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PG DEPARTMENT OF COMMERCE

**SUBJECT NAME: ADVANCED COST AND MANAGEMENT
ACCOUNTING**

SUBJECT CODE: KDA2A

SEMESTER: II

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SYLLABUS

ADVANCED COST AND MANAGEMENT ACCOUNTING

Objective: To impart knowledge on cost and management accounting techniques and to develop the skills of students in the preparation of cost and management accounting statements

Unit I Installation of costing system -records required to be maintained under the Companies Act - management control and information system -cost reduction and cost control techniques -control over wastages, scrap, spoilage and defectives

Unit II Costing methods -product costing -process costing -treatment of equivalent units -inter - process profit- JIT costing -Activity based costing

Unit III Budgets and Budgeting control- Flexible Budgets, Zero Base Budgets

Unit IV Cost Volume Profit Analysis -decision making -make or buy, own or lease, repair or renovate, changes V s. Status quo, sell or scrap, export V s. local sales, shut down or continue. Responsibility Accounting and Transfer Pricing -Measurement of Segment Performance

Unit V Financial Statement analysis -Ratio analysis -Funds / Cash flow statement

Note: The proportion between theory and problems shall be 20:80

Book References

1. Murthy and Gurusamy, Cost Accounting, Vijay Nicole Imprints and Tata McGraw Hill
2. Murthy and Gurusamy, Management Accounting, Vijay Nicole Imprints and Tata McGraw Hill
3. Horngren C. T. Cost Accounting -A Managerial Emphasis, New Delhi, Pearson Education
4. Kaplan, Advanced Management Accounting, 3rd Ed. Pearson Education, New Delhi
5. Polimeni, et. at. Cost Accounting: Concepts and Applications for Managerial Decision Making, New York, McGrawHill Choudhary Anu Prasad Roy & Amitava Bhattacharya, Cost and Management Accountancy: Methods and Techniques, Calcutta, New Central Book Agency
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Web references

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UNIT I

Introduction Cost Accounting provides significant information to the management to take various managerial decisions. The business, at present is highly competitive. In order to withstand competition the concerns have to supply goods at low prices. Low prices may affect the basic concept of the profit maximization of business. To overcome this problem the only alternative for a concern is to reduce the cost of production. Cost Accounting as a subject is designed to provide many methods and techniques to reduce the cost of production through various stages of production.

Definition of cost Accounting: Cost Accounting is the process of accounting for cost which begins with the recording of income, expenditure and ends with the preparation of periodical statements and reports for ascertaining and controlling costs.

Meaning of cost: Cost refers to the total expenses which are incurred to produce an article. Cost consists of all the expenses incurred in producing a commodity.

Objectives of cost Accounting ➤ To ascertain the cost of products or service ➤ To control costs
➤ To Provide guidelines for management policy ➤ To determine selling price

Elements of Cost ➤ Direct and indirect material ➤ Direct and Indirect Labour ➤ Direct and Indirect expenses

Classifications of Costs

On the basis of elements - Direct Material, labour, expenses and Overheads ➤ On the basis of functions - Production expenses, Office expenses, Selling expenses and Distribution expenses ➤ On the basis of behavior - Variable expenses, fixed expenses and semi variable expenses ➤ On the basis of Controllability - Controllable and Uncontrollable ➤ On the basis of time - Historical cost and Predetermined Cost

Direct Material Direct material cost is which cost can be conveniently identified and allocated to Cost units

Concept of Installation of a Costing System:

A costing system is an established set of procedures, rules, cost records, etc., for the purpose of achieving specified objective at minimum cost. It forms the basis for future operations.

All types of concerns can adopt no one single system. Each concern may design and install a system of its own depending upon its requirements.

It may establish the practice and procedure of making cost records. The need for installing a costing system should be justified by a cost-benefit analysis. The benefits expected from the costing system should more than compensate the expenses of installing and operating the system.

When a decision to install a system is taken, it should be so designed as to serve the purpose of the particular concern. It should be useful in accordance with the objectives of costing and be flexible enough to adapt itself to changing conditions.

Basic Consideration or Requisites of a Good Costing System:

1. The costing system should be simple and easy to operate. It must suit to the requirements of the concern.
2. The benefits derived from the system must more than compensate the expenses incurred in the installation and operation of the system in the organization. In short, the system should be highly economical
3. The system should facilitate closer coordination among the various divisions in the organization.
4. The system should not disturb the existing organizational set up and if necessary, it should be introduced gradually.
5. The employees concerned should be able to understand the system without much difficulty. The purpose of costing records and reports should be clear to all.
6. There should be promptness and regularity in the preparation and presentation of cost reports.

Steps Involved in the Installation:

Before installing a costing system all care should be taken to study and analyze all aspects involved as otherwise, the system will be a misfit and its full advantage may not be derived. Special attention should be taken to collect information about the various aspects of the organization.

The size of the firm, the nature of business, the nature, method, and stages of production, the number of varieties and quantities of each product and such other technical aspects should be examined carefully. The analysis of materials and wage payment systems should be done.

Forms and records of original entry should be so designed as to involve minimum clerical work and cost. There should be facility to exercise proper control over the system and adopt efficient reporting system. The management requirements and the policy adopted by them towards cost control should be kept in view.

Some formal steps such as codification and classification, establishment of cost centers, guidelines for allocation of indirect costs, introduction of formats and periodical reports, and post installation appraisal of costing system should also be taken to operate the system more effectively.

COST RECORDS AND COST AUDIT APPLICABILITY

Section 148 of the Companies Act, 2013 contains provisions relating to the cost records and cost audit applicability under the **Companies Act**. The salient feature of section 148 are summarized hereunder –

- Section 148 (1) empowers the Central Government to direct the companies specified in the production of goods or provisions of service to include particulars relating to utilization of material or labour or other items of cost in the books of accounts of the company;
- List of specified companies, which needs to maintain the cost records, is provided under Table A and Table B of rule 3 of the Companies (Cost Records and Audit) Rules, 2014;
- Section 148 (2) empowers the Central Government to direct, based on the net worth or turnover of the company, audit of cost records of the specified class of companies;
- Rule 4 of the Companies (Cost Records and Audit) Rules, 2014 contains the provisions relating to the companies which are liable to get their cost records audited;
- Cost audit shall be conducted by the cost accountant who is appointed by the Board;
- In case of any default on the part of the company, it shall be punishable with the fine of an amount not less than INR 25,000, however, such fine cannot be more than INR 5 Lakhs. Further, every officer, in default, of the company shall be punishable with imprisonment for a term up to 1 year or with the fine not less than INR 10,000, however, the same cannot be more than INR 1,00,000;
- In case the cost auditor is in default, he shall be punishable in the manner as provided under section 147 (2) to section 147 (4).

Meaning of the Term ‘Cost Records’

The definition of the word ‘cost records’ has been provided under rule 2 (e) of the Companies (Cost Records and Audit) Rules, 2014 which means books of account relating to the utilization of materials, labour and other items of cost as applicable to the production of the goods or provision of services as provided in section 148 of the Act and the Companies (Cost Records and Audit) Rules.

Applicability of Cost Records

Rule 3 of the Companies (Cost Records and Audit) Rules, 2014 contains two table namely Table A – regulated sectors and Table B – Non-regulated sectors.

Cost records need to be included in the books of accounts of the companies being engaged in the production of goods or provision of service as covered under the table A or Table B and the total turnover from all its production or service in more than INR 35 crore during the preceding financial year.

In a nutshell, cost records are mandatory in the case following conditions are satisfied –

1. The company is engaged in manufacturing goods or provision of services which are listed in Table A or Table B; and
2. Total aggregate turnover of the company from all its production or service is more than INR 35 Crore in the preceding financial year.

Applicability of Cost Audit

Cost audit applicability provisions are contained under rule 4 of the Companies (Cost Records and Audit) Rules, 2014. According to the said rule 4, the cost audit is applicable in the following situation –

- Table A specified goods/services –
 - Overall annual total turnover of the company from all the products/services is INR 50 Crore or more; and
 - Aggregate turnover from the individual product/service for which cost records are required to be maintained is INR 25 Crore or more.
- Table B specified goods/services –
 - Overall annual total turnover of all the products/services should be INR 100 Crore or more; and
 - Aggregate turnover from the individual product/service for which cost records are required to be maintained should be INR 35 Crore or more.

It must be noted that for the purpose of examination of applicability of cost audit the immediately preceding financial year turnover is to be considered.

Non-Applicability Of Cost Audit Requirement

The companies which are covered under rule 3 are not required to get their cost records audited in case of the following situation –

- The company's export revenue exceeds 75% of its total revenue. The export revenue needs to be in foreign exchange; or
- The company which is operating from the special economic zone;
- The company which is engaged in the generation of electricity for captive consumption through Captive Generating Plant.

Management Information and Control System (MICS)

The decision to establish a formal **Management Information and Control System (MICS)** becomes almost inevitable in today's business climate. The accelerating needs for uniform, concise and timely information by all levels of management dictates the establishment of such a system. The results can be better control of and greater profitability from the enterprise. Essentially the functioning of a MICS involves transmission of all pertinent data necessary to the conduct of a business to one or more management information centers, where it is maintained and then disseminated in discrete form to all levels of management.

Progressive companies recognizing this situation are at various stages on development and **installation of Management Information and Control System**. In many cases the management of these companies, although disillusioned at times with the progress, costs and results achieved, still continues on the path toward MICS. The reasons for this continued determination on the part of management to pursue MICS can be found in its desire to achieve a state in information. Storage, use and handling that will achieve.

- **Uniformity of Information:** With a single source generating the required information.
- **Reliability of Information:** Resulting from adequate controls established and Constantly monitored on all input and output of the system.
- **On Time Response:** Communication of established information needs as often and as quickly as desired.

As these items are achieved the benefits resulting from an Management Information and Control System become evident, the potential for achievement of substantial reductions in operating costs, information that management can refer to quickly and simply to assist in its decision process, and a smoother more efficient organization that can supply the information when needed. With these benefits available, management can realize such basic contributions to cost reduction and higher profits as improved sales forecasting and production control, increased inventory turnover rate, increased productivity of all facilities etc. An additional cost savings aspect of **installing Management Information and Control System** is achieved through the elimination, modification and/or combination of system and procedures previously used by the organization. These more immediate savings can be impressive, but not nearly as much as the potential long-range savings that can be achieved once the system is installed.

Following is a representative listing of the type of information that can be made available to management from a well designed and installed Management Information and Control System. The ability of the system to produce this type of information on time and in a usable form depends on the means employed to design and install the system.

- Sales status by product, territory, sales an, etc., with variances.
- Cash position.
- Inventory position in units and/or dollars-comparison to budgeted.
- Inventory items not meeting minimum turnover rate for an established period.
- Profit position – by profit centers for an established period.
- Production status – by product, plan etc., including orders not on time and reasons for variances.
- Projection of inventory and sales position using a simulation model
- Budget variances of expenses, capital expenditures, projects, etc., by budget centers.
- Personnel skills inventory of all company employees.

Cost Reduction

Cost reduction is to be understood as the achievement of real and permanent reduction in the unit cost of goods manufactured or services rendered without impairing their suitability for the use intended or diminution in the quality of product.

... The institute of Management Accountants, London

There are only Ways to maximize profit of any organization: either to increase sale price of unit, or to reduce cost of that unit. Both above cases may result into gaining good profit. As we are seeing today, most of the businesses are facing tough competitive market situation where increase in sale price may result in to loss of sale. Increasing sale price is possible only in case of those products where the company is dealing in monopoly items and we all are aware that this situation cannot prolong for any company and its products. Therefore, cost reduction is only one scientific way to deal with this situation; provided it is real and permanent. Cost reduction should not be the result of any temporary decrement in cost of raw material, change in government polices etc. and most importantly, reduction of cost should not be on price of quality of that product.

Reduction of cost should be in the following manner:

- Volume of production should be same but cost of expenditure should be reduced.
- Without changing level of production there should be increase in production.

Cost Reduction Program

Followings are the essentials of a cost reduction program:

- Cost reduction program should be according to requirement of the company.
- Cost reduction program is a continuous activity that cannot be treated as one time or short term activity. Success of any cost reduction program may lie in only continuous improvement of efforts.
- Cost reduction program should be real and permanent.
- Example setter of cost reduction program should be top management employee. Success of this program depends on co-operation of all employees and department of an organization.
- Employees should be rewarded for their participation in cost reduction program and for giving innovative ideas related to this program.

COST CONTROL

Conceptually, accounting is the discipline that provides information on which external and internal users of the information may base decision that result in the allocation of economic resource in society.

...Slavin and Reynolds

Accounting provides business-related information to the owner, the management, the employees of the company as well as to the government, creditors, investors, and customers.

Financial accounting is based on actual past and cost accounting is based on planning and controlling. Preparation of budget is a part of planning and controlling relates to putting a check on the actual function of planning. Comparison of budgeted with actual performance provide the management an idea to eliminate weak performances.

Cost Control Techniques

Costs can be controlling by employing the following methods:

- Material Control
- Labor Control
- Overheads Control
- Standard costing
- Budgetary Control
- Capital Expenditure Control
- Productivity and Accounting Ratios

Requirements for Successful Cost Control

The following requirements are to be fulfilled to implement successful cost control:

- A plan and a set of well-defined responsibilities to all executives are essential.
- Clear definition of tasks for performance and cost to execute those tasks.
- A fixed responsibility, in case of deviation between targeted and actual.
- Prompt collection of performance data from each department of an organization as the delay in information equals to no information and the management is unable to take correct decision due to lack of complete information.
- Highlights of good and bad, both performances to enable the management to take corrective steps.
- Reward for good performances and Punishment for the poor ones.

CONTROL OVER WASTAGES, SCRAP, SPOILAGE AND DEFECTIVES

Material Losses:

Material losses may take the form of waste, scrap, defectives and spoilage. Problems of spoilage, waste, defective units and scrap are bound to arise in almost all manufacturing concerns, so there is usually a difference between the quantity of the output and the input.

Methods of treatment of spoilage, waste etc. and the interpretations given to these terms vary considerably from one industrial concern to another because of different situations arising in different concerns. The terms are also loosely used; for example, waste and scrap may be taken to have the same meaning.

1. Waste:

Waste is defined as discarded substances having no values. In many industries, some waste is inevitable. Such waste may arise due to the inherent nature of materials, chemical reaction, evaporation, drying, sublimation of goods etc. Waste can also be in the form of smoke, gas, slag or dust which arises in the course of a manufacturing process.

Waste may be invisible or visible. The former type of waste (i.e., waste due to drying, evaporation etc.) is invisible whereas the latter type of waste (i.e., gas, smoke, slag etc.) is visible. Waste has practically no measureable value. Rather in some industries, the waste instead of realising any value creates a problem for its disposal incurring further costs. The waste may be normal and abnormal from the point of view of treatment in costing.

Normal Waste:

It is the loss which is unavoidable on account of inherent nature of material. Some materials such as liquid materials lose their weight due to evaporation. Similarly, there are some materials (i.e. coal) which are wasted due to loading and unloading. Materials may be wasted due to breaking the bulk into smaller parts.

Normal waste is unavoidable and as such may be reduced to some extent if there is strict control but cannot be totally eliminated. Such loss can be estimated in advance on the basis of past experience or chemical data. As waste has practically no value, its treatment in costing is relatively simple. The normal process loss is recorded only in terms of quantity.

Abnormal Waste:

Any loss caused by unexpected or abnormal conditions such as sub-standard materials, carelessness, accident etc. or loss in excess of the margin anticipated for normal process loss should be regarded as abnormal waste.

2. Scrap:

Scrap is discarded material having some values. It represents fragments or remnants of material that are left from certain type of manufacture. It is a material loss but has small value without further processing. Examples of scrap are available in operations like turning, boring, punching, sawing, shavings, moulding, etc. from metals on which machine operations are carried out; saw dust and trimmings in the timber industry; dead heads and bottom ends in foundries; and cuttings, pieces and splits in leather industry.

Such scrap can be solid because it can be used by other industries by melting in furnaces. Scrap is always physically available unlike waste which may or may not be physically present in the form of a residue. Thus scrap is always visible whereas waste may or may not be visible. Further, waste may not have any value whereas scrap must necessarily have a value.

Treatment of Scrap:

The useful methods for the treatment of scrap are as follows:

1. If realisable value of normal scrap is insignificant (i.e., legitimate scrap and administrative scrap) it may be credited to Profit and Loss Account like other income. This method of treatment of scrap is suitable when the scrap is of very little value and when the market for it is uncertain. This method is known as treatment by neglect.

This method is not suitable for effective control over scrap because detailed records of scrap are not kept and scrap cost is not shown as an element of cost in the cost sheet. Scrap which is not sold and is in stock is valued at nil for balance sheet purposes and thus vitiates the valuation of closing stock.

Accounting of scrap by this method is also inaccurate as there is a time lag between the sales and the production. There is also a possibility that scrap may arise in one period but may be accounted (i.e., sold) in another period and thus distorts the profits of two periods.

2. The sale value of scrap may be deducted from the cost of materials consumed or factory overhead. This method is suitable when several production orders are commenced at a time and it is not possible to find scrap for each other. This method is, however, not effective in controlling scrap arising in different processes, jobs or orders.

When overheads are absorbed on the basis of pre-determined rates, it is more appropriate to credit an estimated allowance for the scrap instead of the amount of actual scrap.

The journal entries for recording the scrap are:

(i) Dr. Scrap Account (with an estimated allowance) Cr. Factory Overhead Control Account

(ii) Dr. Cash/Debtors (Amount realised on sale) Cr. Scrap Account.

Profit or loss on sale of scrap may be transferred to the Profit and Loss Account at the end of the year. When scrap is sold on a day-to-day basis and no stock is maintained, the journal entry is: Dr. Cash/Debtors Account (with realisable value) Cr. Factory Overhead Control Account

3. The scrap may be assigned a cost if it can be related to the job which yielded the scrap. It will help in giving reasonable credit to the jobs which yielded scraps. This method of treatment is suitable when scraps from the various jobs widely differ in nature.

4. It is possible that scrap arising in one job may be used in another job. In such a case material transfer note for transfer of scrap from one job to another job should be prepared and credit should be given to the job where scrap arises and debit should be given to the job for the amount of scrap transferred to it.

Sometimes, scrap may be returned to stores when some further processing has to be done before that can be utilised for other jobs. Job returning the scrap is credited with the value of the scrap returned to stores.

5. When the actual scrap is in excess of the pre-determined quantity (i.e., normal quantity), the cost of the excess scrap is transferred to Costing Profit and Loss Account after deducting there-from the sale proceeds of such excess scrap. The valuation of excess scrap is done in the same way as the valuation of abnormal waste is done.

6. The cost of defective scraps after deduction there-from the sale a proceeds of such scrap is transferred to Costing Profit and Loss Account because it is an abnormal loss.

3. Defectives:

Defective products or units are those which do not meet with dimensional or quality standards and are reworked for rectification of defects by application of material, labour and/or processing and salvaged to the point of either standard product or substandard product to be sold as seconds. Therefore, defectives are that portion which can be rectified at some extra cost of re-operation.

Defectives may arise due to the following reasons:

1. Sub-standard materials.
2. Poor workmanship.
3. Poor maintenance of machines.
4. Wrong tool setting.
5. Faulty design of products.
6. Bad supervision.
7. Careless inspection.
8. Poor working conditions.
9. Lack of control, such as humidity, furnace temperature etc.
10. Excessive short runs.

Defectives are bad products which are not totally spoiled and can be rectified or restored to original or near-original condition at some extra cost of re-operation. The additional cost of rectifying the defectives is added to the total cost and the quantity of defectives rectified is added to the quantity of good output because defective units rectified can be sold as “seconds”. Rectification of defective units is advisable only when the cost of rectification is low and more profitable than to sell as spoiled units.

Treatment of Cost of Rectification of Defectives:

Following methods may be adopted for the treatment of this cost:

1. If the defective production is identified with a specific job or department, the cost of rectification is charged to that specific job or department.
2. If the defective production is not identified with a particular job or department, the cost of rectification is added to general factory overhead.
3. If the defective production is due to abnormal reasons, the rectification cost is transferred to Costing Profit and Loss Account.

Every possible effort should be made to reduce the number of defectives because they increase the cost of production. Control of defectives is an operational correction, so steps should be taken to eliminate the reasons responsible for defectives. Right from the design stage to the output of the final product stage, each one should be looked into carefully for avoiding defectives.

4. Spoilage:

Spoilage refers to production that does not meet with dimensional or quality standards in such a way that it cannot be rectified economically and is junked and sold for a disposal value. So it occurs when goods are so damaged in course of manufacturing process as to become not rectifiable with some additional cost.

Material used in spoiled units can be used again as material by the same or another process or product. Spoilage cost is the difference between the cost incurred upto the point of rejection less salvage value or cost of material used.

Spoilage arises due to sub-standard materials, poor workmanship, faulty tool setting, poor maintenance of machines, bad supervision and careless inspection.

Spoilage should not be confused with scrap. Scrap arises at the initial stages of production operations whereas spoilage takes place more towards the finishing production stages with larger loss of added value to the cost of material used.

Spoilage can be of two types:

(1) Normal spoilage and

(2) Abnormal spoilage.

According to Charles T. Horngren, “Normal spoilage is what arises under efficient operating conditions; it is an inherent result of the particular process and is thus uncontrollable in the short run.

Abnormal spoilage is spoilage that is not expected to arise under efficient operating conditions; it is not an inherent part of the selected production process”. Abnormal spoilage can be controlled because it arises as a result of inefficient operating conditions.

Normal spoilage is planned spoilage that management is willing to accept and is controllable by higher level of management which determines the nature of products and processes. On the other hand, abnormal spoilage can be controlled by first-line supervision which can exert influence over inefficiency.

Treatment of Cost of Spoilage:

The treatment of cost of spoilage depends upon the nature of spoilage. If the spoilage is normal, the cost is borne by good units of output. In case of abnormal spoilage, cost of spoilage is transferred to Costing Profit and Loss Account. When, however, the normal spoiled units are used again as raw material in the same manufacturing process, no separate treatment becomes necessary.

If they are used for another process, job or order, a proper credit should be given to the process job or order giving rise to the spoilage keeping in view the utility value of the spoilage to the process, job or order for which the same is used.

UNIT – II

COSTING METHODS -PRODUCT COSTING

Everything you need to know about the different methods of costing. The term ‘methods of costing’ can be used to refer to the different processes or procedures employed for the determination and presentation of costs.

There are different methods of costing for different industries depending on their nature of work.

The methods of costing can be studied under the following heads:- 1. Methods Based on the Principles of Job Costing 2. Methods Based on the Principles of Process Costing.

Some of the methods based on the principles of job costing are:- 1. Job Costing 2. Contract Costing 3. Batch Costing.

Some of the methods based on the principles of process costing are:- 1. Process Costing 2. Operation Costing 3. Departmental Costing 4. Single or Unit or Output Costing 5. Operating or Operative or Working or Service Costing 6. Multiple or Composite Costing.

Additionally, few other methods of costing are:- 1. Uniform Costing 2. Multiple or Composite Costing 3. Departmental Costing 4. Cost Plus Method 5. Target Costing Method 6. Farm Costing 7. Activity Based Costing.

Contract Costing, Batch Costing, Process Costing and Operation Costing

Different Methods of Costing – Job Costing, Contract Costing, Batch Costing, Process Costing, Unit Costing, Operating Costing, Operation Costing and Multiple Costing

The method of costing refers to a system of cost ascertainment and cost accounting. Industries differ in their nature, in the products they produce and the services they offer. Hence, different methods of costing are used by different industries. For example, the method of costing employed by a building contractor is different from that of a transport company.

Job costing and process costing are the two basic methods of costing. Job costing is suitable to industries which manufacture or execute the work according to the specifications of the customers. Process costing is suitable to industries where production is continuous and the units produced are identical. All other methods are combinations, extensions or improvements of these basic methods.

The methods of costing are explained in detail:

Method # 1 Job Costing:

It is also called specific order costing. It is adopted by industries where there is no standard product and each job or work order is different from the others. The job is done strictly according to the specifications given by the customer and usually the job takes only a short time for completion.

The purpose of job costing is to ascertain the cost of each job separately. Job costing is used by printing presses, motor repair shops, automobile garages, film studios, engineering industries etc.

Method # 2 Contract Costing:

It is also known as terminal costing. Basically, this method is similar to job costing. However, it is used where the job is big and spread over a long period of time. The work is done according to the specifications of the customer.

The purpose of contract costing is to ascertain the cost incurred on each contract separately. Hence a separate account is prepared for each contract. This method is used by firms engaged in ship building, construction of buildings, bridges, dams and roads.

Method # 3 Batch Costing:

It is an extension of job costing. A batch is a group of identical products. All the units in a particular batch are uniform in nature and size. Hence each batch is treated as a cost unit and costed separately. The total cost of a batch is ascertained and it is divided by the number of units in the batch to determine the cost per unit. Batch costing is adopted by manufacturers of biscuits, ready-made garments, spare parts medicines etc.

Method # 4 Process Costing:

It is called continuous costing. In certain industries, the raw material passes through different processes before it takes the shape of a final product. In other words, the finished product of one process becomes the raw material for the subsequent process. Process costing is used in such industries.

A separate account is opened for each process to find out the total cost as well as cost per unit at the end of each process. Process costing is applied to continuous process industries such as chemicals, textiles, paper, soap, lather etc.

Method # 5 Unit Costing:

This method is also known as single or output costing. It is suitable to industries where production is continuous and units are identical. The objective of this method is to ascertain the total cost as well as the cost per unit. A cost sheet is prepared taking into account the cost of material, labour and overheads. Unit costing is applicable in the case of mines, oil drilling units, cement works, brick works and units manufacturing cycles, radios, washing machines etc.

Method # 6 Operating Costing:

This method is followed by industries which render services. To ascertain the cost of such services, composite units like passenger kilometers and tone kilometers are used for ascertaining costs. For example, in the case of a bus company, operating costing indicates the cost of carrying a passenger per kilometer.

Method # 7 Operation Costing:

This is a more detailed application of process costing. It involves costing by every operation. This method is used where there is mass production of repetitive nature involving a number of operations. The main purpose of this method is to ascertain the cost of each operation.

For instance, the manufacture of handles for bicycles involves a number of operations such as cutting steel sheets into proper strips, moulding, machining and finally polishing. The cost of these operations may be found out separately. Operation costing provides a minute analysis of costs to achieve accuracy and it is applied in industries such as spare parts, toy making and engineering.

Method # 8 Multiple Costing:

It is also known as composite costing. It refers to a combination of two or more of the above methods of costing. It is adopted in industries where several parts are produced separately and assembled to a single product.

Different **Methods of Costing** – Single Costing, Job Costing, Contract Costing, Batch Costing, Process Costing, Operation Costing, Operating Costing and a Few Others

The term ‘methods of costing’ can be used to refer to the different processes or procedures employed for the determination and presentation of costs. There are different methods of costing for different industries depending on their nature of work. For example – the chemical industry follows a continuous production process where raw material is processed at different stages. There are other industries which undertake jobs of different kinds. For example – a motor workshop accepts different jobs.

PROCESS COSTING

Meaning

- Process Costing is a method of costing to find out the cost of production when the product undergoes different stages or process of production.
- The characteristics of process costing, is that the finished product of one process is used as the raw material of another process.
- Apart from this each process has its own expenses like, material cost, labour cost and other expenses.
- This costing method helps to ascertain the cost of production and the cost per unit in each stages of production.

Difference between process Costing and Job costing

	Job Costing	Process Costing
1	Costs are computed for each Separately	job Costs are computed for each process for a Period
2	Reduction is against specific order	Production is not against specific order
3.	Each job is separate and independent in Nature	Production is continuous and products are Homogeneous
4	Costs are found out when job is Completed	Costs are found out each end of the process
5.	Control is difficult as each product unit is Different	Control is easier as the production is Standardized

Procedure for preparing Process Account

1. The process costing is prepared in 'T' form containing debit side and credit side.
2. All expenses are debited in the process account. The opening stock in each process is also debited.
3. The transfer of completed work I to next process and the closing stock in the process are credited.
4. The expenses debited in the process account contain direct material cost direct labour cost, direct expenses and factory overhead, the material is usually debited only in the respective process account.
5. The factory overhead debited in the process account may be incurred commonly for all the process. This will be apportioned on the basis of some predetermined overhead rates.
6. The work of each process is to supply in output as an input to the next process account.
7. Normal process loss will not be shown in the process account and it will automatically be adjusted in the process cost.
8. If the output in the process is less than the input of material, after making adjustment of the normal loss opening stock and closing stock then it is called abnormal loss.
9. If the output in a process is greater than the input of material after making the adjustment of the normal loss, opening stock and closing stock, then it is called abnormal gain.

Prepare process cost accounts from the following data

	Process X	Process Y	Process Z
Direct Material (Rs.)	41,500	32,400	24,000,
Direct wages	20,700	27,400	24,100
Factory overhead	14,300	17,700	12,300
Number of units produced	25,000	30,000	32,000
Stock as on 1 st August 2011 (Units) (from Proceeding process)	----	6,000	3,000
Stock on 31 st August 2011 (units)	----	4,000	6,000

Assume that the increase of output in subsequent process is due to additional material

Solution

Process X Account

Particulars	Rs	Particulars	Rs
To Direct Material	41,500	By Process Y A/c	85,500
To Direct swages	29,700		
To Factoory Overhead	14,300		
	85,500		85,500

Process Y Account

Particulars	Rs	Particulars	Rs
To Opening stock of process X(6000x3.42)	20,520	By Closing stock (of Process X) (4000 x 3.42)	13,680
To Process X A/c	85,500		
To Direct Material	32,400	By Process Z A/c(Transfer @ Rs.5.66 per units 30,000 Units	169,840
To Direct wages	27,400		
To Factory Overhead	17,700		
	183,520		183,520

Process Z Account

Particulars	Rs	Particulars	Rs
To Opening stock (of Process Y)(3000 x 5.66)	16,980	By Closing Stock (of process Y) (5000 x 5.66)	28,300
To Process Y A/c	169,840	(Transfer @ Rs.6.86 per unit)	2,19,520
To Direct material	24,600		
To Direct wages	24,100		
To Factory overhead	12,300		
	2,47,820		2,47,820

Treatment of Process Losses and Gain

Process Losses: Process losses are two types. They are I) Normal Loss II) Abnormal loss

Normal Loss

Normal loss is a loss which arises due to unavoidable and uncontrollable situation. It should not be prevented. It forms part of the manufacturing process. Normal loss may be in the form of **Scrap, Normal wastage and Normal spoilage**

Abnormal loss

Abnormal loss is a loss which arises due to abnormal and unexpected situation. This loss can be controlled and avoided. Abnormal loss may be due to **abnormal wastage, abnormal spoilage, negligence, accident, fire, theft etc.,**

Cost of production (excluding the realization of
Normal loss) X Abnormal loss units

Value of abnormal loss = -----
--

Number of units produced (including the Abnormal
Loss unit and including the normal loss units if
any,

From the input units

Process gain or abnormal gain

Process gain is otherwise called abnormal gain. Abnormal gain arises when the actual normal loss is less than the standard or expected normal loss. For example if the input of material is 1000 units, the abnormal loss is 100 units and the output is 950 units, then the abnormal gain is 50 units

**Cost of production (excluding the realization of Normal units) X Number of
Abnormal gain units Value of abnormal gain =** -----

Number of units produced

Problem

W. D & Co.Ltd produces a product with the help of three processes. The following are the information available in the cost records of the company.

	Process A	Process B	Process C
Material (Rs.)	5,500	1,200	3000
Wages(Rs)	4,500	5000	5,500
Normal loss as a percentage of input	10%	20%	15%
Value of scrap per Kgs (Rs)	Nil	4	5
Output (Kgm)	650	600	450

In the process A, 800kgm are introduced to Rs. 10 per Kgms. Factory overhead absorbed is 80 % on direct wages.

Prepare process account, abnormal loss account and abnormal gain account.

Solution**Process A Account**

Particulars	No of units	Rs.	Particulars	No.of units	Rs.
To Units introduced	800	8,000	By Normal loss	80	--
To Material		5,500	By Abnormal loss	70	2,100
To wages		4,500	@Rs.20		
To Factory overhead (80% of wages)		3,600	By Process B A/c (Transfer) @ Rs.30	650	19,500
	800	21,600		800	21,600

Process B Account

Particulars	No of units	Rs.	Particulars	No.of units	Rs.
To Process at A/c	650	19,500	By Normal loss	130	520
To Material		5,220	By Process C A/c	400	36,000
To wages		5,000	(Transfer) @ Rs. 60		
To Factory Overhead (80% of wages)		4,000			
To Abnormal gain @ Rs.60	80	4,800			
	730	36,520		730	36,520

Process C Account

Particulars	No of units	Rs.	Particulars	No.of units	Rs.
To Process C A/c	600	36,000	By Normal loss	90	450
To material		3,000	By Abnormal loss @	60	5,700
To Wages		5,500	Rs.95		
To Factory Overhead (80% of wages)		4,400	By Finished Goods A/c @ Rs.95	450	42,750
	600	48,900		600	48,900

Abnormal loss Acc

Particulars	No of units	Rs.	Particulars	No.of units	Rs.
To Process A A/c	70	2,100	By Sale of scrap in process A a/c	70	--
To Process C A/c	60	5,700	By sale of scrap in Process C A/c	60	300
			By Closing P&L A/c	--	7,500
	130	7,800			7,800

Abnormal Gain A/c

Particulars	No of units	Rs.	Particulars	No.of units	Rs.
To Sale of scrap (due to Normal loss @ Rs.4	80	220	By Process B A/c	80	4,800
To Closing P & L A/c		4,480			
	80	4,800		80	4,800

Workings:

I) Cost per Unit in process A A/c = $\frac{21,600}{80} = \text{Rs. } 30$

II) Cost per unit in process B A/c = $\frac{31,720 - 520}{520} = \text{Rs. } 60$

Further Processing of By-Product

Companies may sometimes produce the by-product apart from the main product and the last process. The by-product required for the processing before selling into customer. The value of by-product is credited in the final process account by further process account. Further processing accounting is debited with the cost processing the by-product. This accounts closed by transferring to finished stock account.

Joint Product

The processing of one raw material combination of raw material, make two or more finished products of equal important. These products are called Joint Product. For Example, in the oil referring, products like petrol, oil gasoline and lubricating oil produced by processing of crude oil.

UNIT – III

BUDGET AND BUDGETARY CONTROL

BUDGET AND BUDGETARY CONTROL

Budget is an important tool of planning and control of cost for the management. CIMA London defines budget as “ a financial and / or quantitative statement prepared and approved prior to a defined period time, of the policy to be pursued during that period for the purpose of attaining a give objective” Budgeting is the process of preparing the budget.

Characteristics of a good budget

The following are the important characteristics of good budget

1. Persons at different levels of management should be involved in the preparation of budgets.
2. The targets of the budgets should be realistic.
3. The authority and responsibility should be clearly defined.
4. A good system of accounting should be followed.
5. The employees should be given education with regard to budget.
6. The actual results should be properly recorded for the purpose of performance appraisal.

Budgetary control

Budgetary control is the process of comparing the budgetary figures with the actual performance, for calculating variances, in order to control the variances.

Definitions

Brown & Howard defined as “Budgetary control is a system of controlling costs which includes the preparation of budgets, co-ordinating the department and establishing responsibility, comparing actual performance with the budgeted and acting upon results to achieve maximum profitability.

Objectives of budgetary control

The following are the important objectives of budgetary control.

1. To provide a detailed plan of action for a business over a period of time.
2. To co- ordinate all activities of the organisation.
3. To increase profitability and to eliminate waste.
4. To operate various cost centers and department efficiently and economically.
5. To control the variances.
6. To fix responsibilities of various individuals in the organisation.

Classification of budgets

The budgets may be classified as follows.

- I. Classification on the basis of time
- II. Classification on the basis of function
- III. Classification on the basis of flexibility

Classification on the basis of time

- a. Long – term budgets
- b. Short – term budgets
- c. Current budgets

Classification on the basis of function

1. Master budget
2. Function or Subsidiary budget

Classification on the basis of flexibility

1. Fixed budget
2. Flexible budget

Classification on the basis of time

Long – term budgets

The period of long – term budget varies between five to ten years. It is based on long – term planning and prepared by top level management.

Example: Capital expenditure, research and development etc.

Short – term budgets

The period of Short – term budget is one or two years. The consumer goods industries like textile, cotton, sugar, coffee, cosmetics etc.,

Current budgets

The period of current budget is generally of weeks or a month or few months.

Classification on the basis of function

The important functional budgets are as follows.

- a. Sales budgets
- b. Production budgets
- c. Cost of production budgets
- d. Purchase budgets
- e. Cash budgets
- f. Capital expenditure budgets

Master budget

The master budgets as the summary budgets, incorporating its components functional budgets, which is finally approved, adopted and employed. It is the summary budgets incorporating its functional budgets.

Function or Subsidiary budget

Sales budget

Sales budget is a budget for forecasting the sales in future in terms of quantity and value. It is prepared on the basis of past sales, production capacity, report of a salesman, pricing policy and competition.

Production budget

Production budget is a budget for forecasting the quantity of production for different types of products and for different periods. It is based on sales budget.

Cost of Production budget

The budget is a budget for forecasting the quantity of production for different of a company. A company may prepare separate budget for different elements of cost.

- a. Direct material budget
- b. Direct labour budget
- c. Factory overhead budget
- d. Administration overhead budget
- e. Selling and distribution overhead budget

a)Direct material budget

It is otherwise called as raw material budget. It is concerned with forecasting about the requirement of different types of raw materials and its value. This budget is based on the production budget, price of raw material, seasonal factors, inventory levels and storage facilities.

b)Direct labour budget

It explains the standard labour hours required for the estimated production and estimated labour cost per hour for different types of labour.

c)Factory overhead budget

This budget is prepared to forecast the indirect factory cost. It includes indirect material, indirect labour and indirect expenses to be incurred in the factory for certain level of production.

d)Administration overhead budget

This budget is prepared to forecast the indirect administration cost. It includes indirect material, indirect labour and indirect expense to be spent in the administration department in future.

e)Selling and distribution overhead budget

This budget is prepared to forecast the indirect selling and distribution cost. It includes indirect material, indirect labour and indirect expenses to be spent in the selling and distribution department in future.

Purchase budget

Purchase budget is prepared to find out the total cost of purchase in future. It involves the purchase of direct and indirect materials. Indirect materials are concerned with materials used in factory, administration and selling and distribution department.

Cash budget

It is concerned with the inflow and outflow of cash in the budget period. This budget estimates the net cash flow in a concern. It facilitates the management to make necessary arrangements for the future cash requirements. This budget is prepared only the preparation of all the functional budgets.

Capital expenditure budget

This budget is prepared to know the estimated expenditure on all fixed assets like plant & machinery, land & building and furniture & fittings during the budget period.

Classification on the basis of flexibility

Fixed budget

Fixed budget is a budget which is designed to remain unchanged irrespective to the level of activity actually attained. It is prepared before the budgeting of the financial year.

Flexible budget

A flexible budget is budget for different levels of activities.

Example: Flexible budget is a budget for different levels of activities. Example for flexible budget is the budget for various capacity utilizations like 50%, 60%, 70%, 100%, etc. This budget is useful when the levels of activity in a company changes from time to time.

Meaning of Zero base budgeting

Zero base budgeting is a budget prepared taking zero as base. Previous year data are not considered in the preparation of budget under this method.

Advantages of Zero base budgeting

1. It considers all activities of an organization as important and hence, focuses on the efficiency in the performance of these activities.
2. It helps for the systematic evaluation of different activities, so that mistakes if any can be rectified immediately.
3. It suggests alternative ways of doing a job every time when budget is prepared since zero is taken as base.
4. It prevents the unnecessary expenditure in different activities of the organisation.
5. It helps to prepare various budgets on the basis of cost benefit analysis.
6. It gives proper direction to all managers to perform the activities in economical and efficient manner.

Problem 1

Preparation of Sales Budget

A Company manufactures 2 types of products namely X and Y and with them in Chennai and Mumbai markets, the following information are related to the year ending 31st March 2011.

Market	Product	Budgeted sales	Actual sales
Chennai	X	600 @ Rs 12	800 @ Rs. 12
	Y	500 @ Rs 35	400 @ Rs.35
Mumbai	X	900 @ Rs 12	120 @ Rs. 12
	Y	500 @ Rs 35	900 @ Rs.35

Market studies reveal that product X is popular as it is under period. It is observed if its price is reduced by Re.1 it will find a good market. On the other hand product Y is over pieced and it will get good market if the selling price is reduced to Rs. 33. The management has agreed for this. This impact of the change in price is reported as follows.

Product	Increase in sales over current budget	
	Chennai	Mumbai
X	+20%	+10%
Y	+25%	+5%

In addition to this, the following additional sales shows above the estimated sales are possible with an intensive advertisement.

Product	Chennai	Mumbai
X	50 Units	70 Units
Y	60 Units	50 Units

Prepare a budget for sales by incorporating the above estimates.

Area	Product	Budget for the current year			Actual Sales			Budgeted for the future period		
		Units	Price Rs.	Value Rs.	Unit	Price Rs.	Value Rs.	Units	Price Rs.	Value RS.
Chennai	X	600	12	7,100	800	12	9,680	770	11	8,470
	Y	500	35	17,500	400	35	14,000	685	33	22,605
	Total	1,100		24,700	1,200		25,600	1,455		31,075
Mumbai	X		12	10,800	1,200	12	14,400	1000	11	11,660
	Y	900	15	24,500	500	35	17,500	785	33	25,905
	Total	700		35,300	1,700		31,900	1,845		347,565
Total	X		12	18,000	2,000	12	24,000	1,830	11	20,130
	Y	1,600	35	42,000	900	35	31,000	1,470	33	48,500
	Total	1,500	-	60,000	2,9000		55,000	3,300		68,630
		1,200	-							
		2,700								

Preparation of production Budget

The following information are related to a company for 6 months ending 31st March 2011

The units to be sold for the different months are.

October 2010	4,000
November 2010	4,500
December 2010	4,800
January 2011	5,000
February 2011	5,500
March 2011	6,200
April 2011	7,000

Finished units equal is half the sales for the next month will be in stock at the end of each month including September 2010, budgeted production for the year ending 31st March 2011 is 55,000 units. Budgeted material and lab our cost per unit are Rs 12 and Rs.5 respectively. Total factory overhead absorbed is Rs. 1, 65,000 Prepare Production Budget for each month and summarized production cost budget for the month's endings 31sr March 2011.

Solution

Production Budget for 6 months from October 2010 to 31st March 2011

Months	Opening Stock (Units)	Sales (Units)	Closing Stock (Units)	Production (Units)
October 2010	2000	4000	2250	4250
November 2010	2250	4500	2400	4650
December 2010	2400	4800	2500	4900
January 2011	2500	5000	2250	5250
February 2011	2750	5500	3100	5850
March 2011	3000	6200	3500	6600
Total				31,500

Production – Sales + Closing stock--Opening stock

Production Cost budget for 6 months ending 31st March 2011 for 31,500 units

Particulars	Rate per Unit (Rs.)	Amount (Rs.)
Direct Material	12	3,78,000
Direct Wages	5	1,57,500
Factory Overhead	3	94,500
		6,30,000

Preparation of Cash Budget

Cash Budget is prepared in know the net cash flow in future by taking into consideration of cash inflows and cash outflow. There are three methods for

Preparing cash budgets

They are

- Receipts and Payment Method
- Adjusted profit and Loss Account method and
- Balance sheet method
- Receipts and Payment method

In this method, cash receipts and cash payments of various sources should be estimated for future. The cash receipts should include all the receipts of revenue and capital nature. The cash payment should include all the payment of revenue and capital nature. The cash budget will show the estimated closing balance of cash. It may be a debit balance or a credit balance.

Problem:

Prepare a Cash budget for a Months ending 30th April 2011 from the following information.

Months	Sales (Rs.)	Purchase Rs.	Wages (Rs.)	Manufact uring Expenses (Rs.)	Admin. Expense s	Selling Expenses
November 2010	50,000	13,000	4,000	1,500	1,700,	1,000
December 2010	60,000	15,000	5000	2,000	1,800	1,200
January 2011	55,000	14,000	4,500	1,600	1,750	1,100
February	70,000	20,000	6,000	2,200	1,900	1,300
March 2011	75,000	22,000	7,000	2,400	2,050	1,400
April 2011	80,000	24,000	8,000	2,600	2,200	1,500

Additional Information

- Balance of cash in based on 1st Jan 2011 is Rs.40,000
- Tax of RS.11,000 payable in the month of March
- A dividend of Rs. Rs.14,000 payable in the month of April
- Furniture worth Rs. 8,000 to be purchased in the month of February
- Machinery worth Rs.80, 000 purchased on October 2010 and the payment is to be done on installment basis @ Rs. 6,000 per month.
- The creditors are allowing a month of 2 months
- Wages are paid on the Ist of next month
- Lag in payment of manufacturing and selling expenses is one month
- The customers are allowed a credit period of 2 months
- Lag in payment of administration expenses is ½ month

Solution**Cash Budget for 4 months ending 30th April 2011**

Particulars	January Rs.	February Rs.	March Rs.	April Rs.
Receipts:				
Balanced b/d	40,000	61,025	83,000	95,525
Cash received from December	50,000	60,000	55,000	70,000
Total	90,000	1,21,025	1,38,000	1,65,525
Payments:				
Payments to Creditors	13,000	15,000	14,000	20,000
Wages Payable	5,000	4,500	6,000	7,000
Manufacturing expenses	2,000	1,600	2,000	2,400
Administrative expenses	1,775	1,825	1,975	2,125
Selling Expenses	1,200	1,100	1,300	1,400
Tax Payable	--	--	11,000	--
Dividend Payable	--	--	--	15,000
Purchase of Furniture	--	8,000	--	--

Payment of purchase of machinery	6,000	6,000	6000	6000
Total	28,975	38,025	42,475	53,925
Closing Balance	61,025	83,000	95,525	11,600

Preparation of Flexible Budget

The information regarding the expenses of a company at 40% capacity are as follows

Fixed Expenses	
Fixed expenses	
Salaries	80,000
Rent	40,000
Administrative Expenses	60,000
Depreciation	40,000
Variable Expenses	
Material	1,90,000
Labour	60,000
Others	30,000
Semi-Variable Expenses	
Indirect Labour	95,000
Repairs & Maintenance	75,000
Electricity	30,000

The estimated sales at various levels of capacity are
Rs.8,00,000at 40% capacity Rs.10,00,000at 50%
capacity Rs.12,00,000 60% capacity Rs.15,00,000at
70% Capacity

The fixed expenses will remain the same till 100% capacity. Semi-Variable expenses remain constant till 50% of capacity. It will increase by 15% between 50% and 65% capacity and further increased by 10% above 65% capacity.

Prepare a Flexible budget and calculate the profit at various levels of capacities (40%,50% 60% and 70%)

Particulars	Capacity			
	40% (Rs.)	50% (Rs.)	60% (Rs.)	70% (Rs.)
Fixed Expenses:				
Salary	80,000	80,000	80,000	80,000
Rent	40,000	40,000	40,000	40,000
Administrative Expenses	60,000	60,000	60,000	60,000
Depreciation	40,000	40,000	40,000	40,000
Variable Expenses				
Material	1,90,000	2,57,200	2,85,000	3,32,500
Labour	60,000	75,000	90,000	1,05,000
Others	30,000	37,500	45,000	52,500
Semi Variable Expenses				
Indirect labour	95,000	95,000	1,99,250	1,18,750
Repairs & Maintenance	75,000	75,000	86,250	93,750
Electricity	30,000	30,000	34,500	37,500
Total Cost	<u>7,00,000</u>	<u>7,70,000</u>	<u>8,70,000</u>	<u>9,60,000</u>
Profit	1,00,000	2,30,000	3,30,000	5,40,000
Estimated sales	<u>8,00,000</u>	<u>10,00,000</u>	<u>12,00,000</u>	<u>15,00,000</u>

UNIT – IV

COST VOLUME PROFIT ANALYSIS

Marginal Costing

- Marginal Costing is a technique of analyzing the changes of cost due to the changes in volume of production.
- The total cost of production will be classified into fixed cost and variable cost the fixed cost remains be constant up to certain level of production the variable cost changes due to the changes of volume of production.
- The variable cost is otherwise called Marginal Cost. Hence, marginal costing analyzing the relationship of the change of variable cost due to the changes of volume of production.

Meaning / Definition

The Institute of Cost and Management Accountants, London defines Marginal Cost is “The amount of given volume of output by which aggregate cost are change the volume of output by increased by one unit”.

Advantages of Marginal Costing:

1. It is simple to Operate and easy to understand
2. To helps the management to make managerial decision
3. To facilitate to fix the prices
4. Marginal costing technique can be apply for profit planning
5. To facilitates for taking decision regarding the acceptance of or rejection of a bulk order
6. Marginal costing helps the management to calculate the Break-Even-Point
7. To facilitates the management to decide the optimum product mix, when the company is producing more than one product

Limitations of Marginal Costing

1. Changes in the selling process affect the result of marginal costing.
2. The assumption that the fixed cost remains constant may not be always correct.
3. Since it may also vary due to various reasons
4. Marginal costing techniques excludes fixed cost for various marginal decision.
5. The assumption that the variable cost per unit remain constant practically not possible always.
6. Increase in volume of production may reduce the variable cost per unit.

Cost Volume Profit Analysis

Meaning

Cost Volume Profit analysis is the analysis of three variables vic., cost, volume and profit. The analysis measures variations of costs and volume and their impact on profit. Profit is affected by several internal and external factors which influence sales revenue and costs.

Cost volume profit analysis helps the management in profit planning. Profit of a concern can be increased by increasing the output and sales or reducing cost. If a concern produces to the maximum capacity and self contribution is also increased to the maximum level.

Cost Volume Profit analysis is made with the objectives of ascertaining the following

1. The cost for various levels of production
2. The desirable volume of production
3. The profit at various levels of production
4. The differences between sales revenue and variable cost.

Some Important concepts and terms in Cost –Volume-Profit

Analysis Fixed Cost

It is total of all those cost which are termed 'Period Cost' or 'Time Cost'. They do not depend on the volume of production and sales. They must be incurred irrespective of the actual activity or operations. Examples: Office cost, Factory cost, Manager's salary etc.,

Variable Cost

These are the cost which increase or decrease in production to the output and sales. Variable cost are called '**Product cost**' or '**Marginal cost**'. Usually they vary in direct proportion to the output. They include all the direct costs i.e., direct material, direct wages, direct expenses and variable expenses.

Contribution

Contribution is the difference between sales and variable cost

Contribution includes fixed cost and Profit or loss. Hence, contribution can be calculated by adding the profit with the fixed cost or deducting loss with the Fixed cost

$$\begin{aligned} \text{Hence Contribution} &= \text{Sales} - \text{Variable cost} \text{ or} \\ &= \text{Fixed Cost} + \text{Profit or loss} \end{aligned}$$

Marginal Cost Equation

The equation Contribution = Sales – Variable cost is called Marginal Cost Equation. It helps to find out either fixed cost or Marginal cost when other information of the equation are given

Profit/Volume Ratio

Profit / Volume Ratio is the ratio between contribution and sales. It is otherwise called as contribution ratio or marginal ratio.

$$\text{P/V Ratio} = \frac{\text{Contribution}}{\text{Sales}} \quad \text{OR} \quad \frac{\text{Sales} - \text{Variable Cost}}{\text{Sales}} \quad \text{OR} \quad \frac{\text{Fixed cost} + \text{Profit}}{\text{Sales}}$$

$$= \frac{\text{Changes in profit or Contribution}}{\text{Changes in sales}}$$

Sales for an expected profit can be calculated by PV Ratio through the following formula

$$\text{Expected sales} = \frac{\text{Fixed cost} + \text{Expected Profit}}{\text{P/V Ratio}}$$

Break – Even Analysis

Break Even point may be defined as the point of sales volume at which the total revenue is equal to the total cost. At a breakeven point there will be neither profit nor loss. At the point the contribution is equal to direct cost. Break-Even point is otherwise called ‘Critical Point’ or ‘Equilibrium point’ or ‘Balancing point’

Formula

$$\text{Break Even point (in units)} = \frac{\text{Fixed Cost}}{\text{Contribution per unit}}$$

$$\text{Break-Even point (in Value)} = \frac{\text{Fixed Cost} \times \text{Selling price per Unit}}{\text{Contribution per unit}}$$

$$\text{Contribution} = \text{Sales} - \text{Variable cost}$$

Through P/V ratio, BEP can be calculated and

$$\text{B.E.P} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}}$$

Break –Even analysis also helps to find out the expected sales to earn given profit

$$\text{Expected sales for an expected profit} = \frac{\text{Fixed cost} + \text{Expected Profit}}{\text{Contribution per unit}}$$

BREAK –EVEN - CHART

Break even chart is a graphical representation of the Break-even point. The Break-even point can be measured by a graph through the following procedures.

- X axis should be denoted for number of units and Y axis for cost and revenue
- Number of units should be provided conveniently in the X axis and amount should be marked uniformly in Y axis through a common scale
- Mark the fixed cost on the axis and draw a parallel line to X axis through the point

- > Plot points in the graph for the total cost (Fixed cost + variable cost) at various levels of production
- > Joint all the points to get a straight line from the point of fixed cost at Y axis. This is called total cost line
- > Plot points in the graph for the sales value at different levels (Units) of sales. In the point O of the graph to get a straight line. This is called sales line
- > The sales line cuts at a point in the total cost line. This point is called Break-even point.

Problem: 1

Prepare a statement of cost by marginal costing method

Particulars	Period-1 Rs.	Period-2 Rs.	Period-3 Rs.
Direct material consumed	21,000	30,000	25,000
Direct wages paid	17,000	15,000	20,000
Direct Expenses	7,000	5,000	6,000
Sales	1,30,000	1,25,000	1,50,000
Factory Overhead	14,000	7,000	4,000
Administration overhead	17,000	15,000	18,000
Selling & Distribution Overhead	10,000	8,000	13,000

10% of the administration overhead and 20% of the selling overheads are variable in nature

Statement of cost by Marginal costing method

Particulars	Period-1 Rs.	Period-2 Rs.	Period-3 Rs.
Sales	1,30,000	1,25,000	1,50,000
Less : Variable costs;			
Direct Material	21,000	30,000	25,000
Direct wages	17,000	15,000	20,000
Direct expenses	7,000	5,000	6,000
Factory Overhead	14,000	7,000	4,000
Variable Administration OH	1,700	1,500	1,800
Variable Selling & Distribution OH	2,000	1,600	2,200
Total Variable cost	62,000	60,100	59,000
Contribution	67,300	64,900	91,000
(Sales – VC)			
Less: Fixed Cost			
Fixed Administration OH	15,300	13,500	16,200
Fixed Selling & Distribution OH	8,000	6,400	8,800
Total Fixed cost	23,300	19,900	25,000
Costing Profit	44,000	45,000	66,000

Problem: 2

Calculate a) P/V ratio b) Fixed Cost c) Sales Volume to earn a profit of Rs 40,000

Sales Rs.2, 00,000 Profit Rs. 25,000 Variable cost is 80% of sales.

Solution

Sales = **Rs.2,00,000**

Variable cost = $\frac{80}{100} \times 2,00,000 = \text{Rs. } 1,60,000$

a) P/V ratio = $\frac{\text{Sales} - \text{Variable cost}}{\text{Sales}} \times 100$
 $\frac{2,00,000 - 1,60,000}{2,00,000} \times 100 = 20\%$

b) Contribution = Fixed Cost + Profit
 $\frac{\text{Sales} - \text{Variable Cost}}{\text{FC}} = \text{FC} + \text{Profit}$
 $\frac{2,00,000 - 1,60,000}{\text{FC}} = \text{FC} + 25,000$
 $\text{FC} = 40,000 - 25,000$
 $= \text{Rs. } 15,000$

c) P/V Ratio = $\frac{\text{Fixed cost} + \text{Profit}}{\text{Sales}}$
 $\frac{15,000 + 40,000}{20\%}$
 $= \text{Rs. } 2,75,000$

Problem: 3

Assuming that cost structure and selling prices remain the same in period I and II . Calculate the following a) Profit /Volume ratio b) Fixed Cost c) Break –Even sales d) profit when sales are of Rs.1,00,000 e) Sales required to earn a profit of Rs. 20,000 f) Margin of safety as a profit Rs. 55,000 and g) variable cost in period I

Solution

$$\begin{aligned}
 & \text{Change on profits} \\
 & = \text{-----} \\
 & \text{-----} \\
 & \text{-----} \\
 \text{a) P/V Ratio} & = \frac{\text{Change in sales}}{\text{Rs. 40,000}} \times 100 \\
 & = \frac{\text{Rs. 8,000}}{\text{Rs. 40,000}} \times 100 \\
 \text{b) Fixed cost} & = (\text{Sales} \times \text{P/V ratio}) - \text{Profit} \\
 \text{c) } & = (\text{Rs. 1,20,000} \times \frac{1}{5}) - \text{Rs. 10,000} \\
 & = \text{Rs. 24,000} - \text{Rs. 10,000} = \text{Rs. 14,000} \\
 \text{c) BEP (in Rupees)} & = \frac{\text{Fixes Cost}}{\text{P/V ratio}} \\
 & = \frac{\text{Rs. 14,000}}{20\%} = \text{Rs. 70,000} \\
 \text{d) Profit} & = (\text{Sales} \times \text{P/V ratio}) - \text{Fixed cost} \\
 & = (1,00,000 \times \frac{1}{5}) - \text{Rs. 14,000} \\
 \text{e) Sales} & = \frac{\text{Fixed cost} - \text{Desired Profit}}{\text{P/V ratio}} \\
 & = \frac{\text{Rs. 14,000} - \text{Rs. 10,000}}{20\%} \\
 & = \text{Rs. 1,70,000} \\
 \text{f) Margin of safety} & = \frac{\text{Profit}}{\text{P/V ratio}} = \frac{\text{Rs. 15,000}}{20\%} = \text{Rs. 79,000} \\
 \text{g) Variable cost in period II} & = (1 - \text{P/V ratio}) \times \text{sales} \\
 & = \frac{80}{100} \times 1,60,000 = \text{Rs. 1,28,000}
 \end{aligned}$$

UNIT V

FINANCIAL STATEMENT ANALYSIS -RATIO ANALYSIS -FUNDS / CASH FLOW STATEMENT

RATIO ANALYSIS

MEANING OF RATIO

A ratio is a simple arithmetical expression of the relationship of one number to another. It may be defined as the indicated quotient of two mathematical expressions. According to Accountant's Handbook by Wixon, Kell and Bedford, a ratio "is an expression of the quantitative relationship between two numbers".

According to Kohler, a ratio is the relation, of the amount, a, to another, b, expressed as the ratio of a to b; $a : b$ (a is to b) ; or as a simple fraction, integer, decimal, fraction or percentage." In simple language ratio is one number expressed in terms of another and can be worked out by dividing one number into the other". For example, if the current assets of a firm on a given date are 5,00,000 and the current liabilities are Rs. 2,50,000. Then the ratio of current assets to current liabilities will work out to be $500000 / 250000$ or 2. A ratio can also be expressed as percentage by simply multiplying the ratio by 100.

Balance Sheet or Position Statement Ratios:

Balance Sheet ratios deal with the relationship between two balance sheet items, e.g. the ratio of current assets to current liabilities, or the ratio of proprietors' funds to fixed-assets.

Profit and Loss Account or Revenue/Income Statements Ratios: These ratios deal with the relationship between two profit and loss account items, e.g., the ratio of gross profit to sales, or the ratio of net profit to sales.

Composite/Mixed Ratios or Inter Statement Ratios:

These ratios exhibit the relation between a profit and loss account on income statement item and a balance sheet item, e.g., stock turnover ratio, or the ratio of total assets to sales.

Functional Classification or Classification According to Tests Liquidity Ratios:

These are the ratios which measure the short-term solvency or financial position of a firm: These ratios are calculated to comment upon the short-term paying capacity of a concern or the firm's ability to meet its current obligations. The various liquidity ratios are: current ratio, liquid ratio and absolute liquid ratio.

Long-term solvency ratios convey a firm's ability to meet the interest costs and repayments schedules of its long-term obligations e.g. Debt Equity Ratio and Interest Coverage Ratio.

The leverage ratios can further be classified as:

- = Financial Leverage,
- = Operating Leverage,
- = Composite Leverage.

Activity Ratios:

Activity ratios are calculated to measure the efficiency with which the resources of a firm have been employed. These ratios are also called turnover ratios.

Profitability Ratios:

These ratios measure the results of business operations or overall performance and effectiveness of the firm, e.g., gross profit ratio, operating ratio or return on capital employed.

ANALYSIS and interpretations of different ratios:

The short-term creditors of a company like suppliers of goods of credit and commercial banks providing short-term loan, are primarily interested in knowing the company's ability to meet its current or short-term obligations as and when these become due. The short-term obligations of a firm can be met only when there are sufficient liquid assets. Therefore, a firm must ensure that it does not suffer from lack of liquidity or the capacity to pay its current obligations.

Two types of ratios can be calculated for measuring short-term financial position or short-term solvency of a firm:

- h) Liquidity Ratios
- i) Current Assets Movement or Efficiency Ratios.

a) LIQUIDITY RATIOS

Liquidity refers to the ability of a concern to meet its current obligations as and when these become due. The short-term obligations are met by realising amounts from current, floating or circulating assets. These should be convertible into cash for paying obligations of short-term nature. If current assets can pay off current liabilities, then liquidity position will be satisfactory. On the other hand, if current liabilities may not be easily met out of current assets en liquidity position will be bad.

The following ratios can be calculated:

- 7. Current Ratio
- 8. Quick or Acid Test or Liquid Ratio
- 9. Absolute Liquid Ratio or Cash Position Ratio

b) CURRENT RATIO

Current ratio may be defined as the relationship between current assets and current liabilities. This ratio, also known as working capital ratio, is a measure of general liquidity and is most widely used to make the analysis of a short-term financial position or liquidity of a firm. It is calculated by dividing the total of current assets by total of the current liabilities.

$$\text{CurrentRatio} = \text{Current Assets} / \text{CurrentLiabilities}$$

$$\text{Or Current Assets} : \text{CurrentLiabilities}$$

The two basic components of this ratio are:

Current assets and current liabilities:

Current assets include cash and those assets which can be easily converted into cash within a short period of time generally, one year/ such as marketable securities, bills receivables, sundry debtors, inventories, work-in-progress, etc. Prepaid expenses should also be included in current assets because they represent payments made in advance which will not have to be paid in near future. Current Liabilities are those obligations which are payable within a short period of generally one year and include outstanding expenses, bills payables, sundry creditors, accrued expenses, short-term advances, income-tax payable, dividend payable, etc. Bank over-draft.

COMPONENTS OF CURRENT RATIO

<i>S.N</i>	<i>Current Assets</i>	<i>Current Liabilities</i>
1	Cash in Hand	Outstanding Expenses/Accrued Expenses
2	Cash at Bank	Bills Payable
3	Marketable Securities (Short-term)	Sundry Creditors
4	Short-term Investments	Short-term Advances
5	Bills Receivable	Income-tax Payable
6	Sundry Debtors	Dividends Payable
7	Inventories (stocks)	<i>Bank Overdraft</i> (if not a permanent arrangement)
7.	Work-in-process	
8.		
9.	Prepaid Expenses	

As a convention the minimum of 'two to one ratio' is referred to as a banker's rule of thumb or arbitrary standard of liquidity for a firm. A ratio equal or near to the rule of thumb of 2 : 1 i.e., current assets double the current liabilities is considered to be satisfactory.

SIGNIFICANCE AND LIMITATIONS OF CURRENT RATIO

Current ratio is a general and quick measure of liquidity of a firm. It represents the 'margin of safety' or cushion' available to the creditors and other current liabilities. It is most widely used for making short-term analysis of the financial position or short-term solvency of a firm.

Current Ratio:

It is a crude ratio because it measures only the quantity and not the quality of Current assets.

Window Dressing:

Valuation of current assets and window dressing is another problem of current. Current assets and liabilities are manipulated in such a way that current ratio loses its significance. Window dressing may be indulged in the following ways: Over-valuation of closing stock.

Calculation of Current Ratio:

This ratio is calculated by comparing current assets with current liabilities. Take for example, current assets of a concern as Rs.250000 and current liabilities as Rs. 100000; current ratio will be calculated as follows:

$$\text{Current Ratio} = \text{Current Assets} / \text{Current Liabilities} \quad \text{Current Ratio} = 250000 / 100000 = 2.5$$

The current ratio of 2.5 means that current assets are 2.5 times of current liabilities. This ratio can also be presented as 2.5:1. In current ratio, current liabilities are taken as 1 and current assets are given in comparison to it.

Illustration

Calculate current ratio from the following information:

	Rs.		Rs.
Stock	60,000	Sundry Creditors	20,000
Sundry Debtors	70,000	Bills Payable	15,000
Cash Balances	20,000	Tax Payable	18,000
Bills Receivables	30,000	Outstanding Expenses	7,000
Prepaid Expenses	10,000	Bank Overdraft	25,000
Land and Building	1,00,000	Debentures	75,000
Goodwill	50,000		

Solution:

$$\begin{aligned} \text{Current Ratio} &= \text{Current Assets} / \text{Current Liabilities} \\ &= \text{Rs. } 60,000 + 10,000 = \text{Rs. } 70,000 \\ \text{Current Assets} &= 70,000 + 20,000 + 30,000 + 10,000 = \text{Rs. } 1,90,000 \\ \text{Current Liabilities} &= \text{Rs. } 20,000 + 15,000 + 18,000 + 7,000 + 25,000 = \text{Rs. } 85,000 \\ \text{Current Ratio} &= 1,90,000 / 85,000 = 2.24:1 \end{aligned}$$

QUICK OR ACID TEST OR LIQUID RATIO

Quick Ratio, also known as Acid Test or Liquid Ratio, is a more rigorous test of liquidity than the current ratio. The term 'liquidity' refers to the ability of a firm to pay its short-term obligations as and when they become due. Quick ratio may be defined as the relationship between quick/liquid assets and current or liquid liabilities.

$$\text{Quick / Liquid or Acid Test Ratio} = \text{Quick or Liquid Assets} / \text{Current Liabilities}$$

Quick assets can also be calculated as:

Current Assets-(Inventories +Prepaid Expenses)

Quick/Acid Test / Liquid Ratio = Liquid Assets / Current Liabilities Quick
 / Liquid or Acid Test Ratio = Quick or Liquid Assets / Current Liabilities
 =200000/150000 = 1.33:1

Interpretation of Quick Ratio

Usually, a high acid test ratio is an indication that the firm is liquid and has the ability to meet its current or liquid liabilities in time and on the other hand a low quick ratio represents that the firm's liquidity position is not good. As a rule of thumb or as a convention quick ratio of 1 : 1 is considered satisfactory.

Significance of Quick Ratio:

The quick ratio is very useful in measuring the liquidity position of a firm it measures the firm's capacity to pay off current obligations immediately and is a more rigorous test of liquidity than the current ratio. It is used as a complementary ratio to the current ratio.

ABSOLUTE LIQUID RATIO OR CASH RATIO

Absolute Liquid Ratio = Absolute Liquid Assets / Current Liabilities

OR

Cash Ratio = Cash & Bank + Short-term Securities / CurrentLiabilities

Absolute Liquid Assets include cash in hand and at bank and marketable securities or temporary investments. The acceptable norm for this ratio is 50% or 05:1 or 1:2 i.e.

Problem:

The following is the balance sheet of New India Ltd., for the year ending 31st Dec. 2016.

	Rs.		Rs.
9% Preference Share Capital	500000	Goodwill	100000
Equity Share Capital	1000000	Land and Building	650000
8% Debentures	200000	Plant	800000
Long-term Loan	100000	Furniture & Fixture	150000

Bills Payable	60000	Bills Receivables	70000
Sundry Creditors	70000	Sundry Debtors	90000
Bank Overdraft	30000	Bank Balance	45000
Outstanding Expenses	5000	Short-term Investments	25000
		Prepaid expenses	5000
		Stock	30000
	1965000		1965000

From the balance sheet calculate

- J. Current Ratio
- K. Acid Test Ratio
- L. Absolute Liquid Ratio

Solution:

a) Current Ratio = Current Assets / Current Liabilities

$$\text{Current Assets} = \text{Rs. } 70000 + \text{Rs. } 90000 + \text{Rs. } 45000 + \text{Rs. } 25000 + \text{Rs. } 5000 + \text{Rs. } 30000 = \text{Rs. } 265000$$

$$\text{Current Liabilities} = \text{Rs. } 60000 + \text{Rs. } 70000 + \text{Rs. } 30000 + \text{Rs. } 5000 = \text{Rs. } 165000$$
$$\text{Current Ratio} = 265000 / 165000 = 1.61$$

JJ. Acid Test Ratio = Liquid Assets / Current liabilities

$$\text{Liquid Assets} = \text{Rs. } 70000 + \text{Rs. } 90000 + \text{Rs. } 45000 + \text{Rs. } 25000 = \text{Rs. } 230000$$

Stock and prepaid Expenses have been excluded from current assets in order to arrive at liquid assets.

$$\text{Current Liabilities} = \text{Rs. } 165000$$

$$\text{Acid Test Ratio} = \text{Rs. } 230000 / \text{Rs. } 165000 = 1.39$$

KK. Absolute Liquid Ratio = Absolute Liquid Ratio / Current Liabilities

$$\text{Absolute Liquid Assets} = \text{Rs. } 45000 + \text{Rs. } 25000 = \text{Rs. } 70000$$
$$\text{Absolute Liquid Ratio} = 70000 / 165000 = 0.42$$

Problem:

The following information of a company is given :

Current Ratio, 2.5 : 1 ; Acid-test ratio, 1.5 : 1; Current liabilities Rs. 50000

Find out:

- d. Current Assets
- e. Liquid Assets
- f. Inventory

Solution:

3. Current Ratio = Current Assets / Current

$$\text{Liabilities } 2.5 = \text{Current assets} / \text{Rs. } 50000$$

$$\text{Current Assets} = 50000 \times 2.5 = \text{Rs. } 125000$$

4. Acid Test Ratio = Liquid Assets / Current

$$\text{liabilities } 1.5 = \text{Liquid Assets} / \text{Rs. } 50000$$

$$\text{Liquid Assets} = 50000 \times 1.5 = \text{Rs. } 75000$$

c) Inventory = Current Assets – Liquid Assets
= Rs. 125000 – Rs. 75000 = Rs. 50000

Problem:

Given:

Current Ratio = 2.8 Acid –test Ratio = 1.5

Working Capital = Rs. 1,62,000

Find out:

3. Current Assets
4. Current Liabilities
5. Liquid Assets

Solution:

Working Capital = Current Assets- Current Liabilities 1,62,000

=2.8x-1.0x

1,62,000 = 1.8xOr ,

X Current liabilities = 162000 / 1.8 = Rs. 90,000

Current assets = 90,000x2.8 = Rs. 252000

Acid Test Ratio = Liquid Assets / Current Liabilities

1.5 = Liquid Assets / 90000

Liquid assets = 90000 x 1.5 = Rs. 135000

INVENTORY TURNOVER OR STOCK TURNOVER RATIO

Every firm has to maintain a certain level of inventory of finished goods so as to be able to meet the requirements of the business. But the level of inventory should neither be too high nor too low. It will therefore, be advisable to dispose of inventory as early as possible. On the other hand, too low inventory may mean loss of business opportunities. Thus, it is very essential to keep sufficient stocks in business.

Inventory Turnover Ratio = Cost of Goods Sold / Average Inventory at Cost

Problem:

The cost of goods sold of E.S.P. Limited is Rs. 5,00,000.

The opening stock/inventory is Rs. 40,000 and the closing inventory is Rs. 60,000 (at cost).Find out inventory turnover ratio.

Inventory Turnover Ratio = Cost of Goods Sold / Average Inventory at

Cost = 500000/ 40000 + 60000 / 2 = 500000 / 50000 = 10 times

Problem:

If Inventory Turnover Ratio is 5 times and average stock at cost is Rs. 75000, find out cost of goods sold.

Solution:

Inventory Turnover Ratio = Cost of Goods Sold / Average Inventory at Cost 5 = Cost of Goods Sold / Rs. 75000

Cost of Goods Sold = 75000 x 5 = Rs. 375000

Interpretation of Inventory Turnover Ratio

Inventory turnover ratio measures the velocity of conversion of stock into sales. Usually, a high inventory turnover/Stock velocity indicates efficient management of inventory because more frequently the stocks are sold, the lesser amount of money is required to finance the inventory. A low inventory turnover ratio indicates an inefficient management of inventory.

The ratio can be calculated as follows:

$$\text{Average Collection Period} = \frac{\text{Average Trade Debtors (Drs+B/R)}}{\text{Sales per day}}$$

$$= \frac{\text{Average Trade Debtors} \times \text{No. of Working Days}}{\text{Net sales}}$$

Find out

a) Debtors Turnover

B) Average Collection period from the following information:

	31st March 2015	31st March 2016
	Rs.	Rs.
Annual credit sales	500000	600000
Debtors in the beginning	80000	100000
Debtors at the end	100000	120000

Days to be taken for the year: 360.

Solution:

Average Debtors	= Opening Debtors + Closing Debtors / 2	
Debtors Turnover	Net Credit Annual Sales / Average Debtors	
	Year 2007	Year 2008
Average Debtors	80,000+1,00,000 / 2	1,00,000+1,20,000 / 2
	= Rs. 90,000	Rs. 1,10,000
(a) Debtors Turnover	5,00,000 / 90,000	6,00,000 / 1,10,000
	5.56 times	5.45 times
(b) Average Collection Period	No. of Working Days / Debtors Turnover	
	Year 2007	Year 2008
Average Collection Period	= 360 / 5.56	360 / 5.45
	= 64.7 days	= 66.05 days
	= 65 days (approximately)	= 66 days (appx.)

The analysis for creditor's turnover is basically the same as of debtor's turnover ratio except that in place of trade debtors, the trades creditors are taken as one of the components of the ratio and in place of average daily sales, average daily purchases are taken as the other component of the ratio. Same as debtor's turnover ratio, creditors turnover ratio can be calculated in two forms:

$$\text{CREDITORS/PAYABLES TURNOVER RATIO} = \frac{\text{Net Credit Annual Purchases}}{\text{Average Trade}}$$

Creditors

$$\text{AVERAGE PAYMENT PERIOD RATIO} = \frac{\text{Average Trade Creditors (Creditors + Bills Payable)}}{\text{Average Daily}}$$

Purchases

AVERAGE DAILY PURCHASES = Annual Purchases / No. of Working Days in a Year

AVERAGE PAYMENT PERIOD = Trade Creditors x No. of Working Days / Net Annual Purchases

Illustration:

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

Total purchases	400000
Cash purchases (included in above)	50000
Purchase returns	20000
Creditors at the end	60000
Bills payable at the end	20000
Reserve for discount on creditors	5000
Take 365 days in a year	5000

CREDITORS TURNOVER RATIO = Annual Net Purchases / Average Trade Creditors

Rs.	
<hr/>	
<i>Net Credit purchases</i>	
<hr/>	
Total purchases	400000
<hr/>	
Less: Cash purchases	50000
<hr/>	
	350000
<hr/>	
Less: Returns	20000
	330000

Creditors Turnover Ratio = $330000 / 60000 + 20000$

(Trade creditor include creditors and bills payable) = $330000 / 80000 = 4.13$ times

AVERAGE PAYMENT PERIOD = No. of Working Days / Creditors Turnover Ratio = $365 / 4.13 = 88$ Days

Alternatively:

AVERAGE PAYMENT PERIOD = $60000 + 20000 / 330000 \times 365 = 80000 / 330000 \times 365 = 88$ Days

WORKING CAPITAL TURNOVER RATIO:

Working capital of a concern is directly related to sales. The current assets like debtors, bills receivables, cash, stock etc. change with the increase or decrease in sales. the working capital is taken as : Working Capital = Current assets - Current Liabilities

Working Capital turnover ratio indicates the velocity of the utilization of net working capital. This ratio indicates the number of times the working capital is turned over in the course of a year.

Working Capital Turnover Ratio = Cost of Sales / Average Working Capital

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

Working Capital Turnover Ratio = Cost of Sales (or, Sales) / Net Working Capital

Illustration

Find out working capital turnover ratio:

Rs.

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

Solution

$$\begin{aligned} \text{Working Capital Turnover Ratio} &= \text{Cost of Sales} / \text{Net Working Capital Current assets} \\ &= \text{Rs. } 10,000 + 5,000 + 25,000 + 20,000 \\ &= \text{Rs. } 60,000 \\ \text{Current liabilities} &= \text{Rs. } 30,000 \end{aligned}$$

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

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

Illustration

The following information is given about M/s. S.P. Ltd. for the year ending Dec. 31, 2017

1. Stock turnover ratio = 6 times
2. Gross profit ratio = 20% on sales
3. Sales for 2007 =Rs. 3,00,000
4. Closing stock is Rs. 10,000 more than the opening stock
5. Opening creditors = Rs. 20,000
6. Closing creditors =Rs. 30,000
7. Trade debtors at the end = Rs. 60,000
8. Net Working Capital =Rs. 50,000

Find out:

- g. Average Stock
- h. Creditor Turnover Ratio
- i. Purchases
- j. Average Collection period
- k. Average Payment Period
- l. Working Capital Turnover Ratio

Solution:

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

$$\text{f. } 3,00,000 - (20\% \text{ of sales})$$

$$\text{g. } 3,00,000 - 60,000$$

$$\text{h. Rs. } 2,40,000$$

Average Stock:

$$\text{Stock Turnover Ratio} = \text{Cost of goods sold} / \text{Average}$$

$$\text{Stock } 6 = 2,40,000 / \text{Average Stock}$$

$$\text{Average Stock} = 2,40,000 / 6 = \text{Rs. } 40,000$$

Calculation of Purchases:

$$\text{Cost of goods sold} = \text{Opening Stock} + \text{purchases} - \text{Closing stock}$$

$$\text{Purchases} = \text{Cost of goods sold} + \text{Closing Stock} - \text{Opening stock}$$

$$\text{Average Stock} = \text{Opening Stock} + \text{Closing stock} / 2$$

Since, Closing stock is Rs. 10000 more than the opening stock so, Rs.

$$40000 = \text{Opening Stock} + (\text{Rs. 10000} + \text{opening stock}) / 2$$

$$\text{Rs. 80000} = 2 \text{ Opening stock} + \text{Rs. 10000}$$

$$\text{Opening stock} = 70000 / 2 = \text{Rs. 35000}$$

$$\text{Closing stock} = 35000 + 10000 = \text{Rs. 45000}$$

$$\text{Purchases} = 240000 + 45000 + 35000 = \text{Rs. 250000}$$

Credit Turnover Ratio = Net annual Credit Purchases / Average Trade

Creditors All purchases are taken as credit purchases = 250000 /

$$(20000 + 30000 / 2)$$

$$\text{Credit turnover ratio} = 250000 / 25000 = 10 \text{ Times}$$

Average Payment Period = Average Trade Creditors x No. of Working days / Net Annual

$$\text{Purchases} = 25000 / 250000 \times 365 = 36.5 \text{ days or } 37 \text{ days}$$

Average collection period = Average Trade Debtors x No. of Working Days / Net Annual Sales

$$= 60000 \times 365 / 300000 = 73 \text{ Days}$$

Working Capital Turnover Ratio = Cost of Goods Sold / Net Working Capital

$$= 240000 / 50000 = 4.8 \text{ times.}$$

ANALYSIS OF LONG-TERM FINANCIAL POSITION OR TESTS OF SOLVENCY

The term 'solvency' refers to the ability of a concern to meet its long term obligations. The long-term indebtedness of a firm includes debenture holders, financial institutions providing medium and long-term loans and other creditors selling goods on installment basis.

ANALYSIS OF LONG-TERM FINANCIAL POSITION OR TEST OF SOLVENCY Capital Structure Ratios

7. Debt-Equity Ratio.
8. Funded-Debt to Total Capitalization Ratio.
9. Proprietary Ratio or Equity Ratio.)
10. Solvency Ratio or Ratio of Total Liabilities to Total Assets.
11. Fixed Assets to Net Worth or Proprietor's Funds Ratio.

DEBT-EQUITY RATIO

Debt-Equity Ratio, also known as External -Internal Equity Ratio is calculated to measure the relative claims of outsiders and the owners (i.e., shareholders) against the firm's assets. This ratio indicates the relationship between the external equities or the outsiders funds and the internal equities or the shareholders' funds, thus:

$$\text{Debt- Equity Ratio} = \text{Outsiders Funds} / \text{Shareholders' Funds}$$

or

$$\text{Debt to Equity Ratio} = \text{External Equities} / \text{Internal Equities}$$

The two basic components of the ratio are outsiders' funds, i.e., external equities and share holders' funds, i.e., internal equities. The outsiders' funds include all debts/liabilities to outsiders.

$$\text{Long - term Debt to Shareholders' Funds (Debt-Equity Ratio)} = \text{Long term Debt} / \text{Shareholders}$$

Illustration

<i>Liabilities</i>	Rs.	Assets	Rs.
2,000 Equity Shares of Rs. 100 each	200000	Fixed Assets	400000
1,000 9% Preference Shares of Rs. 100 each	100000	Current Assets	200000
1,000 10% Debentures of Rs. 100 each	100000		
Reserves:			
General Reserve	50000		
Reserves for contingencies	50000		
Current liabilities	100000		

Calculate Debt-Equity Ratio.

Solution:

$$\begin{aligned}\text{Debt - Equity Ratio} &= \text{Outsiders' Fund} / \text{Shareholders' Funds} \\ &= 100000 (\text{Debentures}) + 100000 (\text{Current Liabilities}) / 200000 + 100000 + \\ &\quad 50000 + 50000 \\ &= 200000 / 400000 = 1:2\end{aligned}$$

$$\begin{aligned}\text{Debt Equity Ratio} &= \text{Long term Debt} / \text{Shareholder's} \\ &\quad \text{Funds} = 100000 / 400000 = 1:4\end{aligned}$$

Interpretation of Debt-Equity Ratio

The debt-equity ratio is calculated to measure the extent to which debt financing has been used a business. The ratio indicates the proportionate claims of owners and the outsiders against the firm's assets.

PROPRIETARY RATIO OR EQUITY RATIO

A variant to the debt-equity ratio is the proprietary ratio which is also known as equity ratio or shareholders to total equities ratio or net worth to Total asset ratio. This ratio establishes the relationship between shareholders' funds to total assets of the firm. The ratio of proprietors' funds to total funds proprietors outsiders' funds or total funds or total assets is an important ratio for determining long-term solvency of a firm.

$$\text{Proprietary Ratio or Equity Ratio} = \text{Shareholder's Funds} / \text{Total Assets}$$

If shareholder's funds are Rs. 4,00,000 and total assets are Rs. 6,00,000. Proprietary Ratio or Equity Ratio = $400000 / 600000 = 2.3$

Interpretation of Equity Ratio

As equity ratio represents the relationship of owner's funds to total assets, higher the ratio or the share of the shareholders in the total capital of the company, better is the long-term solvency position of the company.

SOLVENCY RATIO OR THE RATIO OF TOTAL LIABILITIES TO TOTAL ASSETS

This ratio is a small variant of equity ratio and can be simply calculated as 100-equity ratio, i.e., continuing the example taken for the equity ratio, solvency ratio = $100 - 66.67$ or say 33.33%. The ratio indicates the relationship between the total liabilities to outsiders to total assets of a firm and can be calculated as follows: Solvency Ratio = $\text{Total Liabilities to Outsiders} / \text{Total Assets}$

If the total liabilities to outsiders are Rs. 2,00,000 and total assets are Rs. 6,00,000, then
Solvency Ratio = $200000 / 600000 \times 100 = 33.33\%$

FIXED ASSETS TO NET WORTH RATIO OR FIXED ASSETS TO PROPRIETOR'S FUNDS:

The ratio establishes the relationship between fixed assets and shareholder's funds, i.e., share capital plus reserves, surpluses and retained earnings. The ratio can be calculated as follows:

Fixed Assets to Net Worth Ratio = $\text{Fixed Assets (After Depreciation)} / \text{Shareholders' Funds}$

Thus, where the depreciated book value of fixed asset is Rs. 400000 and shareholders' funds are also Rs. 400000 the ratio of fixed assets to net worth / proprietors' funds represented in terms of percentage would be = $400000 / 400000 \times 100 = 100\%$

ANALYSIS OF PROFITABILITY OR PROFITABILITY RATIOS The various profitability ratios are discussed below:

(A) GENERAL PROFITABILITY RATIOS

The following ratios are known as general profitability ratios :

- e) Gross Profit Ratio
- f) Operating Ratio
- g) Operating Profit Ratio
- h) Expenses Ratio
- i) Net Profit Ratio

GROSS PROFIT RATIO

Gross profit ratio measures the relationship of gross profit to net sales and is usually represented as a percentage. Thus, it is calculated by dividing the gross profit by sales :
Gross Profit Ratio = $\text{Gross Profit} / \text{Net Sales} \times 100$

$$= \frac{\text{Sales} - \text{Cost of Goods Sold}}{\text{Sales}} \times 100$$

Illustration

Calculate,

Gross Profit Ratio :

Solution:

Gross Profit Ratio = $\frac{\text{Gross Profit}}{\text{Net Sales}} \times 100$ Net sales = Total sales – Sales returns = Rs. 520000 – 20000 = Rs. 500000

Gross Profit = Net Sales – Cost of Goods Sold

500000 - 400000 = Rs. 100000

Gross Profit Ratio = $100000 / 500000 \times 100 = 20\%$

Interpretation of Gross Profit Ratio

The gross profit indicates the extent to which selling prices of goods per unit may decline without resulting in losses on operations of a firm.

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.

Operating Ratio = Operating Cost / Net Sales X 100
 = Cost of goods sold + operating expenses / Net sales x 100

Illustration

Find out operating Ratio:

	Rs.
Cost of goods sold	350000
Selling and distribution Expenses	20000
Administrative & office Expenses	30000
Net sales	500000

Solution:

OPERATING RATIO= Cost of goods sold + operating expenses / Net sales x 100
 = 3,50,000+20,000+30,000 / 500000 X 100
 = 400000 / 500000 x 100 = 80%

Interpretation of Operating Ratio

Operating ratio indicates the percentage of net sales that is consumed by operating cost.

OPERATING PROFIT RATIO

This ratio is calculated by dividing operating profit by sales.

Operating profit is calculated as:

Operating Profit = Net Sales-Operating Cost or= Net Sales-(Cost of goods sold + Administrative and Office Expenses + Selling and Distributive Expenses) Operating Profit can also be calculated as:

Operating Profit = Net Profit + Non-operating Expenses - Non-operating income

So, Operating Profit Ratio = Operating profit / sales x 100

This ratio can also be calculated as:

Operating Profit Ratio = 100-Operating Ratio.

Illustration

From the information given below, calculate operating profit ratio

Cost of Goods Sold = Rs. 4,00,000
 = Rs.

Administrative & Office Expenses 35,000

Selling & Distributive Expenses =Rs.45,000

Net Sales= Rs. 6,00,000.

Solution:

Operating Profit Ratio = Operating Profit / Net Sales x 100

Operating Profit = Sales - (Cost of goods sold + Administrative Office expenses+ Selling & Distributive Expenses)
 =Rs. 6,00,000-(Rs. 4,00,000+Rs. 35,000+Rs. 45,000)=Rs. 1,20,000

Operating profit ratio = 120000 / 600000 x 100 = 20%

EXPENSES RATIOS

Expenses ratios indicate the relationship of various expenses to net sales. The operating ratios are the average total variations in expenses.

Cost of goods sold ratio = Particular Expenses / Net Sales x100 Administrative & Office

ExpensesRatio= Administrative & Office Expenses / Sales x 100

Selling&DistributiveExpensesRatio=selling&DistributiveExpenses/Salesx1

Non-Operating Expenses Ratio = Non-Operating Expenses / Sales x 100

NET PROFIT RATIO

Net Profit ratio establishes a relationship between net profit (after taxes) and sales, and indicates the efficiency of the management in manufacturing, selling, administrative and other activities of the firm. This ratio is the overall measure of firm's profitability and is calculated as:

Net Profit Ratio = Net Profit after Tax / Net Sales x 100

Net profit Ratio = Net Operating Profit / Net Sales x 100

Illustration:

Following is the Profit and Loss Account to Royal Matrix Ltd. for the ended 31st December 2016.

Dr.	Rs.	Cr.	Rs.
To Opening stock	100000	By Sales	560000
To Purchases	350000	By Closing stock	100000
To Wages	9000		
To Gross profit c/d	201000		
	660000		660000
To Administrative expenses	20000	By Gross profit b/d	201000
To Selling and distribution expenses	89000	By Interest on investments (outside business)	1000
To Non-operating expenses	30000	By Profit on sales of Investments	8000
To Net profit	80000		
	219000		219000

Calculate:

11. Gross profit Ratio
12. Net profit Ratio
13. Operating Ratio
14. Operating profit Ratio
15. Administrative Expenses Ratio.

Solution:

1. Gross profit = Gross profit / Net sales x 100
= 201000 / 560000 x 100 = 35.9%

2. Net profit ratio = Net profit (after tax) / Net sales x 100
= 80000 / 560000 x 100 = 14.3%

Alternatively,

Net Profit Ratio = Net operating profit / Net sales x 100
= (80000 + 30000) - (10000 + 8000) / 560000 x 100 = 92000 / 560000 x 100 = 16.4%

3. Operating Ratio = Cost of goods sold + operating Exp. / Net sales
Cost of goods sold = Op. stock + Purchases + Wages - Closing Stock
= 100000 + 350000 + 9000 - 100000 = Rs. 359000

Operating Expenses = Administrative + Selling & Distribution Exp.

$$\begin{aligned} &= 20000 + 89000 = 109000 \\ \text{Operating Ratio} &= 359000 + 109000 / 560000 \times 100 = 83.6\% \end{aligned}$$

$$\begin{aligned} 4. \text{Operating profit Ratio} &= 100 - \text{Operating Ratio} \\ &= 100 - 83.6\% = 16.4\% \end{aligned}$$

$$\begin{aligned} 5. \text{Administrative Expenses Ratio} &= \text{Administrative Expense} / \text{Net sales} \times 100 \\ &= 20000 / 560000 \times 100 = 3.6\% \end{aligned}$$

USE OF RATIO ANALYSIS

The ratio analysis is one of the most powerful tools of financial analysis. It is used as a device to analyse and interpret the financial health of enterprise. Ratios have wide applications and are of immense use today.

Managerial Uses of Ratio Analysis

- Helps in decision-making: Financial statements are prepared primarily for decision-making.
- Helps in financial forecasting and planning: Ratio Analysis is of much help in financial forecasting and planning.
- Helps in communicating: The financial strength and weakness of a firm are communicated in a more easy and understandable manner by the use of ratios.
- Helps in co-ordination: Ratios even help in co-ordination which is of utmost importance in effective business management.
- Helps in Control: Ratio analysis even helps in making effective control of the business.

Utility to Shareholders/Investors:

An investor in the company will like to assess the financial position of the concern where he is going to invest. His first interest will be, the security of his investment and then a return in the form of dividend or interest.

Utility to Creditors:

The creditors or suppliers extend short-term credit to the concern. They are interested to know whether financial position of the concern warrants their payments at a specified time or not.

Utility to Employees:

The employees are also interested in the financial position of the concern especially profitability. Their wage increases and amount of fringe benefits are related to the volume of profits earned by the concerns.

Utility to Government:

Government is interested to know the overall strength of the industry. Various financial statements published by industrial units are used to calculate ratios for determining short financial position of the concerns.

LIMITATIONS OF RATIO ANALYSIS:

Limited Use of a Single Ratio:

"A single ratio, usually, does not convey much of a sense. To make better interpretation a number of ratios have to be calculated which is likely to confuse the analyst than help making any meaningful conclusion".

Lack of adequate standards:

There are no well accepted standards or rules of thumb for all ratios which can be accepted as norms. It renders interpretation of the ratios difficult.

Inherent Limitations of Accounting:

Like financial statements, ratios also suffer from the inherent weakness of accounting records such as their historical nature.

Change of Accounting Procedure:

Change in accounting procedure by a firm often makes ratio analysis misleading.

Window Dressing:

Financial statements can easily be window dressed to present a better picture of its financial and profitability position to outsiders.

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.

Uncomparable:

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.

Absolute Figures Distortive:

Ratios devoid of absolute figures may prove distortive as ratio analysis is primarily a quantitative analysis and not a qualitative analysis.

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.

Ratios no Substitutes:

Ratio analysis is merely a tool of financial statements. Hence, ratios become useless if separated from the statements from which they are computed.

Clues not Conclusions:

Ratios provide only clues to analysts and not for conclusions. These ratios have to be interpreted by these experts and there are no standard rules for interpretation.

FUNDS FLOW STATEMENT

The Funds Flow Statement is a statement which shows the movement of funds and is a report of the financial operations of the business undertaking. It indicates various means by which funds were obtained during a particular period and the ways in which these funds were employed. In simple words, it is a statement of sources and applications of funds.

MEANING AND DEFINITION OF FUNDS FLOW STATEMENT

Funds Flow Statement is a method by which we study changes in the financial position of a business enterprise between beginning and ending financial statements dates. It is a statement showing sources and uses of funds for a period of time.

Foulke defines this statements as:

A statement of sources and application of funds is a technical device designed to analyse the changes in the financial condition of a business enterprise between two dates.

In the words of Anthony - The funds flow statement describes the sources from which additional funds were derived and the use to which these sources were put.

Funds flow statement is called by various names such as Sources and Application of Funds Statement of Changes in Financial Position.

USES OF FUNDS FLOW STATEMENT

A funds flow statement is an essential tool for the financial analysis and is of primary importance to the financial management. 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.

The uses of funds flow statement can be well followed from its various uses given below:

- 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.
- It throws light on many perplexing questions of general interest which otherwise may be difficult to be answered.
- It helps in the formation of a realistic dividend policy
- It helps in the proper allocation of resources.
- It acts as a future guide.
- It helps in appraising the use of working capital.
- It helps knowing the overall creditworthiness of a firm.

PROCEDURE FOR PREPARING A FUNDS FLOW STATEMENT

The preparation of a funds flow statement consists of two parts:

- Statement or Schedule of Charges in Working Capital.
- Statement of Sources and Application of Funds.

a.Statement or Schedule of Changes in Working Capital:

Working Capital means the excess of current assets over current liabilities. Statement of changes in working capital is prepared to show the changes in the working capital between the two balance sheet dates. This statement is prepared with the help of current assets and current liabilities derived from the two balance sheets.

As, Working Capital = Current Assets - Current Liabilities.

So,

- I. An increase in current assets increases working capital.
- II. A decrease in current assets decreases, working capital.
- III. An increase in current liabilities decreases working capital
- IV. A decrease in current liabilities increases working capital.

Funds flow statement is a statement which indicates various sources from which funds (Working capital) have been obtained during a certain period and the uses or applications to which these funds have been put during that period.

Generally, this statement is prepared in two formats:

- a. Report Form
- b. T Form or an Account Form or Self Balancing Type.

Specimen of Report Form of Funds Flow Statement

<i>Sources of Funds:</i>	<i>Rs.</i>
Funds from Operations	
Issue of Share Capital	
Raising of long-term loans	
Receipts from partly paid shares, called up	
Sales of non current (fixed) assets	
Non-trading receipts, such as dividends received	
Sale of Investments (long-term)	
Decrease in Working Capital (as per schedule of changes in Working Capital)	
Total	
<i>Applications or Uses of Funds:</i>	
Funds Lost in Operations	
Redemption of Preference Share Capital	
Redemption of Debentures	
Repayment of long-term loans	
Purchase of non-current (fixed) assets	
Purchase of long-term Investments	
Non-trading payments	
Payments of dividends*	
Payment of tax*	
Increase in Working Capital (as per schedule of changes in working capital)	
Total	

Funds from Operations		Funds lost in Operations	
Issue of Share Capital		Redemption of Preference Share Capital	
Issue of Debentures		Redemption of Debentures	
Raising of long-term loans		Repayment of long-term loans	
Receipts from partly paid shares, called up		Purchase of non-current (fixed) assets	
Sale of non-current (fixed) assets		Purchase of long-term investments	
Non-trading receipts such as dividends		Non-trading payments	
Sale of long-term Investments		Payment of Dividends*	
Net Decrease in Working Capital		Payment of tax*	
		Net Increase in Working Capital	

➤ Note. Payment of dividend and tax will appear as an application of funds only when the items are appropriations of profits and not current liabilities.

SOURCES OF FUNDS

The following are the sources from which funds generally flow (come), into the business :

Funds From Operations or Trading Profits:

Trading profits or the profits from operations of the business are the most important and major source of funds. Sales are the main source of inflow of funds into the business as they increase current assets (cash, debtors or bills receivable) but at the same time funds flow out of business for expenses and cost of goods sold.

Funds from operations can also be calculated by preparing Adjusted Profit and Loss Account as follows:

Adjusted Profit and Loss

Account

	Rs.	
To Depreciation & Depletion or amortization of fictitious and intangible assets, such as: Goodwill, Patents, Trade Marks, Preliminary Expenses etc.		By Opening Balance (of P & L A/c)
To Appropriation of Retained Earnings, such as : Transfers to General Reserve, Dividend Equalisation Fund, Sinking Fund, etc.		By Transfers from excess provisions
To Loss on sales of any non-current or fixed asset		By Appreciation in the value of fixed Assets
To Dividends (including interim dividend)		By Dividends received

To Proposed Dividend (if not taken as a current liability)		By Interest on investments	
To Provision for taxation (if not taken as a current liability)		By Profit on sale of fixed or non-current Assets	
To Closing balance (of P & L A/c)		By Funds from Operations (balancing figure in case debit side exceeds credit side)	
To Fundslost in Operations (balancing figure, in case credit side exceeds the debit side)			

Illustration:

SSM Company presents the following information and you are required to calculate funds from operations.

Profit And Loss Account			
	Rs.		Rs.
To Expenses:		By Gross profit	2,00,000
Operation	1,00,000	By Gain on sale of plant	20,000
Depreciation	40,000		
To Loss on Sale of building	10,000		
To Advertisement Suspense A/c	5,000		
To Discount (allowed to customers)	500		
To Discount on Issue of Shares written off	500		
To Goodwill	12,000		
To Net Profit	52,000		
	2,20,000		2,20,000

Solution:

Calculation of Funds from Operations

	Rs.	Rs.
Net profit (as given)		52000
Add: Non-fund or non-operating items which have been debited to P/L A/c:		
Depreciation	40000	
Loss on sale of building	10000	
Advertisement written off	5000	
Discount on issue of shares written off	500	
Good will written off	12000	67500
		119500

Less: Non-fund or Non-operating items which have been credited to P/L A/c: Gain on sale of plant	20000	20000
Funds from operations		99500

APPLICATIONS OR USES OF FUNDS

- Funds lost in operations
- Redemption of preference share capital
- Repayment of long-term loans and redemption of debentures
- Payments of dividends and Tax
- Any other Non-trading payment.

CASH FLOW STATEMENT

INTRODUCTION

Cash plays a very important role in the entire economic life of a business. Recognizing the importance of cash flow statement, the Institute of Chartered Accountants of India (ICAI) issued. AS-3 Revised : Cash flow Statements in March, 1997.

Meaning:

Cash Flow Statement is a statement which describes the inflows (sources) and outflows (uses) of cash and cash equivalents in an enterprise during a specified period of time. A cash flow statement summarizes the causes of changes in cash position of a business enterprise between dates of two balance sheets. According to AS-3 (Revised), an enterprise should prepare a cash flow Statement and should present it for each period for which financial statements are prepared.

The terms cash, cash equivalents and cash flows are used in this statement with the following meanings:

1. Cash comprises cash on hand and demand deposits with banks.
2. Cash equivalents are short term, highly liquid investments.
3. Cash flows are inflows and outflows of cash and cash equivalents.

FORMAT OF CASH FLOW STATEMENT

AS - 3 (Revised) has not provided any specific format for preparing a cash flow statement.

A widely used format of cash flow statement (Direct Method) is given below:

Cash Flow Statement(for the year ended ...)

Rs.

Rs.

Cash Flows From Operating Activities Either

Cash receipts from customers

Cash paid to suppliers and employees

Cash generated from operations

Income-tax paid

Cash flow before extraordinary items

Extraordinary items

Net cash from (used in) Operating activities

Or

Net profit before tax and extraordinary items

Adjustments for non-cash and non-operating items

(List of individual items such as depreciation, foreign exchange

loss, loss on sale of fixed assets, interest income, dividend income, interest expense etc.)

Operating profit before working capital changes

Adjustments for changes in current assets and current liabilities

(List of individual items)

Cash generated from (used in) operations before tax

Income tax paid

Cash flow before extraordinary items

Extraordinary items (such as refund of tax)

Net cash from (used in) operating activities

Cash Flows From Investing Activities

Individual Items of cash inflows and outflows from financing Activities

(such as) purchase/sale of fixed assets, purchase or sale of investments, interest received, dividend received etc.

Net Cash from (used in) investing activities

Cash Flows From Financing Activities

Individual items of cash inflows and outflows from financing Activities

(such as) proceeds from issue of shares, long-term borrowings, repayments of long-term borrowings, interest paid, dividend paid etc.

Net cash from (used in) financing activities

Net Increase (Decrease) in cash and cash equivalents

Cash and cash equivalents at the beginning of the period

Cash and cash equivalents at the end of the period

PROCEDURE FOR PREPARING A CASH FLOW STATEMENT:

Cash flow statement is not a substitute of income statement, i.e., a profit and loss account, and a balance sheet. It provides additional information and explains the reasons for changes in cash and cash equivalents, derived from financial statements at two points of time.

The preparation of a cash flow statement involves the following steps:

Step 1 Compute the net increase or decrease in cash and cash equivalents by making a comparison of these accounts given in the comparative balance sheets.

Step 2 Calculate the net cash flow provided (used in) operating activities by analysing the profit and loss account, balance sheet and additional information. There are two methods of converting net income into net cash flows from operating activities : the direct method and the indirect method.

Step 3 Calculate the net cash flow from investing activities.

Step 4 Calculate the net cash flow from financing activities.

Step 5 Prepare a formal cash flow statement highlighting the net cash flow from (used in) operating, investing and financing activities separately.

Step 6 Make an aggregate of net cash flows from the three activities and ensure that the total net cash flow is equal to the net increase or decrease in cash and cash equivalents as calculated in Step 1.

Step 7 Report significant non-cash transactions that did not involve cash or cash equivalents in a separate schedule to the cash flow statement e.g., purchase of machinery against issue of share capital or redemption of debentures in exchange for share capital.

METHODS OF CALCULATING CASH FLOWS FROM (USED IN) OPERATING ACTIVITIES:

There are two methods of reporting cash flows from operating activities: the direct method and the indirect method.

1. The Direct Method

Under the direct method, cash receipts (inflows) from operating revenues and cash payments (outflows) for operating expenses are calculated to arrive at cash flows from operating activities. The difference between the cash receipts and cash payments is the net cash flow provided by (or used in) operating activities. The following are the examples of cash receipts and cash payments (called cash flows) resulting from activities:

- = Cash receipts from the sale of goods and the rendering of services;
- = Cash receipts from royalties, fees, commissions and other revenues;
- = Cash payment to suppliers for goods and services;
- = Cash payment to and on behalf of employees;
- = Cash receipts and cash payment of an insurance enterprise for premiums and claims, annuities and other policy benefits;
- = Cash payments or refund of income taxes unless they can be specifically identified with financing and investing activities;
- = Cash receipts and payments relating to future contracts, forward contracts, option contracts and swap contracts when the contracts are held for dealing or trading purposes.

Illustration:

CASH FLOWS FROM INVESTING ACTIVITIES

Calculate net cash flows from investing activities from the following information:

	31.3.2016	31.3.2017
Buildings (w.d.v.)	600000	750000

Additional information:

Building costing Rs. 100000 on which Rs. 30000 had accumulated as depreciation was sold Rs. 60000.

Depreciation charged on buildings for the year ended 31.3.2017 Rs. 50000.

Solution:

Building A/c

	Rs.		Rs.
To balance b/d	600000	By cash (sale)	60000
To cash (purchase – bal.fig.)	270000	By P/L a/c (loss)	10000
		By depreciation	50000
		By balance c/d	750000
	870000		870000

CALCULATION OF NET CASH FLOWS FROM INVESTING ACTIVITIES

	Rs.	Rs.
Sale of buildings	60000	
Purchase of buildings	(270000)	
Net cash used in investing activities		(210000)

Illustration:**CASH FLOWS FROM FINANCING ACTIVITIES**

From the information given below, calculate cash flows from financing activities.

	2016 Rs.	2017 Rs.
Equity share capital	200000	300000
8% debentures	100000	50000
Securities premium	20000	30000
Bank loan (long-term)	---	100000

Additional information: Interest paid on debentures Rs. 8000.

Solution:**CALCULATION OF CASH FLOWS FROM FINANCING ACTIVITIES**

CALCULATION OF CASH FLOWS FROM FINANCING ACTIVITIES		
	Rs.	Rs.
Issue of share capital	100000	
Redemption of debentures	(50000)	
Proceeds from securities premium	10000	
Raising of Bank Loan	100000	
Interest on Debentures paid	(8000)	
Net Cash Flows From Financing Activities		152000

Illustration

The following details are available from a company.

	31-12-06	31-12-07		31-12-06	31-12-07
	Rs.	Rs.		Rs.	Rs.
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	10560	Goodwill	10,000	5,000
	103100	103200		103100	103200

In addition, you are given:

Dividend paid total Rs. 3,500.

Land was purchased for Rs. 10,000.

Amount provided for a mortisation of goodwill Rs. 5,000. Debentures paid off Rs. 6,000.

Prepare Cash Flow Statement,

Illustration: The Balance Sheet of ABC Ltd. is as follows :

Liabilities	1.1.07 (Rs.)	31.12.07 (Rs.)	Assets	1.1.07 (Rs.)	31.12.07 (Rs.)
Equity Capital	100000	100000	Cash	10000	7200
General Reserve	100000	100000	Debtors	70000	76800
Profit and Loss A/c	96000	98000	Stock	50000	44000
Current Liabilities	72000	82000	Land	40000	60000
Loan from Associate Company	---	40000	Buildings	100000	110000
Loan from Bank	62000	50000	Machinery	160000	172000
	430000	470000		430000	470000

Solution:**CASH FLOW STATEMENT(for the year ended 31.12.2007)**

	Rs.	Rs.
CASH FLOWS FROM OPERATING ACTIVITIES		
Increase in the balance of P/L A/c	2000	
Adjustments for non-cash and non-operating items:		
Dividend paid	52000	
Provision for depreciation on machinery (72,000-54,000)	18000	
Operating profit before working capital changes	72000	
Adjustments for changes in current operating assets and liabilities:		
Increase in debtors	(6800)	
Decrease in stock	6000	
Increase in current liabilities	10000	
Cash generated from operations before tax	81200	
Less: Income tax paid	---	
Net Cash from operating activities		81200
CASH FLOW FROM INVESTING ACTIVITIES		
Purchase of land (60,000-40,000)	(20000)	
Purchase of buildings (1,10,000-1,00,000)	(10000)	
Purchase of machinery (1)	(30000)	(60000)
Net Cash used in investing activities		
CASH FLOWS FROM FINANCING ACTIVITIES		
Loan from associate company	40,000	
Loan repaid to bank	(12,000)	
Dividend paid	(52,000)	(24000)
Net Decrease in cash a cash equivalents		(2800)
Cash and cash equivalents at the beginning of the period		10000
Cash and cash equivalents at the end of the period		7200

Working Notes:
Machinery A/c (At written down values)

	Rs.		Rs.
To Balance b/d	160000	By Depreciation(72,000-54,000)	18000
To Cash-purchased (bal. fig.)	30000	By Balance c/d	172000
	190000		190000

LIMITATIONS OF CASH FLOW STATEMENT

- = As cash flow statement is based on cash basis of accounting, it ignores the basic accounting concept of accrual basis.
- = Some people feel that as working capital is a wider concept of funds, a funds flow statement provides a more complete picture than cash flow statement.
- = Cash flow statement is not suitable for judging the profitability of a firm as non-cash charges are ignored while calculating cash flows from operating activities.
- = A cash flow statement is not a substitute of an income statement is complementary to an income statement. Net cash flow does not mean the net income of a firm.
- = A cash flow statement is also not a substitute of funds flow statement which provides information relating to the causes that lead to increase or decrease in working capital.
