1, 86,000 even though equipment costing `58,000 with a net book value of `38,000 was sold.

Prepare a statement of sources and uses of funds from the information given above.

Solution:**Statement of Sources and Uses of Funds**

Sources:	
Issues of Bonds	9,00,000
Sale of Equipments	64,000
Funds from Operations	4,47,000
	14,11,000
Applications:	
Purchase of Share in Eastern Traders	3,16,000
Plant Purchased	2,44,000
Dividends Paid	80,000
Net increase in Working Capital	7,71,000
	14,11,000

Working Notes :**Adjusted P & L Account**

	\`		\`
To Dividends	80,000	By Balance b/d	4,76,000
To Depreciation on Plant	48,000	By Profit on Sale Equipments	26,000
To Balance c/d	8,21,000	By Funds from Operations	4,47,000
	9,49,000		9,49,000

Plant Account

	\`		\`
To Balance b/d	1,27,000	By Bank	64,000
To Profit on Sale (transferred to P & L)	26,000	By Depreciation (Balancing figure)	48,000
To Bank (Purchase of equipment: `1,86,000 + 58,000)	2,44,000	By Balance c/d	2,85,000
	3,97,000		3,97,000

Illustration: 14

The Balance Sheets of CEF Ltd. as at the end of 2017 and 2018 are given below:

Liabilities	2017 \`	2018 \`	Assets	2017 \`	2018 \`
Share Capital	1,00,000	1,50,000	Freehold Land	1,00,000	1,00,000
Share Premium	–	5,000	Plant at Cost	1,04,000	1,00,000
General Reserve	50,000	60,000	Furniture at Cost	7,000	9,000
Profit & Loss a/c	10,000	17,000	Investments at cost	69,000	89,000
12% Debentures	70,000	50,000	Debtors	30,000	70,000
Provision for Depreciation on Plant	50,000	56,000	Stock	60,000	65,000
Provision for Depreciation on Furniture	5,000	6,000	Cash	30,000	45,000
Provision for Taxation	20,000	30,000			
Sundry Creditors	95,000	1,04,000			
	4,00,000	4,78,000		4,00,000	4,78,000

3.34 *Management Accounting*

A plant purchased for 4,000 (Depreciation ` 2,000) was sold for cash ` 800 on September 30, 2018. On June 30, 2018, an item of furniture was purchased for Rs. 2,000. These were the only transactions concerning fixed assets during 2018. A dividend of 22 ½ % on original shares was paid.

You are required to prepare a Funds Flow Statement and verify the results by preparing a Schedule of Changes in Working Capital.

Solution:

Funds Flow Statement

Sources of Funds:		`
Share Capital (including premium)		55,000
Sale of Plant		800
Funds from Operations (see note 2)		79,700
Total Sources		1,35,500
Applications of Funds:		
Redemption of Debentures		20,000
Purchase of Furniture		2,000
Dividend paid		22,500
Investments Purchased		20,000
Tax paid (see note 1)		20,000
Total Uses		84,500
Net increase in Working Capital		51,000

The increase in working capital can be verified by preparing a schedule of changes in working capital.

Schedule of Changes in Working Capital

	2017 `	2018 `	Increase (+)	Decrease (-)
Current Assets:				
Debtors	30,000	70,000	40,000	
Stock	60,000	65,000	5,000	
Cash	30,000	45,000	15,000	
Current Liabilities:				
Sundry Creditors	95,000	1,04,000		9,000
			60,000	9,000
Net increase in Working Capital			51,000	

Working Notes:

1. Provision for taxation has been taken as a non-current liability. Moreover, in the absence of any specific instructions in the questions it is safe to presume that tax must have been paid equivalent to last year's provision for taxation.
2. Funds from operations have been calculated as follows:

Adjusted Profit & Loss Account

	\		\
To Dividend paid	22,500	By Balance b/d	10,000
To Provision for Taxation	30,000	By Funds from Operations	
To Transfer to General Reserve	10,000	(Balancing figure)	79,700
To Provision for depreciation on:			
Plant (6000 + 2000)	8,000		
Furniture	1,000		
To Loss on Sale of Plant	1,200		
To Balance c/d	17,000		
	89,700		89,700

3. Loss on sale of plant and Provisions for Depreciation on Plant and Furniture made during the year have been found out by preparing different accounts:

Plant Account

	\		\
To Balance b/d	1,04,000	By Bank	800
		By P & L (loss on sale of Plant)	1,200
		By Provision for Depreciation on plant sold	2,000
		By Balance c/d	1,00,000
	1,04,000		1,04,000

Furniture Account

To Balance b/d	7,000	By Balance c/d	9,000
To Bank (balancing figure)	2,000		
	9,000		9,000

Provision for Depreciation on Furniture

To Balance c/d	6,000	By Balance b/d	5,000
		By P & L a/c	1,000
		(depreciation charged for the year – balancing figure)	
	6,000		6,000

Provision for Depreciation on Plant

To Plant a/c	2,000	By Balance b/d	50,000
(dep. on plant sold)		By P & L a/c	8,000
To Balance c/d	56,000	(Balancing figure depreciation charged during the year)	
	58,000		58,000

Illustration: 15

From the following particulars, prepare a statement of sources and applications of funds:

- i. Increase in working capital `10,000
- ii. Net profit `10,750 before writing off Goodwill.
- iii. Depreciation provided on fixed assets `1,750.
- iv. Dividend paid `2,500.
- v. Goodwill written off out of profit `5,000.
- vi. `10,000 share capital issued for cash.
- vii. Machinery was purchased for `10,000.

Solution**Funds Flow Statement**

	sources		Applications	
Issues of shares	10,000		Purchase of Plant & Machinery	10,000
Funds from Operations	12,500		Dividend paid	2,500
			Increase in working capital	10,000
	22,500			22,500

Workings**Calculation of Funds from Operations**

Net Profit		5,750
Add: Goodwill written off	5,000	
Depreciation	1,750	6,750
Funds from Operations		12,500
Net profit before writing off Goodwill	10,750	
(-) Goodwill Written off		5,000
Net profit after writing off Goodwill		5,750

Illustration: 16

st

Following the summarized Balance Sheets of Fine Stone Ltd. as on 31 December 2016 and 2017.

Liabilities	2016	2017	Assets	2016	2017
Share Capital	2,00,000	2,50,000	Land & Building	2,10,000	2,00,000
General Reserve	60,000	70,000	Machinery	1,50,000	1,69,000
Profit & Loss a/c	30,500	30,600	Stock	1,00,000	74,000
Bank loan (long-term)	70,000	–	Sundry Debtors	80,000	64,200
Sundry Creditors	1,50,000	1,35,200	Cash	500	600
Provision for taxation			Bank	–	8,000
	30,000	35,000	Goodwill	–	5,000
	5,40,500	5,20,800		5,40,500	5,20,800

3.38 *Management Accounting*

Additional information during the year ended 31st December 2017.

- Dividend of ₹ 25,000 was paid.
- The assets of another company were purchased for a consideration of ₹ 50,000 payable in shares.

The following assets were purchased:

Machinery ₹ 25,000; Stock ₹ 20,000

- Machinery was further purchased for ₹ 8,000
- Depreciation written off against machinery ₹ 12,000
- Income tax paid during the year ₹ 33,000
- Loss on sale of machinery ₹ 200 was written off to general reserve

Prepare funds flow statement.

Solution**Schedule of Changes in Working Capital**

Particulars	2016 ₹	2017 ₹	Increase ₹	Decrease ₹
Current Assets				
Stock	1,00,000	74,000	–	26,000
Debtors	80,000	64,200	–	15,800
Cash	500	600	100	–
Bank	–	8,000	8,000	–
Total Current Assets	1,80,500	1,46,800		
Current Liabilities				
Sundry Creditors	1,50,000	1,35,200	14,800	–
Total Current Liabilities	1,50,000	1,35,200		
Working Capital	30,500	11,600	22,900	41,800
Net decrease in Working Capital	–	18,900	18,900	–
	30,500	30,500	41,800	41,800

Funds Flow Statement

Sources	\	Applications	\
Sale of machinery	1,800	Repayment of bank loan	70,000
Issue of shares for stock	20,000	Payment of tax	33,000
Funds from operations	95,300	Purchase of machinery	8,000
Decrease in working capital	18,900	Dividend paid	25,000
	1,36,000		1,36,000

Workings

Machinery Account

\	\	\	\
To Balance b/d	1,50,000	By Depreciation	12,000
To Share Capital	25,000	By General Reserve	200
To Cash	8,000	By Cash (bal. fig.)	1,800
		By Balance c/d	1,69,000
	1,83,000		1,83,000

Share Capital Account

\	\	\	\
		By Balance b/d	2,00,000
		By Stock (Sources of funds)	20,000
		By Machinery	25,000
To Balance c/d	2,50,000	By Goodwill (bal. fig.)	5,000
	2,50,000		2,50,000

Provision for Taxation Account

\	\	\	\
To Cash (tax Paid)	33,000	By Balance b/d	30,000
To Balance c/d	35,000	By Adjusted Profit & Loss a/c (current year's provision) bal. fig.	38,000
	68,000		68,000

3.40 Management Accounting

General Reserve Account

To Machinery (loss on sale)	200	By Balance b/d	50,000
To Balance c/d	60,000	By Adjusted Profit & Loss a/c	10,200
	60,200		60,200

Calculation of Funds from Operations

Closing Balance of Profit and Loss a/c		30,600
Add: Non fund or non-operating Expenses:		
Depreciation on land	10,000	
Depreciation on plant	12,000	
Provision for tax	38,000	
Dividend	25,000	
General Reserve	10,200	95,200
	10,200	1,25,800
Less: Opening balance of P & L a/c	30,500	
Funds from Operations		95,300

Illustration: 17

From the following balance sheets, prepare a statement showing applications and sources of funds for the year 2015.

Liabilities	31.12.2014	31.12.2015	Assets	31.12.2014	31.12.2015
Eq. Share Capital	1,50,000	2,00,000	Fixed assets (Net)	3,00,000	4,00,000
6% Pref. Share			Investments	60,000	1,00,000
Capital	1,50,000	1,00,000	Current Assets	1,50,000	2,50,000
Debentures	50,000	1,00,000	Dis. on debentures	10,000	5,000
Reserves &					
Surplus	1,20,000	2,50,000			
Current Liabilities	50,000	1,05,000			
	5,20,000	7,55,000		5,20,000	7,55,000

You are informed that during the year-

- a. A machine with a book value of ` 25,000 was sold for ` 15,000
- b. Dividend at 10% was paid on equity shares for 2014
- c. Depreciation charged during the year was ` 50,000

Preference share redemption was done at a premium of 20% on 31.12.15

Solution:

Schedule of Changes in Working Capital

Particulars	2014`	2015`	Increase`	Decrease`
Current Assets	1,50,000	2,50,000	1,00,000	–
Total Current Assets	1,50,000	2,50,000		
Current liabilities	50,000	1,05,000	–	55,000
Total Current Liabilities	50,000	1,05,000		
Working Capital	1,00,000	1,45,000		
Increase in working capital	45,000	–	–	45,000
	1,45,000	1,45,000	1,00,000	1,00,000

Funds Flow Statement

Sources`	`	Applications`	`
Issue of shares	50,000	Purchase of investment	40,000
Issue of Debentures	50,000	Payment of dividend	15,000
Sale of machinery	15,000	Redemption of Pref. Shares	60,000
Funds from Operations	2,20,000	Purchases of machinery	1,75,000
		Increase in working capital	45,000
	3,35,000		3,35,000

Workings:

Fixed Assets a/c

`	`	`	`
To Balance b/d	3,00,000	By Profit & Loss a/c (loss)	10,000
To cash (bal. fig.)	1,75,000	By Cash (sale)	15,000
		By Depreciation	50,000
		By Balance c/d	4,00,000
	4,75,000		4,75,000

Calculation of Funds from Operations

Closing balance of Reserves & Surplus a/c		2,50,000
Add: Non-fund or non-operating expenses:		
Depreciation on fixed assets	50,000	
Dividend paid (1,50,000 × 10%)	15,000	
Loss on sale of machine	10,000	
Loss on Redemption of Pref. shares (50,000 × 20%)	10,000	
Dis. on debentures - Written off	5,000	90,000
		3,40,000
Less: Opening balance of Reserves & Surplus a/c		1,20,000
Funds from Operations		2,20,000

USES, SIGNIFICANCE AND IMPORTANCE OF FUND FLOW STATEMENT

A fund flow statement is an essential tool for the financial analysis and is of primary importance of the financial management. Now-a-days, it is being widely used by the financial analysts, credit granting institutions and financial managers. The basic purpose of a funds flow statement is to reveal the changes in the working capital on the two balance sheet dates. It also describes the sources from which additional working capital has been financed and the uses to which working capital has been applied. Such, a statement is particularly useful in assessing the growth of the firm, its resulting financial needs and in determining the best way of financing these needs. By making use of projected funds flow statement, the management can come to know the adequacy or inadequacy of working capital even in advance. One can plan the intermediate and long-term financing of the firm, repayment of long-term debts, expansion of the business, allocation of resources, etc. The significance or importance of funds flow statement can be well followed from its various uses given below:

1. **It helps in the analysis of financial operations.** The financial statements reveal the net effect of various transactions on the operational and financial position of a concern. The balance sheet gives a static view of the resources of a business and the uses to which these resources have been put at a certain point of time. The funds flow statement explains causes for changes in financial position and also the effect of these changes on the liquidity position of the company. Sometimes a concern may operate profitably and yet its cash position may become more and more worse. The funds flow statement gives a clear answer to such a situation explaining what has happened to the profits of the firm.
2. **It throws light on many perplexing questions of general interest** which otherwise may be difficult to be answered, such as:

- a. Why were the net current assets lesser in spite of higher profits and vice-verse?
 - b. Why more dividends could not be declared in spite of available profits?
 - c. How was it possible to distribute more dividends than the present dividend pay- out?
 - d. What happened to the net profit? Where did they go?
 - e. What happened to the proceeds of sale of fixed assets or issue of shares, debentures, etc.?
 - f. What were the sources of the repayment of debt?
 - g. How was the increase in working capital financed and how will it be financed in future?
3. **It helps in the formation of a realistic dividend policy.** Sometimes a firm has sufficient profits available for distribution as divided but yet it may not be advisable to distribute dividend for lack of liquid or cash resources. In such cases, a funds flow statement helps in the formation of a realistic dividend policy.
4. **It helps in the proper allocation of resources.** The resources of a concern are always limited and every concern wants to make the best use of these resources. A projected funds flow statement constructed for the future helps in making managerial decisions. The firm can plan the deployment of its resources and allocate them among various applications.
5. **It acts as a future guide.** A projected funds flow statement also acts as a guide for future to the management. The management can come to know the various problems it is going to face in near future for want of funds. The firm's future needs of funds can be projected well in advance and also the timing of these needs. The firm can arrange to finance these needs more effectively and avoid future problems.
6. **It helps in appraising the use of working capital.** A funds flow statement helps in explaining how efficiently the management has used its working capital and also suggests ways to improve working capital position of the firm.
7. **It helps in knowing the overall credit worthiness of a firm.** The financial institutions and banks such as State Financial Institutions, Industrial Development Corporation, Industrial Finance Corporation of India, Industrial Development Bank of India, etc. all ask for funds flow statement constructed for a number of years before granting loans to know the creditworthiness and paying capacity of the firm.

Hence, a firm seeking financial assistance from these institutions has no alternative but to prepare funds flow statements.

LIMITATIONS OF FUND FLOW STATEMENT.

The funds flow statement has a number of uses. However, it has certain limitations also, which are listed below:

1. It should be remembered that a funds flow statement is not a substitute of an income statement or a balance sheet. It provides only some additional information as regards changes in working capital.
2. It cannot reveal continuous changes.
3. It is not an original statement but simply a re-arrangement of data given in the financial statement.
4. It is essentially historic in nature and projected funds flow statement cannot be prepared with much accuracy.
5. Changes in cash are more important and relevant for financial management than the working capital. FFS does not exhibit such changes in cash between two dates of balance sheet.

SELF ASSESSMENT QUESTIONS
Answer Check Your Progress**I Choose the correct answer:**

1. In broader sense, funds refer to
 - (a) Cash
 - (b) All financial resources
 - (c) Gross working capital
 - (d) Net working capital
2. As per the popular sense, funds refer to
 - (a) Gross working capital
 - (b) Cash
 - (c) Net working capital
 - (d) All financial resources
3. Transactions involving only current accounts cause
 - (a) Flow of funds
 - (b) No flow of funds
 - (c) Inflow of funds
 - (d) Outflow of funds
4. Transactions involving only non-current accounts cause
 - (a) Flow of funds
 - (b) No flow of funds
 - (c) Inflow of funds
 - (d) Outflow of funds
5. Transactions involving both current and non-current accounts cause
 - (a) Flow of funds
 - (b) No flow of funds
 - (c) Neither inflow nor outflow of funds
 - (d) None of these.
6. Current assets include
 - (a) Trade investment
 - (b) Machinery
 - (c) Furniture
 - (d) Debtors
7. Which of the following is a non-current asset?
 - (a) Cash
 - (b) Bills receivables
 - (c) Stock
 - (d) Goodwill

3.46 *Management Accounting*

8. Increase in fixed assets due to purchase is

- | | |
|------------------------|----------------------|
| (a) A source of funds | (b) An use of funds |
| (c) An inflow of funds | (d) No flow of funds |

9. An increase in share premium account is

- | | |
|-----------------------------|-----------------------|
| (a) An application of funds | (b) A source of funds |
| (c) An outflow of funds | (d) No flow of funds |

10. Sale of investments indicates

- | | |
|-------------------------|----------------------|
| (a) A source of funds | (b) An use of funds |
| (c) An outflow of funds | (d) No flow of funds |

11. Tax paid results in

- | | |
|--------------------------|---------------------------|
| (a) Source of funds | (b) Application of funds |
| (c) Generation of income | (d) No movement of funds. |

12. Which one of the following will result in application of funds?

- | | |
|------------------------------|---------------------|
| (a) Sale of plant | (b) Issue of shares |
| (c) Redemption of debentures | (d) Refund of tax |

13. Which of the following is a non-operating expense?

- | | |
|-----------------------------------|-------------------------|
| (a) Profit on sale of fixed asset | (b) Commission received |
| (c) Dividend paid | (d) Payment of salaries |

14. Depreciation on fixed assets causes

- | | |
|-----------------------|--------------------------|
| (a) A source of funds | (b) An use of funds |
| (c) No flow of funds | (d) An outflow of funds. |

15. Depreciation is

- | | |
|------------------------|-----------------------------|
| (a) An expense | (b) A Non-operating expense |
| (c) A non-cash expense | (d) None of these |

Answers: 1. (b); 2. (c); 3. (b); 4. (b); 5. (a); 6. (d); 7. (d); 8. (b); 9. (b); 10. (a);
11.(b); 12.(c); 13.(c); 14. (a); 15. (c)

II. Fill in the blanks with the appropriate words.

1. Funds flow refers to changes in ___ capital.
2. Difference between current assets and current liabilities is known as _____.
3. Issue of shares results in _____ of funds.
4. Depreciation is sometimes treated as _____ of funds.
5. Purchase of plant will mean _____ of funds.

Answers: 1. Working 2. Net working capital 3. source 4. a source
5. Application

III. State whether each of the following statement is True or false.

1. Net Working capital is the difference between fixed assets and current liabilities.
2. Amortization of preliminary expenses in an application of funds.
3. A funds flow statement is a good substitute for income statement.
4. Increases in current assets mean increase in working capital.
5. The cash received from the sale of non-current assets is a source of funds.

Answers: 1. False. 2. False. 3. False. 4. True. 5. True. **IV. Short Answer**

Questions

1. What is meant by funds flow statement?
2. Define a funds flow statement
3. When does flow of funds take place?
4. What do you mean by ‘ funds form operations’?
5. Is depreciation a source of funds?
6. List out any five sources of funds.
7. State any five uses of funds flow statement.
8. What are the limitations of funds flow statement?
9. List out any three transactions which do not cause flow of funds.
10. Name three transactions that cause flow of funds.

V. Essay Type Questions

1. Discuss the managerial uses of funds flow statement. What are its limitations?
2. Discuss in detail the procedure of preparing a fund flow statement.
3. Distinguish between (a) Fund flow statement and income statement (b) fund flow statement and position statement.
4. Examine the transactions which cause flow of funds.
5. List out the transactions which do not result in flow of funds with examples.

VI. Discussion Questions

1. ‘ A funds flow statement is a better substitute for an income statement.’ Discuss.
2. “ The true funds from depreciation is the opportunity in saving of cash outflow through taxation” Illustrate with imaginary figures.
3. “ Funds flow statement presents a decision view of business”. Comment.
4. “Retained earnings and the allowance for depreciation are the two primary sources of funds”. Comment.

V. Case Analysis

1. Find out the changes in the working capital from the Balance sheet data given below:

	Dec, 31 2017	Dec. 31, 2018
Capital and Liabilities		
Share Capital	3,00,000	3,75,000
Trade Creditors	1,06,000	70,000
Profits and loss A/c	18,000	35,000
	4,24,000	4,80,000
Assets:		
Machinery	74,000	1,04,000
Stock in trade	1,21,000	1,36,000
Debtors	1,81,000	1,70,000
Cash	48,000	70,000
	4,24,000	4,80,000

Ans: Increase in W.C. ` 62,000

- st
2. Following are the summaries of Balance Sheets of a Limited Company as on 31 December 2017 and 2018.

Liabilities	2017	2018
Paid up Share Capital	1,00,000	1,00,000
General Reserve	21,400	26,000
Profit and Loss A/c	17,000	16,000
Creditors	9,750	6,380
Provision for taxation (Non – current)	19,000	21,000
Provision for doubtful debts	1,000	1,200
	1,68,150	1,70,580

Assets	2017	2018
Buildings	46,800	45,000
Machinery	38,280	42,030
Goodwill	13,000	13,000
Investment	10,000	11,250
Stock	30,000	28,000
Debtors	22,000	22,000
Prepaid Expenses	70	300
Cash balance	8,000	9,000
	1,68,150	1,70,580

Additional information.

- a. The profit for the year 2018 was ₹ 8,600 which has been arrived at after charging ₹ 3,050 by way of depreciation and increase in provision for doubtful debts ₹ 200
- b. An interim dividend of ₹ 5,000 was paid in October 2018.
- c. Additional machinery was purchased in May 2018 for ₹ 5000.
- d. Investments (Cost ₹ 5,000) were sold in Nov. 2018 for ₹ 4,800 and on 1st December, 2018 another investment was made for ₹ 6,250.
- e. Income- tax ₹ 18,000 was paid during the year and charged against the provision. Prepare a statement showing Source and Applications of Funds during the year 2018.

3.50 *Management Accounting*

3. Calculate funds from operations from the following profit and loss Account of M/s J.K and Co.

Profit and Loss Account

To Salaries	10,000	By Gross profit	2,00,000
To Rent	3,000	By Profit on sale of	5,000
To commission	2,000	Machine	
To Discount allowed	1,000	By Refund of tax	3,000
To Provision for Depreciation	14,000	By Dividends received	2,000
To Transfer to General Reserve	20,000		
To Provision for tax	10,000		
To Loss on Sale of Investment	5,000		
To Discount on Issue of	2,000		
Debentures	3,000		
To Preliminary Expense	20,000		
To Selling Expenses	1,20,000		
To Net profit			
	2,10,000		2,10,000

Ans: Funds from operations: ` 1,64,000

4. From the following Balance sheet X co Ltd., you are required to prepare a schedule of changes in working capital and statement of flow of funds.

	Dec, 31, 2016	Dec, 31, 2017
Assets:		
Land and Building	50,000	50,000
Plant	24,000	34,000
Stock	9,000	7,000
Debtors	16,500	19,500
Cash at Bank	4,000	9,000
Capital and Liabilities:		
Capital	80,000	85,000
Profit and Loss Application A/c	14,500	24,500
Creditors	9,000	5,000
Mortgage	—	5,000

Ans. Increase in Working Capital Rs. 10,000; Total of Sources and Application. Rs. 20,000 and Rs. 10,000 respectively.

5. From the following Balance sheet of RJR Co Ltd. you are required to prepare fund flow statement including a schedule of changes in Working Capital for the year ended 31.12.2018.

Liabilities	2017	2018	Assets	2017	2018
Share Capital	70,000	74,000	Cash	9,000	7,800
Debentures	12,000	6,000	Debtors	14,900	17,700
Reserve for Doubtful debts	700	800	Stock	49,200	42,700
Trade creditors	10,360	11,840	Land	20,000	30,000
P/L a/c	10,040	10,560	Goodwill	10,000	5,000
	1,03,100	1,03,200		1,03,100	1,03,200

Additional information

(1) Dividend paid ` 3,500; (2) During the year, land was purchased for ` 10,000

Ans. Decrease in Working Capital ` 6,480 funds from operations ` 9,020 Total of Sources and Application of Funds ` 13,020 and ` 19,500 respectively. [Hint. Reserve for doubtful debts is a Current Liability]

6. Following are the summarized Balance Sheets of X Ltd. as on 31st December 2017 and 2018:-

Liabilities	2017	2018	Assets	2017	2018
Share capital	4,50,000	4,50,000	Fixed Assets	4,00,000	3,20,000
General Reserve	3,00,000	3,10,000	Investments	50,000	60,000
Profit & Loss A/c	56,000	68,000	Stock	2,40,000	2,10,000
Creditors	1,68,000	1,34,000	Debtors	2,10,000	4,55,000
Provision for Taxation	75,000	10,000	Bank	1,49,000	1,97,000
Loan (Short-term)		2,70,000			
	10,49,000	12,42,000		10,49,000	12,42,000

Additional Information:

- Investment costing ` 8,000 were sold during the year 2018 for ` 8,500
- Provision for taxation made during the year 2018 was ` 9000
- During the year 2018, part of fixed assets costing ` 10,000 were sold for ` 12,000
- Dividend paid during the year 2018 for the year ended, 2018

3.52 *Management Accounting*

Ans: Increase in W.C. – ` 92,000; Funds from operations ` 1,29,500 Total of Sources and Applications of funds ` 1,50,000 and ` 58,000 respectively. If provision for taxation is not taken as current liability increase in W.C ` 27,000 funds from operations ` 1,38,500 Total of sources and Applications of Funds ` 1,59,000 and ` 1,32,000 respectively.

Hint.

- a. Investment are considered as trade investments
 - b. Provision for taxation has been considered as a current liability.
 - c. Loan appearing in 2018 is assumed to be a temporary loan, i.e., a current liability.
 - d. If provision for taxation is not taken as a current liability, Net Increase in W.C is ` 27,000 Funds from operations ` 1,38,500.
7. From the following balance sheets, you are required to prepare ‘schedule’ of changes in working capital for 2017 and 2018.

	2016	2017	2018
Assets:			
Cash	30,000	40,000	45,000
Inventories	10,000	15,000	10,000
Accounts Receivable	20,000	20,000	25,000
Land	20,000	20,000	30,000
Plant	40,000	60,000	70,000
	1,20,000	1,55,000	1,80,000
Liabilities:			
Share Capital	40,000	50,000	50,000
13% Debentures	20,000	20,000	30,000
Sundry Creditors	20,000	20,000	40,000
Outstanding Expense	10,000	20,000	20,000
Tax payable	10,000	15,000	20,000
Retained Earnings	20,000	30,000	20,000
	1,20,000	1,55,000	1,80,000

Ans: (i) No change in working capital of 2017 as compared to 2016. (ii) Decrease in working capital ` 20,000 in 2018 as compared to 2017. **Hint.** Tax payable is a current liability.

8. Robinsharma Ltd. present the following financial statements for 2017 and 2018 Prepare a statement of sources and applications of funds and evaluate your finding:

	2017	2018
Assets:		
Cash	1,06,000	62,000
Investment	1,74,000	–
Sundry debtors	6,92,000	10,56,000
Stock – in – trade	8,64,000	13,66,000
Net fixed assets	22,26,000	27,96,000
	40,62,000	52,80,000
Liabilities:		
Sundry creditors	8,26,000	12,54,000
Bills payable	4,52,000	6,28,000
Loan from bank	2,00,000	4,70,000
Reserves and Surplus	13,84,000	17,28,000
Share Capital	12,00,000	12,00,000
	40,62,000	52,80,000

Depreciation of ₹ 3, 78,000 was written off for 2018 on fixed assets.

Ans: Increase in working capital ₹44,000. Total of Sources ₹9,92,000 and Applications ₹ 9,48,000

9. Prepare the “Fund Flow statement” for XYZ Ltd from the following information for the year ended 31st Dec, 2014

Comparative balance sheet of ABC Company Ltd.

	Dec, 31, 2014	Dec, 31, 2015
Liabilities:		
Share capital	50,00,000	40,00,000
Reserves and surplus	15,00,000	5,00,000
Secured Loan	35,00,000	40,00,000
Current Liabilities	50,00,000	60,00,000
	1,50,00,000	1,45,00,000
Assets:		
Fixed assets	31,00,000	30,00,000
Investments	1,50,000	–
Cash and bank balances	2,50,000	1,25,000
Stocks, stores and Work –in – progress	75,00,000	78,75,000
Sundry Debtors	40,00,000	35,00,000
	1,50,00,000	1,45,00,000

3.54 *Management Accounting*

- i. The net profit after adjustment in respect of provision for dividends, taxation was ` 1,00,000 for the year.
- ii. There was addition to fixed assets during the year amounting to ` 4,00,000 and Depreciation for the year was ` 3,00,000

Ans. Increase in working capital ` 12,50,000. Total of Sources ` 23,00,000 and Applications ` 10,50,000

10. From the given balance sheets of A Ltd, make out:

- a. Statement of changes in the working capital.
- b. Funds flow statement.

Balance Sheet

Liabilities	2015	2016	Assets	2015	2016
Equity Share Capital	3,00,000	4,00,000	Goodwill	1,15,000	90,000
12% Redeemable Pref.			Land and Building	2,00,000	1,70,000
Share capital	1,50,000	1,00,000	Plant	80,000	2,00,000
General Reserve	40,000	70,000	Debtors	1,60,000	2,00,000
Profit and Loss A/c	30,000	48,000	Stock	77,000	1,09,000
Proposed Dividends	42,000	50,000	Bills Receivable	20,000	30,000
Creditors	55,000	83,000	Cash in Hand	15,000	10,000
Bills Payable	20,000	16,000	Cash at Bank	10,000	8,000
Provision for Taxation	40,000	50,000			
	6,77,000	8,17,000		6,77,000	8,17,000

Following is the additional information available:

1. Depreciation of ` 10,000 and ` 20,000 has been charged on Plant and Land Building respectively in 2016.
2. An interim dividend of ` 20,000 has been paid in 2016.
3. Income tax of ` 35,000 has been paid in 2016.

Ans: Funds from operations ` 2,18,000. Total Sources ` 3,28,000, total applications ` 2,77,000 and the increase in working capital ` 51,000.

(Hint: provision for tax has been taken as a non-current liability presuming that last year's dividend must have been paid during the current year.

11. From the following Balance Sheets of a company you are required to prepare (i) a statement showing changes in the working capital, and a statement of sources and applications of funds:

	January, 2018	December 2018
Assets:		
Cash	40,000	44,400
Accounts Receivable	10,000	20,700
Inventories	15,000	15,000
Land	4,000	4,000
Buildings	20,000	16,000
Equipment	15,000	17,000
Accumulated Depreciation	(5,000)	(2,800)
Patents	1,000	900
	1,00,000	1,15,200
Liabilities:		
Current Liabilities	30,000	32,000
Bonds Payable	22,000	22,000
Bonds Payable discount	(2,000)	(1,800)
Capital stock	35,000	43,500
Retained Earnings	15,000	19,500
	1,00,000	1,15,200

Additional information

- a. Income for the period ` 10,000
- b. A building that costs Rs. 4,000 and which had a book value of ` 1,000 was sold for ` 1,400.
- c. The depreciation charged for the period was ` 800
- d. There was ` 5000 issue of common stock.
- e. Cash dividends ` 2,000 and a stock dividend of ` 3,500 were declared.

Ans: Increase in working capital ` 13,100. Total sources ` 17,100 and Applications ` 4,000.

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UNIT III

CASH FLOW STATEMENT (CASH FLOW ANALYSIS)

PRELUDE

The limitations of funds flow statement gave birth from cash flow statement. Cash flow statement is basically a statement of changes in financial position of on cash basis. It is very much useful for short-term analysis and cash planning of the business. The procedure for preparing of cash flow statement is quite different from the fund flow statement.

MEANING OF CASH FLOW STATEMENT

A cash flow statement is a statement of changes in financial position depicting changes in cash position from one accounting period to another. The cash flow statement shows the reasons for changes in cash inflows and/or outflows between two dates of balance sheets.

The tem ‘cash’ signifies both cash in hand and cash at bank. Cash flow statement describes both sources inflows and uses outflows of cash and cash equivalents in an enterprise during a specified period of time.

- ❖ *According to AS-3 (Revised), an enterprise should prepare a cash flow statement and should present it for each period for which financial statements are prepared.*

Cash, cash equivalents and cash flows

- ❖ **Cash** comprises cash in hand and demand deposits with banks.

- ❖ **Cash equivalents** are short term, highly liquid investments that are readily and quickly convertible into known amount of cash and which are subject to an insignificant risk of changes in value. Cash equivalents are held for the purpose of meeting short-term cash requirements rather than for investments or other purposes.



Cash flows are inflows or outflows of cash. Flow of cash is said to have taken place when any transaction makes changes in the amount of cash available before the happening of such transaction. If the effect of such transaction results in the increase of cash, it is called a 'cash inflow' and if it results in the decrease of cash, it is known as 'cash outflow'.

CLASSIFICATION OF CASH FLOWS

According to AS-3 (Revised), the cash flow statement should report cash flows during the period resulting from operating, investing and financing activities. Accordingly, cash flows are classified into three categories:

Cash flows from operating activities.

Cash flows from investing activities.

Cash flows from financing activities.

14. Cash flows from operating activities.

Every business concern aims at generating income by carrying out operations. Cash outflows incurred in carrying out business operations and cash inflows generated because of the execution of business operations are called cash flows from operating activities. Operating activities are the activities other than investing and financing activities.

Examples of cash flows from operating activities.

The most common such examples are:

Cash payments to suppliers of goods and services.

Cash receipts from the sale of goods and from the providing of services.

Cash inflows due to royalties, fees and commission.

Cash outflows due to payment of wages and salaries.

2. Cash flows from investing activities:

No business operations and day-to-day activities could be carried without sufficient investment in fixed assets. Fixed assets are the essentials to proceed with routine business operations. Thus, commitment of cash in investment activities and availing of cash from such investment activities have become an integral part of every business enterprise. Investment in cash equivalents does not come under this category of cash flows from investment activities.

Examples of cash flows arising out of investment activities.

The most common such examples are:

Cash payments to acquire fixed assets

Cash commitments in constructing building

Cash payment towards research and development activity.

Cash receipts by selling of fixed assets.

Cash payments to buy shares and debt instruments of other enterprises

Cash receipts through selling of shares and debt instruments of other enterprises

Cash outflows due to granting of loans and advances to third parties.

Cash inflows caused by repayments of loans and advances by third parties.

Cash payments towards future/forward contracts & option contracts.

3. Cash flows from financing activities.

Money is the life-blood of any business. Necessary cash is brought in by owners and at the same time required amount is borrowed from outsiders too. Thus, financing activities cause changes in owners' capital and borrowed capital.

Examples of cash flows resulting from financing activities.

The most common such examples are:



Cash inflows from issue of shares, debentures and bonds.



Cash inflows due to borrowing from banks or financial institutions.



Cash payments due to redemption of preference shares/debentures.



Cash outflows because of repayment of loans obtained from banks and/or financial institutions.

FUNDS FLOW STATEMENT VS CASH FLOW STATEMENT

A cash flow statement is much similar to a funds flow statement as both are prepared to summarise the changes in the financial position and are called statement of changes in financial position (SCFP). Nevertheless, there are differences between these two statements.

The following are the main differences between a funds flow statement and a cash flow statement:

Differences between funds flow and cash flow statement

Points of Difference	Funds flow statement	Cash flow statement
Basis of concept	It is based on the popular concept of funds. i.e., Working capital	It is based on the narrow concept of funds called cash.
Basis of Accounting	It is based on accrual based of accounting.	It is based on cash basis of accounting.
Purpose	It is prepared for long-term financial planning and analysis.	It is prepared for short-term financial analysis and cash planning of the business.
Method of preparation	It is prepared by considering the sources and uses of funds. The net difference between these two represents either net increase or net decrease in working capital.	It is prepared by classifying all cash inflows and outflows in terms of operating, investing and financing activities. The net difference represents the net increase or decrease in cash .
Schedule of changes in working capital	Schedule of changes in working capital is prepared in order to ascertain net changes in working capital by considering changes in current assets and current liabilities.	No such schedule of changes in working capital is prepared.
Starting point	In preparing funds flow statement, the opening net working capital is not taken as the starting point.	The preparation of cash flow statement starts with opening balance of cash and ends with closing/opening balance of cash.

Forms of cash flow statement

A cash flow statement can be prepared in two forms viz.

- (a) Report form (b) T form or Account form.

(a) Report Form of Cash Flow Statement

Cash balance in the beginning		XXXX
Add : Cash inflows:	XXX	
Cash from operations	XXX	
Issue of Shares or debentures	XXX	
Sale of fixed assets or investments	XXX	
Raising of loans	XXX	
Dividend received	XXX	XXX
Less : Cash Outflows :		
Purchases of fixed assets or investments	XXX	
Repayment of loan	XXX	
Redemption of preference shares or debentures	XXX	
Payment of taxes	XXX	
Payment of dividend	XXX	
Drawings	XXX	
Cash lost in operation	XXX	
Cash balance at the end		XXX

Cash balance at the end**Account Form of Cash Flow Statement**

Cash Inflows	.	Cash Outflows	.
Opening balance of Cash / Bank		Purchases of fixed assets or Investments	
Add : Inflows		Redemption of preference shares or debentures	
Issue of shares or debentures		Payment of taxes	
Sale of fixed assets or investments		Payment of dividend	
Raising of loans		Drawings	
Dividend received		Cash lost in operation	
Cash from operations		Closing balance of Cash/Bank	

To give still more clear idea to the readers about various cash inflows and cash outflows, the following specimen of cash flow statement are given:

Proforma of Report form of CashFlow Statement

Cash or Bank Balance at the beginning		
Add: Cash Inflows:		xxx
Cash from operations	xxx	
Proceeds from sale of fixed assets	xxx	
Issue of shares	xxx	
Share Premium	xxx	
Issue of debentures	xxx	
Increase in current liabilities	xxx	
Raising of loans	xxx	
Decrease in current assets	xxx	
Non- trading receipts viz:		
Dividend received and	xxx	
Refund of tax	xxx	xxxx
Less: Cash Out flows :		
Purchase of fixed assets	xxx	
Repayment of loans	xxx	
Redemption of preferences shares	xxx	
Payment of taxes	xxx	xxxx
Payment of dividend	xxx	
Cash lost in operations	xxx	
Increase in current assets	xxx	
Decrease in current liabilities	xxx	
Cash Balance at the end		Xxx
Cash or Bank Balance at the end		xxxx

Proforma of an account form of Cash Flow Statement

Cash or Bank Balance at the beginning	xxx	Cash Outflows :	xxx
Add: Cash Inflows :		Purchase of fixed assets	xxx
Cash from operations	xxx	Repayment of loans	xxx
Proceeds from sale of fixed assets	xxx	Redemption of preference Shares	
Issue of shares	xxx	Redemption of debentures	xxx
Share Premium	xxx	Payment of dividend	xxx
Issue of debentures	xxx	Payment of taxes	xxx
Raising of loans	xxx	Cash lost in operations	xxx
Decrease in current assets	xxx	Increase in current assets	xxx

Cash Flow Statement (Cash Flow Analysis) 4.7

Increase in current liabilities	xxx	Decrease in current liabilities	xxx
Non- trading receipts:		Cash or Bank balance at	
Dividend received		the end	xxx
Refund of tax	xxx		
	xxx		xxxx

WIDELY USED FORMAT OF CASH FLOW STATEMENT

AS-3 (Revised) has not provided any specific format for preparing a Cash Flows Statement. The Cash Flow Statement should report cash flows during the period classified by operating, investing and financing activities. A widely used format of Cash Flow Statement is given below:

Cash Flow Statement (for the year ended.....)

Particulars	\	\
Cash Flows from Operating activities		
Cash Receipts from customers	xxx	
Cash paid to suppliers and employees	(xxx)	
Cash generated from operations	xxx	
Income tax paid	(xx)	
Cash flow before extraordinary items	Xxx	
Extraordinary items	Xxx	
Net cash from (used in) Operating activities		Xxx
(Or)		
Net Profit before tax and extraordinary items	Xxx	
Adjustments for Non-cash and non-operating items	Xxx	
(list of individual items such as depreciation, foreign exchange loss, loss on sale of fixed assets, interest income, dividend income, interest expense etc.)	Xxx	
Operating profit before working capital changes	Xxx	
Adjustments for changes in current assets and current liabilities		
(List of individual items)	Xxx	
Cash generated from(used in) operations before tax	Xxx	
Income tax paid	Xxx	
Cash Flow before extraordinary items	Xxx	
Extraordinary items (such as refund of tax)	Xxx	
Net cash from (used in) Operating activities		Xxx

Particulars		
Cash Flows from investing activities		
Individual items of cash inflows and outflows from investing activities	Xxx	
(Such as purchase/sale of fixed assets, purchase or sale of investments, interest received, dividend received etc.)	Xxx	
Net cash from (used in) investing activities		Xxx
Cash Flows from Financing Activities		
Individual items of cash inflows and outflows from financing activities	Xxx	
(such as proceeds from issue of shares, long-term borrowings, repayments of long-term borrowings, interest paid, dividend paid etc.)	Xxx	Xxx
Net increase(decrease) in cash and cash equivalents		Xxx
Cash and cash equivalents at the beginning of the period		Xxx
Cash and cash equivalents at the end of the period		Xxx

7.6 PREPARATION OF CASH FLOW STATEMENT

A cash flow statement can be prepared on the same pattern on which a funds flow statement is prepared with two changes namely-

- No schedule of changes in working capital is prepared and
- Changes in current assets and current liabilities need to be considered while calculating cash from operation.

The changes in the cash position from one period to another is computed by taking into account “sources” (inflows) and “applications” (outflows) of cash.

Sources of cash – cash inflows

A concern gets/receives cash both from internal as well as external sources.

Internal sources of cash



Cash from operations



Cash from operations is the chief internal source of cash.

External sources of cash

The external sources of cash are:

- Issue of new shares
- Raising long-term loans
- Short-term borrowing
- Cash credit from banks
- Sale of fixed assets and investments



Decrease in current assets and increase in current liabilities may be taken as external sources of cash, if they are not adjusted while calculating cash from operations.

Applications of cash – cash outflows

Applications of cash may be in the following forms:

- Cash lost in operations
- Purchase of fixed assets
- Payment of long-term loan
- Redemption of preference shares and debentures
- Payment of taxes
- Payment of cash dividends
- Drawings
- Decrease in deferred payment liabilities
- Decrease in unsecured loan



Increase in current assets or decrease in current liabilities may be taken as external application of cash, if changes in those items have not been adjusted while computing cash from operations.

Procedure for the preparation of cash flow statement

There are three steps in the whole process of preparing cash flow statement. They are:

1. Opening and closing of accounts for necessary non-current items.

For non-current assets and non-current liabilities having adjustments, it is better to open and close such accounts in order to find out necessary facts and figures

4.10 *Management Accounting*

2. Computation of cash from operations

It can be calculated by adding non-cash and non-operating expenses and decrease in current assets and increase in current liabilities and deducting non-cash and non-operating income and increase in current assets and decrease in current liabilities from the net profit.

Cash from operations can be computed either in the form of statement, or with the help of adjusted profit and loss account.

Statement form of computing cash flow operation

Particulars	\	\
Profit made during the year		xxx
Add: Non – cash expenses	xxx	
Non – operating expenses	xxx	
Decrease in current assets	xxx	
Increase in current liabilities	xxx	xxx
Less:		xxx
Non- Cash income	xxx	
Non – operating income	xxx	
Increase in current assets	xxx	
Decrease in current liabilities	xxx	xxx
Cash from operation or cash lost in operation		xxx

Computation of cash flow operation with the help of Adjusted profit and loss account is given below:

Adjusted Profit and loss Account

To Non – Cash expenses	xxx	By Balance b/d	Xxx
To Non – operating expenses	xxx	By Non-cash income	xxx
To Decrease in current assets	xxx	By Non-operating income	xxx
To Increase in current liabilities	xxx	By Increase in current assets	xxx
To Cash lost in operation (b/f)	xxx	By Decrease in current liabilities	xxx
To Balance c/d	xxx	By Cash from operation (b/f)	xxx
	xxx		Xxx

ILLUSTRATION ON COMPUTATION OF CASH FLOW OPERATIONS**Illustration:1**

From the following Profit and Loss account, you are required to compute the cash flow operations:

Profit and Loss Account for the Year ending 30th June, 2015

To Salaries	8,000	By Gross profit b/d	28,000
To Rent	1,000	By Profit on sale of land	5,000
To Depreciation	2,000	By Income tax refund	3,000
To Loss on sale of plant	1,000		
To Goodwill written off	4,000		
To Proposed dividend	5,000		
To Provision for taxation	5,000		
To Net profit	10,000		
	36,000		36,000

Solution

Calculation of Cash Flow Operations

Particulars		
Net profit		10,000
Add : Non cash and non-operating expenses :		
Depreciation	2,000	
Loss on sale of plant	1,000	
Goodwill written off	4,000	
Proposed dividend	5,000	
Provision for taxation	5,000	17,000
Less : Non cash and non-operating Income :		27,000
Profit on sale of land		
Income tax refund	5,000	
	3,000	8,000
Cash flow operations		19,000

Illustration: 2

Calculate Cash flow Operations from the following:

	1 Year	II Year
Profit and Loss appropriation A/c	35,000	45,000
Bills receivable	20,000	25,000
Provision for depreciation	45,000	48,000
Outstanding rent	2,500	4,000
Prepaid insurance	3,000	2,500
Goodwill	40,000	25,000
Stock	20,000	10,000

Solution**Adjusted Profit & Loss Account**

To provision for depreciation (45000 – 48000)	3,000	By Balance b/d	35,000
To Goodwill written off	15,000	By Net profit	28,000
To balance c/d	45,000		
	63,000		63,000

Calculation of Cash From Operations

Particulars		
Net profit		28,000
Add : Inflows :		
Increase in outstanding rent	1,500	
Decrease in prepaid insurance	500	
Decrease in stock	10,000	12,000
		40,000
Less : Outflows :		
Increase in Bills receivable		5,000
Cash flow operations		35,000

Illustration: 3

From the following balances, you will compute, the cash flow operations :

	December 31	
	2013	2014
Debtors	60,000	57,000
B/R	10,000	12,500
Creditors	20,000	25,000
Outstanding Expenses	1,000	1,200
B/P	10,000	8,000
Prepaid Expenses	800	700
Accrued Income	600	750
Income Received in advance	300	250
Profit made during the year	–	1,30,000

Solution**Calculation of Cash flow Operations**

Particulars	\	\
Profit made during the year		1,30,000
Add : Inflows :		
Decrease in debtors	3,000	
Increase in creditors	5,000	
Increase in outstanding expenses	200	
Decrease in prepaid expenses	100	8,300
		1,38,300
Less : Outflows :		
Increase in Bills receivable	2,500	
Decrease in Bills payable	2,000	
Increase in accrued income	150	
Decrease in income received in advance	50	4,700
Cash flow operations		1,33,600

4.14 Management Accounting



In a problem where students are asked to calculate cash from operations when changes in current assets and current liabilities are not given –

Cash flow Operations = Funds from Operations

When there are changes in current assets and current liabilities, then such changes need to be adjusted for ascertaining the true amount of cash flow operations.

Effects of changes in current assets and liabilities on cash flow

- **Decrease in current assets leads to inflow of**

cash Example:

	2015	2016
Debtors	1,00,000	80,000
Stock	80,000	50,000

In this example, both the closing debtors and stock have been decreased from their opening values.

It means that during the year `20,000 have been collected from debtors and stock has been sold to the tune of `30,000. These changes in current assets i.e, decreased debtors and stock lead to inflow of cash.

- **Increase in current assets causes cash**

outflow Example:

	2017	2018
Stock	75,000	1,00,000
Short-term Investment	50,000	70,000

Here, stock worth `25,000 has been bought during the year 2018 and thus it caused an outflow of cash of `25,000. Further, cash has been applied to the tune of `20,000 in short-term investments. This also has lead to reduction of cash or outflow of cash.

- **Decrease in current liabilities results in outflow of**

cash. Example :

	2017	2018
Sundry Creditors	50,000	20,000
Bills Payable	30,000	15,000

In these two cases, cash has been applied (used) both for paying sundry creditors to the extent of ₹30,000 and for clearing bills to the tune of ₹15,000 and as such cash balance has come down.

3. Increase in current liabilities results in inflow of

cash Example:

	2017	2018
Bank Overdraft	70,000	90,000
Short-term borrowings	20,000	30,000

In the above example, it is clear that cash has come in two ways namely increased bank overdraft and additional short-term borrowings. These two transactions/events eventually caused inflow of cash i.e. cash inflow from financing activities.

Thus,

Increase in current assets and decrease in current liabilities cause cash outflows

But

Decrease in current assets and increase in current liabilities cause cash

inflows. Therefore,

Cash flow operations = Net profit	<ul style="list-style-type: none"> + Non- cash expenses + Non- operating expenses + Decrease in current assets + Increase in current liabilities – Non- cash income – Non- operating income – Increase in current assets – Decrease in current liabilities.
-----------------------------------	---

OR

Cash flow operation =	Funds flow operations	<ul style="list-style-type: none"> + Decrease in current assets + Increase in current liabilities <li style="text-align: center;">& – Increase in current assets – Decrease in current liabilities.
-----------------------	-----------------------------	--

Illustration: 4

From the following Balance sheets, prepare Cash Flow Statement:

Liabilities	2011	2012	Assets	2011	2012
Share capital	2,50,000	3,00,000	Cash	30,000	47,000
Sundry creditors	70,000	45,000	Debtors	1,70,000	1,65,000
P & L A/c	10,000	23,000	Stock	80,000	90,000
			Land	50,000	66,000
	3,30,000	3,68,000		3,30,000	3,68,000

Solution**Cash Flow Statement**

Inflows		Outflows	
Opening balance of cash	30,000	Decrease in sundry creditors	25,000
Add: Inflows: Issue of shares	50,000	Increase in stock	10,000
Decrease in debtors	5,000	Purchases of land	16,000
Cash from operations (23,000-10,000)	13,000	Closing balance of cash	47,000
	98,000		98,000

Illustration: 5

From the following, prepare a cash flow statement for the year ended 31.12.14

Liabilities	2013	2014	Assets	2013	2014
Accounts payable	29,000	25,000	Cash	40,000	30,000
Capital	8,39,000	7,15,000	Debtors	20,000	17,000
			Stock	8,000	13,000
			Building	1,00,000	80,000
			Other Fixed Assets	7,00,000	7,00,000
	8,68,000	7,40,000		8,68,000	7,40,000

Additional Information

(C) There were no drawings.

(D) There were no purchase or sale of either building or other fixed assets.

Solution

Inflows	\	Outflows	\
Opening Cash Balance	40,000	Decrease in accounts payable	4,000
Add: inflows:		Increase in stock	5,000
Decrease in debtors	3,000	Cash lost from operation	4,000
		Closing cash balance	30,000
	43,000		43,000

Workings:**Capital Account**

	\		\
To Net Loss (Bal. Fig.)	1,24,000	By Balance b/d	8,39,000
To Balance c/d	7,15,000		
	8,39,000		8,39,000

Calculation of Cash flow Operations

Particulars	\	\
Net Loss		(–) 1,24,000
Add: Non cash or non-operating expenses:		
Depreciation on Building	20,000	
Depreciation on other fixed assets	1,00,000	1,20,000
Cash lost from operations		(–) 4,000

Illustration: 6

In the Balance Sheets of Ram Co as on 1.7.2017 and 30.6.2018:

Liabilities	1.7.2017	30.6.2018	Assets	1.7.2017	30.6.2018
Creditors	40,000	44,000	Cash	10,000	7,000
Mrs. Kandan's			Debtors	30,000	50,000
Loan	25,000	–	Stock	45,000	35,000
Loan from	50,000	60,000	Machinery	80,000	55,000
PNBCapital	1,25,000	1,53,000	Land	40,000	50,000
			Building	35,000	60,000
	2,40,000	2,57,000		2,40,000	2,57,000

4.18 *Management Accounting***Additional information:**

During the year a machine costing ₹10,000 (accumulated depreciation ₹3,000) was sold for Rs. 5,000. The provision for depreciation against machinery as on 1.7.2012 was ₹25,000 and on 30.6.2013 was ₹40,000. Net profit for the year ending 30.5.2013 amounted to ₹45,000.

Prepare a Cash Flow Statement

Solution**Cash Flow Statement**

Inflows	₹	Outflows	₹
Opening balance of cash	10,000	Repayment of Mrs. Kandan's loan	25,000
Add: Inflows:		Drawings	17,000
Increase of creditors	4,000	Increase in debtors	20,000
Loan from PNB	10,000	Purchase of land	10,000
Decrease in stock	10,000	Purchase of buildings	25,000
Sale of machinery	5,000	Closing balance of cash	7,000
Cash flow operations	65,000		
	1,04,000		1,04,000

Workings:**Provision for Depreciation on Machinery A/c**

	₹		₹
To Machinery	3,000	By Balance b/d	25,000
To Balance c/d	40,000	By Adjusted P & L A/c (Bal. Fig.)	18,000
	43,000		43,000

Machinery Account

	₹		₹
To Balance b/d (80,000 + 25,000)	1,05,000	By Cash	5,000
		By Provision for dep.	3,000
		By Adj. P & L A/c (Loss)	2,000
		By Balance c/d (55,000 + 40,000)	95,000
	1,05,000		1,05,000

Capital A/c

To cash A/c (drawings) (b/f)	17,000	By Balance b/d	1,25,000
To Balance c/d	1,53,000	By Net profit	45,000
	1,70,000		1,70,000

Calculation of Cash flow Operations

Particulars		
Net Profit		45,000
Add: Non cash or non-operating expenses:		
Provision for depreciation	18,000	
Loss on sale of machinery	2,000	20,000
Cash from operations		65,000

Illustration: 7

Are the summarized Balance Sheets of Varun Ltd. as on 31st December, 2016 and 2017.

Balance Sheet

Liabilities	2016	2017	Assets	2016	2017
Share capital	1,00,000	1,50,000	Land & Building	1,00,000	90,000
General reserve	50,000	60,000	Plant & Machinery	1,00,000	1,19,000
P & L A/c	30,500	30,000	Stock	50,800	24,800
Bank Loan	70,000	-	Debtors	75,000	63,200
Sundry Creditors	50,800	38,000	Cash	500	1,000
Prov. for taxation	32,000	35,000	Bank	2,000	15,000
			Goodwill	5,000	-
	3,33,300	3,13,000		3,33,300	3,13,000

4.20 Management Accounting

Additional Information

During the year ended 31st December 2017,

7. Dividend of ₹25,000 was paid.

8. Depreciation written off on building ₹10,000, Machinery ₹14,000. (iii) Income tax paid during the year ₹30,000

Prepare cash flow statement.

Solution**Cash Flow Statement**

Inflows	₹	Outflows	₹
Opening balance of cash & bank	2,500	Bank loan repaid	70,000
Add: Inflows:		Purchase of Machinery	33,000
Issue of shares	50,000	Dividend paid	25,000
Decrease in Debtors	11,800	Income Tax paid	30,000
Decrease in Stock	26,000	Decrease in sundry creditors	12,800
Cash from operations	96,500	Closing balance of cash & bank	16,000
	1,86,800		1,86,800

Workings:**Calculation of Cash flow Operations**

Particulars	₹	₹
Closing balance of P & L A/c		30,000
Add: Non cash and non-operating expenses:		
Transfer to general reserve	10,000	
Provision for taxation	33,000	
Goodwill written off	5,000	
Dividend	25,000	
Depreciation on building	10,000	
Depreciation on machinery	14,000	97,000
		1,27,000
Less: Non cash and non-operating Income		—
Opening balance of P and L a/c		30,500
Cash flow operations		96,500

Land & Building A/c

To Balance b/d	1,00,000	By Depreciation	10,000
		By Balance c/d	90,000
	1,00,000		1,00,000

Plant & Machinery A/c

To Balance b/d	1,00,000	By Depreciation	14,000
To Cash a/c (Bal. Fig.)	33,000	By Balance c/d	1,19,000
	1,33,000		1,33,000

Provision for Taxation A/c

To Cash a/c	30,000	By Balance b/d	32,000
To Balance c/d	35,000	By Adjusted P & L A/c	33,000
	65,000		65,000

Illustration: 8

The following summarized Balance Sheets of a company as on 31st December, 2017 and 2018.

	2017	2018
Liabilities:		
Share capital	2,50,000	3,00,000
General Reserve	50,000	60,000
Profit & Loss	30,500	30,600
Mortgage Loan (Long-term)	70,000	
Sundry Creditors	1,50,00	1,35,200
Provision for taxation	30,000	35,000
	5,80,500	5,60,800

4.22 Management Accounting

Assets:		
Land and Building	2,50,000	2,40,000
Machinery	1,50,000	1,69,000
Stock	1,00,000	74,000
Sundry Debtors	80,000	64,200
Cash	500	600
Bank	—	8,000
Goodwill	—	5,000
	5,80,500	5,60,800

Additional Information:

During the year ended 31st December, 2018:

- c. Dividend of `25,000 was paid.
- d. Assets of another company were purchased for a consideration of `50,000 payable in shares. The following assets were purchased: Stock `20,000; Machinery `25,000.
- e. Machinery was purchased ` 8,000.
- f. Depreciation written off of machinery `12,000
- g. Income-tax provided during the year `35,000
- h. Loss on sale of machinery `200 was written off to general reserve.

You are required to prepare the Cash Flow Statement.

Solution:**Cash Flow Statement**

For the year ending 31st December, 2018 (Traditional Method)

	₹	₹
Cash Balance as on 1 st Jan., 2018		500
Add: Sources of Cash:		
Sale of Machinery (See Note 2)	1,8000	
Cash from Operations i.e		
Funds from Operations (See Note 1)	92,300	
Add: Decrease in Stock (See Note 5)	46,000	
Decrease in Debtors	15,800	1,72,100
		1,56,400

Cash Flow Statement (Cash Flow Analysis) 4.23

Less: Decrease in Creditors	14,800	14,800
		1,41,600
Applications of Cash:		
Payment of Dividend	25,000	
Purchase of Machinery	8,000	
Tax paid (See Note 4)	30,000	
Mortgage loan repaid	70,000	1,33,000
Closing cash and bank balances (Cash in hand Rs. 600 + Cash at bank Rs. 8,000).		8,600

Working Notes:

Adjusted Profit & Loss Account

To Dividend	25,000	By Balance b/d	30,500
To Depreciation on Building	10,000	By Funds from Operations	92,300
To Provision for Tax	35,000	(balancing figure)	
To Transfer to General Reserve	10,200		
To Depreciation on Machinery	12,000		
	30,600		
To Balance c/d	1,22,800		1,22,800

Machinery Account

To Balance b/d	1,50,000	By Depreciation	12,000
To Share Capital	25,000	By General Reserve	200
To Bank	8,000	By Bank (b/t)	1,800
		By Balance c/d	1,69,000
	1,83,000		1,83,000

General Reserve

To Machinery a/c	200	By Balance b/d	50,000
To Balance c/d	60,000	By P & L a/c	10,200
	60,200		60,200

4.24 Management Accounting

Provision for Taxation

	₹		₹
To Bank	30,000	By Balance b/d	30,000
To Balance c/d	35,000	By P & L A/c	35,000
	65,000		35,000

Decrease in Stock

	₹
Stock as on 31.12.2007	1,00,000
Less: Stock as on 31.12.2008 (after deducting stock purchased by issuing shares)	54,000
Increase in cash	46,000

Cash Flow Statement

	₹	₹
i) Cash flows from operating activities		
Net Profit made during the year (100 + 35,000 + 10,200 + 25,000)	70,300	
Adjustments for depreciation on building	10,000	
Adjustments for depreciation on machinery	12,000	
Operating profit before working capital changes	92,300	
Decrease in Stock	46,000	
Decrease in Debtors	15,800	
Decrease in Creditors	(14,800)	
Income tax paid	(30,000)	
Net cash flow from operating activities		1,09,300
ii) Cash flows from investing activities		
Sale of machinery	1,800	
Purchase of machinery	(8,000)	
Net cash flow from investing activities		(6,200)
iii) Cash flows from financing activities		
Mortgage loan repaid	(70,000)	
Dividend paid	(25,000)	
Cash flows from financing activities		(95,000)
Net increase in cash and cash equivalents		8,100
Cash and cash equivalents at the beginning of the period		500
Cash and cash equivalent at the end of the period		8,600

Illustration: 9

Prepare Cash Flow statement from the following Balance Sheets of SR Engineering Ltd.:

Liabilities	2017	2018	Assets	2017	2018
Share Capital	17,00,000	18,35,000	Buildings	8,00,000	10,00,000
Reserves	40,000	83,700	Plant & Machinery	2,50,000	3,70,000
Profit & Loss			Fixtures & Fittings	5,000	6,000
Appropriation A/c	1,00,000	1,30,000	Cash	2,000	2,200
			Debtors	1,00,000	45,000
Provision for			Accounts	8,000	9,000
Dividends	70,000	50,000	Receivable	4,00,000	3,43,700
Creditors	1,00,000	95,000	Stock	3,000	3,100
Bank Overdraft	8,000	18,000	Prepaid Expenses	1,64,000	1,70,000
Bills Payable	14,000	13,000	Investments	3,00,000	3,43,700
Loan on Mortgage	20,000	80,000	Goodwill	20,000	12,000
			Preliminary Expenses		
	20,52,000	23,04,700		20,52,000	23,04,700

- (i) Depreciation is charged on building at 3 per cent of cost of ₹9,00,000; on Plant and Machinery at 8 per cent of cost ₹4,00,000, Fixtures and Fitting at 5 per cent of cost ₹8,000.
- iv. Investments were purchased and interest received ₹3,000 was used in writing down the book value of investments.
- v. The declared dividend for 2007 was paid and interim dividend of ₹20,000 for 2008 was paid out of Profit & Loss Appropriation account.

Solution:**Cash flow statement for the year ending 31st December 2018 (traditional method)**

Opening Balance as on 1.1.2018		
Cash	2,000	
Bank Overdraft	(-) 8,000	(-) 6,000
Add: Sources:		
Increase in Share Capital	1,35,000	
Loan on Mortgage	60,000	
Cash from Operations (Note 2)	3,15,300	
Interest on Investments	3,000	5,13,300
		5,07,300
Less: Applications:		
Purchase of Investments	9,000	
Purchase of Building	2,27,000	
Purchase of Machinery	1,52,000	
Purchase of Furniture and fixtures	1,400	
Dividend paid for 2017	70,000	
Purchase of Goodwill	43,700	
Interim Dividend paid	20,000	5,23,100
closing Balance as on 31.12.2018	2,200	(-) 15,800
Bank overdraft	18,000	
Cash	2,200	
	(-) 15,800*	

Working Notes:**1. Adjusted Profit & Loss Account**

To Depreciation:	400	By Balance b/d	1,00,000
Furniture & Fixtures	32,000	By Funds from Operations	2,11,100
Plant & Machinery	27,000	(Bal. Figure)	
Buildings	50,000		
To Proposed Dividend	20,000		
To Interim Dividend	8,000		
To Pre. Expenses written off	43,700		
To Transfer to Reserves	1,30,000		
To Balance c/d			
	3,11,100		3,11,100

2. Cash from Operations

	\	\
Funds from Operations (WN 1)		2,11,100
Add: Decrease in Debtors		55,000
Decrease in Stock		56,300
Less: Decrease in creditors	5,000	3,22,400
Decrease in Bills Payable	1,000	
Increase in Accounts Receivable	1,000	
Increase in Prepaid Expenses	100	7,100
Cash from Operations		3,15,300

Investments Account

	\		\
To Balance b/d	1,64,000	By Bank (interest)	3,000
To Bank (Purchase of Investments)	9,000	By Balance c/d	1,70,000
	1,73,000		1,73,000

Cash Flow Statement

(AS 3 (Revised) Method)

	\	\
I) Cash flows from operating activities:		
Net Profit before tax and extraordinary items (30,000 + 50,000 + 20,000 + 43,700)	1,43,700	
Adjustments for depreciation of furniture and fixtures	400	
Adjustments for depreciation on plant and machinery	32,000	
Adjustment for depreciation on building Preliminary expenses	27,000	
Operating profit before working capital changes	8,000	
Decrease in debtors	2,11,100	
Decrease in stock	55,000	
Decrease in creditors	56,300	
Increase in accounts receivable	(5,000)	
Decrease in bills payable	(1,000)	
Increase in prepaid expenses	(1,000)	
Net cash flow from operating activities	(100)	

4.28 Management Accounting

II) Cash flow from investing activities interest in investments		3,15,300
Purchase of investments		
Purchase of building	3,000	
Purchase of machinery	(9,000)	
Purchase of furniture and fixtures	(2,27,000)	
Purchase of goodwill	(1,52,000)	
Net cash flow from investing activities	(1,400)	
	(43,700)	
III) Cash flows from financing activities:		(4,30,100)
Proceeds from issue of share capital	1,35,000	
Loan on mortgage	60,000	
Dividend paid for 2007	(70,000)	
Interim dividend paid	(20,000)	
Net cash flow from financing activities		1,05,000
Net increase (decrease) in cash and cash equivalents		(9,800)
Cash and cash equivalents at the beginning of the period		(6,000)
Cash and cash equivalents at the end of the period		(15,800)

Illustration: 10

The balance sheets of a firm as on 31st December 2013 and 2014 are given below:

	2013	2014		2013	2014
Share capital	1,00,000	1,60,000	Fixed Assets at cost	1,52,000	2,00,000
Retained Earnings	70,250	85,300	Inventory	93,400	89,200
Accumulated depreciation	60,000	40,000	Debtors	32,800	23,100
12% debentures	50,000	–	Expense prepaid	3,950	3,000
Sundry creditors	30,000	50,000	Bank	28,100	20,000
	3,10,250	3,35,300		3,10,250	3,35,300

The following additional information for the year 2004 are given :

3. Net profit `27,050.
4. Depreciation charged `10,000
5. Cash dividend declared during the period `12,000.
6. An addition to the building was made during the year at a cost of `78,000. Prepare a cash Flow statement

Solution

Cash Flow Statement

For the year ended 31st December 2014

	`		`
Opening balance of Cash at bank	28,100	Outflows of cash :	
Add: Cash Inflows:		Redemption of Debentures	50,000
Issue of shares	60,000	Payment of dividend	12,000
Decrease in inventory	4,200	Addition to buildings	78,000
Decrease in debtors	9,700	Expense prepaid	3,000
Increase in creditors\	20,000	Closing balance of	
Cash operating profit	41,000	Cash at bank	20,000
	1,63,000		1,63,000

Cash from on Operation profit:

Net profit for 2014 27,050

Add: non fund items already debited to

Profit or loss Account:

Sundry Expense prepaid: 3,950

Provision for depreciation 10,000 13,950

Cash operating profit 41,000

Fixed Assets Account

	`		`
To Balance b/d	1,52,000	By accumulated depreciation	30,000
To Bank	78,000	By Balance c/d	2,00,000
	2,30,000		2,30,000

4.30 Management Accounting

Accumalated Depreciation A/C

	₹		₹
To fixed Assets	30,000	By Balance b/d	60,000
To balance c/d	40,000	By Profit & Loss A/c	10,000
	70,000		70,000

Illustration: 11

The comparative balance sheets of a company are given below:

	2013	2014		2013	2014
Share capital	38,000	40,000	Cash	4,500	3,900
Debentures	6,000	3,000	Book debts	7,450	8,850
Creditors	5,180	5,920	Stocks	27,600	24,350
Provision for Doubtful debts	350	400	Land	10,000	15,000
Profit and loss a/c	5,020	5,280	Goodwill	5,000	2,500
	54,550	54,600		54,550	54,600

Additional information available are:

- Dividends paid amounted to ₹1,750
- Land was purchased for Rs.5,000 and amount provided for the amortization of goodwill amounted to ₹2,500
- Debentures were repaid to the extent of ₹3,000. You are required to prepare a cash flow statement.

Solution:**Cash flow statement**

	₹
Cash inflow :	
Cash balance on 1.1.2014	2,000
Issue of shares	7,150
Cash from operations	
	13,650

Cash Flow Statement (Cash Flow Analysis) 4.31

Cash out flow:	\
Purchase of land	5,000
Purchase of dividend	1,750
Repayment of debentures	3,000
Cash Balance on 31.12.2014	3,900
	13,650

Workings:**Cash flow Operations:**

	\
Profit for 2013	5,280
Profit for 2014	5,020
Add: Net profit for the current year	260
Dividend	1,750
Goodwill written off	2,500
Decrease in stocks	3,250
Increase in provision for doubtful debts	50
Increase in creditors	740
	8,550
Less: Increase in creditors	1,400
Cash flow operations	7,150

Illustration: 12

The following position of M/s. XYZ Ltd on 1st January and 31st December 2017 was as follows :

Liabilities	1 Jan.	31Dec.	Assets	1 Jan	31 Dec
	\	\		\	\
Current liabilities for goods	36000	40,600	Cash	4000	3600
Mrs. A's loan	–	20000	Debtors	35000	38000
Loan from bank	30,000	25,000	Stock	25000	22000
Hire purchase vendor	–	20000	Land	20000	30000
Capital	1,48,000	1,54,000	Buildings	50000	55000
			Machinery	80000	86000
			Delivery van	–	25000
	2,14,000	2,59,600		2,14,000	2,59,600

4.32 *Management Accounting*

The delivery van was purchased in December 2009 on hire purchase basis : a payment of `5000 was made immediately and the balance of the amount is to be paid in 20 monthly installments of `1000 each together with the interest @12% p.a. During the year the partners withdrew `26000 for domestic expenditure. The provision for depreciation against machinery as on 1st January 2017 was `27000 and on 31st December 2017 `36000. You are required to prepare the cash flow statement.

Solution:**Cash Flow Statement****For The Year Ended 31st December 2017**

Inflow of cash	`	Outflow of cash	`
Cash balance_1.1.2017	4,000	Repayment of bank loan	5,000
Loan from Mrs. A	20,000	Payment for delivery van	5,000
Cash inflow from operation (1)	45,600	Machinery purchased (4)	15,000
		Buildings purchased	5,000
		Land acquired	10,000
		Partner's withdrawal	26,000
		Cash balance_31.12.2017	3,600
	69,600		69,600

Workings:**1. Funds flow the operation:**

	`
Capital as on 31.12.2017	1,54,000
<i>Add:</i> drawings during the year	26,000
	1,80,000
<i>Less:</i> capital as on 1.1.2017	1,48,000
Profit for the year(4)	32,000
<i>Add:</i> depreciation for the year (Rs.36000-Rs.27000)	9,000
FFO	41,000

2. Cash flow operation:

	`
Funds from operations	41,000
<i>Add:</i> decrease in stock	3,000
<i>Add:</i> increase in creditors	4,600
	48,600
<i>Less:</i> increase in debtors	3,000
CFO	45,600

Illustration: 13

Prepare a cash flow statement of a corporation from the following information:

Balance sheets as on 1st January and 31st December 2018

	1 st January	31 st December
Current Assets:		
Cash and bank	40,000	44,400
Accounts receivable	10,000	20,700
Inventories	25,000	25,000
Land	4000	4,000
Business premises	20,000	16,000
Plant and equipment	15,000	17,000
Accumulated depreciation	(5,000)	(2,800)
Patents and trade marks	1,000	900
	1,10,000	1,25,200
Liabilities and Capital:		
Current liabilities	30,000	32,000
Bonds payable	32,000	32000
Bonds payable discount	(2000)	(1,800)
Capital stock	35,000	43,500
Retained earnings	15,000	19,500
	1,10,000	1,25,200

4.34 Management Accounting

Additional Information:

5. Income for the period was ` 10,000.
6. A building that costs Rs.4,000 and which had a book value of ` 1,000 was sold for ` 1,400.
7. The depreciation charged for the period was ` 800.
8. There was issue of capital stock for ` 5,000.
9. Cash dividend of ` 2,000 and a stock dividend for ` 3,500 were declared and paid.

Cash flow statement**For the year ended 31st december 2018**

	Rs.		Rs.
Cash and bank balance on 1st January 2009	40,000	Outflow of cash: Payment of cash dividend	2000
Add: Cash inflows:		Increase in Accounts Receivable (20,700-10,000)	10,700
Increase in current Liabilities(32,000-30,000)	2,000	Purchase of plant and Equipment	2,000
Issue of stock	5,000	Balance of cash and Bank on 31 st Dec., 2018	44,400
Sale of building	1,400		
Cash operating profit	10,700		
	59,100		59,100

1. Business Premises Account

	Rs.		Rs.
To Balance b/d	20,000	By cash (sale)	1,400
To Adjusted Profit and loss A/c (profit on sale)	400	By accumulated Depreciation A/c	3,000
		By balance c/d	16,000
	20,400		20,400

2. Plant and Equipment Account

	\		\
To Balance b/d	15,000	By balance c/d	17,000
To cash purchase (balancing figure)	2,000		
	17,000		17,000

3. Accumulated Depreciation Account

	\		\
To business Premises a/c	3,000	By balance B/d	5,000
To balance c/d	2,800	By Adjusted profit and loss A/c	800
	5,800		5,800

4. Patents and trade marks

	\		\
To balance b/d	1,000	Adjusting profit and loss A/c (balancing fig)	100
		By Balance c/d	900
	1,000		1,000

5. Bonds payable discount account

	\		\
To balance b/d	2,000	By adjusted profit and loss A/c (balancing fig)	200
		By balance c/d	1,800
	2000		2,000

6. Adjusted Profit and Loss Account

To Depreciation Account	1800	By balance b/d	15,000
To patents written off	100	By profit on sale of building	400
To discount on bond written off	200	By cash operating profit	10,700
To dividend	2000		
Cash	3500		
Stock	19500		
To balance c/d			
	26,100		26,100

Illustrative problems based on new format i.e., as per AS-

3 Illustration 14

From the information contained in Income Statement and Balance sheet of 'A' Ltd, prepare Cash Flow Statement.

Income Statement for the year ended March 31, 2016

Net Sales	(A)	2,52,00,000
Less:		
Cash cost of sales		1,98,00,000
Depreciation		6,00,000
Salaries and Wages		24,00,000
Operating Expenses		8,00,000
Provision for Taxation		8,80,000
	(B)	2,44,80,000
Net Operating Profit (A-B)		7,20,000
Non-recurring Income-Profits on sale of equipment		1,20,000
		8,40,000
Retained earnings and Profits brought forward		15,18,000
		23,58,000
Dividends declared and paid during the year		7,20,000
Profit and Loss A/C Balance as on March 31, 2016		16,38,000

Balance sheet as on

Assets	March 31, 2015	March 31, 2016
Fixed Assets:		
Land	4,80,000	9,60,000
Buildings and Equipment	36,00,000	57,60,000
Current Assets:		
Cash	6,00,000	7,20,000
Debtors	16,80,000	18,60,000
Stock	26,40,000	9,60,000
Advances	78,000	90,000
	90,78,000	1,03,50,000

Balance sheet as on

Liabilities and Equity	March 31, 2015	March 31, 2016
Share Capital	36,00,000	44,40,000
Surplus in Profit and Loss A/C	15,18,000	16,38,000
Sundry Creditors	24,00,000	23,40,000
Outstanding Expenses	2,40,000	4,80,000
Income – Tax payable	1,20,000	1,32,000
Accumulated Depreciation on Buildings and Equipment	12,00,000	13,20,000
	90,78,000	1,03,05,000

The original cost of equipment sold during the year 2015-16 was ₹.7,20,000.

Solution:**Working Notes:****1. Cash receipt from customers:**

		\
Sales revenue		2,52,00,000
Add: Debtor of beginning		16,80,000
		2,68,80,000
Less: Debtor at the end		18,60,000
Total cash receipt from customer		2,50,20,000

2. Income tax paid:

		\
Tax payable at beginning		1,20,000
Add: Provision for taxation		8,80,000
		10,00,000
Less: Tax payable at the end		1,32,000
Tax paid during the year		8,68,000

3. Cash paid to supplier and employee

		\	\
Cost of goods sold			1,98,00,000
Add: Operating expenses			8,00,000
Salary and wages			24,00,000
			2,30,00,000
Add: Creditor at the beginning	24,00,000		
Stock at the end	9,60,000		
Advance at the end	90,000		
Outstanding exp. At the beginning	2,40,000		36,90,000
			2,66,90,000
Less: Creditors at the end	23,40,000		
Stock at the beginning	26,40,000		
Advance at the beginning	78,000		
Outstanding expenses at the end	4,80,000		55,38,000
Total Cash paid			2,11,52,000

4. Accumulated depreciation on equipment sold

	\
Accumulated depreciation at beginning	12,00,000
Add: Depreciation for the year	6,00,000
	18,00,000
Less: Accumulated depreciation at the end	13,20,000
Accumulated depreciation on equipment sold	4,80,000

5. Sale price of equipment

	\
Cost Price	7,20,000
Less: Accumulated depreciation	4,80,000
	2,40,000
Add: Profit on sale	1,20,000
Sale price	3,60,000

6. Purchase of building and equipments

	\
Opening balance	36,00,000
Less: Cost of equipment sold	7,20,000
	28,80,000
Balance at end	57,60,000
Purchase during the year	28,80,000

Cash Flow Statement of A ltd. For the year ended 31st March 2016

	\	\
(A) Cash flow from Operating Activity:		
Cash receipt from customers	2,50,20,000	
Less: Cash paid to supplier and employees	2,11,52,000	
Cash generated from operation	38,68,000	
Less: Income tax paid	(8,68,000)	
Net cash from operating activity		30,00,000

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(B) Cash flow from Investing Activity:		
Purchase of land	(4,80,000)	
Purchase of building and equipment	(28,80,000)	
Sale of equipment	3,60,000	
Net cash used in financing activity		(30,00,000)
(C) Cash flow from financing activity:		
Issue of share capital	8,40,000	
Dividends paid	(7,20,000)	
Net cash from financing activity		1,20,000
Net increase in cash and cash equivalents		1,20,000
Cash and cash equivalents at beginning		6,00,000
Cash and cash equivalents at the beginning		7,20,000

Illustration 15

The Balance sheet of JK Ltd as on 31st march, 2015 and 31st march 2016 are given below:

Balance sheet as on

(Rs'000')

Liabilities	31.03.15	31.03.16	Assets	31.03.15	31.03.16
Share capital	1,440	1,920	Fixed Assets	3,840	4,560
Capital reserve	–	48	Less: Depreciation	1,104	1,392
General reserve	816	960	Net Fixed Asset	2,736	3,168
Profit & loss A/C	288	360	Investment	480	384
9% Debenture	960	672	Cash	210	312
Current liabilities	576	624	Other current assets		
Proposed dividend	144	174	(including stock)	1,134	1,272
Provision for tax	432	408	Preliminary expenses	96	48
Unpaid dividend	–	18			
	4,656	5,184		4,656	5,184

Additional Information:

2. During the year 2015-16, Fixed Assets with a book value of ₹2,40,000 (Accumulated depreciation ₹84,000) was sold for ₹1,20,000.
3. Provided ₹4,20,000 as depreciation.
4. Some investments are sold in a profit of ₹48,000 and profit was credited to Capital Reserve.
5. It decided that stocks be valued at cost, whereas previously the practice was to value stock at cost less 10 percent. The stock was ₹2,59,200 as on 31.03.15. The stock as on 31.03.16 was correctly valued at ₹3,60,000.
6. It decided to write off Fixed costing ₹60,000 on which depreciation amounting to ₹48,000 has been provided.
7. Debenture are redeemed at ₹105.

Required:

Prepare a Cash Flow Statement.

Solution:**Cash Flow Statement (as on 31st March, 2016)**

1. Cash flows from operating activities			
Profit and loss A/c (3,60,000- (2,88,000 + 28000))			43,200
Adjustments:			
Increase in general reserve	1,44,000		
Depreciation	4,20,000		
Provision for tax	4,08,000		
Loss on sale of machine	36,000		
Premium on redemption of debenture	14,400		
Proposed dividend	1,74,000		
Preliminary exp written off	48,000		
Fixed Assets written off	12,000		12,56,400
Funds flow operation			12,99,600
Increase in Sundry Creditors			48,000
Increase in Current assets(12,72,000 – (11,34,000 + 28,800))			(1,09,200)
Cash before tax			12,38,400
Tax paid			4,32,000
Net cash from operating expenses			8,06,400
2. Cash from Investing Activities			
Purchase of fixed assets		(10,20,000)	
Sale of investment		1,44,000	
Sale of fixed assets		1,20,000	(7,56,000)
3. Cash from financing activities			
Issue of share capital		4,80,000	
Redemption of debenture		(3,02,400)	
Dividend paid		(1,26,000)	51,600
Net increase in cash and cash equivalents			1,02,000
Opening cash and cash equivalents			2,10,000
			3,12,000

Working notes:**Fixed Assets Account**

Dr.	\`	Cr.	\`
Particulars		Particulars	
To balance b/d	27,36,000	By cash	1,20,000
To purchases (balancing figure)	10,20,000	By loss on sales	36,000
		By depreciation	4,20,000
		By assets written off	12,000
		By balance c/d	31,68,000
	37,56,000		37,56,000

Depreciation account

particulars	\`	Particulars	\`
To fixed assets (on sales)	84,000	By balance b/d	11,04,000
To fixed assets w/o	48,000	By profit and loss A/C	4,20,000
To balance c/d	13,92,000		
	15,24,000		15,24,000

7.7 USES AND IMPORTANCE OF CASH FLOW STATEMENT

Cash flow statement is very much useful for arriving in managerial decisions. It is also useful for proper financial management. The major advantages of cash flow statement are as follows:

4. Helps to evaluation of cash position and liquidity position of a firm.
5. Helps to efficient cash management. From cash flow statement, the management can know how much cash is required, from which source(s) the required cash will be obtained.
6. Helps to internal financial management. Cash flow analysis provides information about funds, which will be available from business operations. Thus, it will help the management in formulating policies like dividend policy.
7. A series of intra-firm and inter-firm cash flow statement reveal whether the firm's short-term solvency is improving or deteriorating over a period of time.
8. It helps to availing loan from banks and other financial institutions.

4.44 Management Accounting

5. It also helps to planning the repayment schedule of firm's obligations.
6. Cash flow analysis is more useful and appropriate than funds flow analysis for short- term financial planning and analysis.
7. Cash flow statement describes the complete movement of cash. It provides information as to movement of cash due to the operating, investing and financing activities during the particular period.
8. The extent of success or failure of cash planning can be known by comparing the actual cash flow statements with the projected cash flow and necessary remedial measures can be taken on time.

7.8 LIMITATIONS OF CASH FLOW STATEMENT

Cash flow statement is a device to analyse financial position of a concern. However, it has own limitations. The main limitations of cash flow are as under:

6. Cash flow statement ignores one of the basic accounting concepts called 'accrual concept'.
7. As it ignores accrual concept, the net cash flow does not necessarily mean net income of the business.
8. Cash flow statement is prepared on a narrow sense called 'cash' and as such it does not present a complete picture as funds, flow statement presents.
9. There is no scope for analyzing the profitability of a concern as non-cash items are ignored while calculating cash from operations.
10. Cash flow statement cannot replace either the income statement or the funds flow statement.

To Conclude

Cash flow statement is a useful tool to analyse financial position of a concern. This helps to the management for knowing about the amount of capital tied up in a particular segment of the business. Hence, despite its inherent limitations, cash flow statement has been widely used for short-term financial planning.

SELF ASSESSMENT QUESTIONS**Answers for Check your Progress****Understanding I Choose the correct answer**

iii. Cash flow operation is equal to

Net profit

Net Profit plus Non- cash expenses

Net profit minus Non-operating income

Net profit plus Non-cash and operating expenses and decrease in current assets and increase in current liabilities and minus increase in current assets and decrease in current liabilities and non- cash and non-operating incomes.

iv. A decrease in current assets leads to

(a) No change in cash position

(b) Inflow of cash

(c) outflow of cash

(d) None of the above

3 An increase in current liabilities results in -

(a) No movement

(b) inflow of cash

(c) outflow of cash

(d) None of these

3. Depreciation is

(a) Non –Cash expense

(b) Non – Operating expense

(c) cash expense

(d) Pre-paid expense

4. While computing cash flow operations, non-operating incomes are to be _____

(a) Add with the given net profit

(b) ignored

(c) subtracted

(d) All the above

6. Cash flow statement is useful for –

(a) Long-term planning (c) Short-term
planning

(b) Medium –term planning

(d) All the above

viii. The activities like goodwill written off, amortization of preliminary expenses and transfer of profit to general reserve are called –

Non- cash activities

Non – trading activities

Cash activities

Operating activities

4.46 *Management Accounting*

- g. Decrease in debtors amounts to
- | | |
|------------------------|--|
| (a) increase in cash | (b) decrease in cash |
| (c) No changes in cash | (d) both increase and decrease in cash |
- d. Increase in bank overdraft causes
- | | |
|-------------------------|--|
| (a) cash inflow | (b) cash outflow |
| (c) Non changes in cash | (d) both increase and decrease in cash |
10. Cash flow operation is an
- | | |
|------------------------------|-----------------------------|
| (a) application of cash | (b) internal source of cash |
| (c) external sources of cash | (d) None of these |
11. Which of the following is internal source of cash?
- | | |
|------------------------|---------------------------|
| (a) issue of shares | (b) Borrowings from banks |
| (c) sale of investment | (d) cash from operations |
12. Which of the following is not an application of cash?
- | | |
|------------------------------|--------------------------|
| (a) Purchase of fixed assets | (b) Payment of Tax |
| (c) Redemption of debentures | (d) Cash from operations |

Answers: 1. (d) 2. (b) 3. (b) 4. (a) 5. (c) 6. (c) 7. (a) 8. (a) 9. (a) 10. (b)
(d) 12. (d)

II. Fill in the blanks with appropriate words.

- 2 Cash flow statement reveals the inflows and outflows of _____.
- 3 Cash includes cash on hand and _____ deposit with the banks.
- 4 Cash payments to suppliers of raw materials are classified as cash flow from _____ activities.
- 5 Decrease in debtors is an _____ of cash.
- 6 Decrease in creditors is an _____ of cash.

Answers:

1. **Cash; 2. Demand; 3. Operating; 4. Inflow; 5. Outflow .**
8. State whether the following statement are 'true' or 'false'.
6. Cash flow statement is not based on accrual basis of accounting
7. Cash flow statement is a substitute of income statement.

- B Cash equivalents are highly liquid short-term investment.
- C Cash flow operations and funds from operation are one and the same.
- D Cash flow statement reveals the effect of business transactions involving movement of cash.
- E Depreciation is to be added back with net profit in order to find out cash from operations.
- F Cash flow statement is useful for long-term financial planning.
- G Decrease in stock results is inflow of cash.
- H Decrease in bills payable results is inflow of cash
- I Cash lost in operation is an application of cash.

Answers: 1. True 2.False 3.True 4.False 5. True
6. True 7. False 8.True 9.False 10. True

IV. Short Answer Questions

- B What do you mean by cash flow statement?
- C What is meant by cash flow operations?
- D What are the external sources of cash?
- E What are the applications of cash?
- F State any three differences between funds flow statement and cash flow statement.
- G How would you compute cash flow operations?
- H State any three operating activities.
- I Give any three limitations of cash flow statement.
- J What are financing activities?
- K What do you mean by cash equivalents?

V. Essay Type Questions

- 11. Distinguish between cash flow statement and funds flow statement.
- 12. Explain the uses of cash flow statement
- 13. Explain the procedure of preparing cash flow statement.
- 14. Explain the various sources and applications of cash.
- 15. Explain the implications of changes in current assets and current liabilities on cash flows.

VI. Discussion Questions

- W. “Cash flow statement is an important technique of financial analysis”. Discuss.
- X. ‘When all transaction are cash transactions, cash from operation is equal to net profit.’ Discuss.
- Y. ‘When there are no changes in current assets and current liabilities, cash from operation is equal to funds from operation’. Do you agree? Give reasons to your answer.

VII. Case Analysis

- B From the following find out the cash flow operations.

Profit and loss A/c

	₹		₹
To salaries	2,000	By gross profit	10,000
To rent	1,000	By profit on sale of plant	4,000
To depreciation	1,500	By income tax refund	2,000
To loss on sale plant	1,000		
To good will written off	1,000		
To proposed dividend	3,500		
To provision for taxation	2,500		
To net profit	3,500		
	16,000		16,000

Ans: Cash flow operations Rs.7000

2. Calculate cash flow operations from the following profit & loss A/c

Particulars	₹	Particulars	₹
To operations	1,00,000	By gross profit	2,20,000
To depreciation	40,000	By gain on sale of plant	20,000
To loss on sale of building	10,000		
To advt. suspense A/c	5,000		
To discount (allowed to customer)	500		
To discount on issue of shares written off	500		
To goodwill written off	12,000		
To net profit	72,000		
	2,40,000		2,40,000

Ans: Cash flow operations ₹1,19,500

W. The following were the balance sheets of Anand&Blau as on 1.1.2018 and 31.12.2018

Balance sheet

Liabilities	1.1.2018	31.12.2018	Assets	1.1.2018	31.12.2018
Creditors	45,000	49,000	Cash	10,000	7,000
Mrs. Anand's loan	20,000	–	Debtors	30,000	50,000
SBI Loan	40,000	50,000	Stock	40,000	35,000
Capital	1,25,000	1,53,000	Machinery	1,00,000	90,000
Provision for depreciation	25,000	40,000	Land	40,000	50,000
			Building	35,000	60,000
	2,55,000	2,92,000		2,55,000	2,92,000

Additional information

During the year a machine `10000 was sold without any loss . Net profit for the year 2009 amounted to `45,000. Prepare a cash flow statement

Ans: Cash flow operations `49,000; Cash Flow statement `79,000.

3. From the following balance sheets and other data, prepare a cash Flow statement.

Liabilities	2017	2018	Assets	2017	2018
Share capital	1,00,000	1,20,000	Building & machinery	1,24,000	1,38,000
Reserves	26,500	12,000	Advances	8,000	12,000
10% Debentures	30,000	40,000	Stock	36,000	39,180
Accrued Debenture Interest	600	800	Debtors	30,000	36,000
Proposed Dividend	10,000	12,000	Goodwill	4,000	6,000
Unclaimed Dividend	1,200	800	Discount on debtors	800	1,000
Depreciation fund	25,000	35,160			
Stock provision	1,600	1,900			
Provision for tax	3,900	3,520			
Creditors	4,000	6,000			
	2,02,800	2,32,180		2,02,800	2,32,180

4.50 Management Accounting

Additional Information:

- f. Net loss is `2,500 for the year 2018.
- g. Debentures have been issued at 5% Discount.
- h. Machinery costing `4,100(accumulated depreciation `3,200)has been discarded and written off at the end of the year, the scarp was sold for `60.
- i. Machinery purchased for cash amounting to `8,000
- j. A running business was purchased in 2009, by the issue of `20,000 shares at par. The business had machinery `6,000; stock `8,000; Debtors `8,000 and creditors `7,000
- k. No Shares were issued for cash.

Ans: (FFO=`18,520, CFO = ` 16,440, CFS Total ` 26,000)

4. A Company finds on 1st jan.2010 that it is facing shortage of funds with which to implement its expansion programme. on 1st Jan, 2009 it has bank balance of `1,80,000. Form the following information; prepare a statement for the board of directors to show how the overdraft of `68, 750 as at 31.12.2009 has arisen. (Figures as per the balance as on 21st December.

	31.12.2008	31.12.2009
Fixed Assets	7,50,000	11,20,000
Stock & Stores	1,90,000	3,30,000
Debtors	3,38,000	3,35,000
Bank balance	1,80,000(Dr)	68,750(Dr)
Trade creditors	2,70,000	3,50,000
Share capital in shares of Rs.10 each	2,50,000	3,00,000
Bills Receivable	87,500	95,000

The profit for the year ended 31st dec., 2009 before charging depreciation taxation amounted to `2,40,000.5,000 shares are issued by on 1st nov 2009 at a premium of `5/- per shares. `37,500 was paid in march,2009 by way of income tax. Dividend was paid as follows:2008(final) on capital at 31.12.2008 less tax 25% .2009 interim 5% free of tax.

Ans(FFO=2,40,000; CFO = Rs. 2,17,500; CFS Total: Rs. 5,41,250)

6. From the following balance sheet of Ashok Ltd., prepare a cash flow statement

Liabilities	2008	2009	Assets	2008	2009
Equity share capital	3,00,000	4,00,000	Good will	1,00,000	80,000
8% Redeemable			Land & buildings	2,00,000	1,70,000
Pref. Share capital	1,50,000	1,00,000	Plant	80,000	2,00,000
Capital Reserve	–	20,000	Investment	20,000	30,000
General Reserve	40,000	50,000	Sundry debtors	1,40,000	1,70,000
Profit & Loss A/c	30,000	48,000	Stock	77,000	1,09,000
Proposed Dividend	42,000	50,000	Bills Receivable	20,000	30,000
Sundry creditors	25,000	47,000	Cash in hand	15,000	10,000
Bills payable	20,000	16,000	Cash at bank	10,000	8,000
Liability for expense	30,000	36,000	Preliminary expense	15,000	10,000
Provision for Taxation	40,000	50,000			
	6,77,000	8,17,000		6,77,000	8,17,000

Additional Information:

5. A piece of land had been sold out in 2009 and profit of sale has been credited to capital reserve.
6. Machine has been sold for `10,000. The written down value of the machine was `12,000. Depreciation of `10,000 is charged on plant account in 2009.
7. The investments are trade investments. `8,000 by way of dividend is received `1,000 from pre-acquiring profit which has been credited investment account.
8. An interim dividend of `20,000 has been paid on 2009.

Ans (FFO=`2,19,000; CFO = `1,65,000; CFS Total: `3,53,000)

4.52 Management Accounting

6. Following are the summarized balance sheets of vignesh Ltd. As on 31.12.2008 & 31.12.2009.

Balance sheet

Liabilities	31.12.2008	31.12.2009	Assets	31.12.2008	31.12.2009
Share capital	1,40,000	1,40,000	Goodwill	18,200	10,000
Reserve fund	29,960	36,400	Buildings	65,250	63,000
P & LA/c.	23,800	22,400	Plant & machinery	53,592	58,842
Sundry creditors	13,000	8,000	Investments	14,000	15,750
O/s Expense	650	932	Stock	42,000	39,200
Tax provision	26,600	29,400	Debtors	30,800	39,000
Provision for Doubtful debts	1,400	1,680	Prepaid expenses	98	420
			Cash in hand	8,000	7,800
			Cash in bank	3,200	4,800
	2,35,410	2,38,812		2,35,410	2,38,812

Prepare a cash flow statement for the year ending 31st December, 2009, considering the following information:

7. Interim Dividend paid during the year `7,000.
8. Deprecation on plant and machinery charged during the year `4,270.
9. Provision for doubtful debts provided during the year `.280.
10. Income tax paid during year `.25,200.
11. Machinery purchased during the year `.7,000.
12. During the year 2009, the investment costing `7,000 was sold for `6,720 and purchased during the year `8,750.

Ans: (FFO=`56,620; CFO: `46,220; CFS Total: `64,140)

5. Inigo industries Ltd. supplies you the following balance sheets on 31st Dec., 2008 and 2009.

Liabilities	2008	2009	Assets	2008	2009
Share capital	70,000	74,000	Bank balance	9,000	7,800
Bonds	12,000	6,000	Accounts receivable	14,900	17,700
Accounts payable	10,360	11,840	Inventories	49,200	42,700
Provision for doubtful Debts.	700	800	Land	20,000	30,000
Reserves & surplus	10,040	10,560	Goodwill	10,000	5,000
	1,03,100	1,03,200		1,03,100	1,03,200

Following additional information has also been supplied to you:

- e. Dividends amounting to `3,500 were paid during the year 2009
- f. Land was purchased for `10,000.
- g. `5,000 were written off on account of goodwill during the year.
- h. Bonds of `6,000 were repaid during the course of the year. You are required to prepare a cash flow statement.

Ans: (FFO= `9,120; CFS total=`30,100)

8. Exercise problems based on new format

The balance sheets of a company as on 31st march, 2015 and 2016 are given below:

Liabilities	31.03.15	31.03.16	Assets	31.03.15	31.03.16
Equity share capital	14,40,000	19,20,000	Fixed assets	38,40,000	45,60,000
Capital reserve	–	48,000	Less: Depreciation	11,04,000	13,92,000
General reserve	8,16,000	9,60,000		27,36,000	31,68,000
Profit and loss A/C	2,88,000	3,60,000	Investment	4,80,000	3,84,000
9% Debentures	9,60,000	6,72,000	Sundry debtors	12,00,000	14,00,000
Sundry Creditors	5,50,000	5,90,000	Stock	1,40,000	1,84,000
Bills payable	26,000	34,000	Cash in hand	4,000	–
Proposed dividend	1,44,000	1,72,800	Preliminary expenses	96,000	48,000
Provision for tax	4,32,000	4,08,000			
Unpaid dividend	–	19,200			
	46,56,000	51,84,000		46,56,000	51,84,000

4.54 *Management Accounting***Additional information:**

During the year ended 31st March, 2016 the company:

9. Sold a machine for ₹1,20,000; the cost of machine was ₹2,40,000 and depreciation provided on it was ₹84,000.
10. Provided ₹4,20,000 as depreciation on fixed assets.
11. Sold same investment and profit credited to capital reserve.
12. Redeemed 30% of the debenture @ ₹105.
13. Decided to write off fixed assets costing ₹60,000 on which depreciation amounting to ₹48,000 has been provided.

You are required to prepare Cash flow statement as per AS-3.

ANS: Cash inflows from operating activities ₹7,59,680, Cash out flows from investing activities (₹7,56,000), Cash out flow from financing activities (₹7,680)

10. The summarized balance sheet of XYZ ltd as at 31st March, 2015 and 2016 are given below:

Liabilities	2015	2016	Assets	2015	2016
Preference share capital	4,00,000	2,00,000	Plant and machinery	7,00,000	8,20,000
Equity share capital	4,00,000	6,60,000	Long term investment	3,20,000	4,00,000
Share premium A/C	40,000	30,000	Goodwill	–	30,000
Capital Redemption Reserve	–	1,00,000	Current assets	9,10,000	11,41,000
General Reserve	2,00,000	1,20,000	Short term investments (less than 2 months)	50,000	84,000
P & I A/C	1,30,000	1,75,000	Cash and bank	1,00,000	80,000
Current liabilities	6,40,000	9,00,000	Preliminary expenses	40,000	20,000
Proposed dividend	1,60,000	2,10,000			
Provision for tax	1,50,000	1,80,000			
	21,20,000	25,75,000		21,20,000	25,75,000

Cash Flow Statement (Cash Flow Analysis) 4.55

Additional information:

During the year 2016 the company:

- iii. Preference share capital was redeemed at a premium of 10% partly out of proceeds issue of 10,000 equity shares of `10 each issued at 10% premium and partly out of profits otherwise available for dividends.
- iv. The company purchased plant and machinery for `95,000. It also acquired another company stock `25,000 and plant and machinery `1,05,000 and paid `1,60,000 in Equity share capital for the acquisition.
- v. Foreign exchange loss of `1,600 represents loss in value of short term investment.
- vi. The company paid tax of `1,40,000.

You are required to prepare Cash Flow statement.

Ans: (Cash flow from Operating activities `4,60,600, Cash flow from Investing activities (`1,75,000), Cash flow from Financing Activities (`2,70,000))

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Glossary

- **Financial Statements:** Documents that summarize a company's financial activities and position over a specified period.
- **Funds Flow Statement:** Analyzes changes in financial position by tracking sources and uses of funds.
- **Cash Flow Statement:** Reports cash inflows and outflows categorized into operating, investing, and financing activities.
- **Adjusted Profit and Loss Account:** Income statement adjusted for non-cash items and changes in working capital.
- **Working Capital:** Current assets minus current liabilities, indicating the company's short-term liquidity position.
- **AS 3:** Accounting Standard 3, governing the preparation of Cash Flow Statements in accordance with specified guidelines.
- **Operating Activities:** Cash flows related to a company's main business operations.
- **Investing Activities:** Cash flows from buying or selling assets for investment purposes.
- **Financing Activities:** Cash flows from transactions with shareholders and creditors.

UNIT IV
BUDGETS AND BUDGETARY CONTROL

Unit Objectives

. Budgeting is a fundamental financial management tool that involves planning, controlling, and evaluating financial resources to achieve organizational goals. Various types of budgets, such as the cash budget, flexible budget, production budget, and sales budget, serve specific purposes in financial planning and control. Master budget integrates these budgets into a comprehensive plan for the organization. Budgetary control involves monitoring actual performance against budgets to manage costs and improve operational efficiency, contributing to overall organizational success and financial health.

PRELUDE

The primary purpose of management accounting is assisting to goal of maximizing profit with minimum cost. Cost could be curtailed in many ways. One of the techniques of cost control is called budgetary control. As the name implies, budgetary control means exercising control over costs through budgets. A budget is a quantitative statement prepared for a definite period with a definite purpose. It is a pro-active measure based on the maxim of 'prevention is better than cure'. There are several functional budgets each having a specific function like cash budget which is prepared and used for ensuring efficient cash management, production budget which aims in performing production function so smoothly and successfully. Let us see the concept, importance, functions, limitation of budgetary control in the ensuing passages and pages.

CONCEPT OF BUDGET, BUDGETING AND BUDGETARY CONTROL**Budget**

A budget is an agreed plan for future action. It is a quantitative expression of a plan of action prepared in advance of the period, to which it is related.

A budget is a plan expressed in quantitative and monetary terms covering a definite period of time, usually one year.

Budgeting

Budgeting refers to the whole process of preparing, implementing and monitoring budgets. Budgeting is the whole process through which a budget gets prepared and implemented.

Budgetary Control

The exercise of control over the resources of an organization through budgets is called budgetary control. Budgetary control is a process which comprises of three phases/stages namely-

8. Preparation of various budgets;
9. Persistent comparison of actual performance with budgeted performances, and
10. Preparation of revised budgets based on changed circumstances.

DEFINITIONS OF BUDGET, BUDGETING AND BUDGETARY CONTROL

ICMA defines the term budget 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 for the purpose of attaining a given objective”.

“Budgeting is the preparation of comprehensive, operating and financial plans for specific intervals of time”.

–Shillinglow.

“Budgetary control is defined as the establishment of budgets relating to the responsibilities of executives to the requirement of a policy and the continuous comparison of actual with budgeted results either to secure by individual action the objective of that policy or to provide a basis for its revision”

–KMA, England and Wales

In short, budgetary control means laying down in monetary and quantitative terms what exactly has to be done and how exactly it has to be done over the coming period and then to ensure that actual results do not deviate from the planned course of action.

Budgeting and Budgetary Control

Preparation of budgets or budgeting is a planning function and their application or implementation is a control function. The activity involved in both the functions constitutes budgetary control.

Budgetary control starts with budgeting and ends with control.

OBJECTIVES OF BUDGETARY CONTROL

Budgeting is a forward planning. Budgetary control aims in helping the management in making estimates for carrying out its various functions. The chief objectives of budgetary control are:

1. Planning

To forecast the future and plan accordingly so as to maximize profits.

2. Co-ordination

To bring about co-ordination are different departments of a concern.

3. Control

To exercise control to ensure that actions are in synchronization with targets and also to take suitable corrective measures if necessary.

STEPS INVOLVED IN BUDGETARY CONTROL

The following steps are involved in the whole process of budgetary control:



Laying down the objectives to be achieved by the business;



Formulating the necessary plans to ensure that the desired objectives are achieved;



Translating plans into budgets;



Relating the responsibilities of executives to the budgets or particular sections of the same;



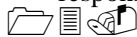
Continuous comparison of actual results with the budgets, and the ascertainment of deviations;



Investigation into the deviations to establish the curves;



Presentation of information to management relating the variances to individual responsibility; and



Corrective action of management to prevent recurrence of variances.

Thus, the steps involved in budgetary control could be confined to the word of 'acronym' called "LFTRCIPC".

ESSENTIALS OF EFFECTIVE SUCCESSFUL BUDGETARY CONTROL

Budgetary control can be effectively exercised and successfully carried out only when certain conditions prevail. The following are the essentials i.e; requisites for the successful implementation of budgetary control:

- 3. Support of Top Management:** Budgeting alters the method and working habits of the personnel, their inter-relationship, etc., As such, there is bound to be some resistance to change. Further, budgets should be prepared and implemented by every manager. Hence, budgeting should have the full support and co-operation of

5.4 *Management Accounting*

every member of the management team. However, the impetus and direction should come from the top. The wholehearted support of top management is bound to ensure the active support of the line managers also.

- 10. Formal Organization:** Budgetary control can be effective if every executive knows clearly the scope of authority and responsibility. Further, organization and control are inseparably linked together and they cannot function properly without each other if there is to be effective management. It is, therefore, necessary to have a formal, sound organizational structure with authority relationships and assignment of responsibility.
- 11. Preparation by Responsible Executives:** Every executive responsible for the implementation of budgets should be given an opportunity to take an active part in the preparation of budgets. In other words, subject to the control of the Budget Director and Budget Committee, those who are responsible for performance should be made responsible for the preparation of budgets.
- 12. Well Defined Objectives and Reasonably Attainable Goals:** The success of budgetary control programme depends upon the care with which budget goals are set. Not only should the objectives and policies be clear and unambiguous, the objectives should represent goals which are not only realistic but also reasonably capable of attainment.
- 13. Budget Committee:** The responsibility for preparing and implementing the budgets should be entrusted to a budget committee consisting of top management and all the line managers responsible for the various business functions. The committee should be presided over by one of the top management personnel, to be called the Budget Director.
- 14. Comprehensive Budgeting:** Budgeting should not be partial, covering one or two business functions, but it should cover all phases of operations. Further, budgeting should not be a temporary phenomenon. Once budgeting is taken up, it should be made permanent so that it becomes perpetual.
- 15. Adequate Accounting System:** Since historical data form basis for the estimates, those who are involved in the preparation of estimates depend heavily on the accounting department. Further, figures in respect of actual costs and revenue are periodically compared with those of the budgeted figures. Hence, the budget procedures should be developed in such a way that they employ the same classification of accounts in respect of revenue and expenses as those of the accounting departments.
- 16. Periodic Reporting:** For budgetary control to be effective, it is necessary to develop a prompt and timely communication and reporting system. A periodical comparison of the actual performance with the budgeted performance may reveal variances should be reported by those responsible for execution to their superiors

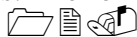
and, in turn, get instructions for correction of the deviations communicated to them.

8. **Budget Education.** Successful implementation of budgets depends, to a very large extent, upon the interest evinced by the supervisory personnel. The best way of making them activity interested in the budgetary control programme is to impart to them a continued budget education, by briefing them on the objectives, potentials and techniques of budgeting.
9. **Recognition of Uses and Limitations of Budgeting:** It is necessary for everyone in the organizational structure, responsible for the preparation and implementation of budgets, to understand clearly the usefulness and limitations of budgeting. No one should entertain the feeling that the budget is imposed upon him and that he should entertain the feeling that the budget is imposed upon him and that he should participate mechanically in its preparation and administration regardless of whether he likes it or not. On the contrary, he basic managerial functions and limitations also.

ORGANISATION FOR BUDGETARY CONTROL

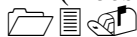
CLASSIFICATION OF BUDGETS

Depending upon the various bases adopted, there are number of classification of budgets. The following four general bases are adopted:



Coverage Basis

(Does the budget cover all functions or individual functions?)



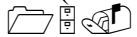
Flexibility Basis

(Is the budget a fixed one or is it adjustable?)



Characteristics of Activity Basis

(Does the budget cover capital items and/or revenue items?)



Time span Basis

(Is it long range or short range?)

Budgets are classified into different types on the basis of function, flexibility, feature and time. The different types of budgets included under each basis are shown in the following chart:

5.6 *Management Accounting*

Classification of Budgets			
Function	Flexibility	Features	Time
Material	Flexible	Capital	Long-term
Purchase	Fixed	Revenue	Short-term
Production			Current
Overheads			Rolling
Cost of Production			
Sales			
Personnel			
Research and Development			
Cash			
Master			

I. Coverage Basis

Under this basis, budgets are broadly classified as functional budgets and master budget. A functional budget is one which relates to any of the functions of an organization such as production, sales, research and development. All function or activities of an organization are interrelated. The forecasts for individual activities are prepared and coordinated with those of other activities and then consolidated to show the total effect of all the activities of the concern as a whole. For example: the activities of purchase, production and sales are highly interrelated.

The most important functional budgets are:

- Materials budget
- Purchase budget
- Production budget
- Overhead budget
- Cost of production budget
- Sales budget
- Personnel budget
- Research and Development budget
- Cash budget
- Master budget

The consolidation of all functional budgets is known as the “Master Budget”.

II. Flexibility Basis

Under this basis, budgets are of two types namely flexible budget and fixed budget.

Flexible budget

Flexible budget is one which is designed to change with the level of activity actually attained. A flexible budget gives different budgeted costs for different levels of activity.

Fixed budget

This budget is drawn for one level of activity and one set of conditions. It is a rigid budget and is drawn on the assumption that there will be no change in the budgeted level of activity.

III. Characteristics of Activity Basis

Under this basis, the two types of budgets are capital and revenue budgets,

Business activity involves two processes and as such two characteristics. They are:

- (i) Creation of the facility for doing the business; and
- (ii) Execution of the business operations.

In large manufacturing concerns, the former characteristic feature or process is found to a greater extent. Planning is primarily done for constructive activities – creation of manufacturing facilities, repair facilities, etc. Budgets in respect of these activities are called capital budgets.

Revenue budgets are concerned with routine activities such as purchase, production and sales.

IV. Time span Basis

Under this basis, budgets are classified into two namely short range budget and long-range budget.

Short – term budgets are normally for a year and long-term budgets extend normally from 5 to 10 years

PREPARATION OF FUNCTIONAL BUDGETS

Let us see the concept and the procedure of preparing a few important functional budgets in the subsequent passages/pages.

Sales Budget

Sales being the principal budget factor, sale budget is the most important budget and forms the **basis** on which all the other budgets are built up. This budget is a forecast of quantities and values of sales to be achieved in a budget period. Every effort should be made to ensure that its figures are as accurate as possible because this is usually the **starting budget** (sales being limiting factor on which all the other budgets are built up) .The sales manager should be made directly responsible for the preparation and execution of the budget.In the preparation of the sales budget, the sales manager should take into consideration the following factors:

- (1) **Past Sales Figures and Trends:** The compiler of the sales budget should be assisted by graphs recording sales of the previous year and the general sales trend (upward and downward) should be noticed from the graphs .The record of previous year’s sales is the most reliable basis as to future sales as the past performance is based on actual business conditions . butin addition to past sales, other factors affecting future sales, e.g., seasonal fluctuations, growth of market, trade cycle etc., should be considered in the preparation of the sales budget.
- (2) **Salesmen’s Estimates:** In preparing the sales budget, the sales manager should consider the estimates of sales received from salesmen because they can make more accurate estimates, being in direct contact with the customers .However, it should be seen that salesmen’s estimates should neither be over –optimistic nor too conservative.
- (3) **Plant Capacity:** The budget should be within the plant capacity available and should ensure proper utilisation of plant facilities .Proposed plant extensions should be allowed for in the preparation of the sales budget.
- (4) **Availability of Raw Material and Other Supplies:** Adequate supply of raw materials and other supplies should be ensured before preparing the sales estimates. Sales estimates should be adjusted according to the availability of raw material if the raw materials are in short supply.
- (5) **General Trade Prospects:** The probability of the sales going up or down depends on the general trade prospects. In this connection, valuable information may be gathered from financial papers and magazines such as the Economic Times, the Financial Express, and the like.
- (6) **Orders in Hand:** In boom periods or where production is a very lengthy process, the value of orders in hand may have considerable influence on the amount of sales to be budgeted.
- (7) **Seasonal Fluctuations:** In the preparation of the sales budget, seasonal fluctuations should be considered because sales are affected by these fluctuations. In order to have an even flow of production .efforts should be made to minimize

the effects of seasonal fluctuations on sales by giving special concessions or added inductions during the off-season.

- (8) Financial Aspects:** The sales budget should be within the financial capacity of the concern. Sales expansion usually requires an increase in capital outlay. Thus, if any big sales expansion is planned, it must be ensured that facilities are available to finance the operations.
- (9) Adequate Return on Capital Employed:** The sales volume budgeted should produce an adequate return on the capital employed.
- (10) Competition:** The nature and degree of competition within the industry should be considered in the preparation of the sales budget to have a realistic sales budget capable of being achieved in the face of competition.

Illustration 1.

A manufacturing company submits the following figures of product 'X' FOR THE FIRST QUARTER OF 2016:

Sales (in units)	January	50,000
	February	40,000
	March	60,000

Selling price per unit `100

Target of 1st Quarter 2017

Sales quantity increases by 20%

Sales price increases by 10%

Prepare Sales Budget for the first quarter of 2017.

Solution

Sales Budget

For the first quarter, 2017

Month	Units	Price per unit	Value
January	60,000	110	66,00,000
February	48,000	110	52,80,000
March	72,000	110	79,20,000
	<u>1,80,000</u>		<u>1,98,00,000</u>

5.10 Management Accounting

Illustration: 2

Shri Ram Company Ltd., manufactures two products X and Y. Its sales department has three divisions: East, West, North. Preliminary sales budgets for the year ending 31st December 2018 based on the assessments of the divisional managers were-

Product X: East-3, 00,000 units: West-6,00,000 units and North-1,50,000 units.

Product Y : East – 4,00,000 units: West – 5,00,000 units and North – Nil

Sales price = X: `5 and Y : `4 in all areas.

Arrangements are made for the extensive advertising of products X and Y and it is estimated that East division sales will increase by 1, 50,000 units. Arrangements are also made to advertise and distribute product Y in the Northern area in the second half of 2018 when sales are expected to be 6,00,000 units.

Since the estimated sales of the West division represented an unsatisfactory target, it is agreed to increase both the estimates by 20%.

Prepare a sales budget for the year up to 31st Dec.2018.

Shri Ram Co.Ltd.**Sales Budget for the Year 2018**

Divisions	Product 'X'			Product 'Y'			Total
	Quantity	Price	Value	Quantity	Price	Value	
East	4,50,000	5	22,50,000	5,50,000	4	22,00,000	44,50,000
West	7,20,000	5	36,00,000	6,00,000	4	24,00,000	60,00,000
North	1,50,000	5	7,50,000	6,00,000	4	24,00,000	31,50,000
	13,20,000		66,00,000	17,50,000		70,00,000	1,36,00,000

Production budget

Production budget is a forecast of the total output of the whole organization broken down into estimates of output of each type of product with a scheduling of operation (by weeks and months) to be performed and a forecast of the closing finished stock. This budget may be expressed in quantitative (weight, units etc.) or financial (rupees) units or both. This budget is prepared after taking into consideration the estimated opening stock, the estimated sales and the desired closing finished stock of each product. Suppose, if the estimated opening stock of product X is 2,000 units and the estimated sales is 15,000 units and the closing stock of the product is 2,500 units the estimated production will be 15,000+2,500 – 2,000 (Sales +

Closing stock – Opening stock) = 15,500 units. The **works manager** is responsible for the total production budget and the **departmental managers** are responsible for the departmental production budget. In preparing the production budget, the following factors are to be considered:

- (1) The time lag between the production in the factory and sales to the customer should be considered so as to allow for the time required for the dispatch of goods from the factory to the place of the customers.
- (2) The stock of good to be maintained both in the factory's warehouse and in the sales centres.
- (3) The level of production needed to meet the sales programme. Monthly production targets should be fixed and it should be seen that production is kept more or less at a uniform level throughout the year. Planning the level of production involves the answers of four questions:
 - (a) What is to be produced?
 - (b) When it is to be produced?
 - (c) How it is to be produced?
 - (d) Where it is to be produced?

The material, labour and plant requirements should be ascertained to have the desired production to meet the sales programme.

The sales and the production budget are inter-dependent because production budget is governed by the sales budget and the sales budget is largely determined by the production capacity and production cost.

Illustration: 3

A manufacturing company submits the following figures relating to Product X for the first quarter of 2018

Sales Targets: January	60,000 units
February	48,000 units
March	72,000 units

Stock position: 1st January 2018 (% of January 2018 sales) - 50%

Stock position: 31st March, 2018 - 40,000 units

Stock position: End of January & February - 50%

(% of subsequent Month's Sales)

You are required to prepare production budget for the first quarter of 2018.

Solution:**Production Budget for the I Quarter for 2018**

Month	Sales (Units)	+ Closing Stock (Units)	–Opening Stock (Units)	Production (Units)
January	60,000	24,000	30,000	54,000
February	48,000	36,000	24,000	60,000
March	72,000	40,000	36,000	76,000
				1,90,000

Illustration: 4

From the following particulars, prepare a production budget of Sonysales corporation for the year ended June 30, 2017.

Product	Sales (units) (as per sales budget)	Estimated stock (units)	
		June 1, 2016	June 30, 2017
A	1,50,000	14,000	15,000
B	1,00,000	5,000	4,500
C	70,000	8,000	8,000

Solution**Sony Sales Corporation****Production Budget (In units) for the Year 30-6-2017**

	Products			
	A	B	C	Total
Budgeted sales	1,50,000	1,00,000	70,000	3,20,000
Add : Estimated closing stock	15,000	4,500	8,000	27,500
Total requirement	1,65,000	1,04,500	78,000	3,47,500
Less : Opening stock	14,000	5,000	8,000	27,000
Production (i.e., units to be produced)	1,51,000	99,500	70,000	3,20,500

Illustration: 5

A company manufactures two products X and Y. A forecast for the number of units to be sold in the first four months of the year is given below:

	Product X (units)	Product Y (units)
January	3,000	6,000
February	3,400	6,000
March	4,200	5,200
April	5,000	4,400

It is anticipated that (i) there will no work-in-progress in the end of any month and (ii) finished units equal to half the sales for the next month will be in stock at the end of each month (including previous December). Prepare for the three months endings March 31, a production budget for each month.

Solution**Production Budget for the First Quarter Ending March 31st.**

	Product X			Product Y		
	January (units)	February (units)	March (units)	January (units)	February (units)	March (units)
Budgeted sales	3,000	3,400	4,200	6,000	6,000	5,200
Add: Closing stock	1,700	2,100	2,500	3,000	2,600	2,200
Total requirement	4,700	5,500	6,700	9,000	8,600	7,400
Less: Opening stock	1,500	1,700	2,100	3,000	3,000	2,600
Budgeted production (i.e., units to be produced)	3,200	3,800	4,600	6,000	5,600	4,800

Cash budget

Cash budget is one of the important functional budgets which is generally prepared last of all, as the cash budget depends to a greater extent on other functional budgets such as sales budget and production budget. This budget gives an estimate of the anticipated cash receipts and cash payments during the budget period.

Planning cash and controlling its sources and uses are important tasks. If the future cash flows are not properly anticipated, there will be both idle cash as well as deficit of cash. The cash budget is a summary of the firm's expected cash inflows and outflows over a particular period of time

5.14 *Management Accounting*

A cash budget helps to the management in...

- ❖ Estimating the future cash requirements of the concern
- ❖ Planning for retaining those required cash
- ❖ Exercising control over cash so as to maintain liquidity of the concern.

The importance of preparing a cash budget may be more in some cases than in other. For example, in trades where there are wide seasonal fluctuations and where contracts are undertaken for a longer period. This budget helps to the management have negotiation with banks for availing bank loan or overdraft and thereby cash budget avoids potential financial strains.

Illustration: 6

Using the information below, prepare a cash budget showing expected cash receipts and disbursements for the month of June and balance expected on June 30, 2017:

Budgeted cash balance June 1, 2017 ₹1,20,000. Sales for June ₹16,00,000, half collected in the month of sale, 40% in next month, 10% in third month.

Customer receivables as of June 1 ₹1,40,000 from April sales, ₹9,00,000 from May sales.

Merchandise purchased for June ₹10,00,000, 40% payment in the month of purchase, 60% paid in next month. Wages due in June ₹1,76,000.

Three years insurance policy due in June for renewal ₹4,000 to be paid in cash.

Other expenses for June, payable in June ₹88,000.

Depreciation for the month of June ₹4,000.

Accrued taxes for June, payable in December ₹12,000.

Fixed deposit receipts due June 15- ₹3,50,000 plus ₹.20,000 interest.

Solution**Cash Budget for the Month of June 2017**

Particulars	₹
Opening balance	1,20,000
Add : Estimated cash receipts :	
Cash sales (16,00,000× 50%)	8,00,000
Cash received from debtors (40% sales of May and customer receivable of April) (i.e., 9,00,000 × 40% + `1,40,000)	5,00,000
Fixed deposits	3,70,000
Total Receipts (A)	17,90,000
Less : Estimated cash payments:	
Payment to creditors (10,00,000 x 40%)	4,00,000
Payment of wages	1,76,000
Payment of insurance premium	4,000
Payment of other expenses	88,000
Total Payments (B)	6,68,000
Closing balance (A-B)	11,22,000

Illustration: 7

Prepare a Cash Budget for the three months ending 30th June, 2017 from the information given below:

(a)

Month	Sales	Materials	Wages	Overheads
February	15,000	9,600	3,000	1,700
March	16,000	9,000	3,000	1,900
April	17,000	9,200	3,200	2,000
May	18,000	10,000	3,600	2,200
June	19,000	10,400	4,000	2,300

(b) Credit terms are:

Sales / Debtors – 10% sales are on cash, 50% of the credit sales are collected next month and the balance in the following month.

5.16 Management Accounting

Creditors :	Materials	2 months
	Wages	¼ month
	Overheads	½ month

(c) Cash and Bank balance on 1st April 2017 is expected to be ₹6,000

(d) Other relevant informations are:

- (i) Plant and Machinery will be installed in February, 2017 at a cost of ₹96,000. The monthly installment of ₹2,000 is payable from April onwards.
- (ii) Dividend @ 5% on Preference Share Capital of ₹2,00,000 will be paid on 1st June,
- (iii) Advance to be received for sale of vehicles ₹9,000 in June.
- (iv) Dividends from investments amounting to ₹1,000 are expected to be received in June.
- (v) Income-tax (advance) to be paid in June, is ₹2,000

Solution: Cash Budget for three months ending June 2017

Particulars	April	May	June
Opening Balance	6,000	3,950	3,000
Add: Cash Receipts :			
Cash Sales	1,600	1,700	1,800
Cash collected from debtors	13,050	13,950	14,850
Dividend	–	–	1,000
Advance against sale of vehicle	–	–	9,000
Total (A)	14,650	15,650	26,650
Less: Cash Payments :			
Creditors for Materials	9,600	9,000	9,200
Wages	3,150	3,500	3,900
Overheads	1,950	2,100	2,250
Capital Expenditure	2,000	2,000	2,000
Dividend on Pref. Shares	–	–	10,000
Income Tax Advance	–	–	2,000
Total (B)	16,700	16,600	29,350
Closing Balance (A) – (B)	3,950	3,000	300

Illustration: 8

From the following forecasts of income and expenditure, prepare a cash budget for the three months ending 30th Nov. 2017. The bank balance as on 1st September was `10,000:

Month	Sales	Purchases	Wages	Factory Expenses	Office expenses
July	80,000	40,000	5,600	3,900	10,000
August	76,500	42,000	5,800	4,100	12,000
September	78,000	38,500	5,800	4,200	14,000
October	90,000	37,500	5,900	5,100	16,000
November	95,000	43,000	5,900	6,000	13,000

- (i) A sales commission at 4% on sales is due in the month following in which the sales dues are collected, is payable in addition to other expenses.
- (ii) Fixed assets worth `65,000 will be purchased in September, to be paid for in the following month.
- (iii) `20,000 in respect of debenture interest will be paid in October.
- (iv) The period of credit allowed to customers is 2 months and one month's credit is obtained from suppliers of goods.
- (v) Wages are paid on an average on the first and sixteenth of each month in respect of dues for the periods ending on the date preceding such days.
- (vi) Expenses are paid in the month in which they are due.

Solution**Working Notes:**

- (i) Calculation of cash collected from debtors:

July sales receivable in September	=	`80,000
August sales receivable in October	=	`76,500
September sales receivable in November	=	`78,000

- (ii) Calculation of commission payable@4% on receipts:

September receipts from debtors:		
Commission payable in October (80,000 x 4%)	=	`3,200
October receipts from debtors:		
Commission payable in November (76,500 x 4%)	=	`3,060

5.18 Management Accounting

(iii) Calculation of payment of wages

For the period : Aug. 15 – 31 payable on 1st Sept.	= 2,900	
For the period : Sept. 1 - 15 Payable on 16th Sept.	= 2,900	5,800
For the period : Sept. 16 – 30 payable on 1st Oct.	= 2,900	
For the period : Oct. 1 – 15 payable on 16th Oct .	= 2,950	5,850
For the period : Oct. 16 – 31 payable on 1st Nov.	= 2,950	
For the period : Nov. 1 – 15 payable on 16 th Nov.	= 2,950	5,900

(iv) Calculation of amount paid to creditors:

August purchases payable in September	= `42,000
September purchases payable in October	= `38,500
October purchases payable in November	= `37,500

Cash Budget for the Three Months Ending 30th Nov.2017

Particulars	Sept.	Oct.	Nov.
Opening balance	10,000	24,000	-53,150
Add : Estimated cash receipts:			
Cash collected from debtors	80,000	76,500	78,000
Total Receipts (A)	90,000	1,00,500	24,850
Less : Estimated cash payments:			
Payment to creditors	42,000	38,500	37,500
Payment of wages	5,800	5,850	5,900
Payment of factory expenses	4,200	5,100	6,000
Payment of office expenses	14,000	16,000	13,000
Payment of sales commission	–	3,200	3,060
Purchase of fixed assets	–	65,000	–
Payment of debenture interest	–	20,000	–
Total Payments (B)	66,000	1,53,650	65,460
Closing balance (A-B)	24,000	(-) 53,150	(-) 40,610

Flexible Budget

The Chartered Institute of Management Accountants, England, defines a flexible budget as “ a budget which, by recognizing the difference in behaviour between fixed and variable costs in relation to fluctuations in output, turnover, or other variable factors such as number of employees, is designed to change appropriately with such fluctuation.”

A flexible budget gives different budgeted costs for different levels of activity. The flexible budget is designed to change in accordance with the level of activity attained. Thus, when a budget is prepared in such a way that the budgeted cost for any level of activity is available, it is called flexible budget. A flexible budget is prepared after making an intelligent classification of all expenses into fixed, variable and semi-variable and after considering the changes that may be expected for each item at various levels of activities.

Flexible budget is prescribed and desirable in the following situations:

- (a) Where the level of activity during the year varies from period, either due to the seasonal nature of the industry or to variation in demand.
- (b) Where the business is a new one and it is difficult to foresee the demand.
- (c) Where the undertaking is suffering from shortages of factors of production such as materials, labour, plant capacity etc, the level of activity depends upon the availability of such factors of production.
- (d) Where an industry is influenced by changes in fashion.
- (e) Where there are general changes in sales.
- (f) Where the business units keep or introducing new products or make changes in the design of its products frequently.
- (g) Where the industries are engaged in make to order business like ship-building.

DIFFERENCES BETWEEN FIXED BUDGET AND FLEXIBLE BUDGET

The following are the major points of distinction between these two budgets:

Point of Distinction	Fixed Budget	Flexible Budget
Flexibility	It has no flexibility. It does not change with the varied level of activity.	It has flexibility. It is flexible in accordance with the level of activity.
Classification of Costs	Costs are not classified according to their behavior or variability.	Costs are classified into fixed, variable and semi-variable based on their behaviour/ variability

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Nature of Condition	It assumes that conditions would remain rigid and static.	It is designed to change according to changed conditions and varied volume of output.
Number of budgets	Only one budget at the fixed level of activity is prepared.	A series of budgets are prepared at different levels of activity.
Scope for cost control	It has a limited application and scope for controlling cost.	It has wider application and can be used as a tool for effective cost control.
Comparability	Comparison of actual and budgeted results cannot be done correctly if the volume of output differs.	Comparison is realistic as the changed plan figures are placed against actual ones.
Pricing	Pricing cannot be done accurately if the budgeted and actual activity levels vary.	It helps in price determination as costs are estimated accurately in each level of activity.

Illustration: 9

The expenses budgeted for production of 10,000 units in a factory are furnished below:

	Per Unit
Materials	70
Labour	25
Variable Factory Overheads	20
Fixed Factory Overheads (₹ 1,00,000)	10
Variable Expenses (Direct)	5
Selling Expenses (10% fixed)	13
Distribution Expenses (20% fixed)	7
Administration Expenses (Fixed – ₹ 50,000)	5
Total Cost of Sales per unit	155

You are required to prepare a budget for the production of 6,000 units and 8,000 units.

Solution**Flexible Budget**

Particulars	Output 6,000 units		Output 8,000 units	
	Per unit	Amount	Per unit	Amount
Variable or Production Expenses:				
Material	70.00	4,20,000	70.00	5,60,000
Labour	25.00	1,50,000	25.00	2,00,000
Direct Variable Expenses	5.00	30,000	5.00	40,000
Prime Cost	100.00	6,00,000	100.00	8,00,000
Factory Overheads:				
Variable Overheads	20.00	1,20,000	20.00	1,60,000
Fixed Overheads	16.67	1,00,000	12.50	1,00,000
Work Cost	136.67	8,20,000	132.50	10,60,000
Administrative Expenses				
Fixed	8.33	50,000	6.25	50,000
Cost of Production	145.00	8,70,000	138.75	11,10,000
Selling Expenses:				
Fixed 10% of `13	2.17	13,000	1.63	13,000
Variable -90% of `13	11.70	70,200	11.70	93,600
Distribution Expenses				
Fixed 20% of `7	2.33	14,000	1.75	14,000
Variable -80% of `8	5.60	33,600	5.60	44,800
Total cost of Sales	166.80	10,00,800	159.43	12,75,400

Illustration: 10

A factory is currently working at 50% capacity and produces 10,000 units in a cost of `180 per unit as per details below:

Materials	100
Labour	30
Factory overheads	30 (^ 12 fixed)
Administration overheads	20 (^ 10 fixed)
Total	180

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The current selling price is ₹200 per unit. At 60% working, material cost per unit increases by 2% and selling price per unit falls by 2%. At 80% working, material cost per unit increases by 5% and selling price per unit falls by 5%.

Estimate profits of the factory at 60% and 80% working and offer your comments.

Solution**Flexible Budget Showing Profit at 50%, 60%, and 80% Level of Activity**

Particulars	50% (10,000)		60% (12,000)		80% (16,000)	
	Per unit	Total	Per unit	Total	Per unit	Total
Variable costs:						
Material cost	100	10,00,000	102.00	12,24,000	105	16,80,000
Labour cost	30	3,00,000	30.00	3,60,000	30	4,80,000
Factory overheads	18	1,80,000	18.00	2,16,000	18	2,88,000
Administration Overheads	10	1,00,000	10.00	1,20,000	10	1,60,000
Total Variable Costs (A)	158	15,80,000	160.00	19,20,000	163	26,08,000
Fixed costs:						
Factory overheads	12	1,20,000	10.00	1,20,000	7.50	1,20,000
Administration Overheads	10	1,00,000	8.33	1,00,000	6.25	1,00,000
Total Fixed Costs (B)	22	2,20,000	18.33	2,20,000	13.75	2,20,000
Total cost of Production (A+B) = (C)						
Estimated profit (B/F) (D-C)	180	18,00,000	178.33	21,40,000	176.75	28,28,000
Sales (D)	20	2,00,000	17.67	2,12,000	13.25	2,12,000
	200	20,00,000	196.00	23,52,000	190	30,40,000

B/F = Balancing Figure

Illustration: 11

The budgeted cost of a factory specialization in the production of a single product in the optimum capacity of 6,400 units per annum amounts `1,76,048 as detailed below:

Fixed costs		20,688
Variable Costs:		
Power	1,440	
Repairs etc.	1,700	
Miscellaneous	540	
Direct material	49,280	
Direct labour	1,02,400	1,55,360
		1,76,048

Having regard to possible impact on sales turnover by market trends, the company decided to have a flexible budget with a production target off 3,200 and 4,800 units (the actual quantity proposed to be produced being left to a later date before commencement of the budget period). Prepare a flexible budget for production levels at 50% and 75% capacity.

Assume selling price per unit is maintained in `40 as at present. Indicate the effect on net profit. Administration, selling and distribution expenses continue at ` 3,600

Solution:**Flexible Budget**

	At 100% Capacity (output 6,400 units)	At 75% Capacity (output 4,800 units)	At 50% Capacity (output 3,200 units)
Fixed costs	20,688	20,688	20,688
Variable costs:			
Direct material @ ` 7.70 per unit	49,208	36,960	24,640
Direct labour @ ` 16.00 per unit	1,02,400	76,800	51,200
Power @ Re.0.225 per unit	1,440	1,080	720
Repairs etc. Re. 0.265625 per unit	1,700	1,275	850
Miscellaneous @ Re. .084373 per unit	540	405	270

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Total Cost	1,76,048	1,37,208	98,368
Sales @ ` 40 per unit	2,56,000	1,92,000	1,28,000
Gross profit	79,952	54,792	29,632
Administration expenses	3,600	3,600	3,600
Net profit	76,352	51,192	26,032

Illustration: 12

The expenses budgeted for production of 5,000 units in a factory are furnished below:

	Per unit
Materials	40
Labour	30
Direct expenses	20
Factory expenses (30% fixed)	30
Selling and Distribution expenses (15% fixed)	20
Administration expenses (100% fixed)	5

Prepare a flexible budget for production of (i) 4,000 units and (ii) 7,000 units and also calculate the cost per unit in those levels of production.

Solution**Flexible Budget**

Output (units)	5,000		4,000		7,000	
	Per unit	Amount	Per unit	Amount	Per unit	Amount
Variable costs:						
Materials	40	2,00,000	40	1,60,000	40	2,80,000
Labour	30	1,50,000	30	1,20,000	30	2,10,000
Direct expenses	20	1,00,000	20	80,000	20	1,40,000
Factory expenses (70%)	21	1,05,000	21	84,000	21	1,47,000
Selling and Distribution Expenses (85%)	17	85,000	17	68,000	17	1,19,000
Total Variable Costs	128	6,40,000	128	5,12,000	128	8,96,000

(A)						
Fixed costs:						
Factory expenses (30%)	9.00	45,000	11.25	45,000	6.43	45,000
Selling and Distribution Expenses (15%)	3.00	15,000	3.75	15,000	2.14	15,000
Administration Expenses (100%)	5.00	25,000	6.25	25,000	3.57	25,000
Total Fixed Costs (B)	17.00	85,000	21.25	85,000	12.14	85,000
Total Cost of Production (A+B)	145	7,25,000	149.25	5,97,000	140.14	9,81,000

Illustration: 13

Prepare a flexible budget for overheads on the basis of the following data. Ascertain the overhead rates at 50%, 60% and 70% capacity:

	At 60% capacity
Variable overheads:	
Indirect material	6,000
Indirect labour	18,000
Semi-variable overheads:	
Electricity (40% fixed : 60% variable)	30,000
Repairs (80% fixed : 20% variable)	3,000
Fixed overheads:	
Depreciation	16,500
Insurance	4,500
Salaries	15,000
Total overheads	93,000
Estimated direct labour hours	1,86,000

Solution**Flexible Budget**

Particulars	Capacity Levels		
	50%	60%	70%
Variable overheads:			
Indirect materials	5,000	6,000	7,000
Indirect labour	15,000	18,000	21,000
Semi-variable overheads:			
Electricity:			
Fixed	12,000	12,000	12,000
Variable	15,000	18,000	21,000
Repairs:			
Fixed	2,400	2,400	2,400
Variable	500	600	700
Fixed overheads:			
Depreciation	16,500	16,500	16,500
Insurance	4,500	4,500	4,500
Salaries	15,000	15,000	15,000
Total overheads (A)	85,900	93,000	1,00,100
Estimated direct labour hours (B)	1,55,000	1,86,000	2,17,000
	0.554	0.500	0.461
Total overheads			

Overhead rate per hour = Estimated direct labour hours

Working Note : Semi-variable overheads are to be divided into variable and fixed portions:

Electricity : Variable = $30,000 \times 60\%$ = 18,000
Fixed = $30,000 \times 40\%$ = 12,000

Electricity variable at 50% level = $18,000 \times \frac{50}{60}$ = 15,000

Electricity variable at 70% level = $18,000 \times \frac{70}{60}$ = 21,000

Repairs : Variable = $3,000 \times 20\%$ = `600
 \therefore at 50% = $\frac{600}{60} \times 50$ = Rs. 500

Fixed = $3,000 \times 80\%$ = `2,400
 \therefore at 70% = $\frac{600}{60} \times 70$ = Rs. 700

ZERO BASE BUDGETING (ZBB)

If the approach followed in the preparation of budget is based on current level of expenditure and revenue, such budgeting is called traditional budgeting.

Zero Base Budgeting (ZBB) as the name implies, examines or reviews a function or programme from 'scratch'. Thus, there is no base for the preparation of budgets.

The concept of zero base budgeting was developed by Peter A Pyhrr of Texas Instruments of U.S.A. in 1969.

The use of zero –base budgeting (ZBB) as a managerial tool has become increasingly popular since the early 1970s .It first came into being when former president of United States of America and the then governor of the states of Georgia Jimmy Carter introduced it as a means of controlling state expenditure

Meaning

Zero base budgeting is not based on previous year's figure out but zero is taken as a base as the name goes. Taking zero as a base, a budgeting is developed on the basis of activities to be carried out for the future period.

Definition

Zero –base budgeting has been defined by its originator Peter A Pyhrr as follows:

“A planning and budgeting process which requires each manager to justify his entire budget request in detail from scratch (hence zero base) and shifts the burden of proof to each manager to justify why he should spend any money at all. The approach requires that all activities be analysed in 'decision packages which are evaluated by systematic analysis and ranked in order of importance'

Steps in Zero Base Budgeting

The following steps are involved in the whole process of Zero Base Budgeting:

1. Identify the key areas of the organization, this is referred to as decision packages.
2. Rank each decision package in term of profitability or cost effectiveness.
3. Allocate resources in accordance with the ranking of activities.
4. Evaluate each decisions package so as to ensure that it is cost effective.

ADVANTAGES OF ZERO BASE BUDGETING

Zero base budgeting carries the following advantages:

1. It provides the organization with systematic way to evaluate different activities and programmes undertaken.

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2. It enables management to allocate resources according to the priority of the programme
3. It ensures that each and every programme undertaken by managers is really essential for the organization, and is being carried out in the most desirable manner.
4. It enables the management to approve departmental budgets more appropriately on the basis of cost - benefits analysis.No cuts or increase in budget estimates are made arbitrarily.
5. It relates budgets with the objectives of the organization. Thus, ZBB facilities increased organizational efficiency
6. It provides psychological impetus to employees to avoid spending on unproductive and less priority activities.
7. It facilitates increased staff involvement in carrying out such key activities of the organization and eventually it leads to better employee morale.
8. It provides flexibility in budgets.It allows for making adjustments in departmental budgets whenever such adjustments are warranted.
9. It is more useful especially for service departments/concerns where it is very difficult to identify output in tangible forms.
10. ZBB facilitates the introduction and implementation of the concept of Management By Objectives(MBO)

LIMITATIONS OF ZERO BASE BUDGETING

The following are the major limitations of ZBB:

1. It is time consuming. It is very much true in the initial stages when decision packages have to be identified.
2. It requires a high level of managerial skill among top level managers and heads of various departments.
3. ZBB can not directly be applied to direct material, direct labour, and overheads associated with production function.

Although ZBB has become quite popular these days, this technique was first used by the U.S Department of Agriculture in 1962. Taxes Instruments a MNC, pioneered its use in the private sector. Today, a number of major companies all over the world are using this system. In India, some Government departments recently introduced ZBB.

Advantages of Budgetary control

The important advantages of a budgetary control system are listed below:

- The most important advantage of a budgetary control system is to enable management to conduct business in the most efficient manner because budgets are prepared to use resources effectively and to realize the objectives so efficiently.
- It creates a sense of awareness at all levels of management in the process of fulfillment of targets.
- It ensures team work as budgets are prepared by many officials and heads, at various levels of management. Further, budgets are approved by the judgment and support of the entire organization and not by an individual or a group of individuals.
- It leads to better coordination and hence better understanding between different functions and personnel of different departments of a concern.
- Management by exception is possible because the comparison of actual and budgeted results reveals weak areas so that remedial measures could be taken against such weak areas which are not in conforming with the budgeted performance.
- It is helpful in reviewing current trends in the business and in determining future courses of action.
- Budgets act as a measure of performance and efficiency of both department and persons of a concern since budgets provide parameters and benchmarks against of which actual performance of departments and personnel can be compared.
- It helps in creating a feeling of cost consciousness in the minds of human resources so that the waste of money resource could be curtailed minimised.
- It is a process of self-examination. Further, budgets act as impersonal policemen that maintain order lines and enhance effectiveness.
- Budgetary control creates conducive atmosphere for setting up a system of standard costing.

Limitations of budgetary control

Even though budgetary control offers a lot of benefits, it suffers from the following limitations:

- Budgeting is not an exact science and a certain amount of personal judgment is present in any budgeting plan

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- The basic requirement for the successful exercise of budgetary control is the absolute support provided by the top management. If it is lacking at any time, the whole system will collapse.
- Budgets may serve as blocks/barriers to managerial initiative since every executive focuses on achieving the budgeted results/targets.
- The installation of a budgetary control system is an elaborate process and it takes much of time and money.
- Budgets may be developed considering existing organizational structure and conditions which may not be appropriate and supportive for the ensuing period.
- The successful exercise of budgetary control does require proper follow-up mechanism which is often lacking in many organizations which eventually defeats the very purpose of budgetary control.
- Budget is only a tool/aid to management. Yet, it is not a substitute of management.

SELF ASSESSMENT QUESTIONS**Answers for Check Your Progress****I. Choose the correct answer**

1. The budget that is prepared first of all is
 - (a) Cash budget
 - (b) sales budget
 - (c) Master budget
 - (d) flexible budget
2. Sales budget is a
 - (a) Master budget
 - (b) fixed budget
 - (c) Functional budget
 - (d) expenditure budget
3. A summary budget for the entire enterprise is
 - (a) Cash budget
 - (b) Master budget
 - (c) Flexible budget
 - (d) production budget
4. A budget which changes with the levels of activity is
 - (a) Fixed budget
 - (b) flexible budget
 - (c) Cash budget
 - (d) none of these.
5. Which one of the following is usually a long-term budget?
 - (a) Cash budget
 - (b) sales budget
 - (c) Capital expenditure budget
 - (d) fixed budget.
6. In the case of plant, the principal budget factor may be
 - (a) Insufficient capacity
 - (b) shortage of skilled salesmen
 - (c) Shortage of power
 - (d) None of these.
7. Rolling budget is otherwise known as
 - (a) Current budget
 - (b) Sales budget
 - (c) Progressive budget
 - (d) flexible budget
8. A budget which presents the operation of an organization in terms of functions and activities is called.
 - (a) Sales budget
 - (b) flexible budget
 - (c) Performance budget
 - (d) production budget.
9. The budget which commonly takes the form of budgeted Profit and Loss Account and Balance sheet is
 - (a) Cash budget
 - (b) Master budget

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(c) Flexible budget (d) None of these

10. In case of materials, the key factor may be

(a) Insufficient advertising (b) Restrictions imposed by quota
(c) Poor salesmanship (d) Low market demand**Answers: 1. (b) 2. (c) 3. (b) 4. (b) 5. (c) 6. (a) 7. (c) 8. (c) 9. (b) 10. (b)****3. State whether each of the following statement is True or false.**

- i. There is no difference between a forecast and a budget.
- ii. A Fixed budget is concerned with budgeting of fixed assets
- iii. Sales budget is the most important budget among all budgets.
- iv. A "Fixed Budget" is preferable to "Flexible Budget".
- v. The principal budget factor constitutes the starting point for the preparation of various budgets.
- vi. A budget manual contains a summary of all functional budgets.
- vii. A fixed budget is one which is designed to remain unchanged irrespective activity actually attained.
- viii. The first step in preparing the budget is determining the cost of goods
- ix. A flexible budget is necessary for a business enterprise which is of new
- x. Cost centre and responsibility centre are not synonymous terms.

Ans: (1) False, (2) False, (3) True, (4) False, (5) True, (6) False, (7) True, (8) False, (9) True, (10) True**II. Short Answer Questions**

Define budget.

What do you mean by budgetary control?

What is flexible budget?

What is cash budget?

What do you mean by performance budgeting?

What is meant by ZBB?

8. Essay Type Questions

What do you understand by "Budgeting"? Mention the types of budget that management of a big industrial concern would normally prepare.

What is Budget? What is sought to be achieved by Budgetary Control?

Explain 'flexible budget' and 'fixed budget'.

Has "Budgetary Control" any significance with management accounting?

Explain the objectives of Budgetary Control with special reference to a large manufacturing concern.

Explain the advantages and limitations of budgetary control?

IV. Discussion Questions

"If the Sales Forecast is subject to error then there is no basis of budgeting." Do you agree?

Are you in agreement with the view that budgeting should better be called 'Profit Planning and Control'?

"Why do responsible people in an organisation agree to accept budgetary control in theory but resist in practice"? Explain.

10. Case Analysis

11. X Y Z & Co. manufactures two products X and Y and sells them through two divisions-East and West. For the purpose of submission of sales budget to the budget committee, the following information has been made available:

Budgeted sales for the current year were:

Product	East	West
X	400 at ` 9	600 at ` 9
Y	300 at ` 21	500 at ` 21

Actual sales for the current year were:

Product	East	West
X	500 at ` 9	700 at ` 9
Y	200 at ` 21	400 at ` 21

Adequate market studies reveal that Product X is popular but under-priced. It is observed that if price of X is increased by Re. 1 it will find a ready market. On the other hand Y is

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over-priced to customers and market could absorb more if sales price of Y be reduced by Re 1. The management has agreed to give effect to the above price changes.

From the information based on these price changes and reports from salesmen, the following estimates have been prepared by divisional managers: Percentage increase in sales over current budget is:

Product	East	West
X	+10%	+5%
Y	+20%	+10%

With the help of the intensive advertisement campaign, the following additional sales above the estimated sales of divisional managers are possible:

Product	East	West
X	60	70
Y	40	50

You are required to prepare a Budget for sales incorporating the above estimates and also show the budgeted and actual sales of the current year.

(*Ans:* Total Budget for future period 30,700; Total Budget for current period 28,900; Actual sales for current period ` 23,400.)

12. Prepare a production budget for three months ended March 31, 2018 for a factory producing four products, on the basis of the following information.

Type of product	Estimated stock On Jan. 1, 2018 (Units)	Estimated sales during Jan. –March. 2018 (Units)	Desired closing stock on March. 31, 2018 (Units)
A	2,000	10,000	3,000
B	3,000	15,000	5,000
C	4,000	13,000	3,000
D	3,000	12,000	2,000

Ans: Total units to be produced: 51,000

3) From the following figures prepare the Raw Materials Purchase Budget for January, 2014.

	Materials (units)					
	A	B	C	D	E	F
Estimated stock On Jan. 1	16,000	6,000	24,000	2,000	14,000	28,000
Estimated stock On Jan. 31	20,000	8,000	28,000	4,000	16,000	32,000
Estimated consumption	1,20,000	44,000	1,32,000	36,000	88,000	1,72,000
Standard price per unit	25 p.	5 p.	15 p.	10 p.	20 p.	30 p.

(Ans: (in Units) A=1,24,000; B=46,000; c=1,36,000,; D=38,000; E=90,000 and F=1,76,000.)

Estimated purchases ` 31,000 for A; ` 23,000 for B; ` 20,400 for C; ` 3,800 for D; ` 18,000 for E; 52,800 for F and Total Purchases is ` 1,49,000.

- The following are the information relates to the productive activities of G. Ltd. for three months ended 31st December, 2017.

Fixed Expenses:

Management Salaries	2, 10,000
Rent and Taxes	1, 40,000
Depreciation of Machinery	1, 75,000
Sundry office expenses	2, 22,500
	7, 47,500

<i>Semi variable expenses at 50% Capacity:</i>	
Plant maintenance	62, 500
Indirect labour	2, 47,500
Salesmen's salaries	72, 500
Sundry expenses	65, 000
	4, 47,500
<i>Variable expenses at 50% Capacity</i>	
Materials	6, 00, 000
Labour	6, 40, 000
Salesmen's commission	95, 000
	13, 35, 000

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It is further noted that semi-variable expenses remain constant between 40% and 70% capacity, increase by 10% of the figures between 70% and 85% capacity and increase by 15% of the above figures between 85% and 100% capacity. Fixed expenses remain constant whatever the level of activity may be. Sales is 60% capacity are ₹ 25,50,000; of 80% capacity ₹ 34,00,000 and 100% capacity ₹ 42,50,000. Assuming that items produced are sold, prepare a flexible budget is 60% 80% and 100% production capacity.

(Ans: Total Costs : At 50% = ₹ 25,30,000; At 60% = ₹ 27,97,000; At 80% = ₹ 33,76,000; and at 100% ₹ 39,32,125.)

5) Devaraj & Co. has budgeted the following sales for the coming months:

Months	Units
January	40,000
February	60,000
March	48,000
April	72,000
May	80,000

The Company has a policy of keeping 20% inventory equal to next month's sales. On the 1st January it had 10,000 units. You are asked to prepare the purchase/production budget from the data given above for the Company.

(Ans: Needs to be produced:- Jan- 42,000, Feb-57,600, Mar-52,800, April-73,600, May- Nil.)

- A department of ABC Company attains sales of ₹ 60,000 is 80 percent of its normal capacity and its expenses are given below:

Administration Cost:

Office Salaries	9,000
General Expenses	2 percent of sales
Depreciation	750
Rates and Taxes	875

Selling Costs:

Salaries	8 percent of sales
Travelling Expenses	2 percent of sales
Sales Officer	1 percent of sales
General Expenses	1 percent of sales

Distribution Costs:

Wages	1,500
Rent	1 percent of sales
Other Expenses	4 percent of sales

Draw up flexible administration, selling, and distribution costs budget, operating is 90 percent, 100 percent and 110 percent of normal capacity.

(Ans: Total Administration, Selling, and Distribution Costs-80%- ` 23,525, 90%-
□ 24,950, 100%- ` 26,375, 110%- ` 27800.)

- Draw up flexible budget for the overhead expenses on the basis of the following data and determine overhead rates at 70%, 80% and 90% plant capacity.

Particulars	At 70% capacity `	At 80% capacity `	At 90% capacity `
Variable overheads :			
Indirect labour	–	12,000	–
Stores including spares	–	4,000	–
Semi-Variable overheads :			
Power (30% fixed, 70% variable)	–	20,000	–
Repairs and maintenance (60% fixed, 40% variable)	–	2,000	–
Fixed overheads :			
Depreciation	–	11,000	–
Insurance	–	3,000	–
Salaries	–	10,000	–
Total Overheads	–	62,000	–
Estimated direct labour hour	1,24,000 Hours		

Ans:

	At 70% capacity (`)	At 80% capacity (`)	At 90% capacity (`)
Total Overheads	58,150	62,000	65,850
Direct Labour hour rate	Re. 0.536	Re. 0.500	Re. 0.472

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8) The expenses for the budgeted production of 10,000 units in a factory are given below:

Particulars	Per Units
Material	70
Labour	25
Variable overheads	20
Fixed overheads (₹ 1,00,000)	10
Variable expenses (Direct)	5
Selling expenses (10% fixed)	13
Distribution expenses (20% fixed)	7
Administrative expenses (₹ 50,000)	5
Total cost	155

Prepare a flexible budget for the production of (i) 8,000 units (ii) 6,000 units

Ans:

	6,000 Units		8,000 Units		10,000 Units	
	Per Unit	Total amount (₹)	Per Unit	Total amount (₹)	Per Unit	Total amount (₹)
Total Overheads	159.425	12,75,400	166.801	10,00,800	155.00	15,50,000

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UNIT V
MARGINAL COSTING

UNIT OBJECTIVES

Cost accounting methodologies like Marginal Costing and Absorption Costing help in determining costs and profitability in different ways. Marginal costing focuses on variable costs, while absorption costing includes both variable and fixed costs in product costs.

PRELUDE

Cost represents the total of all expenses incurred in the production and sale of goods or expended in rendering services. Costing is the technique and process of ascertaining cost. Marginal cost is the additional cost of producing an extra unit. Marginal costing is a technique of ascertaining marginal cost. In arriving from many managerial decisions like make or buy marginal costing technique is of great use.

VARIABLE, FIXED AND SEMI – VARIABLE COSTS.

Marginal cost is also known as variable cost. On the basis of behavior of cost, cost is classified into:

- (iii) Variable cost.
- (iv) Fixed Cost
- (v) Semi-variable cost.

Variable Cost as the name implies varies almost in direct proportion to the volume of output. Variable cost is otherwise called direct cost as this cost is directly related to the production of goods and rendering of services. Variable cost is also known as product cost since this cost varies according to the volume of production.

Examples: Direct material cost, direct labour cost i.e wages and other direct expenses are some examples of variable cost.

Fixed Cost does not vary with the volume of output. This cost is called so as it remains fixed irrespective of the volume of production. However, fixed cost remains fixed

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upto a certain level of production. In the long run, all costs have a tendency to vary. Fixed cost is also known as period cost as this cost is primarily based on period.

Example: Rent, Salaries, Insurance Premium.

Semi- Variable Cost is partly variable and partly fixed. Semi – Variable cost varies with the level of production but not in direct proportion to the level of production.

Examples: Cost of repairs and maintenance, electricity charges, telephone rent.

DEFINITION OF MARGINAL COST AND MARGINAL COSTING

According to the Institute of Cost and Management Accountants, London, Marginal cost represents “ the amount of any given volume of output by which aggregate costs are changed if the volume of output is increased by one unit”.

In the words of Blocker and Welfmore, “Marginal cost is the increase or decrease in total cost which results from producing or selling additional or fewer units of a product or from a change in the method of production or distribution such as the use of improved machinery, addition or exclusion of a product or territory or selection of an additional sales channel”.

The institute of Cost and Management Accountants, London, has defined Marginal costing as “the ascertainment of marginal costs and of the effect on profit of changes in volume or type of output by differentiating between fixed cost and variable costs”.

Marginal costing is not a system or method of costing such as job costing, contract costing, process costing and operating costing but a technique of costing which is concerned with ascertainment of changes in costs and profits resulting from changes in the volume of output.

BASIC CHARACTERISTICS OF MARGINAL COSTING

The technique of marginal costing is based on the distinction between variable cost (product costs) and fixed costs (period costs). The basic characteristics of marginal costing are as follows:

- (h) It is a technique of costing which deals with the analysis of costs and helps to management in taking many managerial decisions.
- (i) In marginal costing, all elements of cost namely production, administration and selling and distribution are classified into variable and fixed components.
- (j) The variable costs are regarded as product costs as they are directly related to production.

5. The fixed costs are regarded as period costs as they are incurred for the period regardless of volume of production.
6. In marginal costing, only variable overheads are charged to production while fixed overheads are transferred in full to the costing and profit and loss account.
7. The stocks of work-in-process and finished goods are valued in marginal costs only.
8. Pricing is done on the basis of marginal cost by adding '**contribution**' which is the excess of selling price over marginal cost of sales.
9. The difference between the contribution and fixed costs is the net profit or net loss.

ASSUMPTIONS OF MARGINAL COSTING:

The technique of marginal costing is based on the following assumptions:

2. All elements of cost can be divided into fixed and variable components.
3. Variable cost per unit remains constant in all levels of output but total variable cost varies in direct proportion to changes in the volume of output.
4. Total fixed costs remain unchanged or constant in all levels of output.
5. The selling price per unit remains constant in all levels of output/activity.
6. The volume of output is the only factor which has influence on costs.

MARGINAL COSTING VS. ABSORPTION COSTING

Marginal costing is the practice of charging only marginal costs i.e variable costs to production. Absorption costing is the practice of charging all costs i.e. both variable and fixed costs to production.

The Institute of Cost and Management Accountants (U.K.) defines absorption costing as, “the practice of charging all costs, both variable and fixed to operations, processes or products”.

THE BASIC DIFFERENCES BETWEEN ABSORPTION COSTING AND MARGINAL COSTING ARE AS FOLLOWS:

Absorption Costing	Marginal Costing
1. All costs- fixed and variable are charged to product.	1. Only variable costs are charged to product. Fixed costs are charged to profit and loss Account.
2. Sales minus cost of goods sold is called net profit	2. Net profit equals to contribution minus fixed costs.
3. It does not reveal the relationship between cost, volume and profit.	3. Cost volume profit relationship is a significant aspect of marginal costing
4. Closing stocks of finished goods and work-in-process are valued at full cost.	4. Closing inventory of work-in-process and finished goods are valued at variable cost.
5. It results in over valuation of inventories.	5. It leads to under valuation of inventories.
6. Under or over-absorption of fixed costs as they are arbitrarily apportioned over the products.	6. As it excludes fixed costs, there is no question/problem of under or over absorption of fixed costs.
7. Managerial decision are based on total profit.	7. Managerial decisions are based on total contribution.

Example: 1

The following example are the difference between the two techniques. The monthly cost figures for production in a manufacturing company are:

Variable Cost	₹ 1,20,000
Fixed Costs	35,000
Total	₹ 1,55,000

Normal monthly sales figure is ₹ 2,00,000.

Actual sales figures for three separate months are :

I Month	II Month	III Month
2,00,000	1,65,000	2,35,000

Under a system of marginal costing, stocks are valued as :

	I Month	II Month	III Month
Opening Stock	84,000	84,000	1,05,000
Closing Stock	84,000	1,05,000	84,000

If the marginal costing technique were not used stocks would be valued as follows:

	I Month	II Month	III Month
Opening Stock	1,08,500	1,08,500	1,35,625
Closing Stock	1,08,500	1,35,625	1,08,500

Prepare two tabulations, side, to summarize these results for each of the three months, basing one tabulation on marginal costing theory and the other tabulation alongside on absorption costing theory.

Solution:

	Marginal Costing			Absorption Costing		
	Months			Months		
	1	2	3	1	2	3
	\	\	\	\	\	\
Opening Stock	84,000	84,000	1,05,000	1,08,500	1,08,500	1,35,625
Variable Cost	1,20,000	1,20,000	1,20,000	1,20,000	1,20,000	1,20,000
Fixed Cost	–	–	–	35,000	35,000	35,000
Total	2,04,000	2,04,000	2,25,000	2,63,500	2,63,500	2,90,625
Less : Closing Stock	84,000	1,05,000	84,000	1,08,500	1,35,625	1,08,500
Cost of Sales :	1,20,000	99,000	1,41,000	1,55,000	1,27,875	1,82,125
Sales	2,00,000	1,65,000	2,35,000	2,00,000	1,65,000	2,35,000
Contribution	80,000	66,000	94,000	45,000	37,125	52,875
Less : Fixed cost	35,000	35,000	35,000	Shown above		
Profit :	45,000	31,000	59,000	45,000	37,125	52,875
Margin % on Sales	40%	40%	40%	22.5%	22.5%	22.5%
Profit on Sales	22.5%	18.8%	25%	22.5%	22.5%	22.5%

INCOME DETERMINATION UNDER ABSORPTION AND MARGINAL COSTING

Under absorption costing, fixed costs are treated as a product costs while marginal costing excludes fixed costs from product costs. The example given below the method of income determination under absorption and marginal costing. (with imaginary figures)

Example: 2**Income Statement or Statement of Cost and Profit****(Absorption Costing)**

	Product A	Product B	Product C	Total
Sales (A)	15,000	30,000	10,000	55,000
<i>Less: Cost of sales/Production:</i>				
Direct Material	3,500	10,000	2,500	16,000
Direct Labour	5,000	8,000	1,500	14,500
Variable Overheads	1,500	2,000	1,000	4,500
Fixed Overheads	1,500	2,500	1,000	5,000
Total Cost (B)	11,500	22,500	6,000	40,000
Net Profit (A-B)	3,500	7,500	4,000	15,000

Income Statement or Statement of Cost and Profit**(Marginal Costing)**

	Product A	Product B	Product C	Total
Sales (A)	15,000	30,000	10,000	55,000
<i>Less: Cost of sales/Production:</i>				
Direct Material	3,500	10,000	2,500	16,000
Direct Labour	5,000	8,000	1,500	14,500
Variable Overheads	1,500	2,000	1,000	4,500
Total (B)	10,000	20,000	5,000	35,000
Contribution (A-B)	5,000	10,000	5,000	20,000
<i>Less : Fixed Overheads</i>				5,000
Net Profit				15,000

In the two income statements shown above, the net profits arrived in, under absorption costing and marginal costing are the same, this is so because there is no opening or closing stock of finished goods or work in process. Valuation of stock in absorption costing is done at total cost (variable plus fixed cost) whereas in marginal costing, it is done at marginal cost i.e., variable cost only. Thus, the amount of profit and loss may be different under the two systems if there are opening or closing stocks. This point of difference can be well understood with the help of following example:

Example : 3

Cost of production (5,000 units)	
Variable cost (₹4 per unit)	= ₹20,000
Fixed cost (Re.0.20 per unit)	= ₹1,000
Sales (4,000 units @ ₹6 per unit)	= 24,000
Closing stock 1000 units	

Absorption Costing		Marginal Costing	
Sales	24,000	Sales	24,000
$\left(\begin{array}{l} 21,000 \\ 1,000 \times \frac{\quad}{\quad} \\ 5,000 \end{array} \right)$	4,200	Closing Stock (1,000 × 4)	4,000
Closing Stock	28,200	Less : Variable Cost	20,000
Less : Cost of production	21,000	Contribution	8,000
Profit	7,200	Less : Fixed cost	1,000
		Profit	7,000

Illustration 1:

A company produces only one product which had the following costs:

Variable manufacturing costs ₹4 per unit

Fixed manufacturing costs ₹1,00,000 per annum

The normal capacity is set at 1,00,000 units. There are no work-in-process inventories. Fixed overhead rate is Re.1 per unit.

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In 2011, the company produced 1,00,000 units and sold 90,000 units at a price of ₹8 per unit. In 2012, the company produced 1,10,000 units and sold 1,15,000 units at the same price.

You are required to prepare income statements for 2011 and 2012 based on absorption costing and variable costing.

Income Statement Under Absorption Costing

Particulars	2011		2012	
			(₹)	(₹)
(i) Sales at ₹8 per unit	90,000×8	1,15,000×8	<u>7,20,000</u>	<u>9,20,000</u>
Variable manufacturing cost at ₹4 per unit	1,00,000×4	1,10,000×4	4,00,000	4,40,000
	–	10,000×5	–	50,000
Add : Opening Inventory at ₹5 per unit	1,00,000×1	1,10,000×1	<u>1,00,000</u>	<u>1,10,000</u>
Add : Fixed cost at Re 1 per unit			5,00,000	6,00,000
	10,000×5	5000×5	<u>50,000</u>	<u>25,000</u>
Less : Closing Inventory at ₹5 per unit			4,50,000	5,75,000
Standard cost of sales			=	<u>10,000</u>
Less : Over Absorption of fixed overheads			<u>4,50,000</u>	<u>5,65,000</u>
(ii) Cost of Sales			2,70,000	3,35,000
Net Income [(i) – (ii)]				

Income Statement Under Variable Costing

Particulars	2011		2012	
			(₹)	(₹)
(i) Sales at ₹8 per unit	90,000×8	1,15,000×8	<u>7,20,000</u>	<u>9,20,000</u>
Variable manufacturing cost at ₹4 per unit	1,00,000×4	1,10,000×4	4,00,000	4,40,000
	–	10,000×4	=	<u>40,000</u>
Add : Opening Inventory at ₹4 per unit			4,00,000	4,80,000
	10,000×4	5,000×4	<u>40,000</u>	<u>20,000</u>
Less : Closing Inventory at ₹4 per unit			3,60,000	4,60,000
(ii) Variable cost of Sales			3,60,000	4,60,000
Contribution (i) – (ii)			<u>1,00,000</u>	<u>1,00,000</u>
Less : Fixed cost			2,60,000	3,60,000
Net Income				

CONTRIBUTION

In marginal costing, contribution is the key term which acts as decision input. Managerial decisions are taken based on the amount of contribution.

Contribution is the difference between sales and variable/marginal cost of sales.

In other words, it is the excess of selling price over the variable cost. It is also known as 'Contribution Margin' or 'Gross Margin'. Contribution being the excess of sales over variable cost is the amount that is contributed towards fixed cost and profit.

In marginal costing, the amount of profit or loss can be ascertained by deducting the fixed cost from contribution. In other words, fixed cost plus profit is equivalent to contribution. It can be expressed by the following equation called marginal cost equation.

MARGINAL COST EQUATION:

$$\text{Contribution} = \text{Sales} - \text{Variable cost}$$

Or

$$\text{Contribution} = \text{Fixed cost} + \text{Profit}$$

$$\text{Contribution} = \text{Fixed cost} - \text{Loss}$$

$$\text{Sales} = \text{Variable cost} + \text{Contribution}$$

Or

$$\text{Sales} = \text{Variable Cost} + \text{Fixed cost} \pm \text{Profit/Loss}$$

Or

$$\text{Sales} - \text{Variable Cost} = \text{Fixed cost} \pm \text{Profit/Loss}$$

Or

$S - V = F \pm P/L$

Where,

S=Sales

V=Variable Cost

F= Fixed Cost

P= Profit

L= Loss

The Marginal cost equation is very much helpful in ascertaining the missing figure when the other three figures are known.

Higher the contribution, Higher the profit and Vice versa.

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Marginal Cost Statement

The amount of contribution can be ascertained with the help of a statement called marginal cost statement. A specimen of marginal cost statement is given below:

Marginal Cost Statement

Particulars		
Sales		XXX
Less: Marginal Cost:		
Direct Materials	XXX	
Direct Wages	XXX	
Direct expenses	XXX	
Variable overheads	XXX	XXX
Contribution		XXX
Less: Fixed Cost		XXX
Profit/ Loss		XXX

An example exhibiting the concept of marginal cost equation.

Sales ₹80,000

Variable Cost ₹50,000

Fixed Cost ₹20,000

Contribution = Sales – Variable Cost

1. ₹80,000- ₹50,000

2. ₹30,000

Profit = Contribution – Fixed Cost

4. ₹30,000- ₹20,000

5. ₹10,000

Marginal cost Equation is-

$$S - V = F + P$$

$$₹80,000 - ₹50,000 = ₹20,000 + ₹10,000$$

$$₹30,000 = ₹30,000$$

Exhibit marginal cost equation, when the amount of fixed cost is ₹40,000 in the above example.

$$MCE = S - V = F \pm P/L$$

$$\begin{aligned} \text{Contribution} &= \text{Sales} - \text{Variable Cost} \\ &= ₹ 80,000 - ₹ 50,000 \\ \text{Contribution} &= ₹ 30,000 \\ \text{Profit/Loss} &= \text{Contribution} - \text{Fixed cost} \\ &= ₹ 30,000 - ₹ 40,000 \\ \text{Loss} &= ₹ 10,000 \end{aligned}$$

Marginal cost Equation is –

$$\begin{aligned} S - V &= F - L \\ ₹ 80,000 - ₹ 50,000 &= ₹ 40,000 - ₹ 10,000 \\ ₹ 30,000 &= ₹ 30,000 \end{aligned}$$

Contribution goes up with the increase in sales and with the reduction in variable cost

ADVANTAGES OF CONTRIBUTION:

The concept of contribution is of much use in arriving in managerial decisions. Indeed, contribution is an aid to management in taking decisions. The given below are a few benefits resulting from the concept of contribution:

- It helps the management in fixing selling price.
- It assists in ascertaining break-even point (i.e. a point of no profit no loss)
- It helps the management in the selection of suitable sales mix for profit maximization.
- It is useful to choose the best alternative method of production whenever there is a limiting factor.
- It helps the management in deciding whether to make or buy a product/component.

Illustration: 2

Determine the amount of variable cost from the following particulars:

	₹
Sales	1,50,000
Fixed Cost	30,000
Profit	40,000

Solution:

The marginal cost equation is:

$$\text{Sales} - \text{Variable cost} = \text{Fixed Cost} \pm \text{Profit/Loss}$$

$$\text{or} \quad 1,50,000 - \text{V.C.} = 30,000 + 40,000$$

$$\text{or} \quad \text{Variable cost} = 1,50,000 - 70,000 = \text{`80,000.}$$

Illustration: 3

From the following information find out the amount of profit earned during the year using the marginal costing technique.

	`
Fixed Cost	2,50,000
Variable Cost	`10 Per Unit
Selling Price	`15 Per Unit
Output Level	75,000 Unit

Solution :

$$S - V = F + P$$

$$\text{Sales} = 75,000 \times 15 = \text{`11,25,000}$$

$$\text{Variable Cost} = 75,000 \times 10 = \text{`7,50,000}$$

$$\text{Fixed Cost} = \text{`2,50,000}$$

$$\text{Profit (P)} = ?$$

$$11,25,000 - 7,50,000 = 2,50,000 + P$$

$$3,75,000 = 2,50,000 + P$$

$$P = 3,75,000 - 2,50,000$$

$$\text{Profit} = \text{`1,25,000.}$$

PROFIT VOLUME RATIO – P/V RATIO(OR)CONTRIBUTION TO SALES RATIO – C/S RATIO

The profit volume ratio, which is also called contribution to sales ratio, expresses the relationship between contribution and sales.

Profit volume ratio is popularly known as P/V ratio. It is also called marginal ratio.

The formulae for computing the P/V ratio are given below:

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

The ratio can be shown in the form of a percentage also

$$\frac{P}{V} \text{ Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

Since contribution is equal to sales minus variable cost

$$\frac{P}{V} \text{ Ratio} = \frac{\text{Sales} - \text{Variable cost}}{\text{Sales}}$$

i.e. $\frac{S-V}{S}$

Since contribution is equal to

Fixed cost plus profit –

$$\frac{P}{V} \text{ Ratio} = \frac{F + P}{S}$$

$$\text{P/V Ratio} = \frac{\text{Contribution per unit}}{\text{Selling Price Per unit}} \times 100 \text{ (or) } \text{P/V Ratio} = \frac{(1 - \text{VC})}{S} \times 100$$

When two years Profit/ Contribution and sales are given, then P/V ratio can be computed by the following formula –

$$\text{P/V Ratio} = \frac{\text{Changes in Profit/ Contribution}}{\text{Changes in sales}}$$

The P/V ratio, which establishes the relationship between contribution and sales, is of great importance for analyzing the profitability of business operation.

Higher the P/V ratio more will be the profit and lower the P/V ratio, lesser will be the profit.

Every Management aims in increasing the P/V ratio as increased P/V ratio indicates better profitability.

The P/V ratio can be enhanced/ increased by increasing the amount of contribution.

The P/V ratio can be increased by:

- Increasing the selling price per unit.
- Reducing the variable or marginal cost.

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(iii) Increasing the volume of production of products with higher P/V ratio.

The concept of P/V ratio is also helpful in determining the break-even point, the profit in a given volume of output/sales, the sales volume required to earn a desired profit and the volume of sales required to maintain the present profit whenever selling price is changed by a specified percentage.

Break Even Point. It is the point in which there is no profit and no loss.

$$\text{BEP (Sales Volume)} = \frac{\text{Fixed cost}}{\text{P/V Ratio}}$$

$$\text{Sales required in units to maintain a desired profit} - \text{Required Sales} = \frac{\text{Fixed cost} + \text{Desired Profit}}{\text{P/V Ratio}}$$

$$\text{Or} \\ \frac{\text{F} + \text{P}}{\text{P/V Ratio}}$$

Profit in a given volume of Sales

$$\text{Profit} = \text{Sales} \times \text{P/V Ratio} - \text{Fixed cost}$$

The P/V ratio is also useful in determining contribution, variable cost and fixed cost.

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

$$\text{Variable Cost} = \text{Sales} (1 - \text{P/V ratio})$$

$$\text{Fixed Cost} = \text{B.E.P} \times \text{P/V Ratio}$$

Illustration: 4

From the following information, calculate P/V Ratio:

Marginal cost ₹2,400

Selling price ₹3,000

Solution :

$$\text{P/V Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{\text{Rs.3,000} - \text{Rs.2,400}}{\text{Rs.3,000}} \times 100 = \frac{\text{Rs.600}}{\text{Rs.3,000}} \times 100 = 20\%$$

Illustration: 5

The sales turnover and profits during two periods are as under:

Period I : Sales ₹20 lakhs ; Profit ₹2 lakhs

Period II : Sales ₹30 lakhs ; Profit ₹4 lakhs

Calculate P/V Ratio.

Solution :

$$\begin{aligned} \text{P/V Ratio} &= \frac{\text{Change in profit}}{\text{Change in sales}} \times 100 = \frac{\text{Rs.4,00,000} - 2,00,000}{\text{Rs.30,00,000} - \text{Rs.20,00,000}} \times 100 \\ &= \frac{2,00,000}{10,00,000} \times 100 = \mathbf{20\%} \end{aligned}$$

Illustration: 6

The following data are obtained from the records of a company :

	First Year	Second Year
Sales	80,000	90,000
Profit	10,000	14,000

Calculate the break-even point.

Solution :

$$\begin{aligned} \text{B.E.P. (Sales)} &= \frac{\text{Fixed cost}}{\text{P/V Ratio}} \\ \text{P/V Ratio} &= \frac{\text{Change in profit}}{\text{Change in sales}} \times 100 = \frac{4,000}{10,000} \times 100 = 40\% \\ \text{Fixed cost} &= \text{Contribution} - \text{Profit} \\ &= 80,000 \times \frac{40}{100} - \text{Rs.10,000} \\ \text{Fixed cost} &= 32,000 - 10,000 = \text{Rs.22,000} \\ \text{B.E.P. (Sales)} &= \frac{22,000 \times 100}{40} = \mathbf{\text{Rs.55,000}} \end{aligned}$$

Illustration: 7

From the following data, calculate the break-even point expressed in terms of units and also the new B.E.P., if selling price is reduced by 10%.

Fixed Cost	2,00,000
Depreciation	1,00,000
Salaries	1,00,000
Variable Expenses	
Materials	₹ 3 Per Unit
labour	Rs. 2 Per Unit
Selling Price	₹ 10 Per Unit

Solution :

$$\begin{aligned} \text{B.E.P.} &= \frac{\text{Fixed cost}}{\text{Contribution per unit}} \\ &= \frac{2,00,000}{5} = 40,000 \text{ units} \end{aligned}$$

When the selling price is reduced by 10%, selling price becomes ₹ 9 per unit (₹ 10-1).
So, Contribution = ₹ 9 - ₹ 5 = ₹ 4.

$$\begin{aligned} \text{B.E.P.} &= \frac{\text{Fixed cost}}{\text{Contribution per unit}} = \frac{2,00,000}{4} = 50,000 \text{ units} \end{aligned}$$

Illustration: 8

Sales ₹ 1,00,000;

Profit ₹ 10,000;

Variable cost 70%

Find out

(i) P/V ratio (ii) Fixed Cost (iii) Sales Volume to earn a Profit of ₹ 40,000

Solution :

	Sales	=	`1,00,000
	Variable Cost	=	70%
			$\frac{70}{100} \times 1,00,000 = \text{Rs.}70,000.$
			= 100
			$\frac{\text{Sales} - \text{Variable Cost}}{\text{Sales}} \times 100$
(i)	P/V Ratio	=	$\frac{1,00,000 - 70,000}{1,00,000} \times 100 = 30\%$
			= 30%
(ii)	Contribution	=	Fixed Cost + Profit
	or,	30,000	= Fixed Cost + 10,000 = `20,000
	or,	Fixed Cost Contribution – Profit	= 30,000 – 10,000 = 20,000
			$\frac{\text{Fixed Cost} + \text{Profit}}{\text{P/V Ratio}}$
(iii)	Sales	=	$\frac{20,000 + 40,000}{30\%} = 60,000 \times \frac{100}{30}$
			= Rs. 2,00,000.

Illustration: 9

Sale of a product amounts to 200 units per month `10 per unit. Fixed overhead cost is `400 per month and variable cost is `6 per unit. There is a proposal to reduce prices by 10 per cent. Calculate the present and future P/V ratio. How many units must he sold to earn the present total profits?

Solution:**Present P/V Ratio**

$$\text{Sales} = 200 \times 10 = `2,000$$

$$\text{Variable Cost} = 200 \times 6 = `1,200$$

$$\begin{aligned} \text{(i) Contribution} &= \text{Sales} - \text{Variable Cost} \\ &= 2,000 - 1,200 = `800 \end{aligned}$$

6.18 Management Accounting

$$\begin{aligned} \text{P/V Ratio} &= \frac{\text{Contribution}}{\text{Sales}} \times 100 \\ \text{(or), Fixed cost} &= \text{Contribution} - \text{Profit} \\ &= \frac{800}{2000} \times 100 = 40\% \end{aligned}$$

P/V Ratio after reducing price by 10%

	`
Present Price per unit	10
<i>Less</i> : Reducing 10%	<u>1</u>
Future Price per unit	9
Variable Cost per unit	<u>6</u>
Contribution per unit	<u>3</u>
$\frac{C}{S} \times 100 = \frac{3}{9} \times 100 = 33 \frac{1}{3}\%$	
P/V ratio =	33 $\frac{1}{3}$ %

Future Sales for Earning Present Profits

$$\begin{aligned} \text{Present Profit} &= \text{Contribution} - \text{Fixed Cost} \\ &= 800 - 400 = `400 \end{aligned}$$

So, we have to find out the required volume of sales to earn a profit of `400.

$$\begin{aligned} \text{Sales} &= \frac{\text{Fixed Cost} + \text{Profit}}{\text{P/V Ratio}} \\ &= \frac{400 + 400}{33 \frac{1}{3} \%} = \frac{800}{\frac{1}{3}} \\ &= 800 \times 3 = 2400 \end{aligned}$$

$$\begin{aligned} &= \frac{800 \times 3}{9} = \text{Rs.}2,400 \\ &= \frac{2,400}{9} = 267 \text{units.} \\ \text{Sales in units} &= 267 \end{aligned}$$

Illustration: 10

The sales turnover and profit during two years were as follows:

Year	Sales	Profit
2008	1,40,000	15,000
2009	1,60,000	20,000

You are required to calculate:

- P/V ratio
- Sales required to earn a profit of `40,000
- Profit when sales are `1,20,000.

Solution:

$$(i) \quad \text{P/V Ratio} = \frac{\text{Change in Profit} \times 100}{\text{Change in Sales}}$$

$$= \frac{5,000}{20,000} \times 100 = 25\%$$

(ii) Sales required to earn a profit of `40,000.

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

$$\text{or} \quad \frac{25}{100} = \frac{F + 15,000}{1,40,000}$$

$$35,000 - 15,000 = F$$

$$\text{or} \quad \text{Fixed Cost} = 20,000$$

$$\text{Desired Sales} = \frac{\text{P/V ratio} \times (\text{Fixed Cost} + \text{Desired Profit})}{100}$$

$$= \frac{25 \times (20,000 + 40,000)}{100}$$

$$= \frac{15. \quad 60,000 \times 100}{4. \quad 25} = \text{Rs.}2,40,000$$

<p>(iii) Profit when sales are ₹1,20,000</p> $4. \quad \frac{F + P}{\text{P/V ratio}}$ $S \times \text{P/V ratio} = F + P$ <p>or $1,20,000 \times \frac{25}{100} = 20,000 + P$</p> <p>or $30,000 = 20,000 + P$</p> <p>or $\text{Profit} = 30,000 - 20,000 = ₹10,000$</p>

Composite P/V Ratio

When a company manufactures more than one product, it not only calculates P/V ratio for each product. But also for the company as a whole. Such P/V ratio is called composite P/V ratio.

$$\text{Composite P/V Ratio} = \frac{\text{Total Contribution}}{\text{Total Sales}} \times 100$$

OR

$$= \frac{\text{Individual P/V Ratio} \times \text{percentage of individual Product's sales to Total sales}}{\text{Total sales}}$$

BREAK – EVEN POINT

Break –Even Point is a point of no profit and no loss. The break-even point may be defined as that point of sales volume in which total revenue is equal to total cost.

At this point of activity (Production/Sales), a firm neither earns any profit nor incurs any loss. That is why, it is also known as **critical point, equilibrium point, balancing point** and **zero profit and loss point**.

The break-even point refers to that level of output which evenly breaks the costs and revenues and hence it is called so.

$$\text{BEP, Contribution} = \text{Fixed cost.}$$

If production/ sale is increased beyond this point called break-even point, there will be profit to the concern and when it is decreased from this level, there will be loss to the concern.

Formulae for determining BEP

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

Or

$$(b) \text{ BEP} = \frac{\text{Selling price per unit} - \text{Variable cost per unit}}{\text{Contribution per unit}} \times \text{Sales (i.e in Sales Value)}$$

$$(c) \text{ BEP (in Rupees)} = \frac{\text{Fixed Cost}}{\text{Contribution per unit}}$$

Or

$$(d) \text{ BEP} = \frac{\text{Fixed cost}}{1 - \text{variable cost per unit}} \times \frac{\text{P / V ratio}}{\text{Fixed Cost}}$$

$$(e) \text{ Selling price per unit} = \text{Contribution per unit} \times \text{Selling price per unit}$$

Or

$$(f) \text{ BEP (in `)} = \text{BEP (units)} \times \text{Selling price per unit}$$

Illustration: 11

From the following particulars calculate the break-even point:

Variable cost per unit	₹12
Fixed expenses	₹60,000
Selling price per unit	₹18

Solution:

$$\text{B.E.P. (in nits)} = \frac{\text{Fixed cost}}{\text{Contribution per unit}}$$

(Selling Price – Variable Cost = Contribution)

$$(\text{₹}18 - \text{₹}12 = \text{₹}6)$$

$$\text{₹}60,000 \div \text{₹}6 = 10,000 \text{ Units}$$

$$\text{B.E.P. Sales} = 10,000 \times \text{₹}18 = \text{₹}1,80,000$$

Illustration: 12

A company estimates that next year it will earn a profit of ₹50,000. The budgeted fixed costs and sales are ₹2,50,000 and ₹9,93,000 respectively. Find out the break-even point for the company.

Solution:

$$\text{B.E.P. (in units)} = \frac{F \times S}{\text{Contribution}}$$

$$\text{Contribution} = S - V = F + P$$

$$F + P \quad ₹2,50,000 + ₹50,000 \quad = ₹3,00,000$$

$$\text{B.E.P. Sales} = \frac{2,50,000 \times 9,93,000}{3,00,000} = ₹8,27,500$$

Illustration: 13

From the following particulars, find out the selling price per unit if B.E.P. is to be brought down to 9,000 units.

Variable cost per unit ₹75

Fixed expenses ₹2,70,000

Selling price per unit ₹100

Solution :

Let us assume that the contribution per unit at B.E. sales of 9,000 is x.

$$\text{B.E.P.} = \frac{\text{Fixed cost}}{\text{Contribution per unit}}$$

Contribution per unit is not known. Therefore

$$9,000 \text{ units} = \frac{2,70,000}{x}$$

$$9,000 x = 2,70,000$$

$$x = 30.$$

Contribution is ₹30 per unit, in place of ₹25. Therefore, the selling price should have been ₹105, i.e., ₹75 + ₹30.

Illustration: 14

From the following information, calculate the break-even point in units and in sales value.

Output	= 3,000 units
Selling price per unit	= `30
Variable cost per unit	= `20
Total fixed cost	= `20,000

Solution:

	<u>Fixed Cost</u>
Break-even point (in units)	= $\frac{\text{Fixed Cost}}{\text{Selling Price per unit} - \text{Variable Cost}}$
	= $\frac{20,000}{30 - 20} = \frac{20,000}{10} = 2,000 \text{ units.}$
Break-even point (in Sales Value)	= $\frac{\text{Fixed Cost} \times \text{Sales}}{\text{Sales} - \text{Variable Cost}}$
Fixed Cost	= `20,000 (given)
Sales	= 3,000 × 30 = `90,000
Variable Cost	= 3,000 × 20 = `60,000
Hence, B.E.P. (In Sales Value)	= $\frac{20,000 \times 90,000}{90,000 - 60,000}$
	= $\frac{20,000 \times 90,000}{30,000} = \text{Rs. } 60,000$
	= 90,000 – 60,000
Otherwise, as the B.E.P. is 2,000 units, break-even sales would be:	
	= 2,000 × 30 = `60,000

Illustration: 15

From the following particulars, calculate:

9. Break-even point in terms of sales value and in units.
10. Number of units that must be sold to earn a profit of `90,000.

Fixed Factory Overheads Cost Fixed	60,000
Selling Overheads Cost Variable	12,000
Manufacturing Cost per unit Variable	12
Selling Cost per unit Selling Price	3
per unit	24

Solution :

	Fixed Cost
(i) Break-even point	= Selling Price per unit – Variable Cost per unit
Variable Cost per unit	= `12+3=`15
Total Fixed Cost	= `60,000 + 12,000 = `72,000 <u>72,000</u> = 8,000 units
B.E.P.	= 24 – 15
B.E.P. (in sales values)	= 8,000 × 24 = `1,92,000
9. Number of units that must be sold to earn profit of `90,000	$\frac{\text{Fixed Cost} + \text{Profit}}{\text{Selling Price per unit} - \text{Variable Cost per unit}}$
	$= \frac{72,000 + 90,000}{24 - 15} = \frac{1,62,000}{9} = 18,000 \text{ units.}$

Illustration: 16

From the following data, you are required to calculate:

9. P/V ratio

10. Break-even sales with the help of P/V ratio.

11. Sales required to earn a profit of ₹4,50,000

Fixed Expenses = Rs 90,000

Variable Cost per unit :

Direct Material = ₹5

Direct Labour = ₹2

Direct Overheads = 100% of Direct Labour

Selling Price per unit = ₹12.

Solution :

Selling Price per unit		₹	12
<i>Less</i> : Variable Cost per unit :			
Direct Material		5	
Direct Labour		2	
Direct Overheads	2		
	<u> </u>	9	
Contribution per unit		<u>3</u>	
(a) P/V ratio	$\frac{\text{Contribution}}{\text{Sales}} \times 100$		
	$= \frac{3}{12} \times 100 = 25\%$		
(b) Break-even Sales	$= \frac{\text{Fixed Expenses}}{\text{P/V ratio}}$		
	$= \frac{90,000}{25} = \frac{90,000 \times 100}{25} = \text{Rs.}3,60,000.$		
	$= 100$		

Sales required to earn a profit of ₹4,50,000

$$\begin{aligned} & \frac{\text{Fixed Expenses} + \text{Desired Profit}}{\text{P/V ratio}} \\ &= \frac{90,000 + 4,50,000}{25\%} = \frac{5,40,000}{25} \\ &= 100 \\ & \frac{5,40,000 \times 100}{25} = \text{Rs.}21,60,000 \end{aligned}$$

Illustration: 17

From the following data, you are required to calculate the breakeven point and net sales value in this point.

	₹
Direct material cost per unit	10
Direct labour cost per unit	5
Fixed overhead	50,000
Variable overheads @ 60% on direct labour	
Selling price per unit	25
Trade discount	4%

If sales are 10% and 25% above the break even volume, determine the net profits.

Solution :

		₹
Selling price per unit		25
Less : Trade discount (25 × 4/100)	<u>1</u>	
Net selling price per unit		24
Less : Variable cost per unit	10	
Direct material	5	
Direct labour	<u>3</u>	
Variable overheads (5 × 60/100)	<u>18</u>	
Contribution per unit		6

Fixed Cost

$$\text{Break-even point (in units)} = \frac{\text{Fixed Cost}}{\text{Contribution per unit}}$$

$$= \frac{50,000}{6} = 8,333 \text{ units}$$

$$\text{Break-even Point (in sales value)} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}}$$

$$\text{P/V Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

$$= \frac{6}{24} \times 100 = 25\%$$

$$\text{Hence, B.E.P. (in sales value)} = \frac{50,000}{25\%} = 50,000 \times \frac{100}{25}$$

$$= \text{`}2,00,000$$

Profile when sales are 10% above the break even volume

$$\text{Sales} = 2,00,000 + 10\% = \text{`}2,20,000$$

$$\text{Contribution} = \text{Sales} \times \text{P/V Ratio} = 2,20,000 \times 25/100 = \text{`}55,000$$

$$\text{Contribution} = \text{Fixed Cost} + \text{Profit}$$

$$\text{`}55,000 = 50,000 + \text{Profit}$$

$$\text{Profit} = \text{`}5,000$$

Profit when sales are 25% above the break even volume

$$\text{Sales} = 2,00,000 + 25\% \text{ of } 2,00,000 = \text{`}2,50,000$$

$$\text{Contribution} = 2,50,000 \times 25/100 = \text{`}62,500$$

$$\text{Contribution} = \text{Fixed Cost} + \text{Profit}$$

$$62,500 = 50,000 + \text{Profit}$$

$$\text{Profit} = \text{`}12,500$$

Illustration: 18

From the following particulars, find out the break even-point:

Variable Cost per unit	15
Fixed Expenses	54,000
Selling Price per unit	20

What should be the selling price per unit, if the break-even point should be brought down to 6,000 units?

Solution :

$$\begin{aligned} \text{Contribution per unit} &= \text{Selling Price} - \text{Variable cost per unit} \\ &= 20 - 15 = 5 \\ &\quad \frac{\text{Fixed Expenses}}{\quad} \end{aligned}$$

(a) B.E.P.

$$\begin{aligned} 11. \quad &\frac{\text{Contribution per unit} \times \text{B.E.P.}}{\text{Fixed Expenses}} = \text{B.E.P.} \\ &\frac{5 \times \text{B.E.P.}}{54,000} = \text{B.E.P.} \\ &5 \times \text{B.E.P.} = 54,000 \\ &\text{B.E.P.} = \frac{54,000}{5} = 10,800 \text{ units} \end{aligned}$$

(b) What should be the selling price per unit, if the break-even-point should be brought down to 6000 units:

$$\begin{aligned} \text{B.E.P.} &= \frac{\text{Fixed Expenses}}{\text{Contribution per unit}} \\ &= \frac{54,000}{\text{Contribution per unit}} \\ \text{or, } 6,000 &= \frac{54,000}{\text{Contribution per unit}} \\ &= \frac{54,000}{\text{S.P.} - 15} = \text{Rs.9} \\ \text{or, } \text{Contribution per unit} &= 6,000 \\ \text{Contribution} &= \text{S.P.} - \text{V.C.} \\ \text{or, } 9 &= \text{S.P.} - 15 \\ \text{Selling Price} &= 24 \end{aligned}$$

Illustration: 19

From the following information, ascertain to the value of sales must be increased by the company to break-even:

Sales	3,00,000
Fixed Cost	1,50,000
Variable Cost	2,00,000

Solution

$$\text{Break-even point} = \frac{\text{Fixed Cost} \times \text{Sales}}{\text{Sales} - \text{Variable Cost}}$$

$$12. \quad \frac{1,50,000 \times 3,00,000}{3,00,000 - 2,00,000}$$

$$13. \quad \frac{1,50,000 \times 3,00,000}{1,00,000} = \text{Rs. } 4,50,000.$$

Hence, Sales to be increased by the company to break-even are = `4,50,000 – 3,00,000 = `1,50,000.

Illustration: 20

The fixed costs amount to `50,000 and the percentage of variable costs to sales is given to be 66 $\frac{2}{3}$ %. If 100% capacity sales are `3,00,000, find out the break-even point and the percentage sales when it occurred. Determine profit at 80% capacity.

$$\text{Percentage of Variable Cost to Sales is } \frac{66\frac{2}{3}}{3} \text{ i.e., } \frac{200}{3}$$

$$\therefore \text{Percentage of Contribution to Sales is } \frac{100 - \frac{200}{3}}{3} = \frac{100}{3}$$

$$\text{P/V ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

$$= \frac{100}{3} \times \frac{1}{100} \times 100 = \frac{100}{3} = 33\frac{1}{3} \%$$

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Fixed Cost	
Break – even Sales	$= \frac{\text{P/V Ratio}}{\frac{50,000}{30,000} = \frac{50,000}{100} \times 300 = \text{Rs.}1,50,000.}$ $= \frac{1}{3} \times 100 = 33 \frac{1}{3} \%$
100% Capacity Sales	$= \text{`}3,00,000$ $\frac{1,50,000}{3,00,000} \times 100 = 50\% \text{ capacity.}$
Hence, B.E.P. occurs at	
Profit at 80% Capacity	
At 100% Capacity Sales are	$\text{`}3,00,000$ $\frac{13}{100} = \text{Rs.}2,40,000$
∴ 80% Capacity Sales	$3,00,000 \times \frac{100}{3} \times \frac{1}{100}$
Total Contribution at 80% capacity	$= 2,40,000 \times \frac{100}{3} \times \frac{1}{100}$ $= \text{`}80,000$
Fixed Expenses	$= \text{`}50,000$
Profit at 80% capacity	$= \text{`}30,000$

Illustration: 21

Calculate-

- (i) The amount of fixed expenses.
- (ii) The number of units to break-even
- (iii) The number of units to earn a profit `40,000

The selling price per unit can be assumed in `100. The company sold in two successive periods 7,000 units and 9,000 units and has incurred a loss of `10,000 and earned `10,000 as profit respectively.

	Period I	Period II
Sales	`7,00,000	`9,00,000
Profit/Loss (-)	(-) `10,000	`10,000

Thus for an additional sales of `2,00,000 there is an additional contribution of `20,000 which has wiped off the loss of `10,000 of period I and earned a profit of `10,000 in period II.

	$\frac{\text{Change in Contribution}}{\text{Change in Sales}} \times 100$
P/V ratio	=
	$\frac{20,000}{2,00,000} \times 100$
	= 10%
	$\frac{10}{100}$
Contribution of Period I	= 7,00,000 × $\frac{10}{100}$ = ₹ 70,000
Loss of Period I	= ₹ 10,000
(i) Fixed cost	= Contribution + Loss
∴ Fixed cost	= ₹ 70,000 + 10,000 = ₹ 80,000
	$\frac{\text{Fixed Cost}}{\text{P/V Ratio}}$
(ii) Break – even Sales	= $\frac{80,000}{\frac{10}{100}} = \frac{80,000 \times 100}{10} = \text{Rs. } 8,00,000$
	$\frac{\text{Break - even Sales}}{\text{Selling price per unit}}$
Number of units to break-even	= $\frac{8,00,000}{100} = 8,000 \text{ units}$
(iii) Number of units required to earn a profit of ₹ 40,000	= $\frac{\text{Fixed cost} + \text{Desired profit}}{\text{P/V Ratio}}$
	$= \frac{80,000 + 40,000}{10\%}$
	$= 1,20,000 \times 100 = \text{Rs. } 12,00,000$

Illustration: 22

A factory manufacturing sewing machines has the capacity to produce 500 machines per annum. The marginal (Variable) cost of each machine is ₹ 200 and each machine is sold for ₹ 250. Fixed overheads are ₹ 12,000 per annum. Calculate the break-even points for output and sales and show what profit will result if output is 90% of capacity?

Solution

Contribution per machine is ` 250 – `200 = `50

- (i) Break-even Point for output
(Output which will generate 'contribution' equal to fixed costs ` 12,000)

$$= \frac{\text{Total fixed Cost}}{\text{Contribution per unit}}$$

BEP (for output) Contribution per unit

i.e in units

$$= \frac{12,000}{50} = 240 \text{ Machines}$$

- (ii) Break – even Point for sales

BEP for sales value = Output i.e BEP units x selling price per unit

$$= 240 \times 250 = ` 60,000$$

Break – even point for sales can also be calculated with the help of any one of the following formulae:

$$\begin{aligned} \text{(a) BEP (in sales)} &= \frac{\text{Total Fixed cost}}{\text{Contribution per unit}} \times \text{Selling price per unit} \\ &= \frac{\text{Total Fixed cost}}{\text{Contribution per unit}} \times \text{Selling price per unit} \end{aligned}$$

$$\begin{aligned} \text{BEP in sales value} &= \text{Contribution per unit} \\ &= \frac{12,000}{50} \times 250 \end{aligned}$$

$$= ` 60,000$$

$$\begin{aligned} \text{(b) BEP for sales} &= \frac{\text{Total Fixed cost}}{\text{P/V Ratio}} \\ &= \frac{\text{Contribution per unit}}{\text{P/V Ratio}} \end{aligned}$$

$$\text{P/V Ratio} = \frac{\text{Selling Price per unit}}{\text{Contribution per unit}}$$

$$= \frac{50}{250} \times 100 = 20\%$$

$$\therefore \text{BEP for Sale} = \frac{12,000}{20/100}$$

$$= 12,000 \times \frac{100}{20}$$

$$\begin{aligned}
 \text{(c) BEP in sales Value} &= \frac{\text{Total Fixed cost}}{1 - \frac{\text{Variable cost per unit}}{\text{Selling price per unit}}} \\
 &= \frac{₹ 60,000}{1 - \frac{200}{500}} \\
 &= \frac{12,000}{1 - \frac{200}{500}} = \frac{12,000}{\frac{1}{5}} = 12,000 \times 5 = ₹ 60,000
 \end{aligned}$$

(iii) Profit at 90% capacity.

Profit at 90% capacity is calculated as given below:

$$\text{Output at 90\% capacity} = \frac{500}{100} \times 90 = 450 \text{ Machines}$$

BEP for output = 240 Machines

$$\begin{aligned}
 \therefore \text{The profit on 450 Units} &= 50 \times (450 - 240) \\
 &= 50 \times 210 \\
 &= ₹ 10,500
 \end{aligned}$$

CASH BREAK –EVEN POINT

It is the point where cash breaks even, i.e., the volume of sales where cash realization on account of sales will be just sufficient to meet immediate cash liabilities. While calculating this point i.e cash break-even point, cash fixed costs (i.e., excluding fixed share of depreciation and deferred expenses) and cash contribution (i.e., after making adjustments for variable share of depreciation, etc) are considered.

Cash break-even point helps the management in determining the level of activity which causes insolvency on account of the firm's inability to meet cash liabilities.

$$\text{Cash Break –even Point(in units)} = \frac{\text{Cash Fixed cost}}{\text{Cash contribution per unit}}$$

$$\text{Cash Break –even Point(in sales)} = \text{Cost BEP units} \times \text{Selling price per unit}$$

Illustration: 23

From the following information, calculate the cash Break-Even Point.

Selling Price per unit	40
Variable cost per unit	30
Depreciation (included in the above) per unit	5
Fixed cost	1,00,000
Depreciation included in fixed cost	25,000

Solution

Cash Fixed Cost	= ` 1,00,000 - 25,000 = ` 75,000
Cash contribution per unit	= ` 40 - (30 - 5) = ` 15
	<u>Cash Fixed cost</u>
Cash Break –even Point	= Cash contribution per unit
	= $\frac{75,000}{15} = 5000 \text{ units}$
Cash Break –Even Point in sales value	= ` 5000 x 40 = ` 2,00,000

Illustration: 24

From the following, calculate the cash Break-even point.

Selling price per unit	`50
Variable Cost per unit	`40
Depreciation (include in the above) per unit	`10
Total fixed cost	`2,00,000

Depreciation included in above `40,000. Assume that there is no time tag in payments.

Solution:

$$\text{Cash Break –even Point(in units)} = \frac{\text{Cash Fixed cost}}{\text{Cash contribution per unit}}$$

$$= \frac{\text{Rs.1,60,000}}{20} = 8000$$

$$\text{Cash Break – even Point (in Sales Value)} = 8000 \times 50 = \text{`4,00,000}$$

COMPOSITE BREAK-EVEN POINT

In the case of a concern is dealing with several products, a composite break-even point can be computed with the help of the following formula: $\frac{\text{Total Fixed cost}}{\text{Composite P/v ratio}}$

$$\text{Composite Break –even Point(in sales value)} = \frac{\text{Total Fixed cost}}{\text{Composite P/v ratio}}$$

$$\text{Composite P/V ratio} = \frac{\text{Total contribution}}{\text{Total Sales}} \times 100$$

Product	Sales Revenue (₹)	Variable Cost (₹)	Contribution (S-V) (₹)	P/V Ratio (C/S x100)
A	20,000	10,000	10,000	50%
B	40,000	14,000	26,000	65%
C	60,000	36,000	24,000	40%
Total	1,20,000	60,000	60,000	50%

Fixed cost ` 50,000.

$$(a) \text{ Composite P/V ratio} = \frac{\text{Total contribution}}{\text{Total Sales}} \times 100$$

$$\square \frac{60,000}{1,20,000} \times 100 = 50\%$$

$$(b) \text{ Composite Break –even Point(in sales value)} = \frac{\text{Total Fixed cost}}{\text{Composite P/v ratio}}$$

$$\square \frac{50,000}{50\%} = \text{Rs.1,00,000}$$

COST – VOLUME – PROFIT ANALYSIS AND BREAK – EVEN ANALYSIS

Cost – Volume – profit analysis (CVP Analysis) is a technique for studying the relationship are cost, volume and profit. Profit of a concern is largely depending upon the cost

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of sales and volume of sales. The CVP relationship is an important tool used for the profit planning of a business.

The three factors (elements) of CVP analysis i.e., costs, volume and profit are interconnected and dependent on one another.

CVP analysis can be used to answer the following questions:

- How much sales revenue should be made to avoid losses?
- What are levels of sales revenue must be made to achieve profit targets?
- What are sales revenue must be achieved to recover fixed cost?
- What are the effects of increase or decrease in cost per unit or fixed costs on profit?
- Which product or product mix is most profitable?
- What is effect will price change have on profit?
- How will profits be affected by different levels of sales?
- Should be accept additional orders in a price above the marginal cost?
- Should be make or buy some product or component?

BREAK – EVEN ANALYSIS

The Study of Cost-Volume- Profit analysis is often referred to as ‘ **break-even analysis**’ and the two terms (CVP analysis BEP analysis) are interchangeably. This is so, because break-even analysis is the most widely known form of cost-volume-profit analysis. In a broad sense, break- even analysis refers to the study of relationship are costs-volume and profit in different levels of production and sales. In a narrow curve, break-even analysis refers to a technique of determining that level of operation where total revenues equal to total costs i.e, the point of no profit, no loss.

Assumption of Break –even Analysis.

Break-even analysis is based on the following assumption:

4. All costs can be separated into fixed and variable components
5. Fixed costs will remain constant.
6. Total variable cost will change in direct proportion to the volume of output. However, variable cost per unit will remain constant.
7. Selling price of the product will remain constant.

- (E) There is only one product or in the case of multiple products, the sales mix will remain constant.
- (F) Entire production will be sold out and as such there will be no opening and/ or closing stock.
- (G) Productivity and operating efficiency will remain constant.
- (H) Product specification and method of manufacturing and selling will remain constant.
- (I) Several price level will remain constant.

BREAK-EVEN CHARTS

The graphical representation of the break-even analysis (or cost-volume-profit analysis) is known as break-even chart. Break-even chart is defined as “ a chart which shows the profitability or otherwise of an undertaking in various levels of activity and as a result indicates the point in which neither profit nor loss is made.”

Break-even chart not only shows the break-even point i.e., the point in which the total cost line and the sales line intersect but also provides other information such as:



The profit/loss in different level of output.



The sales value.



The relationship between variable cost, fixed cost and total cost.



The margin of safety.



The angle of incidence



The profit and loss areas.

Practical steps in the preparation of Break Even Chart

- Step 1** → Take Production & Sales (in units) on X-axis
- Step 2** → Take Cost & Sales (in Rs) on Y-axis.
- Step 3** → Draw Fixed Cost line as horizontal line
- Step 4** → Draw Total Cost line starting from the point of fixed cost
- Step 5** → Draw Sales Line starting from the point of origin.
- Step 6** → Locate the point where Total Sales line cuts the Total Cost line. This point is known as Break Even Point.
- Step 7** → Draw the perpendicular from B.E.P. on X-axis. The point in which this perpendicular touches X-axis gives us B.E.P. (in units)

Step 8 → Draw the perpendicular from B.E.P. on Y-axis. The point in which this perpendicular touches Y-axis gives us B.E.P. (in Rs)

Illustration: 25

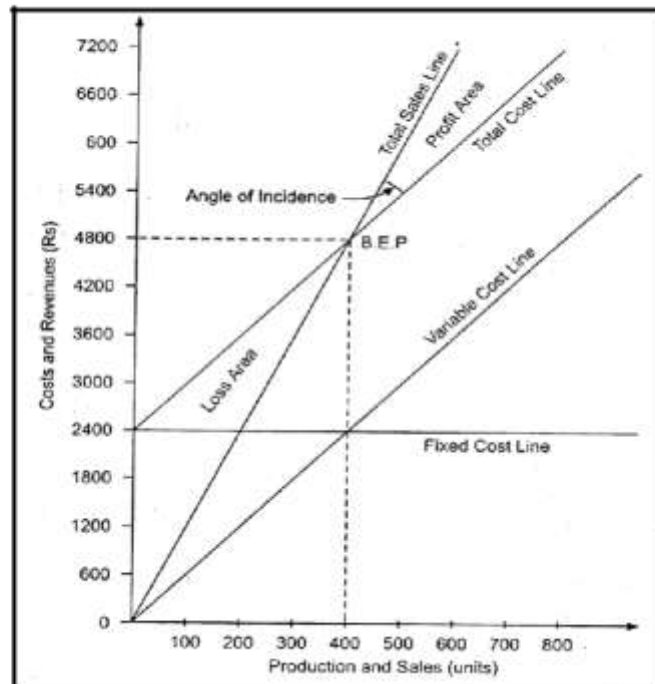
Selling Price per unit Rs 12, Variable Cost per unit Rs 6, Fixed Cost Rs 2,400. Calculate Break Even Point (in units) and (in value) with the help of Break Even Chart.

The varying levels of output are : 100, 200, 300, 400, 500, 600, 700 and

800. Solution

In order to determine BEP, it will be necessary to compute total cost and sales at varying levels as follows:

Output	Variable Cost (Rs)	Fixed Cost (Rs)	Total Cost (Rs)	Sales
100	600	2,400	3,000	1,200
200	1,200	2,400	3,600	2,400
300	1,800	2,400	4,200	3,600
400	2,400	2,400	4,800	4,800
500	3,000	2,400	5,400	6,000
600	3,600	2,400	6,000	7,200
700	4,200	2,400	6,600	8,400
800	4,800	2,400	7,200	9,600



B.E.P. (in units) = 400 units

B.E.P. (in Rs) = Rs 4,800

Verification:

$$\frac{\text{Fixed Costs}}{\text{Contribution Per Unit}} = \frac{\text{Rs } 2,400}{\text{Rs } 12 - \text{Rs } 6} = 400 \text{ units}$$

$$\text{B.E.P. (in units)} = \frac{\text{Fixed Costs}}{\text{Contribution Per Unit}} = \frac{\text{Rs } 2,400}{\text{Rs } 12 - \text{Rs } 6} = 400 \text{ units}$$

$$\text{B.E.P. (in Rs)} = \frac{\text{Fixed Costs}}{\text{P/V Ratio}} = \frac{\text{Rs } 2,400}{[(\text{Rs } 12 - \text{Rs } 6) / \text{Rs } 12]} = \text{Rs } 4,800$$

$$\text{B.E.P. (in Rs)} = \frac{\text{Fixed Costs}}{\text{P/V Ratio}} = \frac{\text{Rs } 2,400}{[(\text{Rs } 12 - \text{Rs } 6) / \text{Rs } 12]} = \text{Rs } 4,800$$



Margin of safety



Angle of incidence



Types of break-even chart – Profit Volume graph

LIMITATIONS OF BREAK EVEN ANALYSIS

Break even analysis is fundamentally a static analysis as it assumes almost every-thing constant (e.g., constant total fixed costs, variable cost per unit, selling price, productivity, sales mix in case of multi products etc.). The limitations which make the assumptions to be unrealistic are given below:

- (a) All costs can not be separated into fixed and variable components with accuracy.

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- vi. Fixed costs may change because of change in management policy or after a range of activity.
- vii. Variable cost per unit may change because of operation of law of increasing returns or decreasing returns.
- viii. Selling price may change because of increase or decrease in output, market demand & supply, competition etc.
- ix. In case of multiple products, the sales mix need not necessarily be constant.
- x. In case of multiple products, separate break even points are to be calculated. This poses a problem of apportionment of fixed costs to each product.
- xi. Entire production need not necessarily be sold in practice.

MARGIN OF SAFETY

The Margin of safety is the amount by which the volume of sales exceeds the break-even sales. In other words, it is the difference between the actual sales and the break-even sales. A high margin of safety indicates that the concern will make profit and no profits can be made with a low margin of safety. From the point of view of management, there should be a reasonable margin of safety.

The following Formulae may be used to calculate the Margin of Safety:

$$1. \text{ Margin of safety} = \frac{\text{Actual Sales} - \text{Break-even Sales}}{\text{profit}}$$

$$\text{Or} = \frac{\text{Contribution per unit}}{\text{profit}}$$

$$2. \text{ Margin of safety} = \frac{\text{P/V Ratio}}{\text{profit}}$$

$$\text{Or} = \text{Contribution per unit} \times \text{Sales Price Per unit}$$

$$3. \text{ Margin of safety as Percentage of Total /Actual sales} = \frac{\text{Margin of Safety}}{\text{Actual Sales}} \times 100$$

$$= \text{Actual Sales}$$

$$\text{Or} = 100 - \text{Break-even Sales (\%)}$$

Ways of improving Margin of safety(OR) How to Improve Margin of Safety?

Margin of safety can be improved by the following ways:

7. By increasing the selling price provided the demand is inelastic so as to absorb the increased prices
8. By increasing the sales volume provided the capacity is available
9. By curtailing variable cost 0
10. By reducing fixed cost
11. By improving the sales mix

Illustration: 26

Selling Price per unit Rs 10, Variable Cost per unit Rs

6 Fixed Cost Rs 2,000, Actual Sales Rs 20,000

Calculate the Margin of Safety (in units), Margin of Safety (in value) and Margin of Safety (in%).

Marginal Cost-Sheet**Solution**

A	Actual Sales (in units)	2,000
B	Selling Price Per unit	Rs 10
C	Total Sales (A × B)	Rs 20,000
D	Less : Total Variable Cost (2000 ×Rs 6)	Rs 12,000
E	Total contribution (C-D)	Rs 8,000
F	Less : Fixed Costs	Rs 2,000
G	Profit	Rs 6,000
$\text{Margin of Safety (in units)} = \frac{\text{Profit}}{\text{Contribution per unit}} = \frac{\text{Rs } 6,000}{\text{Rs } 10 - \text{Rs } 6} = 1500 \text{ units}$		
$\text{Margin of Safety (in value)} = \frac{\text{Profit}}{\text{Contribution per unit}} \times \text{Selling Price per unit}$ $= \frac{\text{Rs } 6,000}{\text{Rs } 10 - \text{Rs } 6} \times \text{Rs } 10 = \text{Rs } 15,000$		

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$$\begin{aligned} \text{Margin of Safety (in \%)} &= \frac{\text{Margin of Safety (in units)}}{\text{Actual Sales (in units)}} \times 100 = \frac{1500}{2000} \times 100 = 75\% \\ &= \frac{\text{Margin of Safety (in value)}}{\text{Actual Sales (in value)}} \times \frac{\text{Rs } 15,000}{\text{Rs } 8,000} \times 100 = 75\% \\ &= \frac{\text{Profit}}{\text{Total Contribution}} \times 100 = \frac{\text{Rs } 6,000}{\text{Rs } 8,000} \times 100 = 75\% \end{aligned}$$

ANGLE OF INCIDENCE

The angle of incidence is the angle in which the sales line cuts the total cost line. A narrow angle would indicate that profits are at a relatively low rate of return. A wide angle, on the other hand, would show that a firm has a high rate of profit, after the fixed overheads have been absorbed. Where the variable costs form a large part of the cost of sales, the angle of incidence becomes narrow. The management is interested in having the angle of incidence as wide as possible because it indicates a high rate of profit.

SELF ASSESSMENT QUESTIONS
Answer for Check Your Progress

I. Choose the correct answer from the given options:

1. Break-even point is calculated by the formula

- | | | | | | | |
|---|----------|-------|----------|--|----------|-------|
| $\frac{\text{Marginal Cost}}{\text{Standard cost}}$ | \times | sales | \times | $\frac{\text{Fixed Cost}}{\text{Marginal contribution}}$ | \times | sales |
| a) | | | | b) | | |
| $\frac{\text{Fixed Cost}}{\text{Total cost}}$ | | | | $\frac{\text{P Ratio}}{\text{V}}$ | | |
| c) | | | | d) | | |

2. One of the primary differences between marginal costing and absorption costing is regarding the treatment of

- | | |
|-----------------------|---------------------|
| a) Prime cost | b) Fixed overheads |
| c) Variable overheads | d) Direct materials |

3. Absorption costing differs from marginal costing is the Contribution margin is also known as

- | | |
|--------------------|------------------|
| a) Marginal profit | b) Gross profit |
| c) Net profit | d) None of these |

5. Period costs are

- | | |
|-------------------|----------------|
| a) Overhead costs | b) Prime costs |
| c) Variable cost | d) Fixed costs |

6. Contribution margin is equal to

- | | |
|--------------------------------|---------------------------|
| a) Fixed cost - Loss | b) Profit – Variable cost |
| c) Sales – Fixed cost - Profit | d) None of these |

7. P/V ratio is an indicator of

- The rate at which goods are sold
- The volume of sales
- The volume of profit
- The rate of profit

8. Margin of safety is the difference between

- Planned sales and planned profit
- Actual sales and Break-even sales
- Planned sales and actual sales
- None of the above

9. An increase in variable cost leads to

- a) Increased P/V ratio
b) Increased net profit
c) Reduction of contribution
d) None of the above
10. An increase in selling price
a).Increases the Break-even point
b).Decreases the Break-even point
c).Does not affects the Break-even point
d).None of the above

Fact the standard cost can be used with absorption costing but not with marginal costing

Amount of cost assigned to individual units of products

Kind of activities for which each can be used

Amount of fixed cost that will be incurred

4. Contribution margin is also known as

- a) Marginal profit
- b) Gross profit
- c) Net profit
- d) None of these

5. Period costs are

- a) Overhead costs
- b) Prime costs
- c) Variable cost
- d) Fixed costs

6. Contribution margin is equal to

- a) Fixed cost - Loss
- b) Profit – Variable cost
- c) Sales – Fixed cost - Profit
- d) None of thes

10. P/V ratio is an indicator of

The rate at which goods are sold

The volume of sales

The volume of profit

The rate of profit

11. Margin of safety is the difference between

Planned sales and planned profit

Actual sales and Break-even sales

Planned sales and actual sales

None of the above

12. An increase in variable cost leads to

- a) Increased P/V ratio
- b) Increased net profit
- c) Reduction of contribution
- d) None of the above

10. An increase in selling price

- a. Increases the Break-even point
- b. Decreases the Break-even point
- c. Does not affect the Break-even point
- d. None of the above

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Answers: 1. (d) 2. (b) 3. (b) 4. (a) 5. (d) 6. (a) 7. (d) 8. (b) 9. (c) 10. (b)

9. Fill in the blanks with appropriate words.

In marginal costing fixed cost are changed to _____.

In marginal costing, the relative profitability is indicated by _____.

When absorption costing is used, profit will be more than that determined under marginal costing if production exceeds _____.

Break-even point is _____ by changes in fixed cost.

The intersection of _____ line and _____ line makes the angle of incidence.

Contribution will be _____ than profit because fixed cost is excluded.

A higher P/V ratio reflects _____ profitability.

Answer: 1. Costing P&L a/c 2. P/V ratio 3. Sales 4. Affected 5. Cost and sales 6. Higher 7. Greater.

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

- Break-even analysis is another name given to Cost-Volume-Profit analysis.
- Cost control requires the segregation of costs into fixed and variable
- Regardless of output, fixed cost per unit remains constant while marginal cost per unit tends to vary.
- Absorption costing is more suitable for decision making than marginal costing.
- Contribution is the difference between the sales and the fixed cost

Answers: 1. False 2. True 3. False 4. False 5. False.

IV. Short Answer Questions

What is meant by marginal costing?

What is meant by contribution?

What do you understand by P/V ratio?

Define Break-even point.

What is cost volume profit analysis?

Define the term 'Margin of safety'.

What is angle of incidence?

V. Case Analysis

Explain the concept of marginal costing. What are the characteristics and assumptions of marginal costing?

Give a comparative description of absorption costing and marginal costing.

What is contribution? How does it help management in solving various problems?

VI. Case Analysis

ix. From the following information, prepare a statement of cost under:

Marginal costing

Absorption

	Products		
	X	Y	Z
Direct labour	7,500	30000	3000
Direct wages	9000	9000	1500
Factory Overhead:			
Fixed	3000	1500	1500
Variable	3900	9000	4500
Selling overhead:			
Fixed	1500	900	600
Variable	2100	6000	3000
Sales			

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	32000	61000	16000
--	-------	-------	-------

(Ans: (i) Contribution: X = ₹ 9,500; V = ₹ 7,000; Z = ₹ 4,000; and (ii) Net profit : X = ₹ 5,000; V = ₹ 4,600; Z = ₹ 1,900)

- h. The following figures are extracted from the books of Vijay Irons Ltd., for the years 2012 and 2013 whose capacity is 10,000 irons p.a.:

	2012 units	per unit (₹)	2013 Units
Direct material		3.50	
Direct labour		0.50	
Fixed over head		2.00	
Selling price		8.00	
Production	10000		10000
sales	8000		12000

Prepare cost statements assuming that the company uses marginal costing.

(Ans: Net profit: 2012: ₹ 12,000; 2013 : ₹ 28,000; Value of closing stock in 2012: ₹ 8,000 (i.e. 2,000 x ₹ 4))

- e. The selling price of a particular product is ₹ 100 and the marginal cost is ₹ 65. During the month of April, 800 units were produced of which 500 were sold. There was no opening stock at the commencement of the month. Fixed costs amounted to ₹ 18,000. Provide a statement using (i) Marginal costing and (ii) Absorption costing, showing the closing stock valuation and the profit earned under each principle.

(Ans: (a) Closing stock ₹ 55 ; Contribution ₹ 17,500; (b) Closing stock ₹ 87.50: Profit : ₹ 6,250)

3. From the following data, you are required to prepare profit and loss accounts in the traditional form as well as in the contribution format:

	₹
Sales	84,000,000
Depreciation, Supervisions, Salaries, other fixed costs	18,000,000
Variable production costs	22,000,000
Operating expenses –Administration	16,000,000
Selling expenses	20,000,000

50% of administration expenses and 40% of selling expenses were fixed.

(Ans: Absorption costing : Gross profit : ` 28,00,000; Net profit ` 8,00,000; Marginal costing : Contribution ` 42,00,000 : Net profit : ` 8,00,000)

5. The following are the cost data relating to 'A' factory for 2 years:

	2011 units	2012 units
Installed capacity	10,000	10,000
Opening inventory	Nil	10,000
Closing inventory	1,000	Nil
Output	10,000	9,000
Sales	9,000	10,000
Fixed costs for the year	` 85,000	` 85,000
Selling price per the unit	` 14	` 14
Variable cost per unit	` 2.90	` 2.90

Work out the profit under marginal costing and absorption costing for the two years. Also state any abnormality in the results disclosed by absorption costing. Assume FIFO basis for the material issued.

(Ans: Absorption costing : Net profit : 2011 : ` 23,400; 2012 : ` 17,500; Value of closing stock : 2011 : ` 11,400; 2012: Nil; Marginal costing : Net profit : 2011: ` 14,900; 2012 : ` 26,000; Value of closing stock : 2011 : ` 2,900; 2012: Nil ; Contribution : 2011 : ` 99,900; 2012: ` 1,11,000)

6. Calculate the Break-even Point from the following figures:

	`
Sales	30,000
Fixed expenses	75,000
Direct materials	1,00,000
Direct labour	60,000
Direct expenses	40,000

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(Ans: B.E.P: `2,25,000)

7. Calculate B.E.P in units and value for the following:

	₹
Total cost	50,000
Total variable cost	30,000
Sales (5,000 units)	50,000

(Ans: B.E.P: 5,000 units or ` 50,000; Fixed cost ` 20,000)

8. Calculate the Break-even Point from the following particulars:

	₹
Fixed expenses	3,00,000
Total variable cost per unit	16
Selling price per unit	21

(Ans: B.E.P: 60,000 units or `12,60,000)

9. The details of cost per unit in an activity level of 10,000 units of a product is as follows:

	₹
Raw materials	10
Direct expenses	8
Labour charges	2
Variable overheads	4
Fixed overheads	6
Total cost per unit	30
Profit per unit	2
Selling price per unit	32

Calculate the Break-even quantity.

(Ans: B.E.P: 7,500; Fixed cost: ` 60,000)

10. The following information relating to a company is given to you:

	₹
Sales	4,00,000
Fixed cost	1,80,000
Variable cost	2,50,000

Ascertain how much value of sales must be increased for the company to achieve Break-even.

(Ans: Sales to be Increased: ₹ 80,000)

- 7 The following figures are extracted from the books of a manufacturing concern for the year 2013 – 14

	₹
Direct materials	4,10,000
Direct labour	1,50,000
Fixed overheads	1,20,000
Variable overheads	2,00,000
Sales	10,00,000

You are required to calculate B.E.P in terms of rupee sales and also effect on B.E.P of an increase of 10% in (i) Fixed overheads and (ii) Variable overheads.

(Ans: B.E.P: ₹ 5,00,000; (i) Increase of 10% in fixed costs: B.E.P: ₹ 5,50,000; (ii) Increase of 10% in variable costs: B.E.P: ₹ 5,45,454.55)

12. From the following details, find out the Break-even point:

	₹
Variable expenses per unit	12
Fixed expenses	60,000
Selling price per unit	18

What should be the selling price per unit if the Break-even point should be brought down to 6,000 units?

(Ans: B.E.P: 10,000 units; Selling price per unit: ₹ 22)

9. From the following particulars, find out the selling price per unit if B.E.P is to be brought down to 4,000 units:

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	₹
Variable cost per unit	60
Fixed expenses	2,00,000
Selling price per unit	100

(Ans: Selling price per unit: ₹ 110; Required contribution per unit: ₹ 50 (i.e. 2,00,000/4,000))

14. From the following data, calculate the Break-even Point:

	₹
Selling price per unit	20
Direct material cost per unit	8
Direct labour cost per unit	2
Direct expenses per unit	2
Variable overheads per unit	2
Fixed overheads (Total)	20,000

If sales are 20% above Break-even Point, determine the net profit.

(Ans: B.E.P: 4,000 units; Net profit: ₹ 4,000)

8. From the following data, find out the Break-even Point and Break-even Sales. If the selling price is reduced to ₹ 18 per unit, what will be the new Break-even Point and new Break-even Sales?

Budgeted outputs	1,00,000 units
Fixed expenses	₹ 5,00,000
Variable expenses	₹ 10 per unit
Selling price	₹ 20 per unit

(Ans: B.E.P: 50,000 units or ₹ 10,00,000; New B.E.P: 62,500 units or ₹ 11,25,000)

16. You are given the following data for the coming year of a factory:

Budgeted outputs	80,000 units
Fixed expenses	₹ 4,00,000
Variable expenses per unit	₹ 10
Selling price per unit	₹ 20

Find out the Break-even Point. If the selling price is reduced to ₹15 per unit, what will be the new Break-even Point? Also find out the Break-even Point if selling price is ₹25.

(Ans: B.E.P : 40,000 units or ₹8,00,000; If selling price is reduced to ₹15; B.E.P : 80,000 units or ₹12,00,000; If selling price is increased to ₹25; B.E.P: 26,667 units or ₹6,66,675)

- J From the following data, calculate Break-even Point in terms of unit and also new B.E.P if selling price is reduced by 10%.

Fixed expenses	₹
Depreciation	50,000
salaries	1,50,000
Variable expenses	₹ Per unit
Materials	2
Labour	3
Selling price	10

(Ans: B.E.P : 40,000 units) New BEP = 50,000 units

- L From the following data, calculate Break-even Point in terms of unit and also new B.E.P if selling price is reduced by 10%.

Fixed expenses	₹
Depreciation	1,00,000
salaries	1,00,000
Variable expenses	₹ Per unit
Materials	3
Labour	2
Selling price	12

(Ans: B.E.P: 28,572 units; If selling price is reduced by 10%, B.E.P: 34,483 units)

16. A manufacturing unit introduced a new variety of a product in three grades, each costs are: ₹15, ₹10, and ₹7.50 respectively. The wholesalers and retailers have to be given at least 30% discount.

The estimated fixed cost would be around ₹70,000 and variable cost per unit would be ₹3.50. Calculate Break-even Point for all the three grades.

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(Ans: B.E.P: Grade I: 10,000 units or `1,05,000; Grade II: 20,000 units or ` 1,40,000; Grade III: 40,000 units or ` 2,10,000)

Z. From the following, calculate B.E.P:

Fixed cost ` 20,000 per unit, Variable cost ` 2 per unit, selling price ` 4 per unit;

Sales ` 6,000; Fixed cost ` 2,000; Variable cost ` 3,600; and

2. Sales ` 4,000; Variable cost ` 2,400; Profit ` 400

(Ans: (i) 10,000 units (ii) ` 5,000; (iii) and ` 3,000)

C During 1974, AB & Co. showed a profit of `1,80,000 on a sale of ` 30,00,000. The variable expenses was ` 21,00,000. You are required to work out:

X. The Break-even Sales at present; (ii) The Break-even Sales if variable cost increases by 5%; and (iii) The Break-even Sales to maintain profit as at present if the selling price is reduced by 5%.

(Ans: (i) ` 24,00,000; (ii) ` 27,16,981; and (iii) ` 34,20,011)

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