

## UNIT-IV METHODS OF COSTING

**1. What is Unit Costing? State its features. Name any four industries where unit costing method is applied.**

**Ans.** Unit costing is known as “output” or “single output” costing. Unit costing is followed by the concern, which produces a single product on large scale continuously. The cost units are identical costs. Moreover, the products are having uniform homogeneous character. Per unit cost is calculated by dividing total production cost by number of units produced.

According to J.R. Batliboi, “Unit costing or output costing may be defined as single or output cost system is used in business where a standard product is turned out and it is desired to find out the cost of a basic unit of production.”

**Features of Output/Unit Costing:** Output costing has certain characteristics features. The important features of unit costing are:

- (1) Output costing is the method of costing adopted in concerns where there is a production of single product or a few grades of the same product differing only in size, shape or quality by continuous process of manufacture.
- (2) Under this method, the cost per unit of output is ascertained. The cost per unit of output is ascertained by dividing the total cost incurred on a product during a given period of time by output produced during the period.
- (3) Equality of cost is an important feature of this method. That is, under this method, cost units, which are identical, will have identical cost.
- (4) Under this method, the cost of product is ascertained at the end of the accounting period.
- (5) Under this method, the cost information relating to a product may be presented in the form of either cost sheet or production account.
- (6) This method is the simplest method of all the methods of costing; in the sense that the cost collection and the cost ascertainment are quite simple.

**The following are the industries where unit costing is applied:**

- (i) Cement. (ii) Steel. (iii) Floor Mills. (iv) Brick-making. (v) Paper Mills etc.

**2. State the objectives of Unit Costing.**

**Ans.** Unit costing has the following objectives:

- (1) To ascertain the total cost of the output as well as the cost per unit of output.
- (2) To ascertain the profit or loss on production.

(3) To analyse the expenditure by nature, classify them into element of cost and know the extent to which each element of cost contributes to the total cost.

(4) To facilitate comparison of the cost of one period with the cost of another period to know the efficiency or otherwise of the production.

(5) To facilitate the preparation of tender or quotation.

(6) To control the cost of the product through comparative study of the costs of any two periods or through the comparison of the actual costs with the pre-determined standard cost.

### 3. What is Production Account? Distinguish between Production Account and Cost Sheet.

**Ans.** Production Account is a statement of cost or cost-sheet in a ledger account form, showing output during a given period, total cost and per unit cost incurred during the period and their components, as also the profit or loss for that period.

The main differences between a cost sheet and a production account are as follows:

| Basis                                  | Cost Sheet                                                                                                       | Production Account                                                                                                |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>1. Form</b>                         | Cost sheet is a statement which shows details of production of a certain period.                                 | Production Account shows cost of any process, contract or services rendered in separate accounts                  |
| <b>2. Principles</b>                   | Cost sheet is prepared in the form of a table. It is not based on double entry system.                           | Production Account is prepared in form of ledger account. It is based on double entry system                      |
| <b>3. Preparation</b>                  | Cost sheet is prepared before production.                                                                        | Production Account is prepared after production                                                                   |
| <b>4. Comparison</b>                   | Under cost sheet, comparison is not possible with the result of cost sheet and that of financial account.        | Production Account can be used successfully to compare the result of financial account                            |
| <b>5. Period</b>                       | Cost sheet can be prepared at any time.                                                                          | Production Account is prepared only when the production work is completed                                         |
| <b>6. Cost Control</b>                 | Cost sheet is helpful in cost control                                                                            | Production Account is not helpful in cost control                                                                 |
| <b>7. Preparation of Cost Accounts</b> | Under cost sheet, cost accounts are prepared on the basis of cost sheet before it is prepared before production. | Cost accounts may not be prepared with the help of production account because it is prepared after the production |
| <b>8. Comparative Study of Cost</b>    | Cost sheet is helpful in comparative study of two different periods of costs.                                    | Comparative study of two different periods cost is not possible by production account                             |

### 4. What is Job Costing? State its features. Name four such industries where job costing is employed.

**Ans.** Job Costing is that form of specific order costing under which each job is treated as a cost unit and costs are accumulated and ascertained separately for each job. A job may consist of a job, product, batch of products, contract, a service or any other specific order.

The industries, where this method of costing is applied, must possess the following features:

- (i) The production is generally against customer's order but not for stock.
- (ii) Each job has its own characteristics and needs special treatment.
- (iii) There is no uniformity in the flow of production from department to department. The nature of the job determines the departments through which the job has to be processed. The production is intermittent and not continuous.
- (iv) Each job is treated as a cost unit under this method of costing.
- (v) Each job is distinctively identified by a production order throughout the production stage.
- (vi) The cost of production of every job is ascertained after the completion of the job.
- (vii) The work-in-progress differs from period to period according to the number of jobs in hand.

Thus, cost is ascertained for each job separately.

**This method is applied in following industries:**

- (i) Printing Industries. (ii) Machine tools manufacturing. (iii) General engineering workshops.
- (iv) Advertising. (v) Interior decoration etc.

#### **5. State the objectives of job costing.**

**Ans.** Objectives of Job Costing are:

- (i) To maintain the development of each job, by providing a separate account for each process of the job, to estimate the costs, when transitioning from one process to the other.
- (ii) It helps the management in estimating the price of a certain work based on the price of the previous jobs.
- (iii) To identify profitable and non-profitable jobs and help and prevent profitless jobs from taking place.
- (iv) To differentiate departments from one another based on the cost taken and the number of materials required.
- (v) Provide detailed information on what is happening in each department to the customer and move forward with the plan for the idea of the customer. Any sudden changes in the plan can accommodate, if congruent with the final cost estimation.
- (vi) Job costing should be flexible and scalable enough to accommodate any kinds of industrial or commercial jobs available for cost estimation.

#### **6. What are the advantages and disadvantages of Job Costing?**

**Ans. Advantages of Job Costing:** The following are some of the advantages of Job Costing.

- (i) The costs may be ascertained at any stage of completion of a job. This gives scope for control of costs by taking suitable steps.

- (ii) The profit earned from each job is known separately in Job costing.
- (iii) On completion of a job, each element of cost, selling price and profit can be compared with the estimates for the purpose of cost control and reduction so that the profit on each job is maximized in job costing.
- (iv) Management can estimate the cost of job on the basis of past records in job costing.
- (v) The actual costs of previous job can be compared with present job executed.
- (vi) The overhead recovery rates may be predetermined on the basis of budgets.
- (vii) Trend analysis can be prepared through compilation of historical costs in job costing.
- (viii) There is no over or under recovery of overheads.
- (ix) Budgetary control system is implemented since the estimating is followed in the job costing.
- (x) The spoilage and defectives arising out of each job can be easily found out and hence, they can be easily controlled.

**Limitations of Job Costing:** The following are the disadvantages or limitations of Job Costing:

- (i) There is no standardization of job in job costing. Hence, there is a need of close supervision.
- (ii) With the increase in the clerical work the chances of errors are increased.
- (iii) It is expensive to operate as it requires considerable detailed clerical work.
- (iv) There is no possibility of control of costs since the controlling steps are taken only after incurring the expenses in job costing.
- (v) The accurate cost information is not obtained since large number of small jobs is executed at a time in job costing.
- (vi) The price of a job is fixed only on the basis of market condition not on the basis of past records.
- (vii) Comparison of job costs becomes meaningless during the period of inflation.
- (viii) No corrective action is possible, in case the actual profit is lower than estimated in job costing.

**7. What is batch costing? Write two features.**

**Ans.** Batch Costing is that form of specific order costing under which each batch is treated as a cost unit and costs are accumulated and ascertained separately for each batch. Each batch consists of a number of like units.

**Features of Batch Costing:**

- (i) Each batch is treated as a cost unit.
- (ii) All costs are accumulated and ascertained for each batch.

**8. Distinguish between job costing and batch costing.****Ans.**

| <b>Job Costing</b>                                                                                                       | <b>Batch Costing</b>                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 1. Job costing is a system used for completion of specific customer orders where each unit produced is considered a job. | 1. Batch costing is a method of costing used when a number of identical units are produced in a batch but each batch is different       |
| 2. In job costing, costs are accumulated for a job code number.                                                          | 2. In job costing, costs are accumulated for a job code number.                                                                         |
| 3. In job costing, all the costs are added to arrive at the total cost of a specific job.                                | 3. In batch costing, the cost of an individual unit is calculated by dividing the cost of the batch by the number of units in the batch |

**9. What is contract costing? State its features.**

**Ans.** Contract costing is that form of specific order costing under which each contract is treated as cost unit and costs are accumulated and ascertained separately for each contract.

Contract costing is a special form of job costing wherein big jobs are involved which requires considerable time to complete and comprises a lot of activities.

It is a type of costing used in constructional activities such as construction of buildings, roads, bridges etc. The person who takes contract for a price is called the Contractor and the person from whom it is taken is called the Contractee.

**The main features of Contract Costing may be summarised as follows:**

- (i) Contracts are executed at contract site away from executor's or contractor's premises.
- (ii) Contracts are jobs of large size and may continue over more than one accounting period.
- (iii) Each contract is treated as a separate unit of cost for the purpose of cost ascertainment.
- (iv) The contracts are executed as per the specifications given by the contractee.
- (v) Since the work is executed at the contract site, most of the items of cost to be incurred are direct in nature.
- (vi) The contract is executed by the contractor for some agreed amount of consideration known as Contract Price.
- (vii) Separate Contract Account is prepared for each contract in the books of contractor to ascertain profit or loss on each contract.
- (viii) Most of the materials are specially purchased for each contract. These will, therefore, be charged direct from the supplier's invoices. Any materials drawn from the store are charged to contract on the basis of material requisition notes.
- (ix) Generally, all labourers are treated as direct labourers.

(x) The payments by the contractee are made to the contractor in instalments on the basis of the extent of the work already completed by him and certified as complete by contractee's engineer or architect.

**10. Write two objectives of contract costing.**

**Ans.** The main objects of Contract Costing are:

- (i) to ascertain the total cost of a contract, and
- (ii) to ascertain the profit or loss on the contract.

**11. Distinguish between Job costing and contract costing.**

**Ans.**

| Basis                       | Job Costing                                                                                  | Contract Costing                                                                            |
|-----------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| <b>1. Meaning</b>           | It is a costing method used to determine the cost of specific work                           | It is a costing method used to determine the cost of specific contract or construction work |
| <b>2. Size Of Job</b>       | Generally jobs are smaller in size.                                                          | Jobs are big and complex.                                                                   |
| <b>3. Time/Period</b>       | Work can be completed in short time                                                          | It requires longer time for completion of work                                              |
| <b>4. Cost/Expenditure</b>  | Less expenditure required.                                                                   | It requires huge expenditure.                                                               |
| <b>5. Location/Premises</b> | Job is performed inside a factory or within the premises                                     | Job is performed outside the factory in construction site                                   |
| <b>6. Payment</b>           | Payments are made immediately after the completion of work.                                  | Payments are made in instalment.                                                            |
| <b>7. Transfer of Job</b>   | Job cannot be transferred to other parties.                                                  | Some part of contract can be given to other parties or other sub-contractors                |
| <b>8. Suitable industry</b> | Job costing is suitable for the manufacture of products under the customer's specifications. | Contract costing is suitable for construction works.                                        |

**12. What are the different types of contract?**

**Ans.** Generally there are three types of contracts:

**(i) Fixed price contracts:** Under these contracts both parties agree to a fixed contract price.

**(ii) Fixed price contracts but in some cases subject to escalation clause:** Escalation clause in a contract provides that provides if during the period of execution of a contract, the prices of materials, rates of labour etc. rise beyond a specified limit, the contract price will be increased by specified rate or amount.

**(iii) Cost plus contract:** Cost plus method of contract is that where contract price is not settled between contractor and contractee, but it is agreed that contractor will be paid a fixed percentage of profit on the total cost incurred by contractor on and above the total cost of the work done. Such type of contract is entered into in war time or time of economic fluctuation or where contract is to be executed in urgency and it is difficult to quote the price of the contract.

### 13. What are escalation and de-escalation clause?

**Ans. Escalation clause:** Escalation clause in a contract provides that provides if during the period of execution of a contract, the prices of materials, rates of labour etc. rise beyond a specified limit, the contract price will be increased by specified rate or amount.

**De-escalation clause:** De-escalation clause may also be provide for the downward adjustment of the contract price in case the prices of materials, rates of labour etc. fall beyond a specified limit.

### 14.What is cost plus contract? What are its advantages and disadvantages?

**Ans.** Cost plus method of contract is that where contract price is not settled between contractor and contractee, but it is agreed that contractor will be paid a fixed percentage of profit on the total cost incurred by contractor on and above the total cost of the work done. Such type of contract is entered into in war time or time of economic fluctuation or where contract is to be executed in urgency and it is difficult to quote the price of the contract.

#### **Advantages of the Cost plus Method of Contract:**

##### **(A) Advantages to the Contractor:**

- (i) Free from losses.
- (ii) Certainty of profits in case of increasing prices of labour and material.
- (iii) Free from getting approval of tender price.

##### **(B) Advantages to the Contractee:**

- (i) Quick completion of work.
- (ii) Quality work.
- (iii) Easy to get the work done in emergency.

#### **Disadvantages of Cost plus Contract Method:**

- (i) Generally contract price is increased under this method.
- (ii) Excessive increase in expenses, since contractor is not worried about increasing cost.
- (iii) Uneconomic use of raw material and labour by contractor.
- (iv) Limited income to the contractor.

### 15. What are Work Certified and uncertified?

**Ans. Work Certified:** Work certified is that portion of the work completed which has been certified/approved by the contractee's architect or engineer. It is valued in terms of contract price.

**Work Uncertified:** Work uncertified is that portion of the work completed which has not been certified/ approved by the contractee's architect or engineer. It is valued cost.

**16. What is retention money?**

**Ans.** Retention money is that portion of value of work certified which is retained by the contractee as security for any defective work which may be discovered later within the guarantee period.

**17. What is notional profit? How is it computed?**

**Ans.** Notional profit is the difference between the value of work-in-progress certified and the cost of work-in-progress certified.

Notional Profit = Value of Work Certified – Cost of Work Certified

Or

Notional Profit = Value of Work Certified – (Total Cost Incurred till date – Cost of Work Uncertified).

**18. How the Profit of Incomplete Contract is Determined?**

**Ans.** The treatment of profit on incomplete contracts is given below:

**(i) Contract less than 25% complete:** If the contract has just started or it is less than 25% complete, no profit is taken into account.

**(ii) Contract is 25% or more but less than 50% complete:** In this case, one third of the notional profit may be transferred to profit and loss account by using the following formula:

$$\frac{1}{3} \times \text{National Profit} \times \frac{\text{Cash Received}}{\text{Work Certified}} \text{ Or } \% \text{ of Cash Received.}$$

**(iii) Contract is 50% or more but less than 90% complete:** In this case, two third of the notional profit may be transferred to profit and loss account by using the following formula:

$$\frac{2}{3} \times \text{National Profit} \times \frac{\text{Cash Received}}{\text{Work Certified}} \text{ Or } \% \text{ of Cash Received.}$$

**(iv) Contracts nearing completion or 90% or more than 90%:** In this case notional profit may be transferred to profit and loss account by using the following formula:

$$\text{(a) Estimated Profit} \times \frac{\text{Work Certified}}{\text{Contract Price}}$$

$$\text{(b) Estimated Profit} \times \frac{\text{Work Certified}}{\text{Contract Price}} \times \frac{\text{Cash Recived}}{\text{Work Certified}}$$

$$\text{(c) Estimated Profit} \times \frac{\text{Cost of Work to Date}}{\text{Estimated Total Cost}}$$

**(v) Loss on Incomplete Contracts:** In the event of a loss on uncompleted contracts, this should be transferred in full to the Profit and Loss Account, whatever be the stage of completion of the contract.

**19. What is process costing? State its features. Name five industries in which process costing is used.**

**Ans.** Process costing is used where the production moves from one process or department to the next until its final completion and there is a continuous mass production of identical units through a series of processing operations.

According to Wheldon, "Process costing is a method of costing used to ascertain the cost of product at each process, operation or stage of manufacture."

**Features of Process Costing:** The main features of process costing may be given as follows:

- (i) The production is divided into various stages (known as processes) and each process is carried out by separate cost centre or department.
- (ii) The production is continuous and the final product or end product is the result of a sequence of processes or operations.
- (iii) The finished product of each process is treated as the raw material of the subsequent process.
- (iv) The units of the commodity produced are homogeneous and identical in nature.
- (v) The cost of production per unit is the average cost which is obtained by dividing the total process cost by the total number of units manufactured.
- (vi) The sequence of processes and operations employed is pre-determined.
- (vii) There is indispensable loss in the process of production. It is known as a normal loss. It may be due to the inherent nature of the material used for production i.e., loss may occur due to chemical action, loss in weight and evaporation, etc. The normal loss is absorbed by the cost of good units.
- (viii) The processing of raw material may lead to joint products and by-products.
- (ix) There may occur abnormal loss and abnormal gain. These are treated separately under process costing.
- (x) Inter-process profits are also kept in mind while transferring the output at market price to another process. It will depict the market price and will be helpful in checking the inefficiency and losses taking place in a process.

**Process Costing is Applicable in Industries:** (1) Iron and Steel Industry, (2) Automobile Industry, (3) Cement Industry, (4) Chemical Industry, (5) Sugar Industry, (6) Plastic Industry, (7) Textile Industry and (8) Paper Industry etc.

**20. What are advantages and disadvantages of Process costing?**

**Ans. Advantages of process costing:** The following are the advantages of process costing:

- (a) It is simple and less expensive to find out the cost of each process.

- (b) It is easy to allocate the expense to process in order to have accurate costs.
- (c) Production activity in process costing is standardized. Hence, managerial control and supervision become easier.
- (d) In process costing, the products are homogeneous. As a result, costs per unit can be easily computed by averaging the total cost and price quotations become easier.
- (e) It is possible to determine process costs periodically at short intervals.
- (f) It is easy to quote the prices with standardisation of process. Standard costing can be established easily in process type of manufacture.

**Disadvantages of process costing:**

The following are the disadvantages of process costing:

- (a) The cost obtained at the end of the accounting period is historical in nature and is of little use for effective's managerial control.
- (b) Since process cost is average cost, it may not be accurate for analysis, evaluation and control the performance of various departments.
- (c) Once an error is committed in one process, it is carried to the subsequent processes.
- (d) Process costing does not evaluate the efficiency of individual workers or supervisor.
- (e) The computation of average cost is difficult in those cases where more than one type of product is manufactured.

**21. Name and explain the different types process losses.**

**Ans.** The process loss can be categorized into: (1) Normal process loss, and (2) Abnormal process loss.

**1. Normal Loss:** The loss expected during the normal course of operations, for unavoidable reasons is called 'normal loss' and this is due to inherent result of the particular process and thus uncontrollable in the short-run. Management usually able to identify an average percentage of normal losses expected to arise from the production process.

The cost of normal losses should be borne by the good production. If any value can be recouped from sale of scrap or wastage or spoilage etc., then this would be credited to the Process Account thus reducing the overall cost of the process.

**2. Abnormal Loss:** Abnormal losses are those losses above the level deemed to be the normal loss rate for the process. The abnormal loss is the amount by which the actual loss exceeds the normal loss and it is expected to arise under inefficient operating conditions.

**22. Distinguish between Job Costing and Process Costing.**

**Ans.**

| Basis                       | Job Costing                                                                                                                                      | Process Costing                                                                                                                          |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1.Meaning</b>            | Job costing refers to calculating the cost of a special contract, work order where work is performed as per client's or customer's instructions. | A costing method, in which the costs which are charged to various processes and operations is ascertained, is known as Process Costing.  |
| <b>2.Production</b>         | Production is against specific orders.                                                                                                           | Production is in continuous flow; the products being homogeneous.                                                                        |
| <b>3.Cost Determination</b> | Costs are determined for each job separately.                                                                                                    | Costs are compiled for each process for department on time basis i.e., for production of a given accounting period.                      |
| <b>4.Entity</b>             | Each job is separate and independent of others.                                                                                                  | Products lose their individual entity as they are manufactured in a continuous flow.                                                     |
| <b>5.Unit Cost</b>          | Total cost of a job is divided by the number of units produced in the job in order to calculate unit cost of a job.                              | The total cost of each process is divided by the total production for the process to calculate the average cost per unit for the period. |
| <b>6.Cost Calculation</b>   | Costs are compiled when a job is completed.                                                                                                      | Costs are calculated at the end of the cost period.                                                                                      |
| <b>7.Transfer</b>           | There are usually no transfers from one job to another unless there is a surplus work or excess production.                                      | There is always some work-in- process at the beginning as well as at the end of the accounting period.                                   |
| <b>8.Work-in-progress</b>   | There may or may not be work-in-progress at the beginning or end of the accounting period.                                                       | There is always some work-in- process at the beginning as well as at the end of the accounting period.                                   |
| <b>9.Cost Centre</b>        | The cost centre is a job.                                                                                                                        | The cost centre is a process.                                                                                                            |

### 23. What is inter-process profit? Write two advantages/ objectives.

**Ans.** The difference between the cost and transfer price is known as inter-process profits. Transfer price may be market price or cost price plus a fixed percentage of profit. In some process industries, the output of one process is transferred to the next process not at cost but a price showing profit to the transferor process.

#### Two advantages inter-process profit are:

- (a) Inter process profits enable to measure the efficiency of each process.
- (b) Comparison of costs with market price at each stage assist management to take 'make or buy' decisions.

### 24. What is equivalent production?

**Ans.** Equivalent production represents the notional quantity of completed units substituted for actual quantity of incomplete units. In other words, equivalent production units represent incomplete production units expressed in terms of equivalent completed units.

### 25. What is joint product? State its features.

**Ans.** Joint products represent two or more products of almost equal importance which are produced in natural proportions simultaneously from the same material in the same process. These products may be saleable without further processing or after further processing.

**Features:**

- (i) Joint products are of almost equal importance. In other words, no single one of them can be regarded as the main product.
- (ii) These are produced in natural proportion. In other words, proportion of such products cannot be changed at will of the management.
- (iii) These are produced simultaneously from the same material.
- (iv) These are produced simultaneously in the same process.

**26. State the objectives of Joint Cost Analysis.**

**Ans.** The objectives Joint Cost Analysis are:

- (i) To correct collection, compilation and classification of process costs.
- (ii) To determine the cost per unit of product.
- (iii) To value the closing inventory of each product.
- (iv) To determine the selling price of each product.
- (v) To determine the profit/loss on sale of each product.

**27. Name and explain the different types of apportionment of joint cost.**

**Ans.** The various methods of apportionment of joint cost over joint products are as follows:

- (i) Average unit cost method
- (ii) Physical unit method
- (iii) Survey method
- (iv) Contributions margin method
- (v) Market value method:
  - (a) At point of separation.
  - (b) After further processing.
- (c) Net realisable value or reverse cost method.

**(i) Average unit cost method:** Under this method, joint costs are apportioned on the basis of Average Cost per Unit which is obtained by dividing the total joint costs by total number of units of joint products produced.

**(ii) Physical unit method:** Under this method, joint costs are apportioned on the basis of physical volume of the joint products at the split off point. Any processing loss is also apportioned over the products on the same basis.

**(iii) Survey method:** Under this method, joint costs are apportioned on the basis of point values/ percentages assigned to the products according to their relative importance. The point values/ percentages are based on the technical survey of all the factors affecting the production and distribution of joint products.

**(iv) Contributions margin method:** In this method, variable cost of the joint cost is apportioned on the basis of quality of each product and fixed cost of the joint cost is apportioned on the basis of contribution margin. Contribution margin is the different of total sales and total variable cost.

**(v) Market value method:** This method is also known as sales value method and it is the most popular and convenient method. Under this method the joint costs are apportioned to the joint products on the basis of selling price. Market value may mean any of the following:

**(a) Market value at point of separation:** The market value of the joint products at the separation point is ascertained and total joint cost is ascertained in the ratio of these values.

**(b) Market value after further processing:** Under this method further processing cost is deducted from the sales value in order to calculate the ratio in which the joint costs are to be apportioned.

**(c) Net realisable value or reverse cost method:** In this method, estimated net profit, selling and distribution expenses and further processing cost are deducted from total sales value of main products and net amount will be ascertained. Total joint costs are apportioned on the basis of ratio of net amount.

**28. What is By-product? State its features. Give the classification of by-product according to their marketable condition.**

**Ans.** By-products may be defined as “any saleable or usable value incidentally produced in addition to the product.”

A by-product is a secondary product which incidentally results from the manufacture of main product and also from the same process. A by-product is a product which arises incidentally in the production of the main products and which has a relatively small sales value compared with the main products.

**A by-product has the following characteristics:**

- (a) By-products are produced incidentally along with main product during the process.
- (b) By-products have insignificant sales values.
- (c) By-products may or may not required further processing.
- (d) Sometimes by-products are products from the scrap or waste materials during a manufacturing process.

#### **Classification of By-Products**

The by-products have been classified into two groups. This classification is made according to the marketable condition at the split off point.

1. Sold as it is originally produced.
2. Sold only after undergoing further processing.

**29. Distinguish between joint product and by-product.**

Ans.

| Basis                   | Joint Product                                                                                                                         | By-product                                                                                                              |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>1.Meaning</b>        | When the production of two or more products of similar value, are made together with same input and process, is called joint product. | The term by-product means a product which is incidentally produced, during the processing operation of another product. |
| <b>2.Economic Value</b> | Joint products have same economic value.                                                                                              | Economic value of by-product is lower than the main product.                                                            |
| <b>3.Production</b>     | These are produced simultaneously.                                                                                                    | These are emerging incidentally in the course of manufacturing the main product.                                        |
| <b>4.Input</b>          | Raw material                                                                                                                          | Waste or scrap of the main product.                                                                                     |

**30. Discuss the methods of accounting for by-products.**

**Ans. Accounting for By-Products:** The methods of accounting for by-products are categorized into two:

- (a) Cost methods, and
- (b) Non-cost or sales value methods.

**Cost Methods:**

**1. Opportunity or Replacement Cost Method:** This method is used when by-products are consumed in the same factory as raw material in place of existing material is in use. The cost of material replaced is considered as replacement or opportunity cost of the by-product and is credited to cost of production of main products.

The opportunity cost or replacement cost which otherwise would have been incurred if the by-products were to be purchased from outside suppliers, then such product will be valued at market value of like material.

**2. Standard Cost Method:** The by-products are valued at a predetermined standard rate for each product which may be based on technical assessment. Standard cost of by-product is credited to the Process Account of the main product. This method makes it convenient to ascertain the cost of main product due to operational difficulties in computation of value of by-product.

**3. Joint Cost Proration Method:** This method is used when the by-product gains some economic significance or commercial value. In that case, the joint cost is apportioned between main product and by-products on some suitable basis. This method does not differentiate between joint products and by-products.

**Non-Cost or Sales Value Method:**

**1. Miscellaneous or Other Income Method:** When the market value of by-product is very small or negligible as compared to the main products, the sale value of by-product is shown as other income or miscellaneous receipt in the Profit and Loss Account.

**2. Credit of By-Product Net Sale Value to Process Account:** In this method, the sale value of the by-products will be credited to Process Account after deducting direct selling and distribution costs and other process costs incurred after point of separation and any special costs incurred on account of by-products.

**3. By-Product Sales deducted from Total Cost:** In this method, the sale value of by-product is deducted from the total cost. It may be deducted either from cost of production or cost of sales.

**4. Credit of By-Product Value less Administration, Selling and Distribution Costs:** In this method, the sales value of the by-product, reduced by its portion administration, selling and distribution expenses incurred for its disposal, is credited to Process Account.

**5. By-Product Sales added to the Main Product Sales:** In this method, all costs incurred on main and by-products are deducted from the combined sales of the main product.

**6. Reverse Cost Method:** In this method, the estimated profit from the sales of by-product, selling and distribution expenses and further processing costs after the split-off point are deducted from sales value of by-products and the net amount is credited to the main product.

**31. What is service costing? State its salient features. Mention the type of business in which the system would be suitable.**

**Ans.** The term service costing or operating costing refers to the computation of the total operational cost incurred on each unit of the intangible product. These intangible products or services can be either in the form of internal services that are carried out by industries as supporting activities for the manufacturing of goods. Or in the way of external services that are offered as a significant product to the customers by the service sector companies.

**Features of Service Costing:** The costing in a service industry can be better understood with the help of the following characteristics:

**(i) Intangible Products:** Service costing deals with the operating cost of a product which does not have any physical form but satisfies consumer needs and wants.

**(ii) Collection of Cost Data:** The documents used for service costing of products include cost sheet, bills payables, daily log sheet, etc.

**(iii) Unique and Standard Service:** The services so offered by such organizations are specialized and exclusive.

**(iv) Less Working Capital:** The service costing involves less working capital since the direct cost of raw material and other direct expenses is comparatively low.

**(v) Cost per Unit:** The cost per unit is mainly calculated in service costing.

**(vi) Internal or External Service:** The service costing can be performed internally, to determine the operating cost of the supporting activities in manufacturing industries.

**Service Costing is Applicable in Industries:** Service Costing is applied in those undertakings which are engaged in providing services rather than manufacturing of tangible products. It is generally applied in: (i) Road Transport, Railways, Airlines. (ii) Hotels. (iii) Hospitals. (iv) Electricity Supply Companies. (v) Water Supply Companies. (vi) Cinema.

### **32. What are the different forms of service costing?**

**Ans.** The following are the different types of service costing:

**(i) Transport Costing:** Transport Costing is a method of ascertaining the cost of providing services by a transport undertaking.

**(ii) Boiler House Costing:** Boiler House Costing is a method of ascertaining the cost of producing steam by a Boiler House.

**(iii) Canteen Costing:** Canteen Costing is a method of ascertaining the cost of providing meals or dishes of different types.

**(iv) Hotel Costing:** Hotel Costing is a method of ascertaining the cost of providing services by a hotel.

**(v) Hospital Costing:** Hospital Costing is a method of ascertaining the cost of providing services by a hospital.

### **31. State objectives of Transport Costing.**

**Ans.** The following are the common objective of operating costing in the transport service:

- (a) To analyse operating costs such as cost of petrol, repair expenses, wages, etc.,
- (b) To facilitate control of standing charges and running costs of the vehicles,
- (c) To assign costs to services rendered by each vehicle or group of vehicles,
- (d) To compare the cost of using alternative models of transport with the cost of existing one,
- (e) To fix the charges for using the service of internal transport or the charges for hiring out the vehicles,
- (f) To compare the cost of running and maintenance of different vehicles.

### **32. Mention the steps involved in service costing.**

**Ans.** The following steps involved in service costing:

- (i) Selection of cost units.
- (ii) Computation of costs.
- (iii) Ascertainment of costs.