Cost Unit

Definition of Cost Unit

Cost unit is said to be the unit of product, service, activity, time or combination thereof, in connection to which costs are determined. While preparing cost statements and accounts, a specific measurement unit is required to be chosen, so as to identify the expenses accurately and allocate the cost conveniently and in this way, cost unit comes into the picture.

Cost units are units of physical measurement such as area, weight, volume, value, time or number, which are to be chosen to facilitate comparison amidst standard cost and the actual cost of the product or service.

cost unit is a quantitative factor used for the purpose of dividing or segregating costs into various sub-divisions, which are applicable to the product or service, to know the cost of product, service or time consumed in a particular job. Some examples of cost units with respect to the product or service is given here under:

PRODUCT/SERVICE	COST UNIT
Steel	Ton
Oil	Liter, Gallon
Automobile	Number
Chemical	Liter, kilogram, ton, etc.
Power/Electricity	Kilo-watt hour (kWh)
Transport	Kilometer
Cement	Ton/ per bag, etc.
Hotel	Room
Hospital	Patient/day

Cost Centre:

Definition of Cost Centre:

According to E. L. Kohler, a cost centre is “an organisational division, department or self-division, a group of machines, men or both. It includes any unit of activity into which a manufacturing plant or other operating organisation is divided for purposes of cost assignment and allocation”.

Similarly, according to the Terminology of CIMA, London, a cost centre "is a location, person or item of equipment or group of these, for which cost may be ascertained and used for the purpose of cost control."

Thus, a Cost Centre covers a location (e.g., a department, person—e.g., machine operator), and a item of equipment (e.g., plant/machine).

Types of Cost Centre:

i. Personal and Impersonal Cost Centres:

A cost centre which consists of a person or group of persons is called 'personal cost centre'. Example: sales manager, works manager, etc. An impersonal cost centre consists of a location or item of equipment, production department, a machine or a group of machines.

ii. Production and Service Cost Centers:

'Production cost centres' are engaged in production activity by conversion of raw material into finished production. 'Service cost centres' are those which are ancillary to and render service to other production and service cost centres.

For example, maintenance department is a service department provides service to other cost centres which include both production cost centres and service cost centres. A power house is a service cost centre generates and supplies power not only to production cost centres but also to other service cost centres.

(e) Operation Cost Centre:

It is applicable in case of manufacturing concerns. It consists of machines or persons which follow similar activities.

(f) Process Cost Centre:

It is also applicable in case of manufacturing concerns. Process Cost Centre is applied in case of particular or specific process of a manufacturing enterprise.

Purposes of Cost Centre:

The purposes of Cost Centre are:

(i) Cost Centre brings responsibility and, as such, it is also called Responsibility Centre. In other words, for controlling cost of a centre, the manager of that cost centre is, no doubt, responsible for the purposes.

(ii) Cost Centre helps to recover the overhead expenses.

Methods and Techniques of Costing

Methods of Costing:

Methods to be used for the ascertainment of cost of production differ from industry to industry. It primarily depends on the manufacturing process and also on the methods of measuring the departmental output and finished products.

Basically, there are two methods of costing (as per CIMA Terminology) viz.:

(i) Specific Order Costing (or Job/Terminal Costing) and

ii) Operation Costing (or Process or Period Costing.)

Specific Order Costing is the category of basic costing methods applicable where the work consists of separate jobs, batches or contracts each of which is authorised by a specific order or contract. Job costing, batch costing and contract costing are included in this category.

Operation Costing is the category of basic costing methods applicable where standardized goods or services result from a sequence of repetitive and more or less continuous operations or process to which costs are charged before being averaged over units produced during the period.

All these methods are discussed briefly as under:

1. Job Costing:

Under this method, costs are collected and accumulated for each job, work order or project separately. Each job can be separately identified; so it becomes essential to analyse the cost according to each job. A job card is prepared for each job for cost accumulation. This method is applicable to printers, machine tool manufacturers, foundries and general engineering workshops.

2. Contract Costing:

When the job is big and spread over long periods of time, the method of contract costing is used. A separate account is kept for each individual contract. This method is used by builders, civil engineering contractors, constructional and mechanical engineering firms etc.

3. Batch Costing:

This is an extension of job costing. A batch may represent a number of small orders passed through the factory in batch. Each batch is treated as a unit of cost and separately costed. The cost per unit is determined by dividing the cost of the batch by the number of units produced in a batch. This method is mainly applied in biscuits manufacture, garments manufacture and spare parts and components manufacture.

4. Process Costing:

This is suitable for industries where production is continuous, manufacturing is carried on by distinct and well defined processes, the finished products of one process becomes the raw material of the subsequent process, different products with or without byproducts are produced simultaneously at the same process and products produced during a particular process are exactly identical.

As finished products are obtained at the end of each process, it will be necessary to ascertain not only the cost of each process but also cost per unit at each process. A separate account is opened for each process to which all expenditure incurred thereon is charged.

The cost per unit is obtained by averaging the expenditure incurred on the process during a certain period. Hence, this is known as average costing. As the products are manufactured in a continuous process, this is also known as continuous costing. Process costing is generally followed in Textile Industries, Chemical Industries, Tanneries, Paper Manufacture etc.

5. One Operation (Unit or Output) Costing:

This is suitable for industries where manufacture is continuous and units are identical. This method is applied in industries like mines, quarries, oil drilling, breweries, cement works, brick works etc. In all these industries there is natural or standard unit of cost. For example, a barrel of beer in breweries, a tonne of coal in collieries, one thousand of bricks in brickworks etc.

The object of this method is to ascertain the cost per unit of output and the cost of each item of such cost. Here cost accounts take the form of cost sheets prepared for a definite period. The cost per unit is determined by dividing the total

expenditure incurred during a given period by the number of units produced during that period.

6. Service (or Operating) Costing:

This is suitable for industries which render services as distinct from those which manufacture goods. This is applied in transport undertakings, power supply companies, municipal services, hospitals, hotels etc. This method is used to ascertain the cost of services rendered.

There is usually a compound unit in such undertakings, e.g., tonne kilometre (transport undertaking), kilowatt-hour (power supply) and patient day (hospitals).

7. Farm Costing:

It helps in calculation of total cost and per unit cost of various activities covered under farming. Farming activities cover agriculture, horticulture, animal husbandry (i.e., rearing of live-stocks), poultry farming, pisciculture (i.e., rearing of fish), dairy, sericulture (i.e. silkworm breeding), nurseries for growing and selling of seedlings and plants and rearing of fruits and flowers.

Farm costing helps to improve the farming practices to reduce cost of production, to ascertain the profit on each line of farming activity which ensures better control by management and to obtain loans from banks and other financial institutions as they give loans on the basis of proper cost accounting records.

8. (Multiple) Operation Costing:

Multiple operation method of manufacture consists of a number of distinct operations. It refers to conversion cost i.e., cost of converting the raw materials into finished goods. This method takes into consideration the rejections in each operation for calculating input units and cost. The different operations in machine

screw are—stamps, knurl, thread and trim. The cost per unit is determined with reference to final output.

9. Multiple Costing:

It represents the application of more than one method of costing in respect of the same product. This is suitable for industries where a number of component parts are separately produced and subsequently assembled into a final product. In such industries each component differs from the others as to price, material used and process of manufacture undergone. So it will be necessary to ascertain the cost of each component.

For this purpose, process costing may be applied. To ascertain the cost of the final product batch costing may be applied. This method is used in factories manufacturing cycles, automobiles, engines, radios, typewriters, aeroplanes and other complex products. This method has been dropped from the latest CIMA Terminology.

Table Showing Cost Units and Methods of Costing for Different Industries/ Enterprises

Industry/Enterprise	*Cost Unit*	*Method of Costing*
Steel/Cement	Tonne	Process Costing
Sugar	Tonne, Quintal	Process Costing
Textiles	Metres, Yards	Process Costing
Bicycle Manufacturing	Number	Multiple Costing
Aircraft	Number	Job Costing
Hospital/Nursing Home	Per bed occupied per day/out patient visit	Operating or Service Costing
Timber	Cubic Foot	Process Costing
Transport	Tonne Kilometer, Passenger Kilometer	Operating Costing
Chemical	Tonne, Kilogram	Process Costing
Readymade Garments	Numbers	Batch Costing
Building	House or Area or Square Feet	Job Costing or Contract Costing
Soft Drinks	Cases of 24 bottles each or per bottle of different weights	Process Costing
Confectionery	Per Kg.	Process Costing

Automobile	Number	Process Costing
Brickkiln	Per 1,000 Bricks	Output Costing
Case Making	Per Case	Job Costing
Coal	Per Tonne	Single or One Operation or Output Costing
Interior Decoration	Per Job	Job Costing
Pharmaceutical	Per 1,000 Tablets, Ampulses	Batch Costing
Furniture	Per Unit	Multiple Costing
Advertising	Per Job	Job Costing
Oil Refining	Per Tonne/Quintal	Process Costing

Types or Techniques of Costing:

Following are the main types or techniques of costing for ascertaining costs:

1. Uniform Costing:

It is the use of same costing principles and/or practices by several undertakings for common control or comparison of costs.

2. Marginal Costing:

It is the ascertainment of marginal cost by differentiating between fixed and variable cost. It is used to ascertain the effect of changes in volume or type of output on profit.

3. Standard Costing:

A comparison is made of the actual cost with a pre-arranged standard cost and the cost of any deviation (called variances) is analysed by causes. This permits management to investigate the reasons for these variances and to take suitable corrective action.

4. Historical Costing:

It is ascertainment of costs after they have been incurred. It aims at ascertaining costs actually incurred on work done in the past. It has a limited utility, though comparisons of costs over different periods may yield good results.

5. Direct Costing:

It is the practice of charging all direct costs, variable and some fixed costs relating to operations, processes or products leaving all other costs to be written off against profits in which they arise.

6. Absorption Costing:

It is the practice of charging all costs, both variable and fixed to operations, processes or products. This differs from marginal costing where fixed costs are excluded.

Any of the methods of costing like unit or output costing, service costing, process costing etc. can be used under any techniques of costing.

Costing Systems

The following points highlight the top six types of costing systems. The types are: 1. Historical Costing 2. Absorption Costing 3. Direct Costing 4. Marginal Costing 5. Standard Costing 6. Uniform Costing.

Type # 1. Historical Costing:

In this type of costing system, the costs are ascertained only after they have been incurred. The main objective of it is to ascertain costs that have been incurred in past. It is the process of accumulation of costs after they are incurred in a systematic manner. The historical costs are used only for postmortem examination

of actual costs incurred and it would be too late to control. The actual figures can be compared only when the standards of performance exists.

Type # 2. Absorption Costing:

Under the 'absorption costing system' all fixed and variable costs are allotted to cost units and total overheads are absorbed according to activity level. In absorption costing system, fixed manufacturing overheads are allocated to products, and these are included in stock valuation.

Therefore, valuation of inventories of finished goods and WIP includes manufacturing fixed cost and transferred to next period. Unlike manufacturing fixed overhead, the administrative overhead, selling and distribution overheads are treated as fixed cost and recorded only when they incurs. It is a traditional form of cost ascertainment. It is based on the principle that costs should be charged or absorbed to whatever is being costed – be it cost unit, cost centre – on the basis of the benefit received from these costs.

Type # 3. Direct Costing:

It is a method of costing in which the product is charged with only those costs which vary with volume. Variable or direct costs such as direct material, direct labour and variable manufacturing expenses are examples of costs charged to the product. All indirect costs are charged to profit and loss account of the period in which they arise. Indirect costs are disregarded in inventory valuation.

Type # 4. Marginal Costing:

Under marginal costing, costs are classified into fixed and variable costs. Variable costs are charged to unit cost and the fixed costs attributable to the relevant period are written-off in full against the contribution for that period.

Contribution margin indicates the recovery of fixed cost before contributing towards the operational profit. This technique is widely used for internal management purpose for decision making rather than for external reporting.

Type # 5. Standard Costing:

Under standard costing system, the ascertainment and use of standard costs and the measurement and analysis of variances is done for control purpose. Standard cost is a predetermined cost which is computed in advance of production on the basis of a specification of all the factors affecting costs and used in Standard Costing. Its main purpose is to provide a base for control through Variance Accounting, for valuation of stock and work-in-progress and, in some cases, for fixing selling prices.

Type # 6. Uniform Costing:

It is not a distinct method of costing. It is the adoption of identical costing principles and procedures by several units of the same industry or several undertakings by mutual agreement. It facilitate valid comparisons between organizations and helps in elimination of inefficiencies.

UNIT OR OUTPUT COSTING

One Operation (Unit or Output) Costing:

One operation costing method of costing by units of production and is adopted where production is uniform and a continuous affair, units of output are identical and the cost units are physical and natural. The cost per unit is determined by dividing the total cost during a given period by the number of units produced during that period.

This method of costing is generally adopted where an undertaking is engaged in producing only one type of product or two or more products of the same kind but of varying grades or quality. The industries where this method of costing is used are dairy industry, beverages, collieries, sugar mills, cement works, brick works, paper mills etc. In all these cases, work is a natural unit of cost e.g., a tonne of coal, a quintal of sugar, a tonne of cement, 1,000 bricks, 1 kg of paper and soon.

Cost per unit or unit cost = total cost of production/ total quantity or number of units produced

DEFINITION

"Production cost accounting or unit cost accounting is such a method of cost ascertainment which is based on production unit. It is applicable where the production work is done continuously and the units are of same types of manufactured identical" - Herold J. Wheldon

From the above definition we can understand that Unit Costing is used in the industries with the following characteristics:

Production should be uniform or homogeneous and a continuous affair;

- The units of production should be identical
- The cost units should be physical and natural
- Per unit cost has to be determined, for example per ton, per meter, per kg, etc.

Brick making, mining, cement manufacturing, flour mills are examples of industries using Unit Costing.

Under Unit Costing, generally no apportionment of cost is done because all the expenses are made on a similar type of production. But where production is done for a various grades or for various sizes, their expenses have to be apportioned on the basis of size or grades in detail

OBJECTIVES OF UNIT COSTING:

- To know the total cost of production and per unit cost within specific period.
- To classify cost under related categories such as Prime Cost, works cost, cost of Production, etc. and have a detailed analysis in order to determine per unit cost.
- To determine the effect of each element of cost to have control over costs.
- To compare the cost during two or more periods.
- To make efforts for cost control on the basis of comparative analysis.
- To determine proposed setting price to earn desired profit.
- To determined tender price on the basis of cost data and future prospects

Importance of unit or output costing

Unit or output costing helps both in ascertainment and control of cost. It determines cost per unit of the products on the basis of which the selling price of products can be fixed. Thus, a unit or output costing has the following importance:

1. Ascertainment of cost: it helps in ascertainment of total and cost and cost per unit at different stages of production.

2. Controlling costs: it helps in controlling and reducing costs since time to time costs are compared from previous period and leakages and wastage are checked.

3. Fixation of selling price: it provides data about the cost of a job or product and on the basis of such data appropriate selling price of the product can be fixed.

4. Submitting tenders: it also helps the business in ascertaining the tender price by providing information about estimated cost on the basis of part data.

5. Formulating production policy: it acts as a guide to the manufacturer and helps him in formulation a profitable production policy.

Limitations of unit or output costing

Unit or output costing is very much important method for ascertaining the total cost and cost per unit, but it is not free from certain limitations. These are as under:

1. Limitations of historical cost: unit or output costing, being basically of historical nature, suffers from all the defects of historical costing.

2. Useful only for homogeneous products: this costing method can be used only for homogeneous products and not for heterogeneous products.

3. Not sufficient for cost control: this costing system simply determines total cost and per unit cost of the products which is by itself not sufficient for cost control.

4. Arithmetical accuracy cannot be checked: under this system, generally a statement is prepared which does not from a part of the double entry system. Therefore, arithmetical accuracy cannot be checked under this system

ELEMENTS OF COST UNDER UNIT COSTING:

In output costing in order to determine total cost and per unit cost, collection of various elements of cost is done as follows –

(i) Material:

As there will be only one product and the process of manufacture is also simple, the raw material, if any, is directly charged to the production of the period in total. The items of stores issued for maintenance and other purposes are analysed by cost centres through the requisition slips. Normal loss of material is adjusted by inflating the issue price of materials.

(ii) Labour:

The labour costs are collected periodically through payrolls which are prepared separately for each section of the work. The purpose of such analysis is only to localise the cost to specific cost centres or to departmental managers, so that the cost can be effectively controlled. Labour—direct and indirect—should be identified separately. The direct labour cost is collected separately and forms a part of prime cost whereas indirect labour is charged to the factory overheads.

Direct Expenses –

In addition to material and labour, there are certain other expenses incurred which are termed as direct expenses.

Overheads –

The overheads are debited to production for the period for which the cost us being determined. These overheads expenses' are taken from the financial records. There are certain expenses which cannot be determined before the end of the accounting period.

The accounts of Pleasant Company Ltd. show for 2012:

Materials Rs 3,50,000; Labour Rs 2,70,000; Factory Overheads Rs 81,000 and Administration Overheads Rs 56,080.

What price should the company quote for a refrigerator? It is estimated that Rs 1,000 in material and Rs 700 in labour will be required for one refrigerator. Absorb factory overheads on the basis of labour and administration overheads on the basis of works cost. A profit of 12½ % on selling price is required.

SOLUTION

STATEMENT OF COST

	₹
Materials	3,50,000
Labour	2,70,000
Prime Cost	6,20,000
Factory Overheads	81,000
Works Cost	7,01,000
Administration Overheads	56,080
Total Cost of Production	7,57,080

Percentage of Factory Overheads to Labour

$$= \frac{\text{Factory Overheads}}{\text{Labour}} \times 100 = \frac{₹\ 81,000}{₹\ 2,70,000} \times 100 = 30\%$$

Percentage of Administration Overheads to Works Cost

$$= \frac{\text{Administration Overheads}}{\text{Works Cost}} \times 100 = \frac{₹\ 56,080}{₹\ 7,01,000} \times 100 = 8\%$$

STATEMENT OF THE SELLING PRICE OF A REFRIGERATOR

	₹
Materials	1,000.00
Labour	700.00
Prime Cost	1,700.00
Add : Factory Overheads (30% on Labour)	210.00
Works Cost	1,910.00
Add : Administration Overheads (8% of Works Cost)	152.80
Total Cost of Production	2,062.80
Add : Profit (1/8 on Sales or 1/7 of Cost)	294.69
Selling Price	2,357.49

Illustration 2:

From the following data prepare a cost and profit statement of Popular Stoves Manufacturing Co. for the year 2011:

	₹		₹
Stock of materials on 1-1-2011	35,000	Establishment expenses	10,000
Stock of materials on 31-12-2011	4,900	Completed stock in hand on 1-1-2011	Nil
Purchase of materials	52,500	Completed stock in hand on 31-12-2011	35,000
Direct wages	95,000	Sales	1,89,000
Factory expenses	17,500		

The number of stoves manufactured during the year 2011 was 4,000.

The company wants to quote for a contract for the supply of 1,000 Electric Stoves during the year 2012. The Stoves to be quoted are of uniform quality and make and similar to those manufactured in the previous year ; but cost of materials has increased by 15% and cost of factory labour by 10%.

Prepare a statement showing the price to be quoted to give the same percentage of net profit on turnover as was realised during the year 2011, assuming that the cost per unit of overheads will be the same as in the previous year.

SOLUTION

COST AND PROFIT STATEMENT OF STOVES
for the year 2011

(Output 4,000 Stoves)

	₹	*Amount Total* ₹	*Amount per unit* ₹
Opening stock of materials	35,000		
Purchase of materials	52,500		
	87,500		
Less : Closing stock of materials	4,900		
Value of Materials Consumed		82,600	20.65
Direct wages		95,000	23.75
Prime Cost		1,77,600	44.40
Factory expenses		17,500	4.37
Works Cost		1,95,100	48.77
Establishment expenses		10,000	2.50
Cost of Production		2,05,100	51.27
Opening completed stock		*Nil*	
Cost of production during the period		2,05,100	
		2,05,100	
Less : Closing completed stock		35,000	
Cost of Sales		1,70,100	
Profit (10% on sales)		18,900	
Selling Price		1,89,000	

STATEMENT SHOWING QUOTATION PRICE FOR 1,000 STOVES

	Amount ₹	*Amount* ₹
Materials consumed (@ ₹ 20.65 per stove)	20,650	
Add : 15% Increase	3,098	
		23,748
Factory wages (@ ₹ 23.75 per stove)	23,750	
Add : 10% Increase	2,375	
		26,125
Prime Cost		49,873
Factory expenses (@ ₹ 4.375 per stove.		4,375
Works Cost		54,248
Establishment expenses (@ ₹ 2.50 per stove)		2,500
Total Cost		56,748
Profit (10% on selling price or 1/9 of cost)		6,305
Selling Price		63,053

Job Costing

Job costing is an accounting tool that allows businesses to track costs by individual jobs. Job costing is calculated by accumulating the cost of labor, materials and overhead for a specific project.

Job costing, also called project-based accounting, is the process of tracking costs and revenue for each individual project. Job costing looks at each project in detail, breaking down the costs of labor, materials and overhead. It makes fewer assumptions than other costing methods.

Job costing is commonly used in the construction industry, where costs vary widely from job to job. But it's also used by manufacturers, creative agencies, law firms and more. Because job costing tracks costs in detail for each job, it can be a helpful tool for small business owners to evaluate individual jobs and see if any expenses can be reduced on similar projects in the future.

DIFINITIONS

(1) CIMA definition of Job costing is "It is a form of specific order costing in which costs are attributed to individual jobs". Thus, each 'Job' is treated as a distinct cost unit for which costs are accumulated.

Job costing is used for comparatively smaller works of shorter duration. Printing presses, machine tools manufactures, furniture makers, repair shops, foundries, etc., use this method extensively. It is essentially used to ascertain the cost and profit or loss of each job separately.

(2)According to Eric Kohler, “Job costing is a method of cost accounting whereby cost is compiled for a specific quantity of product, equipment, repair or other service that moves through the production process as a continuously identifiable unit, applicable material, labour, direct expenses and usually a calculated portion of the overhead being charged to job order.

From the above definition, it is clear that job costing is a method of costing under which the cost of each job is ascertained separately. It is that form of specific order costing which applies where work is undertaken to customer’s special requirements. As distinct from contract costing, each job is of comparatively short duration.

Objectives of Job Costing:

1. 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.
2. It helps the management in estimating the price of a certain work based on the price of the previous jobs.
3. To identify profitable and non-profitable jobs and help and prevent profitless jobs from taking place.
4. To differentiate departments from one another based on the cost taken and the number of materials required.
5. 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.
6. Job costing should be flexible and scalable enough to accommodate any kinds of industrial or commercial jobs available for cost estimation.

Features of Job Costing:

The characteristic features of job costing are:

(1) Job costing is adopted by manufacturing concerns as well as non-manufacturing concerns.

(2) Those concerns which follow job costing method produce goods not for stock but against specific orders from customers.

(3) Job costing is adopted in concern where the work done is analysed into different jobs, each job being considered a separate unit of cost.

(4) A separate account is opened for each job to which all expenses incurred on that job, from the date of commencement till the date of completion are debited. This will enable the concern to know the cost of each job.

(5) Under job costing, the cost of each job is ascertained after the completion of the job.

(6) As each job is different from other jobs, each job needs separate treatment under job costing.

(7) By comparing the actual cost of each job against the price charged for each job, the profit or loss made on each job is ascertained.

(8) Under this method, the cost of each job and the profit or loss made on each job undertaken is found out separately.

(9) Under this method, production is intermittent and not continuous.

(10) The industries need not incur selling and distribution expenses as the customers themselves come to place orders and collect the goods after production.

Examples of industries which adopt job costing are—foundries, printers, machine tool making industries, engineering workshop, toy making concerns, furniture making concerns, management consulting concerns, interior decorations, musical instruments, advertising concerns and so on.

Advantages of Job Costing:

1. Job costing acts as a form of analysis detailing all the types of costs that are present throughout the manufacturing process. This includes the direct costs, the labor costs, and the overhead charges.
2. It acts as a gauge determining the profitability of the job and helps for future customers or companies to decide whether to take up the job or not. It also gives us an idea about the feasibility of the job.
3. Job costing prevents duplication of work because it helps in the estimation of a similar job. This helps in a company quoting the price of a job, it can always depend on the pricing of a previous job as a reference.
4. The efficiency of the manufacturers can also take into observation while taking account of their job costing and their associated expenses.
5. Ruination and defective work can found out through job costings and it can immediately correct through certain individuals responsible for the job.
6. Budgetary control comes into action when taking into consideration the various overhead charges which predetermine for each department.
7. Job costing information uses more for job contacts where the price of the job depends on the amount of the work is doing, rather than depending on the final price.
8. It evaluates the quality of the work through various statistical techniques.
9. Job costing provides an easy calculation of cost overheads for specific needs, and in a precise manner.
10. Job costing enables the supervisors to keep track of various components such as money, materials and the performance of the employees.

Disadvantages of Job Order Costing:

1. Based purely on costs. This method, disadvantageous in fixing prices for the complete process, as the costs record along each step. Hence it makes it difficult to prevent unwanted costs and expenditures occurred in between the processes.
2. It's very expensive because records are to prepare for every step of the order. Starting from the materials list to the final product statement. Hence capital needs to keep such records properly.
3. There no exact procedure for estimating the job cost since there are no specific methods to differentiate direct and indirect costs occurring in a process.
4. This method of price estimation, may not be useful for jobs that are cost-efficient and fast-paced.
5. No standard procedure to follow while estimating. The only thing that can be followed is the need for supervision when calculating costs. To prevent any miscalculations and forgery of the prices and materials respectively.
6. More and more clerical work required to detail the measures and quota takes in every step of the project from the start to the finish.
7. Highly expensive because of the number of people working for a single project and unwanted expenditures may also present.
8. During inflation and recession, such jobs are useless and comparing such job costs is fruitless and a waste of time. Ordering job costs during the time of inflation not consider smart.
9. No form of correction can take place if the actual profit is less than the estimated profit. The only thing we can do while calculating job costs are preventing loss to both the consumer and the manufacturer.

10. Since overheads are allocated to each department on a predetermined basis, there is no strict method to control the cost of the project using job costing.
11. Record keeping is what keeps the process of job costing alive. If there is no sufficient record work, then it can cause a huge downfall to the whole project and it may lead to a huge loss to the manufacturer.
12. There no 100% accurate estimation of the total final cost of a job using job costing.

Procedures for Job Order Cost System

The procedure for job order cost system may be summarized as follows:

1. Receiving an Enquiry:

The customer will usually enquire about the price, quality to be maintained, the duration within which the order is to be executed and other specification of the job before placing an order.

2. Estimation of the Price of the Job:

The cost accountant estimates the cost of the job keeping in mind the specification of the customer. While preparing estimate, the cost of execution of similar job in the previous year and possible changes in the various estimates of cost are taken into consideration. The prospective customer is informed with the estimate of the job.

3. Receiving of Order:

If the customer is satisfied with the quotation price and other terms of execution, he will then place the order.

4. Production Order:

If the job is accepted, a Production Order is made by the Planning Department. It is in the form of instructions issued to the foreman to proceed with the man facture of the product. It forms an authority for starting the work. It contains all the information regarding production. It is prepared with sufficient copies so that a copy of the same may be given to all the departmental managers or forman who are required to take any part in the production.

PRODUCTION ORDER

Sl. No. .....
Description .....
Code No. .....
Customer Order No. .....
Material Requisition Nos. .....
Operation Nos. .....
Machine Nos. .....

Quantity Ordered .....
Date .....
Date of Commencement .....
Date of Finish .....

Clock Time	Operation No.	Dept. No.	Operation		Quantity	
			No.	Details	Made	Rejected

When an order is received, the Production Control Department allots a Production Order Number to it. Sometimes, the work may be sub-divided and sub-numbers may also be allotted to various works constituting it in addition to one master number,

5. Recording of Costs:

The costs are collected and recorded for each job under separate Production Order Number. Generally, Job Cost Sheet (or Card) is maintained for each job. This is a document which is used to record direct materials, direct wages and overheads applicable to respective jobs.

The bases of collection of costs are:

(a) Materials:

Materials Requisitions, Bill of Materials or Materials Issue Analysis Sheet.

(b) Wages:

Operation Schedule, Job Card or Wages Analysis Sheet.

(c) Overheads:

All the basic documents will contain cross reference to respective production order numbers for convenience in collection of costs.

A specimen of Job Cost Sheet is as given below:

JOB COST SHEET

Job/Production Order No. .....
Particulars .....
Date Commenced .....
Customer .....
Quantity .....
Date Completed .....

Material				Labour				Overheads			
Date	Department	Material Requisition No.	Amount ₹	Date	Department	Time Ticket No.	Amount ₹	Date	Department	Rate ₹	Amount ₹
Total			₹				₹			₹	

Summary			
	Estimated Cost ₹	Actual Cost ₹	Difference ₹
Materials Labour Overheads			
Total			

6.Completion of Job:

On completion of a job, a completion report is sent to costing department. The expenditure under each element cost is totaled and the total job cost is ascertained. The actual cost is compared with the estimated cost so as to reveal efficiency or inefficiency in operation.

7. Profit or Loss on Job:

It is determined by comparing the actual expenditure or cost with the price obtained.

Work-in-Progress:

Sometimes Consolidated Completed Jobs Account is to be prepared along-with Consolidated Work-in-progress Account.

The preparation of these accounts is discussed as under:

(i) The consolidated completed jobs account is debited with the total amount spent on materials, labour and overheads in respect of all completed jobs and credited by the amount received from customer on a account of completed jobs. The difference is the profit or loss on completed jobs.

(ii) The consolidated work-in-progress account is periodically debited with all the costs, direct and indirect, incurred in the execution of the jobs and credited with the cost of completed jobs. The balance in this account at any time represents the cost of jobs not yet completed.

Illustration 3:

Following information for the year ended December 31, 2011 is obtained from the book and records of a factory:

	Completed Jobs ₹	*Work-in-Progress* ₹
Raw Materials supplied from Stores	1,00,000	34,000
Wages	1,00,000	40,000
Materials transferred to Work-in-Progress	2,000	2,000
Materials returned to Stores	1,000	—

Factory Overheads are 80 per cent of Wages and Administration Overheads 25 per cent of Factory Cost.

The value of the executed jobs during 2011 was ₹ 4,10,000.

Prepare (*i*) Consolidated Completed Jobs Account showing the profit made or loss incurred on the jobs, and also (*ii*) Consolidated Work-in-Progress Account.

SOLUTION

CONSOLIDATED COMPLETED JOBS ACCOUNT

	₹	₹		₹
To Raw Materials Consumed :	₹		By Customer's A/c (the amount of Jobs Completed)	4,10,000
Supplies from Stores	1,00,000			
Less : Transferred to WIP	2,000			
	98,000			
Less : Returned to Stores	1,000			
		97,000		
" Wages		1,00,000		
" Factory Overheads (80% of Wages)		80,000		
Factory Cost		2,77,000		
" Administration Overheads (25% of ₹ 2,77,000)		69,250		
" Net Profit transferred to P/L A/c		63,750		
		4,10,000		4,10,000

CONSOLIDATED WORK-IN-PROGRESS A/c

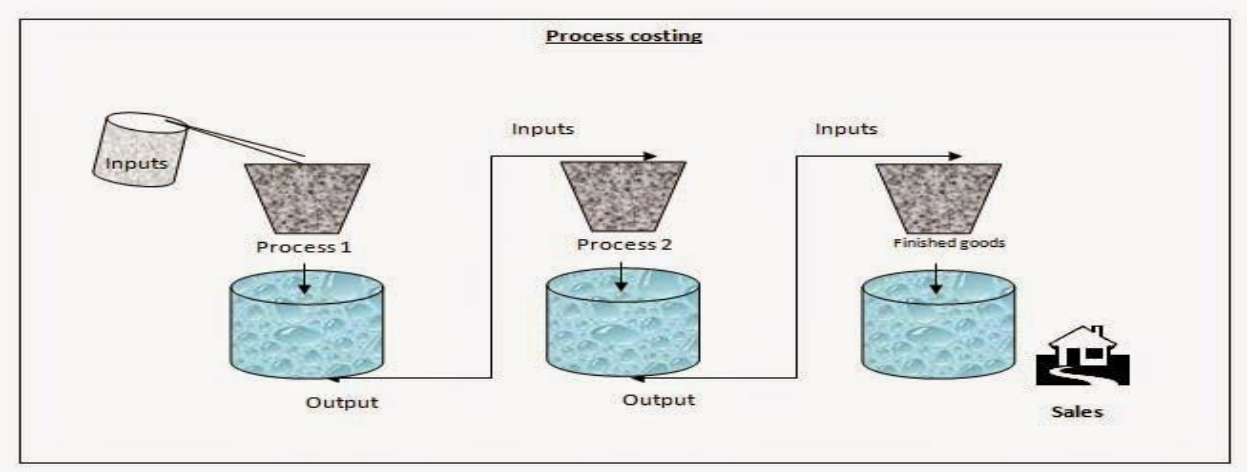
	₹	₹		₹
To Raw Materials Consumed :	₹		By Balance c/d	1,35,000
Supplies from Stores	34,000			
Add : Transferred from Completed Jobs	2,000			
		36,000		
To Wages		40,000		
" Factory Overheads (80% of Wages)		32,000		
Factory Cost		1,08,000		
" Administration Overheads (25% of ₹ 1,08,000)		27,000		
		1,35,000		1,35,000

Process Costing

Process Costing is defined as a branch of **operation costing**, that determines the cost of a product at each stage, i.e. process of production. It is an accounting

method which is adopted by the factories or industries where the standardized identical product is produced, as well as it passes through multiple processes for being transformed into the final product.

In simple words, **process costing is a cost accounting technique, in which the costs incurred during production are charged to processes and averaged over the total units manufactured**. For this purpose, process accounts are opened in the books of accounts, for each process and all the expenses relating to the process for the period is charged to the respective process account.



Hence, it ascertains the total cost and unit cost of a process, for all the processes carried out in industry. Further, the average cost represents the cost per unit, wherein the total cost is divided by the total number of outputs produced during the period to arrive at the cost per unit. The cost per unit can be calculated using **First in First Out Method (FIFO), Average Method and Weighted average Method**.

Definitions;

1. 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.”
2. According to B. K. Bhar, “Process costing refers to costing of one or more processes involved while converting a raw material to finished product.”
3. According to Sharles, “Process Cost Accounts are applied to concerns which produce a commodity that has to go through several processes and which requires to know the cost of each process.”
4. According to Eric Kohler, “Process costing is a method of Cost Accounting whereby costs are charged to processes or operations and averaged over units produced.”

Features of Process Costing

- The plant has various divisions, and each division is a stage of production.
- The production is carried out continuously, by way of the simultaneous, standardized and sequential process.
- The output of a process is the input of another.
- The production from the last process is transferred to finished stock.
- The final product is homogeneous.
- Both direct and indirect costs are charged to the processes.
- The production may result in joint and by-products.
- Losses like normal and abnormal loss occur at different stages of production which are also taken into consideration while calculating the unit cost.

- The output of one process is transferred to another one at a price that includes the profit of the previous process and not at the cost.
- At the end of the period, if there remains the stock of finished goods, then it is also expressed in equivalent completed units. It can be calculated as: **Equivalent units of semi-finished goods or WIP = Actual number of units in process × Percentage of work completed**

Process costing is employed by the industries whose production process is continuous and repetitive, as well as the output of one process is the input of another process. So, **chemical industry, oil refineries, cement industries, textile industries, soap manufacturing industries, paper manufacturing industries** use this method.

Advantages of process costing

The following are the advantages of process costing:

(1) Process costing helps in the computation of costs at shorter intervals, which is usually a week, a fortnight or a month.
(2) It helps in the computation of costs of processes as well as the finished product.
(3) The computation of costs under process costing involves less clerical work and expenses.
(4) The computation of costs per unit at any one process is very easy, as the units are homogeneous, and as such, the cost per unit can be found out easily by averaging.
(5) It ensures a chooser control over production and costs.
(6) It is easy to quote tender price because of standardised process.

(7) Control can be exercised through standard costing technique and it is possible to evaluate the performance of every process.

(8) Because cost of production is ascertained periodically, management is in a position to receive various reports periodically and review the progress and efficiency of the production process.

Disadvantages of process costing

The following are the disadvantages of process costing:

(1) When costs are recorded at the end of the period, it is not possible to exercise control over costs.

(2) It is difficult to apportion total cost among joint products and bye-products.

(3) Under this method of costing, it is difficult to value work-in-progress.

(4) It is difficult to value losses, wastes and scraps, under this method of costing.

(5) There is also the difficulty of ascertaining the value of closing stock where output of one process is transferred to another process at market price.

(6) The costs available under process costing are historical costs. The historical costs are not of much use for managerial control.

(7) This method provides the average cost per unit and the average cost per unit is not always accurate. As such, the average cost is not of much use for the purpose of detailed analysis and operating efficiency.

Objects of Process Costing

Following are the main objects of process costing:

(1) To Ascertain the Cost of Each Process:

It is necessary to know the cost at every stage of production and this is fulfilled by process costing method. On this basis management is able to take decision in respect of make or buy the required commodities. For example – in Process 1st yarn is produced or manufactured at a cost of Rs. 125 per kg. whereas, it can be obtained from the market at Rs. 115 per kg. In this case, it is profitable to buy the yarn from the market at a saving of Rs. 10 per kg. This example shows the importance of process costing.

(2) To Ascertain the Cost of Bye-Product:

Bye-product is that which is obtained with the main product in the course of production. For example – while producing mustard oil, cake is also obtained which is termed as bye-product and the cost of which is necessary to know the actual cost of main product. Cost of bye-product is ascertained by preparing bye-product Account, under process costing.

(3) To Know the Wastage in Each Process of Production:

During the courage of production, different wastages, such as, loss in weight, normal wastage and abnormal wastage, etc. may arise. Management of any concern may know about these wastages by Process Costing Account.

(4) To Ascertain the Profit or Loss of Each Process:

The output or the part of output at the stage of every process can be sold out either at profit or loss. Thus the management can know about the profit or loss at every process by preparing Processes Account.

(5) Base of the Valuation of Opening and Closing Stock of Each Next Process:

If the total cost of production of any process is divided by the number of units, we get cost of production per unit of that particular process and on this basis opening and closing stock of next process is valued.

Elements of Process Cost Accounting:

Under process costing, the cost of materials, labour, direct expenses and overheads are collected as follows:

(1) Materials:

Raw materials and sundry supplies required for each process are obtained from stores through stores requisitions. So, the costs of materials and sundry supplies chargeable to any process can be ascertained from stores requisitions.

In case, the materials are issued in bulk to any process, the process concerned intimates to the cost office the exact quantity of materials consumed in the process during the particular period, and with the help of this data, the cost of materials chargeable to the process is ascertained.

(2) Labour:

Wages paid to workers engaged in a particular process are ascertained through the pay-rolls maintained for the concerned process, and are allocated directly to the process concerned.

However, where workers are engaged in two or more processes, their wages, ascertained through the relevant wage records, are apportioned among the different processes on the basis of time spent.

(3) Direct Expenses:

All direct expenses incurred on a particular process are directly allocated to that process.

(4) Overheads:

Overheads incurred on two or more processes are apportioned on the basis of direct wages or on any other suitable basis. Sometimes overheads are recorded at pre-determined rate based on direct wages, prime cost, etc.

Job Costing Vs Process Costing

BASIS FOR COMPARISON	JOB COSTING	PROCESS COSTING
Meaning	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.
Nature	Customized production	Standardized production
Assignment of cost	Calculating cost of each job.	First of all, cost is determined for the process, thereafter spread over the produced units.
Cost Center	Job	Process
Scope of cost reduction	Less	High
Transfer of Cost	No transfer	Cost is transferred from one process to another
Identity	Each job is different from another.	Products are manufactured consecutively and so they lose their identity.
Cost	Completion of the job.	End of the cost period.

BASIS FOR COMPARISON	JOB COSTING	PROCESS COSTING
Ascertainment		
Industry type	Job costing is suitable for the industries which manufactures products as per customer's order	Process costing is perfect for the industry where mass production is done.
Losses	Losses are usually not segregated.	Normal losses are carefully ascertained and abnormal losses are bifurcated.
Work-in-progress (WIP)	WIP may or may not exist at the beginning or at the end of the financial year.	WIP will always be present in the beginning or at the end of the accounting period.

Process Losses and Gains:

It is usual that a certain amount of material introduced into the processes are lost, scrapped or wasted. There are many ways in which losses may arise e.g., evaporation, shrinkage, breakages, spoilage for various reasons.

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.

For example, 100 kgs. introduced into the production process and on an average 95 kgs. comes out after the process, we can say that the normal process loss is 5%. The normal losses are absorbed by the completed production.

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.

For example, if 100 kgs. of material introduced into the process and the expected normal loss is 5%, and if the actual output from the process is 92 kgs. the abnormal loss is calculated as below:

	(kgs.)
Input	100
Less: Normal loss (5% of input)	5
Expected output	95
Actual output	92
Abnormal loss	3

The abnormal losses are not included in the process costs but are removed from the appropriate Process Account and reported separately as an abnormal loss. The abnormal loss is treated as a period cost and written off to the Profit and Loss Account at the end of the period.

Abnormal losses are credited out of the Process Account into an abnormal loss account at the full unit cost value. Abnormal losses will be costed on the same basis as good production and therefore, like good production, will carry a share of cost of normal losses.

Abnormal Gain:

If the loss is less than the normal expected loss, the difference is considered as abnormal gain. Abnormal gain is accounted similar to that abnormal loss.

Abnormal gains will be debited to the Process Account and credited to Abnormal Gain Account. The Abnormal Gain Account is debited with the figure of reduced normal loss in quantity and value. At the end of the accounting year the balance in the Abnormal Gain Account will be carried to Profit and Loss Account.

Value of Scrap:

The value of scrap, treated as normal loss, received from its sale is credited to the Process A/c. But the value of scrap received from its sale under abnormal conditions should be credited to Abnormal Loss A/c.

Joint Product

Generally, a same raw material is used to manufacture two or more products from the single process. Therefore, an increase in the output of one product will bring an increase in the output of other products from the same process or vice versa but not in direct proportion.

Two or more products are produced from the joint production process in one phase of production. This phase or point is referred to as the split off point.

In some industries where two or more products of equal importance are simultaneously produced, such products are regarded as joint products.

Meaning of Joint Products:

Joint products may be defined as two or more products produced simultaneously in a process, each having a sufficiently high saleable value to merit recognition as a main product. They cannot be produced separately. The processing of a particular material may result in the production of two or more products. If all the products are of equal economic importance and none of them can be termed as major products, then these will be referred to as joint products.

In petroleum industry	Petrol, diesel, gas, and kerosene
In dairy industry	Skimmed milk, butter and cream
In saw mill	Several grades of lumber and slabs

Definition

(1) CIMA defines Joint Product as **"two or more products separated in processing each having a sufficiently high sale value to merit recognition as a main product".**

(2) CIMA defines Joint Cost as **"the costs of providing two or more products or services whose production could not, for physical reasons, be segregated".**

Characteristics of Joint Products

Generally, the joint products have the following characteristics.

1. The main objective of manufacturing operation is to produce joint products.

2. The sale value of all the joint products is relatively high and none of the joint products are significantly greater in value than other joint products.

3. There is no compulsory for further processing after the point of separation. These types of joint products are sold directly after split off point.

4. Sometimes, the joint products may require further processing.

5. Joint products require simultaneous common processing.

6. The quality of joint products may not be maintained at the maximum.

7. The management has little or no control over the maintenance of quality of joint products.

Accounting for Joint Products:

Apportionment of joint cost among the joint products is essential for determining the share of individual joint products correctly. Ascertainment of share of cost is

required for pricing the products, valuing the closing inventory and ascertaining the profit or loss on sale of different products.

Following methods are commonly used for apportioning the joint costs among the joint products.

(a) Physical Units Method:

Under this method the joint costs are apportioned among the joint products in the ratio of physical units of output produced at the point of separation.

For example, the physical base like raw material weight in physical quantity is used as the base for apportioning the joint costs. This method is very simple and easy to use. It is also technically a sound method.

However this method cannot be used when output consists of different types of units such as liquids, solids, etc. It is also illogical to assume that all joint products are equally desirable and valuable since this method assigns same unit to high quality and low quality joint products.

(b) Average Unit Cost Method:

Under this method, the total units produced at that point divide the total cost incurred up to the split-off point to get average cost per unit of production. All joint products are valued at the average cost. This method can be used when all products are expressed in terms of same units. It cannot be used when the units are not comparable.

Advantages:

(a) It is very simple and easy to adopt.

(b) It is logical to use this method as all joint products are produced from the same raw material and same process.

(c) When this method is used all joint products will have uniform cost.

Disadvantages:

(a) The apportioned costs cannot be used for setting prices particularly in a competitive market.

(b) It is not useful for scientific decision-making.

(c) This method fails to recognize the fact that all joint products are not equally costly and to give due weightage to this factor.

(c) Survey Method:

This method assumes that the difference in costs of joint products arises due to certain qualitative and quantitative factors like raw materials used, labour operations performed, time consumed for production and technical difficulties in manufacture.

Based on technical evaluation, weights are assigned to each product in the form of points. Apportionment of joint costs is made on the basis of these point values.

Advantages:

(a) This method enables accurate allocation of joint costs.

(b) It is considered more equitable than other methods, for it takes into consideration all related factors and assigns due weightage in the form of point values.

(c) Usage of weight factors results in the fair allocation of joint costs based on the benefits received by each product.

Disadvantages:

(a) Assignment of weights is based on intuitive judgment and therefore arbitrary in nature.

(b) The weights used may be inappropriate in the first place and may become useless with the passage of time.

(d) Standard Cost Method:

This method can be used only when there is standard costing system in operation. Standard costs are set for each of the joint products and joint costs are apportioned among the joint products on the basis of standards set. This method has the advantage of measuring the efficiency and exercising control in producing joint products.

(e) Contribution Margin Method:

This method employs marginal costing technique for apportioning joint costs among the joint products. Under this method the total joint cost is divided into two categories viz., variable and fixed costs.

The variable cost is allocated on the basis of physical quantities produced and fixed cost is allocated on the basis of contribution margin ratio. Contribution means excess of sales over variable costs.

(f) Market Value Method:

Under this method the market values (sales values) of the joint products are used to apportion the joint costs incurred up to the point of separation. This method is considered logical since product with high sales value bears a larger portion of joint costs and one with low sales value bears smaller portion of joint costs.

In other words, the joint costs are apportioned on the basis of their ability to absorb joint costs. This ability is measured by sales value or selling price. The justification for this method is that the joint products should generate enough revenues to cover all costs plus a reasonable return.

Meaning of By-Products:

By-product is a secondary product. By-products are minor products obtained incidentally in the process of manufacturing the main product. They possess some saleable value. A by-product is of minor commercial importance and often requires further processing before sale. The commercial or economic importance of the products classifies as main or joint products and by-products.

The relationship between main product and by-product changes with changes in economic or industrial conditions or with advancement of science. In the manufacture of sugar bagasse, press mud, and molasses are obtained as by-products along with the main product sugar. In dairy industry, buttermilk (a by-product) is produced along with butter and cheese (main products).

Definition of By-Products

Kohler definers a by-product as

> *a secondary product obtained during the course of manufacture, having a relatively small importance as compared with that of the chief product or products.*

Jain and Narang define a by-product as

> *Saleable or usable value incidentally produced in addition to the main product.*

According to CIMA Terminology, By-product is

a product which is recovered incidentally from the material used in the manufacture of recognized main products such as having either net realizable value or a usable value which is relatively low in comparison with saleable value of the main products. By-products may further be processed to increase their realizable value".

Scrap and By-Product:

The distinction between scrap and by-product is a matter of degree determined in terms of value as well as manufacturing objective. Scrap is the incidental residue from the materials used in manufacturing operations which is recoverable and measurable without further processing.

The recoverable value of a by-product is relatively more than that of scrap. By-products may be subject to further processing and market strategy before sale, whereas scrap is sold without further treatment.

Waste:

Waste is a term used to describe material that has no value, or even negative value if it has to be disposed off at some cost. Examples include gases, saw dust, smoke and other unsalable residues from the manufacturing process. Waste presents no accounting problems because it has no sales value, and therefore it is not included in the valuation stock.

BASIS FOR COMPARISON	JOINT PRODUCT	BY-PRODUCT
Meaning	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.
Economic Value	Joint products have same economic value.	Economic value of by-product is lower than the main product.
Production	Consciously	Consequently
Input	Raw material	Waste or scrap of the main product.
Further Processing	Required to turn the joint products into finished product.	Not required.

Accounting of By-Products

The accounting treatment of by-products may be classified into two categories. They are non-cost methods or sales methods and cost methods. These methods are briefly explained below.

I. Non-Cost or Sales Methods of Accounting By-Products

1. Other Income or Miscellaneous Income Method

Under miscellaneous method, the sales value of by-product is recorded in the credit side of the costing profit and loss account as it is treated as other income or miscellaneous income. If the by-product is not sold, the value of by-product is nil for balance sheet purpose. But, this is not correct method of valuation of closing stock. Moreover, the valuation of closing stock is not accurate.

The reason is that there is a time lag between the production and sales of a by-product. Sometimes, the by-products may arise in one accounting year but accounted for in the succeeding accounting year. This may distort the profits of two periods.

2. Sales of By Product added to the Main Product Sales

Under this method, the combined cost of main product and by-products are deducted from the combined sales of main product and by-products. There is no need of giving any weight age to the sale value of by-products. The value of closing stock of by-products is nil for balance sheet purpose.

3. Sales Value cf By product deducted from Total Cost

The Sales values of by-products are deducted either from production cost or from the cost of sales. Hence, the cost of main product is fluctuated on the basis of the fluctuating sales values of by-products. This leads to the inefficiencies

connected with the production of main product. The closing stock of byproduct is valued at total cost or cost of sales basis.

4. Credit of By-product value less Selling and Distribution Costs:

The costs incurred for selling and distribution of byproducts are deducted from the sales value of by-products. The net amount is either deducted from the total cost or credited to process account. The closing stock of byproducts is valued at selling price less estimated costs likely to be incurred in the selling of by-products.

5. Credit of By-product Value less Selling and Distribution Costs and Costs incurred on By-product after Split Off Point

Under this method, both selling and distribution costs and processing costs after the point of separation are deducted from the sale value of the by-products and net amount is credited to the process account. The by-product is valued for the purpose of balance sheet at the selling price less estimated costs of selling and distribution and further processing of such by-products.

This method suffers from one disadvantage i.e., if the sale value of by-product fluctuates to that extent the credit to the Process Account of the main product will fluctuate accordingly. Moreover, such fluctuation may conceal the inefficiencies in that process.

6. Reverse Cost Method

Under this method, all the selling and distribution expenses, further processing costs after the split off point along with estimated profit are deducted from the sales value of by-products and the net amount is credited to the main product.

II. Cost Methods of Accounting By-Products

1. Opportunity (or Replacement) Cost Method

Under this method, the by-products are used as raw materials and consumed in the same undertaking for some other process. If the same materials (by-products) were purchased from the open market, the company would incur certain expenditure. Such expenditure is treated as opportunity or replacement cost. In the process account, where the by-product is emerged, the market value of such by-product (used as raw materials) is credited for the purpose of ascertaining the cost of main product.

2. Standard Cost Method

A standard cost may be fixed for each product by averaging the cost figures of the previous periods and the process account credited with this standard value.

3. Apportionment on Suitable Basis

This method is followed if the byproduct has the considerable value. The actual cost of by-product should be ascertained by apportioning the joint costs up to the point of separation. This method is followed under two situations. The by-products are processed to dispose of waste materials more profitably and to utilize the idle plant profitably.

Meaning of Process Costing-Inter Process Profits:

In process costing, the usual practice is to transfer the output of one process to another and finally to finished stock at cost price. In this method of transfer, process accounts will not reveal any profit or loss. But sometimes, the transfer is made at transfer price or market price.

This method is adopted in order to measure the efficiency or inefficiency of individual's process. When market price cannot be ascertained, certain percentage

of profit margin is added to the cost of processing in order to arrive at the transfer price. Consequently, each process account reveals a profit and this profit is known as ‘inter process profit’.

Advantages of Accounting for Inter Process Profits:

(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.

(c) The efficiency of or inefficiency of one process. In other words, each process can be assessed separately on that account.

Adjustment for Inter Process Profits:

When the output of one process is transferred to another and finally to finished stock account at transfer price (cost plus estimated profit margin), the closing inventories if any will be valued at transfer price. Such inventories will include unrealized profits. Such profits should be adjusted for purposes of year-end financial reporting.

Otherwise, it will amount to earning profit by trading within the organization. Hence, necessary adjustments are made in the values of closing inventories by means of creating reserves or provision for unrealized profits. Total profit less provision for unrealized profits would amount to profits earned on sale of finished stock. The closing inventories will be shown in the balance sheet at cost i.e., values of inventory at transfer price less provision for unrealized profits.