CHAPTER

13

Cost Accounting

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13.1 INTRODUCTION

Cost Accounting, essentially a branch of Accounting, has been developed to meet the managerial needs of business. Cost Accounting is, relatively, a recent development due to the growth of modern complexities in business. Cost Accounting is a formal system of accounting costs in the books of accounts by means of which costs of products and services are ascertained and

controlled. This information helps the business operations for the purpose of analysis and control. Cost Accounting is used in profit and non-profit sectors of the economy by manufacturing and non-manufacturing organizations. Cost Accounting facilitates presentation of information to management for the ultimate purpose of decision-making.

13.2 COSTING AND COST ACCOUNTING

Costing should not be confused with cost accounting. They are two different terms. Costing, simply, means finding out cost, by any process or technique. It can be:

(A) Cost of manufacturing a product e.g. mobile, television, chemical etc.

(B) Cost of providing a service e.g. transport by a specific mode, electricity etc.

Cost Accounting is the formal system for recording costs. However, both the terms costing and cost accounting are often used, interchangeably.

Costing is defined as 'the technique and process of ascertaining costs' by Chartered Institute of Management Accountants (CIMA).

The terminology of Cost Accountancy published by the Institute of Cost and Management Accountants, London gives the following definition to Cost Accounting:

'The process of accounting for cost which begins with recording of income and expenditure and ends with the preparation of periodical statements and reports for ascertaining and controlling costs.'

13.3 OBJECTIVES OF COSTING

The main objectives of costing are:

(1) To ascertain the cost of products and/or services

(2) To determine selling price

(3) To control costs and

(4) To provide guidance to the management for formulation of policy.

13.4 COST CENTRE AND COST UNIT

Cost Centre: A cost centre is "a location, person or item or equipment (or group of these) for which costs may be ascertained and used for purpose of control".

Cost centre may be

(1) a location (department like production department, sales department)

(2) a person (salesman, foreman)

(3) an item of equipment (a lathe machine or delivery van)

(4) a group of those equipments (two automatic machines operated by one workman)

Importance: The determination of cost centre is very important for ascertainment of cost and cost control. Cost accountant sets up cost centres to enable him to ascertain the costs, he needs to know. The manager incharge of cost centre is held responsible for the purpose of cost control. The size and number of cost centers are dependent upon the amount of expenditure and requirements of management for cost control.

Cost Unit: Cost centre helps in ascertaining the cost by location, equipment or person. Cost unit is a further step, which breaks up the cost into smaller sub-divisions and helps in ascertaining the cost of a saleable product or service.

A cost unit is a unit of product, service or time in relation to which cost may be ascertained or expressed. For example, the cost of steel is ascertained in terms of cost per tonne, cost of carrying a passenger in terms of per kilometer.

A few examples of cost units in different industries are given below:

Industry	Cost Unit
Cement	Per Tonne
Textile	Per Metre
Chemical	Per kg or per Tonne
Power	Per Kilowatt hour (kWH)
Automobile	Per car, vehicle

13.5 ELEMENTS OF COST

A cost is composed of three elements – Materials, Labour and Expenses. Each of these can be direct or indirect.

Material Cost: This is the cost of inputs supplied to an undertaking. For example, cotton used in a cotton mill is a direct material. However, in many cases, though material forms part of the finished product, yet it is not considered direct material. For example, nails used in furniture, thread used in stitching garments are indirect material. The value of these materials is so small that it is difficult and futile to count or measure them.

Labour Cost: This is the cost of remuneration (wages, salaries, commission, bonus etc). Direct labour consists of wages paid to workers, directly, engaged in converting raw materials into finished products. These wages can be identified with a particular product. Wages paid to a machine operator is an example of direct wages. Indirect wages is of a general character and cannot be, conveniently, identified with a particular cost unit. In other words, indirect labour is not, directly, engaged in the production operation, but to assist or help in production operation. Labour engaged in cleaning the workshop is an example of indirect labour.

Expenses: All costs other than materials and labour are termed as expenses. Direct expenses are those, which can be identified with and allocated to cost centers or units. Direct expenses

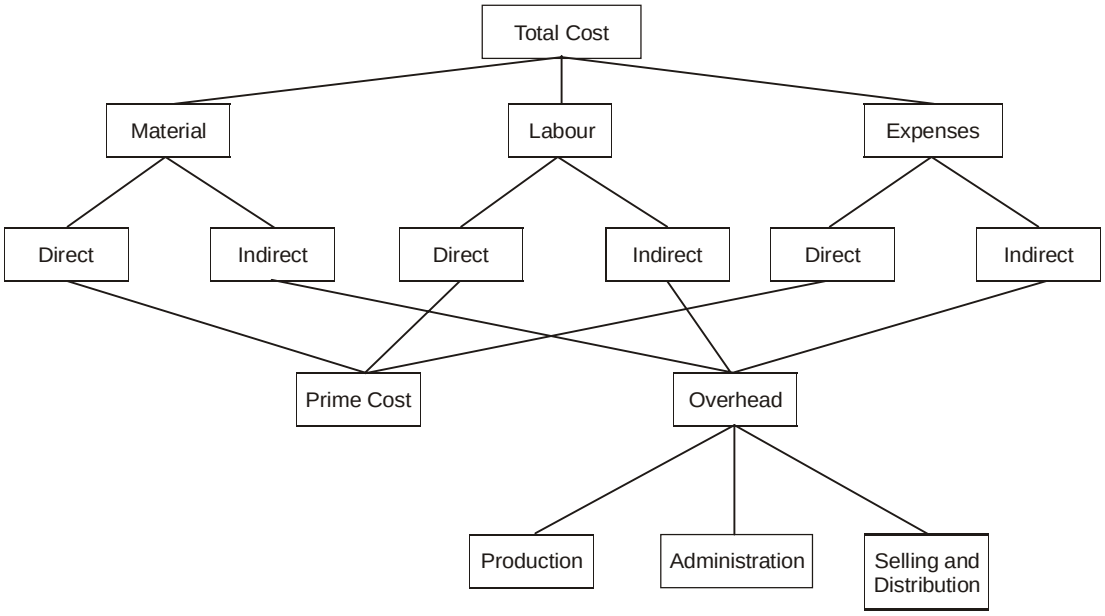
are those expenses, which are specifically incurred in connection with a particular job or cost unit. Direct expenses are also known as chargeable expenses.

Indirect expenses are indirect costs, other than indirect materials and indirect labour costs. These cannot be, directly, identified with a particular job, process or work order and are common to cost units and cost centres.

Indirect expenses are also known as Overheads.

The chart below summarises the elements of cost.

1. Direct Material + Direct Labour + Direct Expenses = Prime Cost
2. Prime Cost + Production overhead = Factory Cost or Works Cost
3. Works Cost + Administration Overheads = Cost of Production
4. Cost of Production + Selling and Distribution Overheads = Total Cost or Cost of Sales



Elements of Cost

13.6 CLASSIFICATION OF COSTS

There are various ways of classifying costs. Each classification serves different purpose.

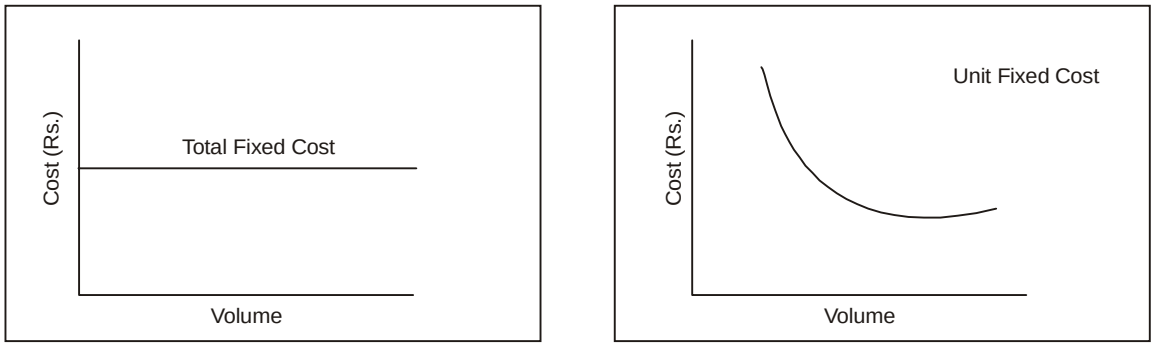
(A) Classification According to Functions: This is a traditional classification. A business has to perform a number of functions such as manufacturing, administration, selling, distribution and research. On the basis of function, they are classified as manufacturing cost, administration cost, selling and distribution cost and research and development cost.

(B) Classification According to Variability and Behaviour: Costs, sometimes, have a definite relationship to the volume of production. Some costs change with the volume of production and some others do not change at all, irrespective of the volume of production, while some of the costs, partly, change.

Under this category, costs are classified as fixed costs, variable costs, and semi-variable or semi-fixed costs.

Fixed Costs: When a cost does not change with increase in volume, it is called Fixed Cost. Fixed costs are constant. Fixed costs do not change, irrespective of the level of production. Examples are rent, insurance, depreciation and repairs. The total fixed cost is one and the same, whether one unit is produced or one hundred units are produced, till the production does not exceed the capacity of machine. However, the unit fixed cost decreases as the volume of production increases. In the pictorial presentation of behaviour of fixed costs, unit fixed cost curve descends while total fixed cost is constant at all levels of production. In other words, unit fixed cost decreases as and when volume increases. But, there is no change in total fixed cost at different production volume levels.

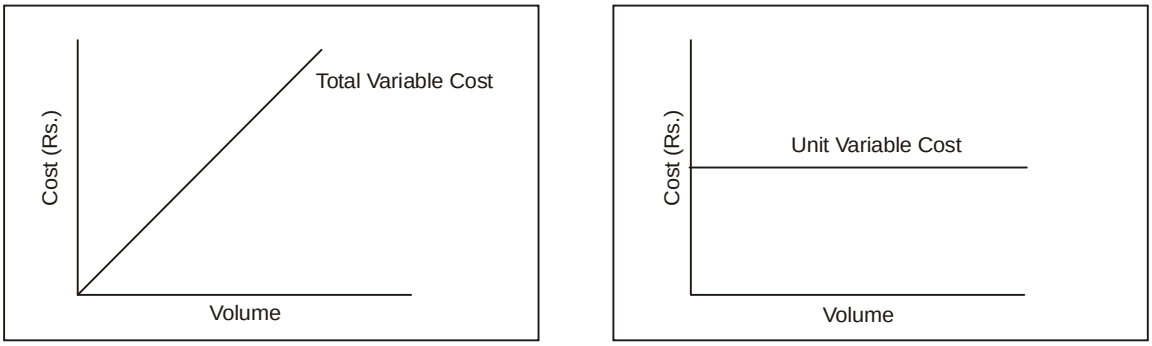
The graphical presentation of total fixed cost and unit fixed costs show as under:



Behaviour of Fixed Costs

Variable Costs: When a cost changes in proportion to the change in volume, it is called Variable Cost. The typical example is raw materials. If production increases, total cost of raw materials increases, in the same proportion of production level. If production is suspended or closed, cost of raw materials becomes zero. **Mathematically, a linear relationship exists between a variable cost and volume.** If volume increases or decreases by 20%, in the same proportion, the cost of production varies. So, unit variable cost is constant and total variable costs changes, proportionately, to volume of production.

The graphical presentation of total variable cost and unit variable cost is as under:



Total Variable Cost Unit Variable Cost

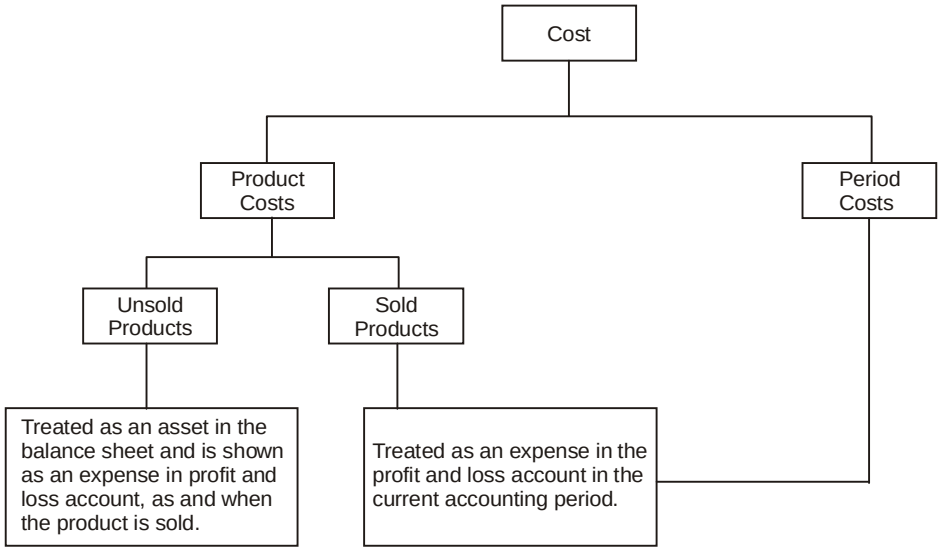
Behaviour of Variable Costs

(C) Classification According to Controllability: On this basis, the costs can be classified into controllable and uncontrollable costs. Controllable costs are those costs, which can be influenced by the action of a specified member of a firm. Controllable costs do not imply that they are 100% controllable. In other words, costs are at least, partly, within the control of the management. Generally speaking, all direct material, direct labour and some of the overhead expenses are controllable by the lower level of management. Some costs can be controlled by joint action. For example, the production manager as well as the purchase manager controls the cost of raw materials. The production manager controls the quantity level, exercising control on wastages, while the purchase manager can exercise control on the price front. On the other hand, costs which cannot be influenced by the action of any member of undertaking or beyond control is known as uncontrollable cost. For example, fixed expenses like salary, rent, insurance and taxes.

Cost is a fact while price is a matter of Strategy.

(D) Classification on the basis of Traceability to the Product: Based on traceability, costs are divided into Direct and Indirect costs. Direct cost means that cost which can be, conveniently, identified with and allocated to a particular unit of cost, i.e. job, product or process. On the other hand, indirect cost means those costs, which cannot be identified with a particular unit of cost. It has to be shared or distributed. Examples are cost of consumables, salary of a foreman or supervisor, rent of factory etc.

(E) Product Costs and Period Costs: Product costs are those costs, which can be identified with the product and included in stock valuation. In a manufacturing concern, it is composed of four elements. They are direct materials, direct labour, direct expenses and manufacturing overhead. That is, product cost is a factory cost. Period cost is associated with the time period. Examples are rent, salary, insurance etc. They are not included in the stock valuation and are treated as expenses during the period in which they are incurred.



Treatment of Product and Period Costs

13.7 DIFFERENCE BETWEEN ALLOCATION AND APPORTIONMENT

For cost ascertainment, it is necessary to understand the difference between the terms 'Allocation' and 'Apportionment'.

The difference between Allocation and Apportionment is as follows:

Allocation: Cost Allocation is defined as allotment of the whole cost to cost centres or cost units. In other words, whole expenses, which can be identified or traced, are allocated to a particular department, cost centre, cost unit or machine, without division of expenses. There are two important matters, in case of allocation of cost. First, the cost should be traceable or identifiable to a particular department, cost centre or machine. Second, the exact amount incurred in cost centre must be known. Once the cost is traceable, no division is made.

Examples: Overtime wages incurred in a particular department is allocated, wholly, to that department. Similarly, repairs incurred to a particular machine are allocated to that particular machine.

Apportionment: Cost apportionment is the allotment of proportionate items of cost to cost centres or cost units. Where the cost is common and cannot be identified, wholly, to a particular department or cost centre, the cost is apportioned. Where the expenses relate to more than one department, the expenses are divided. So, cost apportionment occurs where the cost or expenses are common to more than one department.

Examples: Canteen expenses of a factory are apportioned, proportionately, to the production and service departments, based on the number of employees working in various departments.

Where expenses can be traced or identified with a particular department, it is allocation and if this is not possible, costs are apportioned.

13.8 METHODS OF COSTING

The methods used for ascertainment of cost of production differ from industry to industry. Basically, there are two methods of costing. They are:

(A) Job Costing and

(B) Process Costing

All other methods of costing are improvements, extensions or combination of the above two methods. The principles in every method of costing are the same but the methods of analyzing and presenting the costs differ with the nature of business.

Job Costing: Under this method, costs are collected and accumulated for each job or work order or project, separately. A job card is prepared for each job for cost accumulation. This method is suitable for printers, machine tool manufacturers, general engineering workshops, foundries etc.

Batch Costing: Batch costing is a special type of job costing, where articles are manufactured in definite batches. For example, in a ready-made garment factory, shirts are made in suitable batches according to size and kept in stock for sale and it will not be worthwhile to maintain cost for each shirt made. The costing procedure is similar to job costing. Instead of a job, batch constitutes the cost unit for which costs are completed. Cost per unit is calculated by dividing total cost of a batch by the number of units produced in that batch. This method is mainly used in biscuit manufacture, garment manufacture and spare parts components manufacture industries.

Process Costing: A process here refers to a stage of production. If a product passes through different stages, process costing is used to ascertain the cost of each stage or process. Normally, the finished product of one process becomes the raw material of the subsequent process and a final product is obtained in the last process. As the products are manufactured in continuous process, this is also known as Continuous Costing. Process costing is generally followed in textile units, chemical industries, refineries, tanneries, paper manufacturing etc.

Operating Costing: This is suitable for firms, which render services as distinct from those, which manufacture goods. This type of costing is applied to transport undertakings, power supply companies, gas, water works, hospitals and hotels etc. It is used to ascertain the cost of services rendered. There is, usually, a compound unit in such undertakings. Examples are passenger–kilometers in transport companies, kilo–watt–hour in power supply, patient–day in hospital etc.

Multiple Costing: Where more than one method of costing is applied, it is called multiple costing. This is suitable for industries, where a number of components parts are, separately, produced,

and later assembled into a final product. In such industries, materials and components used differ in the products manufactured. In other words, all components and materials are not used in all the products manufactured. So, it will be necessary to ascertain the cost of each component. Cost of component is calculated through the process costing. To ascertain the cost of final product, batch costing method is applied. This method is used in manufacturing cycles, automobiles, radios, typewriters, aeroplane and other complex products.

Methods of costing are different from techniques of costing.

13.9 TECHNIQUES OF COSTING

To produce useful information to management, cost data collected is to be processed according to costing principles, using one or more costing techniques. The techniques of costing are used to link or relate costs to cost units or cost centers. Costing techniques are not independent. They are used along with various methods of costing. Costing techniques are not independent methods of cost ascertainment, such as job costing or operating costing.

Important costing techniques are as follows:

Marginal Costing: Marginal Costing is a special technique of analysis and presentation of costs, which helps the management in decision-making. This technique enables the management to understand the effect of a change in volume of output on costs and profit. Its importance lies in solving the managerial problems.

Marginal Costing is also known as Variable Costing.

Marginal costing is not an independent system of costing similar to process costing, operating costing or Job costing. In marginal costing, the cost of a unit comprises only variable costs. Fixed costs are treated as period costs and written off to costing Profit and Loss Account. Consequently, finished goods and work in progress are valued at marginal cost i.e. Prime cost plus variable overheads.

Absorption Costing: Absorption costing technique is also termed as Traditional or Full Cost Method. Under this method, the cost of a product is determined, after considering both fixed and variable costs. The variable cost, such as direct materials, direct labour, etc. is directly charged to the products. The fixed costs are apportioned on a suitable basis over different products, manufactured during a period.

Under absorption costing, all costs, both variable and fixed, are charged to the products for cost determination.

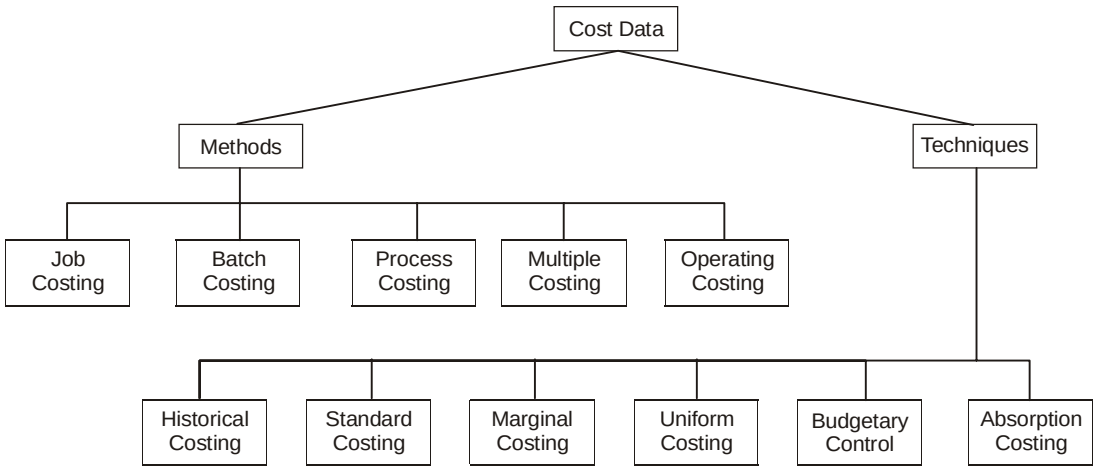
Thus, in case of Absorption costing, all costs are identified with the products manufactured. Both Fixed costs and Variable costs are also treated as product costs. The cost unit is made to bear the burden of full cost, irrespective of the current level of operations.

Uniform Costing: Several undertakings follow the same costing principles and/or practices for common control or comparison. This technique facilitates inter-firm comparisons and help in establishing realistic pricing policies.

Historical Costing: In historical costing, costs are ascertained, after they are actually incurred. It has a limited utility, though comparisons of different periods may yield good utility.

Standard Costing: In standard costing, a comparison of actual cost is made with the pre-determined costs. Any deviation, variance, is investigated by the management for the reasons of variances and suitable corrective action is taken.

Budgetary Control: Budgetary control is the process of determining various budgeted figures for the enterprise and then comparing the actual performance with the budgeted figures for calculating the variances, if any. In this process, first budgets are to be prepared. Second, Actual results are to be recorded. Third, comparison is to be made, between the actual with the planned action for calculating the variances. Once the discrepancies are known, remedial measures are to be taken, at proper time. Then only, results planned can be achieved. A budget is a means and budgetary control is the end result.



Methods and Techniques of Costing

Different methods of costing facilitate ascertainment of costs, while techniques of costing help the management in achieving the objective of controlling costs. Both methods of costing and techniques of costing go together to achieve the basic objective of improving the profitability of the firm.

13.10 IMPORTANCE (ADVANTAGES) OF COST ACCOUNTING

In the following areas, the advantages of cost accounting are significant:

(A) Assists in Improving Profitability: It enables management to maintain effective control over inventory to maximize efficiency and minimize wastages and losses by providing detailed

costing information. Profitable and unprofitable activities are disclosed. Management can take steps to eliminate unprofitable products and develop profitable products for improving profitability of the firm.

(B) Information for Estimates and Tenders: It helps cost estimation and fixation of prices. In case of big contracts or jobs, it is difficult to give quotation, without knowing estimated cost.

(C) Helps in Preparation of Interim Final Accounts: Value of closing stock is available, at any time. It provides a perpetual inventory system, which helps in the preparation of interim profit and loss account and balance sheet, without any stock taking.

(D) Reconciliation of Accounts and Reliability: It provides an independent and reliable check on the accuracy of financial accounts, through reconciliation of cost records and financial records.

(E) Fixation of Responsibility in Controlling Costs: When variances are to be corrected, responsibility has to be fixed for corrective action. It helps in controlling costs, with the application of standard costing and budgetary control.

(F) Aid in Decision-making: Costing helps the management in taking vital decisions such as

(i) Whether it would be profitable to purchase a component or commence its production, instead of purchasing, done presently.

(ii) Whether to accept the order, below its total cost.

(iii) Comparing the costs involved in different methods of production and choosing the cost effective method.

(G) Guides Future Production Policy: Cost data helps the management in formulating future production policy. They can rely on costing records to form their judgment about the profitability and future of the firm.

(H) Aid to Employees: When the organization benefits, it would be able to share the benefit of higher operating results in the form of performance bonus, incentives etc with employees of the firm.

(I) Aid to the Nation: Costing system brings the benefits of cost reduction, cost control and elimination of wastages and inefficiencies, which would lead to the growth of the nation, as a whole.

13.11 LIMITATIONS OF COST ACCOUNTING

The limitations of cost accounting are as under:

1. **Not exact Science:** Like any other accounting system, Cost Accounting is not an exact science but an art, which has developed through theories and practices.
2. **Solution not Available:** The cost accounting provides information for taking decisions, but does not give the exact solution to the problem.

3. **Historical Data:** Cost data are essentially 'post facto' and historical in nature.
4. **Expensive:** Installation of cost accounting system is costly, which small firms cannot afford to have. Before installing, care must be exercised to ensure that the benefit derived is more than the cost on investment.
5. **System is more Complex:** As the cost accounting system involves number of steps in ascertaining costs such as collection, classification of expenses, allocation and apportionment of expenses, users consider it as a complicated system. More so, the system requires use of several documents and forms in preparing reports. Staff requires expertise in using the system.
6. **Lack of Accuracy:** The accuracy of cost accounting gets distorted due to use of estimated costs.

Descriptive Questions

1. Distinguish between Costing and Cost Accounting? **(13.1 and 13.2)**
2. State the objectives of Cost Accounting? **(13.2 and 13.3)**
3. Explain the terms 'Cost Centre' and 'Cost Unit'? **(13.4)**
4. What are the different Elements of Cost? **(13.5)**
5. Name the different ways of classification of costs? **(13.6)**
6. What is the difference between absorption and allocation? **(13.7)**
7. Write a detailed note about the different methods of costing? **(13.8)**
8. What are the different techniques of costing? **(13.9)**
9. 'Costing is an aid to management and society' – Enumerate the main points in support of this statement? **(13.10)**
10. What are the advantages you would expect from the costing system? What are its limitations? **(13.10 and 13.11)**

Check Your Understanding

1. Cost centre facilitates cost ascertainment and cost control.
2. Overheads and indirect expenses are different.
3. Cost allocation refers to charging of direct costs fully and directly to cost centres and cost units, while cost apportionment refers to charging of indirect expenses, proportionately, to cost centres and cost units.
4. The basic methods of costing are Job Costing and Process Costing.
5. If a product passes through different stages, process costing is used to ascertain the cost of each stage or process.
6. Methods of costing are different from techniques of costing.
7. Marginal costing is a method of Costing.

8. In historical costing, costs are ascertained after they are actually incurred so their actual utility is limited.
9. Expenses that can be identified or traced are apportioned to a particular department, cost centre, cost unit or machine
10. The primary objective of cost accounting is to control costs.
11. Both methods of costing and techniques of costing go together to achieve the basic objective of improving the profitability of the firm.
12. A prosperous firm does not require cost accounting.

Answers

1. True, 2. False, 3. True, 4. True, 5. True, 6. True, 7. False, 8. True, 9. False, 10. True, 11. True, 12. false

Multiple Questions

1. Fixed cost per unit increases when
   (a) production decreases (b) production increases
   (c) change of production does not have effect
2. The term prime costs refer to
   (a) direct materials and direct labour. (b) direct materials, direct labour and direct expenses.
   (c) None of the above
3. Indirect materials
   (a) is a prime cost (b) can be a variable cost or fixed cost
   (c) a overhead cost
4. In a hospital, the following method of costing is applied:
   (a) Batch costing (b) Process costing
   (c) Operating costing (d) uniform costing
5. The objective of cost accounting
   (a) Ascertainment of cost (b) Exercising cost control
   (c) Determination of selling price (d) All above

Answers

1. (a), 2. (b), 3. (c), 4. (c), 5. (d)

Interview Questions

Q.1. What is the difference in behaviour between fixed costs and variable costs? How they affect profits of a firm?

Ans. Fixed costs are constant. They do not change, irrespective of the level of output. Even, if there is no production, the firm has to incur fixed costs, like rent, salaries etc. With increase in production, fixed costs per unit declines. So, cost of production per unit would

go down, with more production, resulting in more profits to the firm, though selling price is same. On the other hand, variable costs change, proportionately, with production. Variable cost per unit is constant. So, change in the levels of production does not have any effect on variable cost per unit.

More production and sales result in more profits as the fixed costs would be spread over a higher quantum. Variable costs do not create any impact on contribution.

Q.2. What is semi-variable costs? Explain with a few examples?

Ans. All costs which are neither perfectly variable nor absolutely fixed, in relation to volume changes, are called semi-variable costs. In other words, semi variable costs are those costs, which are neither fixed nor variable, totally. Semi-variable costs contain both the characteristics of fixed cost as well as variable cost. Semi-variable costs are also known as mixed costs.

Telephone, power, repairs and maintenance are some of the examples of mixed costs. For example, a telephone bill contains two elements, one is a fixed rent and the other component is dependent on the usage, number of calls made. Rent is to be paid, even though phone is not used. Electricity is another example. Meter rent is a fixed expense, while power consumption is variable expense.

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