

UNIT COSTING (COST SHEET)

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1. INTRODUCTION :

This is a method of costing by the unit of production where manufacture is a continuous one and units are identical. The object of this method is to ascertain the cost per unit of output. So the method is known as Single Costing or Unit Costing or Output Costing also.

There are many industries in which output is uniform and it is capable of being expressed in simple quantitative units. In some cases only a single product is turned out or different sizes or grades of the same product are manufactured. The selection of cost unit presents no difficulty in such industries and the complicated method of cost ascertainment is not necessary. The method used in such cases is the 'Unit Costing', in which the cost of a single unit is ascertained.

Thus the object of this method is to ascertain the cost per unit of output to determine the amount of each element which makes up such cost. This method is particularly suited to breweries, dairies, bricks-making, coal quarries industry, paper mills, sugar mills etc. In all these industries there is a natural cost unit, i.e., barrel of beer, a litre of milk, 1000 bricks, a tonne of coal, a tonne of cement, one kilogram of paper, a quintal of sugar and so on.

In those industries where only one product is manufactured, the whole of the expenditure is usually incurred for one type of product and the maintenance of cost records does not present much difficulty. However, when there are different sizes or orders of the same type of products are manufactured, the expenditure must be analysed in greater detail to enable the appropriate charge to be made to each size or grade.

2. COST-SHEET :

The information derived from financial books is set out, usually, in the form of a statement known as 'Statement of Cost' or 'Cost Sheet'. The financial account should be modelled in such a way as to furnish all necessary information for finding out the cost of production. The expenditure shown in financial books are logically classified, in considerable detail, each element of cost being divided by the output, to show cost per unit. The periodical cost-sheet can be prepared in which each element of expenditure is divided by

the number of units produced during that period so as to disclose the cost per unit. If the information is set out in form of an account, recording the cost incurred, it would be known as 'Production Account' or 'Manufacturing Account'.

Cost-Sheet may be prepared weekly, monthly, or at some other convenient intervals. It is desirable that besides the total expenditure incurred, cost per unit of output in case of each element of cost be ascertained and that the percentage contribution of each item of expenditure to the total cost of production be indicated. Moreover, the cost-sheet should provide figures of the previous period for comparison purposes.

3. ELEMENTS OF COST :

Those expenses which are included in the total cost of the product manufactured are called Elements of Cost. There are three such elements.

(1) Direct Material (2) Direct Labour (3) Overheads. Let us take an illustration. In a textile mill, yarn is used as raw materials. Its cost is included in the direct material cost. The wages paid to those workers who are employed to weave the cloth on powerlooms is the direct labour cost or wage cost. These two are very important elements of cost. In addition to these, there are other expenses incurred for running the factory and office. Then selling expenses are included e.g. in a factory, rent of factory building, depreciation, insurance premium etc. are paid. In administration overheads, office salary to the staff, stationary expenses, rent of the office etc. are paid. In sales office, salary and commission to salesmen, advertisement, godown expenses, delivery expenses are incurred. All these are called indirect expenses or overheads.

According to the definition given by the Institute of Cost and Management Accountants, "Elements of cost means primary classification of costs according to the factors upon which expenditure is incurred viz. materials cost, wages (labour cost) and expenses.

Material cost means the cost of commodities supplied to an undertaking wages (labour cost) is the cost of remuneration (wages, salaries, commission, bonuses etc.) of the employees of an undertaking. Expenses means the cost of services provided to an undertaking and the national cost of the use of owned assets."

4. CLASSIFICATION OF EXPENSES :

In financial accounts, for preparation of Profit & Loss Account and Balance Sheet, expenditure are classified in two parts, namely Capital Expenditure and Revenue Expenditure. In Cost Accounts, to find out the total cost of goods produced or services rendered and to show how such cost is made up, expenditure are analysed by different methods and in greater detail compared to financial accounts.

In Cost Accounts expenditure are broadly classified into two groups viz. (1) Direct Expenses and (2) Indirect Expenses.

"All those items of expenditure, which can directly, specifically, and conveniently be identified wholly with a particular job, process or unit of commodity are known as direct charges or expenditure"

e.g. timber used in making wooden furniture, wages paid to carpenter who makes wooden furniture are the examples of direct cost.

Indirect Expenses (Overhead) : "Indirect expenses consist of cost of indirect material, indirect labour and such other expenses, including services, as cannot be conveniently charged direct to specific cost units. Alternatively, overheads all expenses other than direct expenses." – Wheldon

(A) DIRECT EXPENSES :

Direct expenses are those which can be conveniently charged direct to specific cost units. Direct expenses may be sub-divided as (1) Direct material (2) Direct labour and (3) Other direct expenses.

(1) Direct Material : It is the material of which article is made and which can be charged directly to specific cost unit.

"Direct material is all material that becomes a part of the product, the cost of which are directly charged as part of prime cost. In other words, it is material which can be measured and charged directly to the cost of product."

– Wheldon

The timber used in making wooden furniture, the leather used in making shoes, cotton yarn used in manufacturing cotton cloth are examples of direct materials. But sometimes, materials of small value are treated as indirect material because it would be inconvenient and also expensive to analyse the cost of such materials and allocate it to each unit of product. e.g. Thread require to manufacture shoes. It will be ridiculous to find out cost per unit of thread required for preparing shoes.

According to Wheldon, the following groups of materials fall within the definition of direct material :

- (1) All materials specially purchased for a particular job, order or process.
- (2) All materials acquired and subsequently requisitioned from stores for particular production orders.
- (3) Components purchased or produced, and requisitioned from finished parts stores.
- (4) Materials passing from one operation or process to another.
- (5) Primary packing materials. (e.g. cartons, wrappings etc.)

Moreover certain expenses are also included in direct materials say, import duty, dock charges etc. which are added in original invoice.

(2) Direct Labour : It is that labour which is used for the manufacture of specific articles, process, job or contract, which works on the product property and which may be measured and charged on particular unit. "Direct Labour is all labour expended in altering the construction, composition,

conformation or condition of the product." – Wheldon

Wages paid to carpenter preparing furniture, wages paid to shoe-maker making shoes or wages paid to weaver weaving the cloth are the examples of direct labour.

(3) Direct Expenses : "It includes any expenditure other than direct material or direct labour incurred on a specific cost unit."

It includes (i) hire of special tools or equipments for a particular order or product, (ii) cost of special design or moulds, (iii) experimental cost of any particular order etc. In construction of building, roads etc. cost of special plant and tools, cost of preparing plan or design or maps are other direct expenses which can be charged directly to the cost of the building roads etc.

(B) INDIRECT EXPENSES OR OVERHEAD

"Overhead is the term generally applied to those charges which cannot be traced directly to a particular unit of output." – Blocker & Weltmer

Indirect expenses or overhead expenses are those which cannot be charged directly to a cost unit, e.g. factory rent is an indirect expenditure as it is not incurred for a particular product or job but it relates to all products manufactured or jobs executed in a factory.

Indirect or overhead expenses may be classified into three parts, viz.

- (1) Factory or Works Overhead
- (2) Office or Administrative Overhead
- (3) Selling and Distribution Overhead

(1) Factory or Works Overhead : It includes all indirect expenses incurred within four walls of the factory and which are connected with the manufacture of a product. It includes all indirect expenses incurred from the receipt of the order until its completion i.e. when it is ready for despatch from factory.

The following expenses are usually considered as works overhead charges :

(a) Indirect Material : It consists of material which does not form the part of product but it is used for the purpose ancillary to production.

(i) It is the material required for operating and maintaining plant and equipments known as consumable stores such as cotton waste, oil and grease, belts etc. (ii) It consists of stores used by service departments like power house, canteen etc. (iii) Material which due to their cost being small, not considered as direct material, e.g. thread used in stitching shoes.

(b) Indirect Labour : Wages and salaries paid to various persons who are not directly engaged in production e.g. Salary of works manager, supervisor, foremen, store-keeper, sweeper and gate-keeper of the factory, and salaries and wages to various persons engaged in service departments.

(c) **Other Expenses** : It includes power or fuel such as coal, gas, electricity, water etc. maintenance, repairs, renewals and depreciation of plant and machinery, various factory expenses such as factory rent, rates, insurance, lighting, heating etc.

(2) **Office or Administration Overhead** : These are expenses incurred outside the factory in the administration and management of the undertaking. It includes office rent, rates, insurance, lighting, heating, salaries to clerical and administrative staff, printing and stationery, postage and telegram, legal charges, audit fees, depreciation of office building and furniture etc.

(3) **Selling and Distribution Overheads** : Selling overheads are those incurred for soliciting and securing orders and on efforts to find and retain customers. It includes various expenses for creating, maintaining and increasing demand for the goods produced, e.g. Sales office salaries, rent, rates, insurance, lighting etc. Salaries of salesman, travelling and conveyance charges, advertisement expenses, show-room expenses, commission on sales, discount allowed, bad debts, after-sale service expenses etc.

Distribution overhead comprise of all expenditure from the time the product is completed until it reaches its destination. It includes all warehouse expenses such as warehouse rent, rates, insurance, taxes, lighting etc., packing charges, carriage outward, upkeep and maintenance of delivery van etc.

COMPONEMENTS OF TOTAL COST :

* (1) **Prime Cost** : This consists of cost of direct materials, direct wages and other direct expenses. It is also known as Basic Cost or Flat Cost.

(2) **Factory Cost** : When factory overheads are added to the prime cost, we get the factory cost or works cost.

(3) **Cost of Production** : It is made up of Factory Cost and Office Overhead. Sometimes, this is also known as Office Cost.

(4) **Total Cost or Cost of Sales** : It is the total of Prime cost, Factory overhead, Office overhead and Selling and Distribution overheads. When selling overheads are added to the cost of goods produced, we get Cost of Sales.

This can be represented as under :

(1)	Direct Materials + Direct Labour + Direct Expenses	= Prime Cost
(2)	Prime Cost + Factory Overheads	= Factory Cost or Works cost
(3)	Factory Cost + Administrative Overheads	= Office Cost or Cost of Production
(4)	Cost of Production + Selling and Distribution Overheads	= Cost of Sales or Total Cost
(5)	Cost of Sales + Profit (or-Loss)	= Selling Price or Sales

5. PRO-FORMA OF A COST-SHEET :

A statement showing cost per unit of output and each element that makes up the cost is prepared, which is known as 'Cost-Sheet'. The information derived from the financial books is usually presented in the form of a statement.

The opening stock, the purchases and the closing stock of raw materials are not separately shown but they are suitably adjusted to show the cost of materials consumed. The opening and closing stocks of work-in-progress are also suitably adjusted depending upon the mode of valuation of work-in-progress. Similarly, the opening and closing stock of the finished goods are valued on the basis of cost of goods produced and it may be shown in a separate statement together with the cost of goods produced and after adding the selling and distribution expenses to the cost of goods sold, the cost of sales is ascertained. The difference between the sales and the cost of sales will represent net profit (or loss) of the business.

The following is the pro-forma of a Cost-Sheet :

COST-SHEET for...(the period)

Particulars	Rs.	Total Rs.	Per Unit Rs.
Materials Consumed :			
Opening Stock of Raw Materials			
Add : Purchase of Raw Materials	—		
Less : Returns of Raw Materials	—	—	
Add : Expenses relating to purchase of raw materials :			
Carriage inward	—		
Octroi and customs	—		
Railway freight	—		
Less : Closing Stock of Raw Materials	—	—	
Cost of scrap materials sold	—	—	
COST OF MATERIALS CONSUMED		—	—
Direct or Productive Wages		—	—
Other direct or Chargeable Expenses		—	—
Add : Opening Stock of Work-in-Progress		—	—
Less : Closing Stock of Work-in-Progress		—	—
PRIME COST		—	—
Add : Works or Factory Overheads :			
Indirect materials or Consumable Stores (Oil, grease, cotton waste etc.)	—		
Indirect or Unproductive Wages (Salary or wages paid to gate-keeper, sweepers etc. Salary to formen, supervisors, Works Manager etc.)	—		
Power or Fuel, (Coal, oil, gas, electricity, water, etc.)	—		

Repairs and Renewal of Plant and Machinery	—		
Depreciation of Plant and Machinery	—		
Factory expenses such as factory rent, rates, insurance, lighting, heating etc.	—	—	—
WORKS COST		—	—
Add : Office or Administrative Overheads :			
Office rent, rates, insurance, heating, lighting etc.	—		
Salaries to clerical and administrative staff	—		
Printing and stationery	—		
Postage and telegram	—		
Depreciation of office building, furniture etc.	—	—	—
COST OF PRODUCTION		—	—
Add : Opening Stock of Finished Goods		—	
Less : Closing Stock of Finished Goods		—	
Cost of Production of Goods Sold		—	—
Add : Selling and Distribution Overheads :			
Sales office salaries, rent, rates, insurance, lighting etc.	—		
Salaries to salesmen, travelling and conveyance charges	—		
Commission on sales	—		
Discount allowed	—		
Advertisement expenses	—		
Warehouse rent, rates, insurance, lighting etc.	—		
Packing charges	—		
Carriage outward	—		
Unkeep and maintenance of delivery van	—	—	—
COST OF SALES (TOTAL COST)		—	—
Sale of Finished Goods		—	—
NET PROFIT (OR LOSS)		—	—

Note : It is assumed that Work-in-Progress is valued on the basis of the Prime Cost.

The above statement shows that there are two types of expenses (1) Direct and (2) Indirect.

Direct Expenses : As shown by the above statement there are three type of direct expenses (1) Direct material (2) Direct labour and (3) Other direct expenses.

Indirect Expenses or Overheads : The indirect expenses are grouped under three headings : (1) Factory Overheads (2) Office Overheads or Administrative Overheads and (3) Selling and Distribution Overheads.

Cost of Materials : The cost of materials shown in the cost statement is the cost of direct materials used in manufacturing. If the cost of materials consumed is not given in the example, it is found out with the help of opening and closing stock as follows :

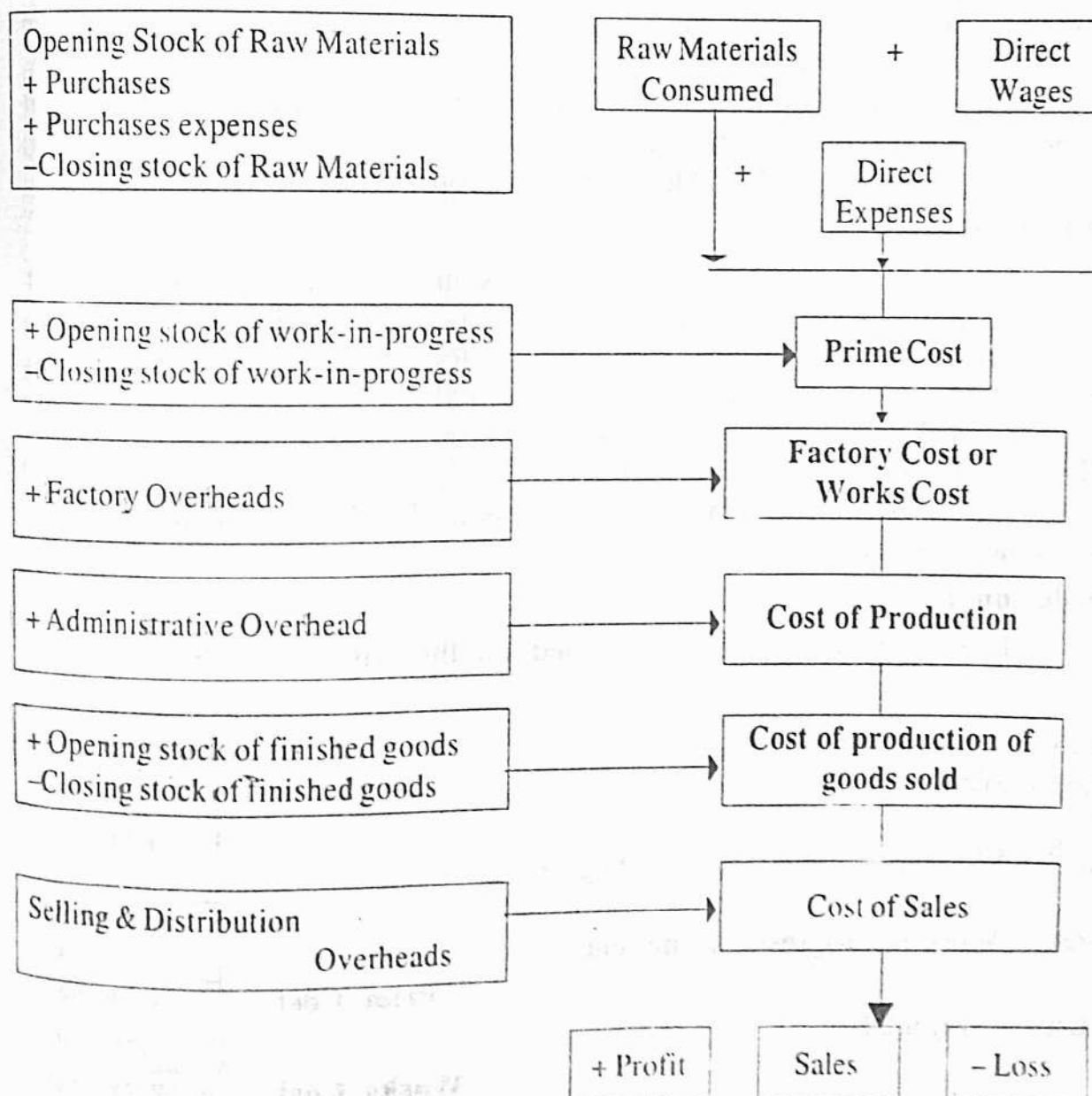
Opening stock of raw materials	—
Add : Purchases of raw materials	—
Add : Expenses on purchase of raw materials (e.g., carriage)	—
	—
Less : Closing stock of raw materials	—
Consumption of raw materials :	—
	—

Sales of Scrap : If there is some scrap of raw material which cannot be used in production, it is shown in one of the two ways in accounts :

(1) It is deducted at its realisable price from the cost of raw materials consumed. If it has no realisable value, it is not shown anywhere in the cost sheet.

(2) It may also be deducted from prime cost. Particularly when scrap occurs after a substantial amount is spent on wages, it is deducted from the prime cost.

Chart Showing Elements of Cost



(II) If work-in-progress is valued on the basis of work cost :

Materials consumed		Rs.
Direct Wages		1,00,000
		80,000
	Prime Cost	1,80,000
Factory overhead		50,000
		2,30,000
Add : Work-in-progress in the beginning		10,000
		2,40,000
Less : Work-in-progress at the end		12,000
	Works Cost :	2,28,000

Notes : When in the example, no instruction is given as to the manner in which the stock of work-in progress is valued, any of the above two methods can be used. However, it is better to assume that the work in progress is valued at prime cost. In this book also we have adopted this base to maintain consistency.

Illustration 1 :

From the following information prepare a statement showing (A) Prime Cost (B) Works Cost (C) Cost of production (D) Cost of sales, and (E) Net Profit.

	Rs.		Rs.
Opening Stock :		Carriage outward	1,500
Raw materials	24,000	Power-Coal	5,000
Finished goods	16,000	Office salaries	13,000
Closing Stock :		Office rent, rates & taxes	7,000
Raw materials	20,000	Postage and telegram	2,000
Finished goods	17,000	Printing and stationery	1,000
Purchases of Raw		Salesmen's salary	3,000
materials	82,000	Advertisement	2,000
Sales	1,90,000	Factory rent, rates and tax	2,000
Direct wages	32,000	Depreciation on Plant	
Factory wages	1,000	and Machinery]	3,000
Carriage inward	2,000	Bad debts	500

Solution :**Statement of Cost**

Particulars	Rs.	Rs.
Raw materials consumed :		
Opening stock of raw materials	24,000	
Add : Purchase of raw materials	82,000	
Add : Carriage inwards	2,000	
	<u>1,08,000</u>	
Less : Closing stock of raw materials	20,000	
Materials consumed		88,000
Direct Wages		32,000
(A) PRIME COST		<u>1,20,000</u>
Add : Works or Factory overheads :		
Factory wages	1,000	
Power-Coal	5,000	
Factory rent, rates and taxes	2,000	
Depreciation on plant and machinery	3,000	11,000
(B) WORKS COST		<u>1,31,000</u>
Add : Administrative overheads :		
Office Salaries	13,000	
Office rent, rates and taxes	7,000	
Postage and telegram	2,000	
Printing and stationery	1,000	23,000
(C) COST OF PRODUCTION		<u>1,54,000</u>
Add : Opening Stock of Finished Goods		16,000
		<u>1,70,000</u>
Less : Closing stock of Finished Goods		17,000
COST OF PRODUCTION OF GOODS SOLD		<u>1,53,000</u>
Add : Selling and Distribution overheads :		
Carriage outward	1,500	
Bad debts	500	
Salesmen's salary	3,000	
Advertisement	2,000	7,000
(D) COST OF SALES		<u>1,60,000</u>
Sales		1,90,000
(E) NET PROFIT		<u>30,000</u>

Note : Remember that the total amount of factory overheads as well as that of office overheads and selling & distribution overheads are not given as a group. But separate items of expenses are given. They are grouped under various heads of overheads.

7. ITEMS EXCLUDED FROM COST ACCOUNTS :

The cost sheet is prepared on the basis of the information derived from Financial Accounts. But while preparing the cost sheet it may be noted that there are certain items which are shown in Financial Accounts but they are not shown in Cost Accounts. Similarly, there are certain items which are shown in Cost Accounts, but not shown in Financial Accounts.

(A) Items excluded from Cost Accounts :

The following are certain items which are shown in financial accounts but they are not shown in cost accounts :

(1) Appropriation of Profits :

- (a) Provision for taxation
- (b) Transfers to general reserves and other reserves
- (c) Dividend on share capital.

(2) Non-trading and non-recurring expenditure and income

- (a) Rent receivable
- (b) Profit or loss on sale of investment or fixed assets
- (c) Share transfer fees
- (d) Fines and penalties.

(3) Items of purely financial nature :

- (a) interest on investments or bank deposits
- (b) Interest on debentures or bank loan (if interest on capital is not taken into consideration in cost accounts).

(4) Intangible and fictitious assets written off :

- (a) Goodwill written off
- (b) Preliminary expenses, discount on issue of shares or debentures, underwriting commission etc. written off.

(B) Items Included in Cost Accounts :

There are very few items which are shown in cost accounts only but not in the financial accounts. All expenditure, whether paid or not, are recorded in financial accounts. In Cost Accounts sometimes to find out cost, certain expenses even though not incurred are included. Thus the type of expenditure which would appear in the cost accounts only is a notional charge.

The following are examples of two items which are included in cost accounts only :

(1) **Interest on Capital** : Sometimes, interest on capital is charged in cost accounts, even though it is not to be paid, to show the nominal cost of employing capital rather than investing it outside the business.

(2) **Charge in the lieu of rent** : When the business uses premises owned by the proprietor, sometimes a notional amount for rent of premises is charged even though it is not actually paid. So that the cost of production in a factory owned by a company can be compared with similar costs in a rented factory.

ILLUSTRATION 2 :

The following figures taken from the Cost Accounts of a manufacturing concern relate to the months of March, 2006 :

Particulars	1st March Rs.	31st March Rs.
Stock of raw materials	50,800	61,000
Purchase of raw materials	—	43,400
Work-in-Progress	15,600	17,200
Stock of finished goods	35,800	21,200
Productive Wages	—	34,900
Unproductive wages	—	1,200
Carriage inward	—	700
Drawings office expenses	—	2,000
Rent and taxes	—	1,200
Depreciation and maintenance of plant	—	3,300
Works salaries	—	3,900
Sales expenses	—	700
Indirect materials	—	14,200
Interest on debentures	—	3,000
Goodwill written off	—	4,000
Expenses of participating in industrial exhibition	—	5,000
Carriage outward	—	2,000

You are required to draw up a statement showing (A) Cost of production (B) Cost of production of goods sold (C) Cost of Sales. Work-in-progress is to be valued at prime cost.

Solution :

STATEMENT OF COST
for the month of March, 2006

Particulars	Rs.	Rs.
Raw Materials Consumed :		
Opening stock of raw materials	50,800	
Add : Purchases of raw materials	43,400	
Add : Carriage inward	700	
	94,900	
Less : Closing stock of raw materials	61,000	
Materials consumed		33,900
Productive wages		34,900
Add : Opening stock of work-in-progress		15,600
		84,400
Less : Closing stock of work-in-progress		17,200
PRIME COST		67,200
Add : Works of Factory Overheads :		
Unproductive wages	1,200	
Depreciation and Maintenance of Plant	3,300	
Drawings office expenses	2,000	
Works salaries	3,900	
Stores expenses	700	
Indirect materials	14,200	25,300
FACTORY OR WORKS COST		92,500
Add : Administration overheads :		
Rent and Taxes		1,200
(A) COST OF PRODUCTION		93,700
Add : Opening stock of finished goods		35,800
		1,29,500
Less : Closing stock of finished goods		21,200
(B) COST OF PRODUCTION OF GOODS SOLD		1,08,300
Add : Selling and Distribution Overheads :		
Expenses of participating in industrial exhibition	5,000	
Carriage outward	2,000	7,000
(C) COST OF SALES OR TOTAL COST		1,15,300

Note : Interest on debentures and goodwill written off are financial items and therefore they will not be shown in cost sheet.

Illustration 3 :

From the following information of Priyanka Manufacturing Company for the year ended 31st March, 2002, prepare a cost sheet showing :

(1) Raw materials consumed (2) Prime cost (3) Factory cost (4) Cost of production (5) Cost of goods sold (6) Profit or Loss.

Stock as on 1-4-2001 :		Rs.
Raw Materials	70,000	
Work-in-Progress	80,000	
Finished goods	<u>90,000</u>	2,40,000
Carriage inwards		5,000
Raw material purchased		3,70,000
Productive wages		1,50,000
Repairs of Machinery		19,000
Maintenance of delivery van		10,000
Rent, Rates & Insurance :		
Factory	17,000	
Office	8,000	
Selling & warehouse	<u>15,000</u>	40,000
Depreciation :		
Machinery	13,000	
Office furniture	6,000	
Delivery van	<u>5,000</u>	24,000
Sales of finished goods		8,00,000
Travelling expenses of Salesmen		4,000
Manager's salary (3/4 Factory, 1/4 Office)		20,000
Other expenses :		
Factory	20,000	
Office	20,000	
Selling	10,000	
Warehouse	<u>6,000</u>	56,000
Stock as on 31-3-2002 :		
Raw materials	45,000	
Work-in-progress	75,000	
Finished goods	<u>80,000</u>	2,00,000

Note : Work-in-progress is valued at prime cost.

Priyanka Manufacturing Company
Cost sheet for the year ended 31st March, 2002

Particulars	Rs.	Rs.
Raw Materials consumed :		
Opening stock of raw materials		
Add : Purchase of raw materials	70,000	
Add : Carriage inwards	3,70,000	
	5,000	
	4,45,000	
Less : Closing stock of raw materials	45,000	
(1) RAW MATERIALS CONSUMED		4,00,000
Productive Wages		1,50,000
Add : Opening stock of work-in-progress		80,000
		6,30,000
Less : Closing stock of work-in-progress		75,000
(2) PRIME COST		5,55,000
Add : Factory Overheads :		
Repairs of Machinery	19,000	
Rent, Rates & Insurance	17,000	
Depreciation on Machinery	13,000	
Manager's Salary ($20,000 \times 3/4$)	15,000	
Other expenses	20,000	84,000
(3) FACTORY COST		6,39,000
Add : Office Overheads :		
Rent, Rates & Insurance	8,000	
Depreciation on office furniture	6,000	
Manager's salary ($20,000 \times 1/4$)	5,000	
Other expenses	20,000	39,000
(4) COST OF PRODUCTION		6,78,000
Add : Opening Stock of Finished goods		90,000
		7,68,000
Less : Closing Stock of Finished goods		80,000
COST OF PRODUCTION OF GOODS SOLD		6,88,000
Add : Selling and Distribution Overheads :		
Maintenance of Delivery Van	10,000	
Rent, Rates & Insurance	15,000	
Depreciation on Delivery van	5,000	
Travelling expenses of salesmen	4,000	
Other expenses :		
Selling	10,000	
Warehouse	6,000	50,000
(5) COST OF GOODS SOLD		7,38,000
Sales of finished goods		8,00,000
(6) PROFIT		62,000

ILLUSTRATION 4 :

The following information relates to commodity 'A' for the half year ending 31st December, 2005 :

	Rs.		Rs.
Purchase of Raw Materials	1,20,000	Stock of Raw Materials	
Works Overheads	40,000	(31st December, 2005)	22,240
Direct wages	1,00,000	Finished Products	
Carriage inwards	1,440	(31st December, 2005, 2,000 tons)	32,000
Stock of Raw Materials		Work-in-Progress	
(1st July, 2005)	20,000	(31st December, 2005)	16,000
Finished products		Sale of Finished Products	3,00,000
(1st July, 2005; 1,000 tons)	16,000	Office Overheads	8,000
Work-in-Progress (1st July, 2005)	4,800		

Advertising, discount allowed and selling cost amount to Re. 1 per ton sold. During the half year, 16,000 tons of commodity were produced. Work-in-progress is to be valued on the basis of works cost.

You are required to ascertain :

(1) The value of Raw materials consumed. (2) Prime cost. (3) Works cost. (4) The Cost of Production. (5) The Cost of Sales. (6) The Net Profit for the period, and (7) The Net Profit per ton of the Commodity.

Solution :**COST SHEET**

for the half year ended on 31st December, 2005

(Output : 16,000 tons)

Particulars	Rs.	Rs.
Raw Materials Consumed :		
Opening stock of raw materials	20,000	
Add : Purchases of raw materials	1,20,000	
Add : Carriage inwards	1,440	
	1,41,440	
Less : Closing stock of raw materials	22,240	
(1) VALUE OF RAW MATERIALS CONSUMED		1,19,200
Direct Wages		1,00,000
(2) PRIME COST		2,19,200
Add : Works or Factory Overheads :		
Works overheads		40,000
Add : *Opening stock of work-in-progress		4,800
		2,64,000
Less : *1 Closing stock of work-in-progress		16,000
(3) WORKS COST		2,48,000

Add : Administrative Overheads :		
Office overheads		8,000
(4) COST OF PRODUCTION		2,56,000
Add : Opening stock of Finished Products		16,000
Less : Closing Stock of Finished Products		2,72,000
COST OF PRODUCTION OF GOODS SOLD		32,000
Add : Selling and Distribution Overheads :		2,40,000
Advertising, Discount allowed and Selling cost (@ Re. 1 on 15,000 tons sold)		15,000
(5) COST OF SALES		2,55,000
Sale of Finished Products		3,00,000
(6) NET PROFIT FOR THE PERIOD		45,000

(7) Net Profit for the period = $45,000 \div *15,000 = \text{Rs. 3 per ton.}$

Note : *(1) In this illustration the work-in-progress is to be valued on the basis of **Works Cost**. Therefore the opening stock of w.i.p. is added and the closing stock of w.i.p. is deducted after finding out prime cost but before finding out factory cost.

*(2) The sold out tons of Finished Products is found out as follows:

Sold out tons or sales volume = Opening stock + Production – Closing stock

Sold out tons or sales volume = 1,000 tons + 16,000 tons – 2,000 tons

Sold out tons = 17,000 tons – 2,000 tons = 15,000 tons.

(3) The percentage of profit sales can be calculated as follows :

If sales is	Profit is
Rs. 3,00,000	Rs. 45,000
$\therefore 100$	(?)

Percentage on sales = $\frac{45,000 \times 100}{3,00,000} = 15\%$

Illustration 5 :

From the following information extracted from the records of a factory, prepare the cost sheet showing total profit and profit per unit: Rs.

Particulars	
Opening stock :	5,000
Raw Materials	3,000
Work-in-Progress	

Finished Goods	10,000
Closing Stock :	
Raw Materials	4,000
Work-in-Progress	2,000
Finished Goods	5,000
Salaries	19,000
(Including Sales Manager's Rs. 5,000 and Factory Engineer's Rs. 4,000)	
Expenses of Industrial fair	1,000
Electricity (including office Rs. 1,000)	5,500
Finished Goods warehouse expenses	2,000
Sales promotion expenses	1,000
Direct wages	15,000
Research expenses	500
Debenture interest	3,000
Sale of Raw material waste	1,000
Sale of Factory waste	1,000
Purchases of Raw materials	45,000
Bad debts	500
Price list printing expenses	500
Sales	1,04,500
Unit Produced – 9,500 units	

It is assumed that work-in-progress is valued on the basis of Prime Cost.

Solution :

STATEMENT SHOWING COST AND PROFIT

Particulars	Rs.	Rs.
Raw Materials Consumed :		
Opening Stock of Raw Materials	5,000	
Add : Purchase of Raw Materials	45,000	
	50,000	
Less : Closing stock of raw materials	4,000	46,000
Less : Sale of raw material waste		1,000
Cost of raw materials consumed		45,000
Direct Wages		15,000
Add : Opening stock of work-in-progress		3,000
		63,000
Less : Closing stock of work-in-progress		2,000
PRIME COST		61,000
Add : Works Overheads :		
Salaries of Factory Engineer	4,000	

Electricity (5,500 – 1,000)	4,500	
Research expenses	500	9,000
		70,000
Less : Sale of Factory Waste		1,000
		69,000
FACTORY COST		
Add : Office Overheads :		
Salaries (19,000 – 5,000 – 4,000)	10,000	
Electricity	1,000	11,000
		80,000
COST OF PRODUCTION		
Add : Opening stock of Finished Goods		10,000
		90,000
Less : Closing stock of Finished Goods		5,000
		85,000
COST OF PRODUCTION OF GOODS SOLD		
Add : Selling and Distribution Overheads :		
Salaries of Sales manager	5,000	
Expenses for Industrial fair	1,000	
Finished goods warehouse expenses	2,000	
Bad debts	500	
Price list printing expenses	500	
Sales promotion expenses	1,000	10,000
		95,000
COST OF SALES		
Sales		1,04,500
		9,500
NET PROFIT		

$$\text{Cost per unit} = \frac{\text{Cost of Sales (Or Total Cost)}}{\text{No. of units produced}} = \frac{\text{Rs. 95,000}}{9,500 \text{ units}} = \text{Rs. 10}$$

Note : (1) Debenture interest is a financial item and hence it is not shown in cost sheet. (2) Research expenses will be treated as factory expenses. (3) Scrap OR Wastage : If defective materials are sold, then it is deducted from the cost of materials consumed as it reduces the cost of materials. But, if units produced are found defective and such defective units are sold as scrap or wastage, the sale proceeds of factory scrap should be deducted from factory overheads or from factory cost.

Illustration 6 :

The information about a product produced by a manufacturer in August, 2005 is as follows. Prepare a Cost Sheet showing the total cost and cost per unit for the month of August :

Direct materials – 6,000 kgs. at Rs. 5 per kg.

Direct wages – 5,000 Labour hours, at Rs. 4 per hour.

Direct expenses – Rs. 7,000

Factory overheads – Fixed Rs. 10,000; Variable at 50% on wages

Office overheads – 33 1/3% on Factory Cost.

Selling and distribution overheads – 10% on cost of production.

Sale of scrap of material – Rs. 2,000.

Entire output was sold at a profit of 20% on selling price.

5,000 units were produced.

Solution :

COST SHEET

for the month of August, 2005

(unit produced : 5,000)

Particulars		Total Rs.	Per unit Rs.
Direct materials : 6,000 × Rs. 5	30,000		
Less : Sale of scrap of material	2,000	28,000	5.60
Direct wages : 5,000 hours × Rs. 4		20,000	4.00
Direct Expenses		7,000	1.40
PRIME COST		55,000	11.00
Add : Works or Factory Overheads :			
Fixed	10,000		
Variable : 50% on Direct wages i.e. $20,000 \times \frac{50}{100} = 10,000$	10,000	20,000	4.00
FACTORY COST		75,000	15.00
Add : Office Overheads :			
33 1/3% on Factory cost (33 1/3% of 75,000)		25,000	5.00
COST OF PRODUCTION		1,00,000	20.00
Add : Selling and distribution overheads :			
10% of Cost of Production ($1,00,000 \times \frac{10}{100}$)		10,000	2.00
COST OF SALES OR TOTAL COST		1,10,000	22.00
Add : *Profit (20% on sale price, i.e. 25% on cost)		27,500	5.50
SELLING PRICE		1,37,500	27.50

Note : *Here profit is to be calculated at 20% on selling price.
If selling price is Rs. 100, then the profit will be Rs. 20.

$$\begin{aligned}\therefore \text{Cost} &= \text{Selling price} - \text{profit} \\ &= \text{Rs. } 100 - \text{Rs. } 20 \\ &= \text{Rs. } 80.\end{aligned}$$

Thus we can say that Rs. 20 profit must be made on cost of Rs. 80.

If we convert this amount in percentage, it will be :

$$\begin{aligned}\text{If cost is} & \quad \text{Profit will be} \\ \text{Rs. } 80 = & \quad \text{Rs. } 20\end{aligned}$$

$$\therefore 100 =$$

$$(?) = 20 \times \frac{100}{80} = 25\%$$

Here cost of sales or total cost is Rs. 1,10,000 and 25% profit on it will be Rs. $1,10,000 \times \frac{25}{100} = \text{Rs. } 27,500$. Cost per unit is Rs. 22 and 25% on it will be Rs. $22 \times \frac{25}{100} = \text{Rs. } 5.50$.

Illustration 7 :

The Universal Furniture Manufacturing Co. Ltd. manufactures a special type of tables. Its Trading and Profit & Loss Account for the year ended 31st March, 2006 are as follows :

Dr.		Cr.	
Particulars	Rs.	Particulars	Rs.
To Opening Balance		By Sales of Finished Prod.	9,50,000
Work-in-Progress	10,000	" Closing Balance	
Materials	12,000	Work-in-Progress	6,000
" Purchase of Materials	1,70,000	Materials	16,000
" Wages	2,90,000		
" Gross Profit c/d	4,90,000		
	9,72,000		9,72,000
To Establishment Charges :			
Factory	36,000	By Gross Profit b/d	4,90,000
Office	1,04,000	" Sale of Factory Scrap	2,000
" Electric Charges :		" Interest on investments	6,000
Power of Factory	40,000	" Profit on sale of machinery	2,000
" Light & Fans :			
Factory	6,000		
Office	6,000		
" Advertisement	40,000		
" Engineering Office Expenses	20,000		
" Miscellaneous Expenses :			
Factory	5,000		
Office	6,000		
" Repairs & Depreciation :			
Factory	35,000		
Office	4,000		
" Carriage Outward	10,000		
" Provision for Taxation	18,000		
" Net Profit	1,70,000		
	5,00,000		5,00,000

During the year ended 31st March, 2006 the number of tables manufactured and sold was 10,000. There was no opening as well as closing stock of finished product. The tables are sold at uniform price throughout the year.

From the above information, prepare a statement of cost for the year 2005-2006 showing cost per unit, under various elements and also the profit/loss per unit.

Solution :

COST SHEET

for the year ended 31st March, 2006

(Output & sales : 10,000 tables)

Particulars	Rs.	Total Rs.	Per Unit Rs.
Raw Materials Consumed :			
Opening stock of raw materials	12,000		
Add : Purchase of raw materials	1,70,000		
	1,82,000		
Less : Closing stock of raw materials	16,000		
Materials consumed		1,66,000	
Wages		2,90,000	
Add : Opening stock of work-in-progress		10,000	
		4,66,000	
Less : Closing stock of work-in-progress		6,000	
PRIME COST		4,60,000	46.00
Add : Factory overheads :			
Establishment charges for factory	36,000		
Power for factory	40,000		
Electric charges for Light & Fans	6,000		
Engineering office expenses	20,000		
Miscellaneous expenses	5,000		
Repairs and Depreciation	35,000		
	1,42,000		
Less : Sale of Factory scrap	2,000	1,40,000	14.00
WORKS COST		6,00,000	60.00
Add : Office overheads :			
Establishment charges	1,04,000		
Electric charges	6,000		
Miscellaneous expenses	6,000		
Repairs and Depreciation	4,000	1,20,000	12.00
COST OF PRODUCTION		7,20,000	72.00
Add : Selling and Distribution Overheads :			
Advertisement	40,000		
Carriage outward	10,000	50,000	5.00
COST OF SALES		7,70,000	77.00
Sale of Finished Products		9,50,000	95.00
NET PROFIT		1,80,000	18.00

Notes : (1) Interest on investments, profit on sale of machinery and provision for taxation are not shown in Cost Accounts.

(2) As the opening and closing stock of finished goods are not given, Hence selling and distribution overheads are directly added to the cost of production without any adjustments for such stocks.

(3) Establishment charges = Administrative expenses.

Illustration 8 :

Imp

Following is the data pertaining to Shaan Manufacturing Ltd. as on 31-12-2004 :

Particulars	Rs.
Factory Salaries	13,000
Counting House Salaries	25,200
Cash discount allowed	5,800
Carriage outwards	8,600
Carriage inwards	14,300
Bad debts written off	13,000
Repairs of plant & machinery	8,900
Rent, Rates & taxes :	
Factory	17,000
Office	4,000
Sales	9,22,200
Stock of Materials :	
31-12-2003	1,25,600
31-12-2004	96,000
Materials purchased	3,70,000
Travelling expenses	4,200
Traveller's Salary & Commission	15,400
Productive Wages	2,52,000
Depreciation :	
Plant & machinery	13,000
Furniture	600
Directors' Fees	12,000
Gas and Water :	
Factory	2,400
Office	800
Manager's Salary (3/4 Factory & 1/4 Office)	20,000
General expenses	6,800

Prepare a Cost Sheet & also determine the profit.

[Guj. Uni., F.Y.B.C.A., April 2004]

Solution :

Shaan Manufacturing Limited
cost sheet for the year ended 31st March, 2004

Particulars	Rs.	Rs.
Raw Materials Consumed :		
Opening stock of raw materials	1,25,600	
Add : Purchase of raw materials	3,70,000	
Add : Carriage inwards	14,300	
	5,09,900	
Less : Closing stock of raw materials	96,000	
RAW MATERIALS CONSUMED		4,13,900
Productive Wages		2,52,000
PRIME COST		6,65,900
Add : Factory Overheads :		
Factory salaries	13,000	
Repairs of Plant & machinery	8,900	
Rent, Rates & Taxes	17,000	
Depreciation on Plant & Machinery	13,000	
Gas and Water	2,400	
Manager's salary ($20,000 \times \frac{3}{4}$)	15,000	69,300
FACTORY COST		7,35,200
Add : Office Overheads :		
Counting House Salaries	25,200	
Rent, Rates & Taxes	4,000	
Depreciation on Furniture	600	
Director's Fees	12,000	
Gas and Water for Office	800	
Manager's Salary ($20,000 \times \frac{1}{4}$)	5,000	
General expenses	6,800	54,400
COST OF PRODUCTION		7,89,600
Add : Selling and Distribution Overheads :		
Cash Discount allowed	5,800	
Bad debts written off	13,000	
Carriage outwards	8,600	
Travelling expenses	4,200	
Traveller's salary & commission	15,400	47,000
COST OF SALES (OR TOTAL COST)		8,36,600
Sales		9,22,200
NET PROFIT		85,600

Illustration 9 :

gmp

From the following information of No-money manufacturing company, prepare cost sheet and find out profit per unit.

Particulars	Rs.
Opening stock of raw materials	20,000
Purchases of raw materials	1,00,000
Expenses relating to purchases of raw materials	15,000
Closing stock of raw materials	10,000
Opening stock of work-in-progress (on the basis of prime cost)	25,000
Closing stock of work-in-progress (on the basis of prime cost)	10,000
Direct Labour (at Rs. 15 per unit manufactured)	60,000
Factory overheads :	
Fixed	10,000
Variable Rs. 8 per unit	
Office on cost	18,000
Opening stock of finished goods (2000 units)	1,20,000
Closing stock of finished goods 1,000 units	
Selling and distribution expenses at Rs. 5 per unit sold.	
Selling price per unit Rs. 80.	

Solution :

Note : (1) Units manufactured during year :

$$\text{Units manufactured} = \frac{\text{Direct Labour}}{\text{Direct Labour per unit}}$$

$$\therefore \text{Units manufactured} = \frac{60,000}{15} = 4,000 \text{ units}$$

(2) Units sold during the year :

Units sold during year = Opening stock + manufactured during the year – Closing stock

$$\therefore \text{Units sold during year} = 2,000 + 4,000 - 1,000 = 5,000 \text{ units.}$$

(3) Selling and distribution expenses is to be recovered at Rs. 5 per unit sold.

$$\therefore \text{Selling and Distribution expenses} = 5,000 \text{ units} \times \text{Rs. 5} = 25,000.$$

STATEMENT OF COST (COST SHEET)**(Output : 4,000 units)**

Particulars	Rs.	Total Rs.
Raw Materials Consumed :		
Opening stock of raw materials	20,000	
Add : Purchase of raw materials	1,00,000	
Add : Expenses relating to purchases		

of raw materials	15,000	
	1,35,000	
<i>Less</i> : Closing stock of raw materials	10,000	
Cost of Raw material consumed		1,25,000
Direct Labour		60,000
<i>Add</i> : Opening stock of work-in-progress		25,000
		2,10,000
<i>Less</i> : Closing stock of work-in-progress		10,000
PRIME COST		2,00,000
<i>Add</i> : Works or Factory Overheads :		
Variable (4,000 units × Rs. 8)	32,000	
Fixed	10,000	42,000
WORKS COST		2,42,000
<i>Add</i> : Office Overheads :		
Office on cost as given		18,000
COST OF PRODUCTION		2,60,000
<i>Add</i> : Opening Stock of Finished Goods		1,20,000
		3,80,000
<i>Less</i> : *Closing stock of Finished Goods		
(2,60,000 × $\frac{1,000}{4,000}$)		65,000
COST OF PRODUCTION OF GOODS SOLD		3,15,000
<i>Add</i> : Selling and Distribution Overheads :		
Selling and distribution expenses (5,000 × Rs. 5)		25,000
COST OF SALES		3,40,000
Sales (5,000 units × Rs. 80)		4,00,000
NET PROFIT		60,000

$$\text{Profit per unit} = \frac{\text{Total Profit}}{\text{No. of units Sold}} = \frac{60,000}{5,000} = \text{Rs. 10.}$$

* Closing stock of Finished Goods is valued at cost of production. ;

8. COMBINED EXPENSES :

Sometimes it becomes difficult to separately record the overheads of different items produced in the factory. In such circumstances, overheads are combined for two or more items and recorded as such for administrative convenience. Finally, they are apportioned over various articles produced on some reasonable basis. The bases selected for allocation depends upon the nature of production, the type of expenses and the number of units produced. Some bases of allocation are determined on permanent basis in a manufacturing unit. For this purpose, the overheads are grouped into fixed expenses and variable. A certain

percentage of variable expenses and fixed expenses on the cost of materials used or wages paid or on prime costs is taken into account.

Illustration 10 :

M/s. Manmoji manufactures two types of toys X and Y. Production costs for the year ended 30th September, 2005 were :

	Rs.
Direct Materials	2,00,000
Direct Wages	1,12,000
Production Overhead	48,000
	<u>3,60,000</u>

There was no work-in-progress at the beginning or at the end of the year. It is ascertained that :

- (1) Direct materials per unit in type X toys consists twice as much as that in type Y toys.
- (2) The direct wages per unit for type Y toys were 60% of those for type X toys.
- (3) Production overhead per unit was the same for toys of X and Y type—30 paise per toy.
- (4) Administration overhead for each type was 200% of direct wages.
- (5) Selling overhead in both type of toys was 25 paise per toy.
- (6) Production during the year was :
X Type—40,000 toys of which 36,000 toys were sold.
Y Type—1,20,000 toys of which 1,00,000 toys were sold.
- (7) Selling price per toy :
X—Rs. 7 per toy
Y—Rs. 5 per toy

Prepare a statement showing cost and profit on each type of toy.

Solution :

Notes : (1) Various expenses are allocated as follows :

(1) Material Cost :

Suppose Material cost of Y toy is Rs. X.

∴ Material cost of Type X would be Rs. 2X.

∴ $40,000 \times 2X + 1,20,000 \times X = \text{Rs. } 2,00,000$

∴ $80,000 X + 1,20,000 X = \text{Rs. } 2,00,000$

∴ $2,00,000 X = 2,00,000$

∴ $X = \frac{2,00,000}{2,00,000} = \text{Re. } 1 \text{ per toy}$

∴ For X type of toy material cost would be Rs. 2 per tory

(2) Labour Cost :

Suppose Labour cost of X type of toy is Rs. X

$$\therefore \text{Labour cost of X toy would be} = \frac{60x}{100}$$

$$\therefore 40,000 \times X + 1,20,000 \times \frac{60x}{100} = 1,12,000$$

$$\therefore 40,000 X + 72,000 X = \text{Rs. } 1,12,000$$

$$\therefore X = \frac{1,12,000}{1,12,000} = \text{Re. } 1$$

$\therefore$ For Y type of toy it would be Rs. 0.60 p. per toy.

(3) Production Overhead :

Suppose Production overhead for X and Y toys is Rs. X.

$$\therefore 40,000 \times X = 1,20,000 \times X = \text{Rs. } 48,000$$

$$\therefore 1,60,000 X = \text{Rs. } 48,000$$

$$\therefore X = \frac{48,000}{1,60,000} = \text{Rs. } 0.30 \text{ p., per toy}$$

$\therefore$ For Y toy also it would be Rs. 0.30 p. per toy

(2) The closing stock of the finished goods is arrived at by deducting number of units sold from the number of units produced. The closing stock of finished goods is valued at its cost of production.

(3) Selling cost has been calculated on the number of units sold.

STATEMENT OF COST AND PROFIT
for the year ended 30th September, 2005

Particulars	Total X (Output 40,000 Toys)			Type Y (Output 1,20,000 Toys)	
	Total Rs.	Total Rs.	Per toy Rs.	Total Rs.	Per toy Rs.
Direct Materials	2,00,000	80,000	2.00	1,20,000	1.00
Direct Wages	1,12,000	40,000	1.00	72,000	0.60
PRIME COST	3,12,000	1,20,000	3.00	1,92,000	1.60
Production Overhead	48,000	12,000	0.30	36,000	0.30
WORKS COST	3,60,000	1,32,000	3.30	2,28,000	1.90
Administration overhead 200% of direct wages)	2,24,000	80,000	2.00	1,44,000	1.20
COST OF PRODUCTION	5,84,000	2,12,000	5.30	3,72,000	3.10
Less : Closing Stock of finished goods (at cost)	83,200	21,200	—	62,000	—

Cost of production of goods sold	5,00,800	1,90,800	5.30	3,10,000	3.10
Selling overheads (at 25 paise per toy)	34,000	9,000	0.25	25,000	0.25
COST OF SALES	5,34,800	1,99,800	5.55	3,35,000	3.35
Sales	7,52,000	2,52,000	7.00	5,00,000	5.00
NET PROFIT	2,17,200	52,200	1.45	1,65,000	1.65

EXERCISE

(A) THEORY

- What do you understand by Elements of Cost ? Give the main elements of cost.
- Distinguish between direct expenses and indirect expenses. What types of expenses are included in the former ?
- Prepare a Statement of Cost with imaginary figures, showing various elements of cost.
- What is meant by Work-in-Progress ? Show various methods of valuing Work-in-Progress.
- Distinguish between :
 - Direct and Indirect Expenses
 - Fixed and Variable Cost
 - Works Overhead and Works Cost
 - Office Overhead and Cost of Production
 - Selling Overhead and Cost of Sales.
- Discuss briefly different Elements of Cost and state where would you show following expenditure in cost sheet :
 - Coal, fuel and power expenses
 - Wages
 - Salary of salesmen
 - Depreciation on furniture.
- Explain with illustrations, the meaning of fixed expenses and variable expenses.
 - Explain with illustrations, the meaning of direct expenses and indirect expenses.
 - Explain with illustrations, the classification of overheads.
- Explain with illustration (Any three) :
 - Raw materials and finished goods.
 - Factory overheads and office overheads.
 - Selling and distribution overheads.
- Explain with illustrations :

- (1) Direct and Indirect expenses
- (2) Fixed and Variable expenses.
- (3) Short notes : Cost Centers.

(V.N.S.G. Uni. April 11)

(B) PRACTICAL

1. From the following information, prepare a statement of cost showing (a) the cost of material used. (b) the prime cost (c) the works cost, (d) the cost of production (e) the cost of sales and (f) the net profit.

	Rs.
Stock of finished goods on 31-3-2005	56,000
Stock of raw materials on 31-3-2005	25,600
Purchase of raw materials	5,84,000
Productive Wages	3,97,600
Sale of finished goods	11,84,000
Stock of finished goods on 31-3-2006	60,000
Stock of raw materials on 31-3-2006	27,200
Works overhead	87,000
Administrative overhead	71,000
Selling and distribution overhead	10,000

[Ans. : (a) Rs. 5,82,400, (b) 9,80,000 (c) Rs. 10,67,000, (d) Rs. 11,38,000, (e) Rs. 11,44,000 and (f) Rs. 40,000.]

2. From the following information relating to Chetan Machine Manufacturing Company, you are required to prepare statement of cost and find out percentage of net profit to sales :

	1-4-'05	31-3-'06
	Rs.	Rs.
Stock of Raw Materials	30,000	25,000
Cost of Works-in-Progress	12,000	16,000
Cost of Stock of Finished Goods	60,000	55,000

During the year, particulars about expenses and sales were as under:

	Rs.
Purchase of Raw Materials	4,50,000
Direct wages	2,30,000
Factory overheads	92,000
Administration overheads	30,000
Selling and distribution overheads	20,000
Sales	9,00,000

Work-in-Progress is to be valued on the basis of Prime Cost.

[Ans. : Cost of raw-material used Rs. 4,55,000. Prime Cost Rs. 6,81,000, Works Cost Rs. 7,73,000, Cost of Production Rs. 8,03,000. Cost of Sales Rs. 8,28,000, Net Profit Rs. 72,000. Percentage of Net Profit on Sales 8%.]

3. The following are the cost details of ABC limited. You are

required to prepare a Cost Sheet showing the Prime Cost, Factory Cost, Cost of Production, Cost of Sales and Profit.

Particulars	Rs.
Sales	7,80,000
Materials :	
Raw Materials	4,00,000
Stationery	4,000
Packing Materials	2,500
Direct Wages	50,000
Salaries :	
Factory Staff	50,000
Administrative staff	40,000
Sales staff	20,000
Rent :	
Factory	2,700
Office	1,400
Advertising	4,700
Telephone Expenses	3,000
Travelling Expenses :	
Office staff	3,000
Selling staff	4,500
General Expenses :	
Office	16,500
Selling	8,500
Depreciation	
Plant & Machinery	90,000
Office Equipment	30,000
Sales Department vehicles	10,000

[Guj. Uni., F.Y.B.C.A., May 2000]

[Ans. : Prime cost Rs. 4,50,000, Factory Cost Rs. 5,92,700, Cost of Production Rs. 6,90,600, Cost of sales Rs. 7,40,800, Net Profit Rs. 39,200; Overheads : Factory Overheads Rs. 1,42,700, Office Overheads Rs. 97,900 and Selling & Distribution Overheads Rs. 50,200.]

4. From the following details of K.B. Manu. Co. Ltd., prepare a Cost Sheet showing stepwise costs and determine the profit :

Particulars	Rs.
Raw Materials :	
Opening stock	20,000
Purchases	1,24,000
Closing stock	24,000
Expenses for purchase of raw materials	2,000
Direct wages (paid)	36,000

Direct wages (outstanding – to be paid)	4,000
Factory supervisor's salary	24,000
Other expenses for factory	10,000
Rent (Factory 2/5 and Office 3/5)	4,000
Purchase of office stationery (Balance stock Rs. 1,000)	3,000
Salesmen commission	10,000
Depreciation :	
Machinery	6,000
Typewriter	2,000
Office Air-conditioner	8,000
Sales of wastage at the stage of prime cost	2,000
Sales	2,42,000

[Ans. : Cost of Raw materials consumed Rs. 1,20,000, Prime Cost Rs. 1,60,000, Works Cost Rs. 2,01,600, Cost of Production Rs. 2,16,000, Total Cost or Cost of Sales Rs. 2,26,000, Profit Rs. 16,000.]

5. Prepare a Cost Sheet from the following information :

Particulars		Rs.
Opening stock :		
Raw materials	10,000	
Finished Goods	20,000	
Work-in-Progress	8,000	38,000
Closing stock :		
Raw Materials	12,000	
Finished Goods	23,000	
Work-in-progress	9,000	44,000
Sales		6,00,000
Wages :		
Direct	1,50,000	
Indirect	30,000	1,80,000
Purchase of direct materials		2,00,000
Purchase of indirect materials		15,000
Depreciation :		
Delivery Van	5,000	
Office furniture	4,000	
Machinery	6,000	15,000
Factory electricity expenditure		30,000
Carriage inward		2,000
Carriage outward		1,000
Misc. office expenses		18,000
Provision for bad debts reserve		3,000

Bad debts	4,000
Postage	6,000
Income-tax	18,000
Packing expenses	12,000
General Manager's Salary	30,000

Work-in-Progress is valued at Prime Cost.

[Ans. : Prime Cost Rs. 3,49,000, Works cost Rs. 4,30,000, cost of production Rs. 4,88,000, Cost of production of goods sold Rs. 4,85,000, Total cost Rs. 5,07,000, Profit Rs. 93,000. Income-tax and provision for bad debts will not be shown in cost sheet.]

6. Janta Radio Company is manufacturing radios and the following details are furnished in respect of the factory operation in the year ending 31st March, 2006.

Particulars	1-4-2005 Rs.	31-3-2006 Rs.
Work-in-Progress :		
Material	12,000	16,000
Labour	10,000	13,000
Factory expenses	6,000	7,000
	28,000	36,000
Stock of Raw materials	80,000	50,000

Addition Information :

Purchase of Raw Materials	Rs. 4,00,000
Direct wages	3,80,000
Works overheads	85,000
Office overheads	53,000
Selling and Distribution overhead	60,000

During the year 2005-'06 the number of radios manufactured being 5,000 units. There was no opening or closing stock of finished goods.

Prepare a statement of cost and find out cost per radio manufactured.

[Ans. : Cost of material consumed Rs. 4,26,000, Prime Cost Rs. 8,03,000, Works cost Rs. 8,87,000, Cost of production Rs. 9,40,000, Total cost Rs. 10,00,000, Cost per radio Rs. 200.]

7. Prepare a cost-sheet from the following information and ascertain the profit :

Particulars	Rs.
Raw materials :	
Opening stock	7,500
Purchases	85,000
Closing stock	8,300
Wages :	

Direct	60,000
Indirect	4,000
Purchase of factory stores	1,000
Expenses for purchase of raw materials	3,000
Rent and rates (Factory 3/5, Office 2/5)	20,000
Manager's salary	24,000
Salesmen's commission	5,000
Telephone and postage	1,200
Show-room expenses	4,500
Depreciation :	
Delivery Van	1,000
Office equipments	1,600
Goods distributed as samples	2,000
Transferred to General Reserve	20,000

During the year 1,000 units were produced, out of which 900 units were sold at Rs. 2,52,000. There was no stock of finished goods in the beginning of the year. The finished goods are valued on the basis of cost of production.

The Manager's salary is to be allocated to the factory, the office and the sales in the ratio of 3:2:1 respectively.

[Ans. : Cost of materials consumed Rs. 87,200; Prime cost Rs. 1,47,200, Works overheads Rs. 29,000; Works Cost Rs. 1,76,200, Office overheads Rs. 18,800; Cost of production of 1,000 units Rs. 1,95,000, Value of closing stock of 100 units 19,500, Cost of production of goods sold Rs. 1,75,500, Selling and distribution overheads Rs. 16,500; Cost of Sales or Total Cost Rs. 1,92,000, Net Profit Rs. 60,000. Transfer to General Reserve will not appear in cost sheet, because it is distribution of profit. The Goods distributed as free samples is included in selling overheads.]

8. The XYZ limited is manufacturing a single Standard Plastic product. The cost details for a particular year as under :

Particulars	Rs.
Raw Materials :	
Opening stock	50,800
Closing stock	61,000
Work in progress :	
Opening stock	15,600
Closing stock	17,200
Finished Goods :	
Opening stock	35,800
Closing stock	21,200
Purchases	43,400

Carriage inward	
Direct labour	700
Indirect labour	35,900
Factory expenses	1,200
Power and water	5,300
Store room and other expenses	3,900
Administrative expenses	14,900
Salaries to sales executives	1,200
Advertising and sales promotion	15,000
Sales and distribution overheads	5,000
Sales	3,000
	1,70,000

Calculate the following :

- (1) Raw materials consumed
- (2) Prime cost
- (3) Factory cost
- (4) Cost of production
- (5) Cost of sales
- (6) Profit.

[Guj. Uni., F.Y.B.C.A., October, 2000]

[Ans. : Raw Materials consumed Rs. 33,900, Prime Cost Rs. 68,200, Factory Overheads Rs. 25,300; Factory Cost Rs. 93,500, Cost of production Rs. 94,700; Cost of production of goods sold Rs. 1,09,300, Selling and distribution overheads Rs. 23,000; Cost of Sales or Total Cost Rs. 1,32,300, Profit Rs. 37,700. Work-in-progress stock is valued on the basis of prime cost.]

9. The following figures have been extracted from the books of a manufacturing company for the year ended 31st March, 2001 :

Particulars	Rs.
Opening stock :	
Raw Material	70,000
Work-in-progress	20,000
Finished goods	27,000
Purchase of raw material	2,00,000
Wages :	
Direct	1,25,000
Indirect	16,000
Carriage inward	14,000
Carriage outward	28,000
Repairs (Factory)	15,000
Depreciation :	
Plant	16,000
Office furniture	10,000
Salaries :	

	24,000
Office	18,000
Salesmen	6,000
Travelling expenses of salesman	9,000
Warehouse expenses	25,000
Other Factory expenses	15,000
Other Office expenses	10,000
Other Selling expenses	6,00,000
Sale of finished goods	
Closing Stock :	84,000
Raw Material	30,000
Work-in-progress	60,000
Finished goods	

Rent, Rates, Taxes and Insurance amount to Rs. 20,000 which are allocated to factory Rs. 10,000, to office Rs. 6,000 and to selling department Rs. 4,000.

From the above mentioned information prepare a statement of cost showing (1) Cost of material consumed. (2) Prime Cost (3) Works Cost (4) Cost of production (5) Cost of sales and (6) Net Profit (or Loss).

[Guj. Uni., F.Y.B.C.A., April 2001]

[Ans. : Cost of materials consumed Rs. 2,00,000, Prime Cost Rs. 3,15,000, Factory overheads Rs. 82,000, Works cost Rs. 3,97,000, Office overheads Rs. 55,000; Cost of Production Rs. 4,52,000; Cost of production of goods sold Rs. 4,19,000, Selling and distribution overheads Rs. 75,000; Cost of Sales or Total Cost Rs. 4,94,000, Profit Rs. 1,06,000.]

10. The following figures have been extracted from the books of a manufacturing company for the year ended 31st March, 2003 :

Particulars	Rs.
Direct Materials	12,00,000
Direct Labour	2,50,000
Depreciation :	
Factory building	7,500
Office building	4,000
Staff cars	6,000
Insurance :	
Staff cars	750
Office building	600
Factory building	750
Salaries (Including sales manager's salary Rs. 12,500 and Factory chief engineer's salary Rs. 12,500)	1,50,000
Electricity (Including Rs. 2,000 for administrative office)	20,000
Branch office expenses	20,000
Delivery van maintenance expenses	5,000

Finished goods warehouse expenses	10,000
Advertisements	10,000
Sundry factory expenses	1,70,000
Sales promotion expenses	7,500
Office administration expenses	25,000
Sales	21,00,000

From the above information, prepare a cost sheet.

[Guj. Uni., F.Y.B.C.A., April 2003]

[Ans. : Prime Cost Rs. 14,50,000, Works cost Rs. 16,58,750, Cost of Production Rs. 18,42,100, Cost of Sales Rs. 18,87,100, Net Profit Rs. 2,12,900.]

Notes : Factory overheads Rs. 2,08,750, Office overheads Rs. 1,83,350, Selling and Distribution overheads Rs. 45,000.]

11. The following cost detail of Jay Machine Manufacturing Co. Ltd. you are required to prepare cost sheet.

Particulars	Rs.
Sales	2,50,000
Opening stock of raw materials	8,000
Closing stock of raw materials	5,000
Purchase of raw materials	70,000
Oil, grease, cotton waste etc.	600
Research expenses	10,000
Catalogue expenses	1,000
Legal expenses	600
Bank charges	1,200
Maintenance expenses of Delivery van	2,500
Subscription of Technical periodicals	600
Expenses for specimen (samples)	2,500
Direct wages	90,000
Indirect wages	4,000
Salary of storekeeper	6,000
Miscellaneous expenses :	
Factory	32,000
Office	20,000
Sales-distribution	10,000

[Guj. Uni., F.Y.B.C.A., April 2005]

[Ans. : Prime Cost Rs. 1,63,000, Works Cost Rs. 2,16,200, Cost of production Rs. 2,38,000, Cost of Sales or Total Cost Rs. 2,54,000, Net Loss Rs. 4,000.]

Notes : (1) Factory overheads Rs. 53,200. (2) Office overheads Rs. 21,800. (3) Selling and Distribution Overheads Rs. 16,000.]

12. The following figures have been extracted from the books of Shriji Manufacturing Company for the year ended on 31-3-2005.

Particulars

Direct Raw Materials	Rs. 5,00,000
Direct Wages	2,50,000
Other Direct Expenses	1,50,000

Depreciation :

On Machinery	15,000	
On Factory building	10,000	
On Office building	5,000	
On Sales office	2,500	
On Staff cars	5,000	37,500

Insurance Premium :

On Machinery	2,500	
On Factory building	2,000	
On Office building	1,500	
On Sales office	1,000	
On Staff cars	500	7,500

Power and fuel	10,000
Selling expenses	3,000
Distribution expenses	2,000
General electricity	2,500
Packing expenses	5,000

Sundry expenses :

Office	20,000	
Factory	10,000	
Selling	2,500	32,500

Sales

12,50,000

From the above information, prepare cost sheet for the year ended on 31-3-2005.

[Guj. Uni., F.Y.B.C.A., April, 2006]

[Ans. : Prime cost Rs. 9,00,000, Factory or Works Cost Rs. 9,49,500, Cost of Production Rs. 9,84,000, Cost of Sales or Total Sales Rs. 10,00,000, Net profit Rs. 2,50,000.]

Notes : (1) Factory overheads Rs. 49,500. (2) Office Overheads Rs. 34,500. (3) Selling and Distribution Overheads Rs. 16,000.]

13. Prepare the cost sheet for the month of July, 2006 and find out the cost of sales :

Particulars

Stock of raw materials (1-7-'06)	Rs. 3,000
Raw materials purchased	28,000
Stock of raw materials (31-7-'06)	4,500

Manufacturing wages	7,000
Depreciation on plant	1,500
Loss on Sale of a part of plant	300
Factory rent and rates	3,000
Office rent	500
General expenses	400
Discount on sales	300
Advertisement expenses	600
Income tax paid	2,000

The number of units produced during July, 2006 was 3,000.

The stock of finished goods was 200 and 400 units on 1-7-'06 and 31-7-'06 respectively. The total cost of units on hand on 1-7-'06 was Rs. 2,800.

[Ans. : Cost of raw materials consumed Rs. 26,500, Prime cost Rs. 33,500, Works cost Rs. 38,000, Cost of production Rs. 38,900, Value of closing stock Rs. 5,187 ($38,900 \times \frac{400}{3,000}$), Cost of production of goods sold Rs. 36,513, Cost of sales Rs. 37,413. Loss on sale of a part of plant and Income tax paid will not be shown in cost sheet.]

14. International Co. Ltd. has to submit quotations for 1,00,000 sheet chairs. The costs are estimated as follows :

Direct materials – 1,00,000 kgs. at Rs. 10 per kg.

Direct wages – 1,00,000 labour hours at Rs. 4 per hour

Factory overheads :

Variable at Rs. 2-40 per labour hour

Fixed – Rs. 60,000

Selling and distribution overheads :

Variable at Rs. 1-60 per chair

Fixed Rs. 1,40,000

Prepare a detailed Cost Sheet by considering 20% profit on Sales.

[Ans. : Prime cost Rs. 14,00,000; Works cost Rs. 17,00,000; Cost of Sales Rs. 20,00,000; Net Profit Rs. 5,00,000; Sales Total Rs. 25,00,000; per unit Rs. 25.]

15. Prepare a cost sheet showing (A) Prime cost (B) Works cost (C) Total cost and (D) Sales price per ton of a paper mill. *gmf*

Direct Materials :

Paper-pulp–500 tons @ Rs. 50 per ton

Other Materials–100 tons @ Rs. 30 per ton

Direct Labour :

80 skilled workers @ Rs. 3 per day for 25 days

40 unskilled workers @ Rs. 2 per day for 25 days.

Direct Expenses :

Special Equipment @ Rs. 3,000

Special Dyes @ Rs. 1,000

Work Overhead :

Variable @ 100% on Direct wages.

Fixed @ 60% on Direct wages.

Administrative overhead @ 10% on Works Cost.

Selling and distribution overhead @ 15% on Works Cost.

400 tons of special paper was manufactured and Rs. 800 was realised by the sale of waste material during the course of manufacture. The scrap value of the special equipment after utilisation in manufacture is nil. Profit is gained @ 10 per cent of cost price.

[Ans. : (A) Prime cost Rs. 39,200 (B) Works Cost Rs. 52,000 (C) Total Cost Rs. 65,000 (D) Sales price Rs. 71,500 (per ton Rs. 178.75).]

16. Prepare Cost Sheet from the following information :

Raw Materials :

Opening Stock Rs. 15,000

Purchases Rs. 75,000

Closing Stock Rs. 8,000

Expenses for

Purchases Rs. 10,000

Semi-finished goods :

(to be valued at Prime Cost)

Opening Stock Rs. 20,000

Closing Stock Rs. 12,000

Direct wages : 100 days' wages to 40 labourers, Rs. 10 per day.

Factory overheads : 20% on prime cost.

Office overheads : Rs. 16 per unit produced.

Selling overheads : Fixed Rs. 5,000; Variable Rs. 5 per unit sold.

Closing stock of finished goods : 200 units (to be valued at cost of production)

Sales : 1,800 units, Rs. 120 per unit.

[Ans. : Material consumed Rs. 92,000, Prime Cost Rs. 1,40,000. Works cost Rs. 1,68,000, Cost of Production Rs. 2,00,000 (Office overhead Rs. 32,000 (2,000 × 16), Cost of production of goods sold Rs. 1,80,000, Closing stock Rs. 20,000 (200 units @ Rs. 100), Cost of Sales Rs. 1,94,000 (Selling overhead Rs. 14,000), Net Profit Rs. 22,000. Production : 2,000 units (Sales 1,800 + closing stock 200).]

17. Jyoti Watch Co. manufactures wall clocks. The following details are furnished in respect of the factory operation in the year ending 31st March, 2006 :

	Rs.
Stock of finished goods on 1-4-'05 (2,000 clocks)	4,00,000
Stock of finished goods on 31-3-'06 (1,000 clocks)	2,34,000
Stock of Raw material on 1-4-'05	60,000

Stock of Raw material on 31-3-'06	40,000
Purchase of Raw material	6,00,000
Sale of Raw material waste	12,000
Direct wages	4,00,000
Factory overhead expenses	1,00,000
Administrative overhead expenses	80,000
Sale of factory waste	8,000
Selling expenses per clock	Rs. 10
Sales per clock	Rs. 250

	1-4-'05	31-3-'06
Work-in-progress :	Rs.	Rs.
Material	20,000	28,000
Labour	15,000	15,000
Factory expenses	5,000	7,000

During the year 2005-'06, 5,000 clocks were manufactured.

Prepare a statement of cost and find out profit per clock.

[Ans. : Cost Raw material used Rs. 6,00,000 (per unit Rs. 120), Prime Cost Rs. 10,00,000 (per unit Rs. 200), Works cost Rs. 10,90,000, (per unit Rs. 218), Cost of Production Rs. 11,70,000 (per unit Rs. 234 for 5,000 units), Cost of Sales Rs. 13,96,000 and Sales Rs. 15,00,000, Profit Rs. 1,04,000 (per unit Rs. 17.33).]

18. M/s. Raj Enterprise Manufactures two types of pipes 'A' and 'B'. Production cost for the year ended 31st March, 2006 were :

	Rs.
Raw materials consumed	6,30,000
Direct wages	2,94,000
Direct expenses	1,11,000
Factory indirect expenses	1,56,000

Additional information is as under :

- (1) Direct material per unit for type 'A' pipe consists four times as much as that in type 'B' pipe.
- (2) Direct wages per unit for type 'B' were 60% of those for type 'A'.
- (3) Direct expenses per unit for type 'B' is Rs. 3 and remaining expenses for the type 'A'.
- (4) Factory overhead per unit was same for 'A' and 'B'.
- (5) Office overhead for each type was 20% of prime cost.
- (6) Selling cost for 'A' and 'B' Rs. 9 and Rs. 6 respectively.

(7) Production and Sales during the year :

'A' Type – 7,500 pipes of which 7,000 were sold.

'B' Type – 12,000 pipes of which 11,800 were sold.

(8) Selling price per pipe for 'A' Rs. 150 and for 'B' Rs. 65.

Prepare a cost-sheet showing cost per pipe and total cost.

[Ans. : Total cost per unit : 'A' Rs. 125 and 'B' Rs. 50. Profit per unit : 'A' Rs. 25 and 'B' Rs. 15. Direct Materials and Wages will be apportioned between 'A' and 'B' types of items in the ratio of 5:2 and 75:72 respectively. Direct expenses per unit : 'A' Rs. 10 and 'B' Rs. 3. Factory cost per unit Rs. 8. Office overhead per unit : 'A' Rs. 18 and 'B' Rs. 6. Total Profit : 'A' Rs. 1,75,000 and 'B' Rs. 1,77,000.]

19. Priya Iyer Manufacturing Co. Ltd. manufactures a standard product. The following informations have been extracted from the books of the company. You are required to prepare a statement of cost and to ascertain the profit, cost per unit and profit per unit for the year ending 31-12-2005.

	Rs.
Purchase of Raw Materials	48,000
Direct Wages	40,000
Stock on 1-1-2005 :	
Raw Materials	8,000
Finished goods (1,600 quintals)	6,400
Stock on 31-12-2005 :	
Raw materials	8,800
Finished goods (3,200 quintals)	?
« Works oncost	16,800
Work-in-process (at works cost level) :	
1st January, 2005	1,920
31st December, 2005	6,400
Office and Administrative overheads	3,200
Sales – Finished product	1,20,000
Advertising, discount allowed and selling expenses is 40 paise per quintal.	

During the year 25,600 quintals of product were produced.

[Ans. : Raw materials consumed Rs. 47,200, Prime cost Rs. 87,200, Factory Cost Rs. 99,520, Cost of production Rs. 1,02,720, Cost of production of goods sold Rs. 96,280 and per unit Rs. 4.01, Closing stock

1. Introduction
2. Elements of Cost
3. Classification of Expenses
4. Cost-Sheet
5. Advantages of Cost-Sheet
6. Components of Total Cost
7. Pro-forma of a Cost-Sheet
8. Work-in-Progress
9. Illustrations
10. Tender Price

11. Joint Expenses

12. Rectification of Defective Goods

13. Cost Account or Production A/c

14. Important Points

► Exercises

A. Theory

B. Objectives

C. Multiple Choice Questions

D. Practical

1. INTRODUCTION:

There are many industries in which output is uniform and it is capable of being expressed in simple quantitative units. In some cases only a single product is turned out or different sizes or grades of the same product are manufactured. The selection of cost unit presents no difficulty in such industries and the complicated method of cost ascertainment is not necessary. The method used in such cases is the 'Unit Costing', in which the cost of a single unit is ascertained.

Thus the object of this method is to ascertain the cost per unit of output to determine the amount of each element which makes up such cost. This method is particularly suited to breweries, dairies, bricks-making, coal quarries industry, paper mills, sugar mills etc. In all these industries there is a natural cost unit, i.e., barrel of beer, a litre of milk, 1000 bricks, a tonne of coal, a tonne of cement, one kilogram of paper, a quintal of sugar and so on.

In those industries where only one product is manufactured, the whole of the expenditure is usually incurred for one type of product and the maintenance of cost records does not present much difficulty. However, when there different sizes or order of the same type of products are manufactured, the expenditure must be analysed in greater detail to enable the appropriate charge to be made to each size or grade.

2. ELEMENTS OF COST:

Expenses which are included in the total cost of the product manufactured are called Elements of Cost. There are three such elements:

- (1) Direct Material
- (2) Direct Labour
- (3) Overheads.

Let us take an illustration. In a textile mill, yarn is used as raw materials. Its cost is included in the direct material cost. The wages paid to those workers who are employed to weave the cloth on power looms is the direct labour cost or wage cost. These two are very important elements of cost. In addition to these, there are other expenses incurred for running the factory and office. Then selling expenses are included e.g. in a factory, rent of factory building, depreciation, insurance premium, etc. are paid. In administration overheads, office salary to the staff, stationery expenses, rent of the office etc. are paid. In sales office, salary and commission to salesmen, advertisement, godown expenses, delivery expenses are incurred. All these are called indirect expenses or overheads.

According to the definition given by the Institute of Cost and Management Accountants, "Elements of cost means primary classification of costs according to the factors upon which expenditure is incurred viz. materials cost, wages (labour cost) and expenses."

Material cost means the cost of commodities supplied to an undertaking wages (labour cost) is the cost of remuneration (wages, salaries, commission, bonuses etc.) of the employees of an undertaking. Expenses means the cost of services provided to an undertaking and the notional cost of the use of owned assets."

3. CLASSIFICATION OF EXPENSES:

In financial accounts, for preparation of Profit & Loss Account and Balance Sheet, expenditure are classified in two parts, namely Capital Expenditure and Revenue Expenditure. In Cost Accounts, to find out the total cost of goods produced or services rendered and to show how such cost is made up, expenditure are analysed by different methods and in greater detail compared to financial accounts.

In Cost Accounts expenditure are broadly classified into two groups viz.

- (1) Direct Expenses and
- (2) Indirect Expenses.

“All those items of expenditure, which can directly, specifically, and conveniently be identified wholly with a particular job, process or unit of commodity are known as direct charges or expenditure.”

E.g. timber used in making wooden furniture, wages paid to carpenter who makes wooden furniture are the examples of direct cost.

Indirect Expenses (Overhead):

“Indirect expenses consist of cost of indirect material, indirect labour and such other expenses, including services, as cannot be conveniently charged direct to specific cost units. Alternatively, overhead are all expenses other than direct expenses.” - **Wheldon**

(A) DIRECT EXPENSES:

Direct expenses are those which can be conveniently charged direct to specific cost units. Direct expenses may be sub-divided as (1) Direct material (2) Direct labour, and (3) Other direct expenses.

(1) Direct Material: It is the material of which article is made and which can be charged directly to specific cost unit.

“Direct material is all material that becomes a part of the product, the cost of which are directly charged as part of prime cost. In other words, it is material which can be measured and charged directly to the cost of product.” - **Wheldon**

The timber used in making wooden furniture, the leather used in making shoes, cotton yarn used in manufacturing cotton cloth are examples of direct materials. But sometimes, materials of small value are treated as indirect material because it would be inconvenient and also expensive to analyse the cost of such materials and allocate it to each unit of product. E.g. Thread requires to manufacture shoes. It will be ridiculous to find out cost per unit of thread required for preparing shoes.

According to **Wheldon**, the following groups of materials fall within the definition of direct material:

- (1) All materials specially purchased for a particular job, order or process.
- (2) All materials acquired and subsequently requisitioned from stores for particular production orders.
- (3) Components purchased or produced, and requisitioned from finished parts stores.
- (4) Materials passing from one operation or process to another.
- (5) Primary packing materials. (e. g. cartoons, wrappings etc.)

Moreover, certain expenses are also included in direct materials say, import duty, dock charges etc. which are added in original invoice.

(2) Direct Labour: It is that labour which is used for the manufacture of specific articles, process, job or contract, which works on the product property and which may be measured and charged on particular unit. "Direct Labour is all labour expended in altering the construction, composition, conformation or condition of the product." - Wheldon

Wages paid to carpenter preparing furniture, wages paid to shoe-maker making shoes or wages paid to weaver weaving the cloth are the examples of direct labour.

(3) Direct Expenses: "It includes any expenditure other than direct material or direct labour incurred on a specific cost unit."

It includes

- (1) Hire of special tools or equipments for a particular order or product,
- (2) Cost of special design or moulds,
- (3) Experimental cost of any particular order etc.

In construction of building, roads etc. cost of special plant and tools, cost of preparing plan or design or maps are other direct expenses which can be charged directly to the cost of the building roads etc.

(B) INDIRECT EXPENSES OR OVERHEAD:

"Overhead is the term generally applied to those charges which cannot be traced directly to a particular unit of output." - Blocker & Weltmor

Indirect expenses or overheads are those expenses which cannot be charged directly to a cost unit, e.g. factory rent is an indirect expenditure as it is not incurred for a particular product or job but it relates to all products manufactured or jobs executed in a factory.

Indirect expenses or overheads may be classified into three parts, viz.

- (1) Factory or Works Overhead
- (2) Office or Administrative Overheads
- (3) Selling and Distribution Overheads

(1) Factory or Works Overheads: It includes all indirect expenses incurred within four walls of the factory and which are connected with the manufacture of a product. It includes all indirect expenses incurred from the receipt of the order until its completion i.e. when it is ready for despatch from factory.

The following expenses are usually considered as works overhead charges:

(a) Indirect Material: It consists of material which does not form part of the product but it is used for the purpose ancillary to production. (i) It is the material required for operating and maintaining plant and equipments known as consumable stores such as cotton waste, oil and grease, belts etc. (ii) It consists of stores used by service departments like power house, canteen etc. (iii) Material which due to their cost being small, not considered as direct material, e.g. thread used in stitching shoes.

(b) **Indirect Labour:** Wages and salaries paid to various persons who are not directly engaged in production e.g. Salary of works manager, supervisor, foremen, store-keeper, sweeper and gate-keeper of the factory, and salaries and wages to various persons engaged in service departments.

(c) **Other Expenses:** It includes power or fuel such as coal, gas, electricity, water etc. maintenance, repairs, renewals and depreciation of plant and machinery, various factory expenses such as factory rent, rates, insurance, lighting, heating etc.

(2) **Office or Administration Overheads:** These are expenses incurred outside the factory in the administration and management of the undertaking. It includes office rent, rates, insurance, lighting, heating, salaries to clerical and administrative staff, printing and stationery, postage and telegram, legal charges, audit fees, depreciation of office building and furniture etc.

(3) **Selling and Distribution Overheads:** Selling overheads are those incurred for soliciting and securing orders and on efforts to find and retain customers. It includes, various expenses for creating, maintaining and increasing demand for the goods produced, e.g. Sales office salaries, rent, rates, insurance, lighting etc. Salaries of salesmen, travelling and conveyance charges, advertisement expenses, show-room expenses, commission on sales, discount allowed, bad debts, after-sale service expenses etc.

Distribution overheads comprise of all expenditure from the time the product is completed until it reaches its destination. It includes all warehouse expenses such as warehouse rent, rates, insurance, taxes, lighting etc., packing charges, carriage outward, upkeep and maintenance of delivery van etc.

4. **COST SHEET:**

The information derived from financial books is set out, usually, in the form of a statement known as 'Statement of Cost' or 'Cost Sheet'. The financial account should be modelled in such a way as to furnish all necessary information for finding out the cost of production. The expenditure shown in financial books are logically classified, in considerable detail, each element of cost being divided by the output, to show cost per unit. The periodical cost-sheet can be prepared in which each element of expenditure is divided by the number of units produced during that period so as to disclose the cost per unit. If the information is set out in form of an account, recording the cost incurred, it would be known as 'Production Account' or 'Manufacturing Account.'

Cost-Sheet may be prepared weekly, monthly, or at some other convenient intervals. It is desirable that besides the total expenditure incurred, cost per unit of output in case of each element of cost be ascertained and that the percentage contribution of each item of expenditure to the total cost of production be indicated. Moreover, the cost-sheet should provide figures of the previous period for comparison purposes.

5. ADVANTAGES OF COST SHEET:

As we have seen, due to cost sheet we are able to study various details relating to cost of production. The advantages of preparing cost sheet may be stated as follows:

- (1) Detailed information about the total cost of a particular product during a specific time period can be obtained.
- (2) The figures of cost of production of the current year can be compared with those of the previous period, which will clearly show the trend of cost and various elements of cost. This helps management in controlling the cost of various products.
- (3) The cost sheet becomes helpful in submitting tender of some important contracts.
- (4) It equally helps in determining the selling price of the product.
- (5) The preparation of cost sheet will be helpful to management determining the most profitable product-mix, as it gives detailed information about the total cost and cost per unit.

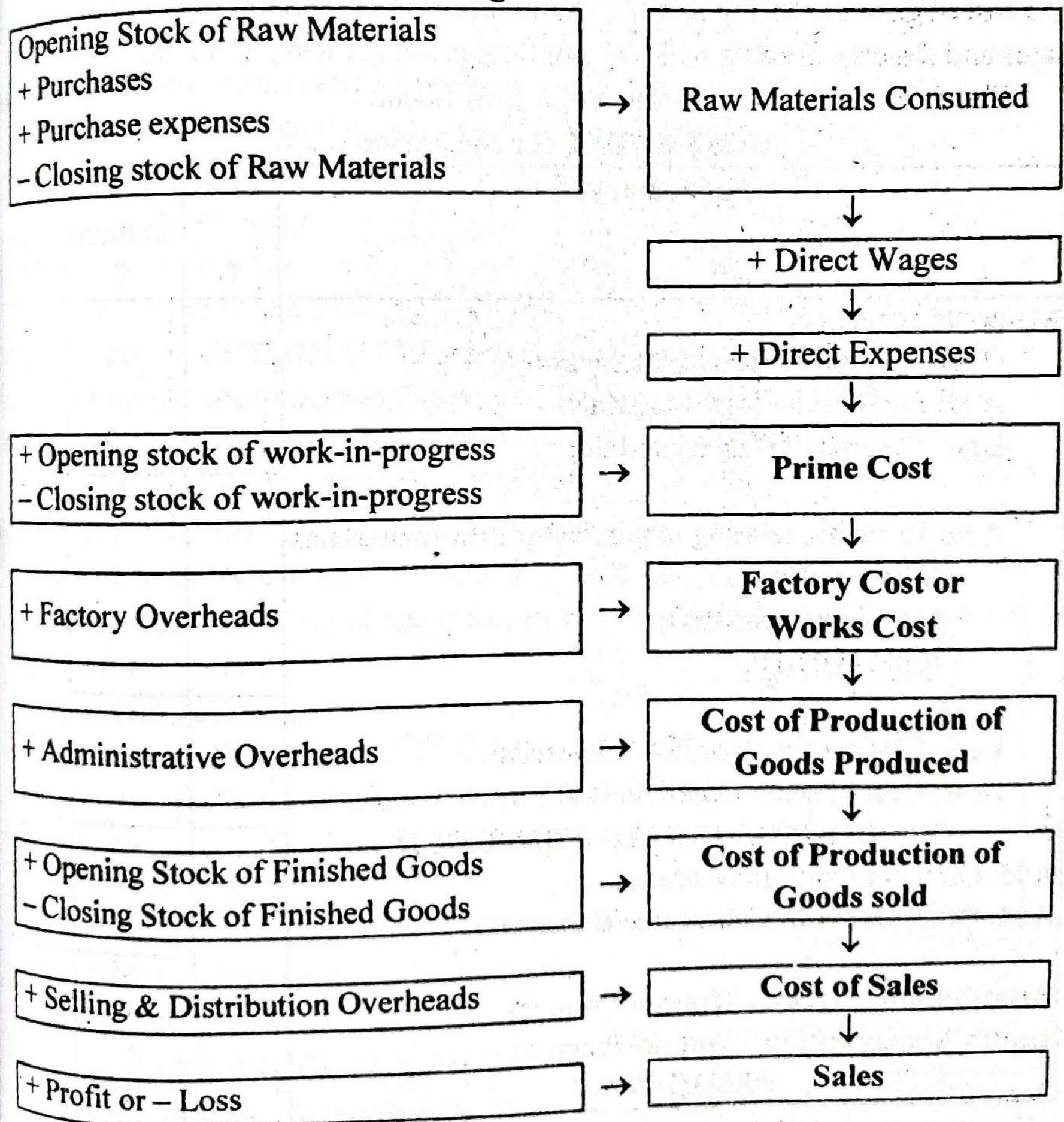
It must be remembered that most of the items shown in Trading and Profit and Loss Account of financial accounts are included even in the cost accounts except some items which are not shown in cost accounts, which are called Non-costing items.

6. COMPONENTS OF TOTAL COST:

- (1) **Prime Cost:** This consists of cost of direct materials, direct wages and other direct expenses. It is also known as Basic Cost or Flat Cost.
 - (2) **Factory Cost:** When factory overheads are added to the prime cost, we get the factory cost or works cost.
 - (3) **Cost of Production:** It is made up of Factory Cost and Office Overheads. Sometimes, this is also known as Office Cost.
 - (4) **Total Cost or Cost of Sales:** It is the total of Prime cost, Factory overheads Office overheads and Selling and Distribution overheads. When selling overheads are added to the cost of goods produced, we get Cost of Sales.
- This can be represented as under:

- Cost Concepts**
- (1) Direct Materials + Direct Wages + Direct Expenses = Prime Cost
 - (2) Prime Cost + Factory Overheads = Factory Cost or Works Cost
 - (3) Factory Cost + Administrative Overheads = Office Cost or Cost of Production
 - (4) Cost of Production + Selling and Distribution Overheads = Cost of Sales or Total Cost
 - (5) Cost of Sales + Profit (or -Loss) = Selling Price or Sales

Chart Showing Elements of Cost



7. PRO-FORMA OF A COST SHEET:

A statement showing cost per unit of output and each element that makes up the cost is known as 'Cost-Sheet.' The information derived from the financial books is usually presented in the form of a statement.

The opening stock, the purchases and the closing stock of raw materials are not separately shown but they are suitably adjusted to show the cost of materials consumed. The opening and closing stocks of work-in-progress are also suitably adjusted depending upon the mode of valuation of work-in-progress. Similarly, the opening and closing stock of the finished goods are valued on the basis of cost of goods produced and it may be shown in a separate statement together with the cost of goods produced and after adding the selling and distribution expenses to the cost of goods sold, the cost of sales is ascertained. The difference between the sales and the cost of sales will represent net profit (or loss) of the business.

The following is the pro-forma of a Cost Sheet:

COST SHEET for the period.....

Particulars	₹	Total Amount ₹	Per Unit ₹
Materials Consumed:			
Opening Stock of Raw Materials		✓	
Add: Purchase of Raw Materials	✓		
Less: Returns of Raw Materials	✓	✓	
Add: Expenses relating to purchase of raw materials:		✓	
Carriage inward	✓		
Octroi and customs	✓		
Railway freight	✓	✓	
Less: Closing Stock of Raw Materials	✓	✓	
Less: Cost of scrap materials sold	✓	✓	
COST OF MATERIALS CONSUMED			
Add: Direct or Productive Wages		✓	✓
Add: Other Direct or Chargeable Expenses		✓	✓
Add: Opening Stock of Work-in-Progress		✓	✓
Less: Closing Stock of Work-in-Progress		✓	
PRIME COST		✓	✓

Add: Works or Factory Overheads:

Indirect materials or Consumable Stores
(Oil, grease, cotton waste etc.)

Indirect or Unproductive Wages

(Salary or wages paid to gate-keeper, sweepers etc.)

Salary to foremen, supervisors, Works Manager etc.)

Power or Fuel, (Coal, oil, gas, electricity, water etc.)

Repairs and Renewal of Plant and Machinery

Depreciation of Plant and Machinery

Factory expenses such as factory rent, rates,
insurance, lighting, heating etc.

WORKS COST

Add: Office or Administration Overheads:

Office rent, rates, insurance, heating, lighting etc.

Salaries of clerical and administrative staff

Printing and stationery

Postage and telegram

Depreciation of office building, furniture etc.

COST OF PRODUCTION OF GOODS PRODUCED

Add: Opening Stock of Finished Goods

Less: Closing Stock of Finished Goods

COST OF PRODUCTION OF GOODS SOLD

Add: Selling and Distribution Overheads:

Sales office salaries, rent, rates, insurance, light. etc.

Salaries to salesmen, travel. and conveyance charges

Commission on sales

Discount allowed

Advertisement expenses

Warehouse rent, rates, insurance, lighting etc.

Packing charges

Carriage outward

Upkeep and maintenance of delivery van

COST OF SALES (TOTAL COST)

Sale of Finished Goods

*** NET PROFIT (OR LOSS) ***

Note: It is assumed that Work in Progress is valued on the basis of the Prime

The above statement shows that there are two types of expenses

- (1) Direct, and
- (2) Indirect.

Direct Expenses: As shown by the above statement there are three type of direct expenses:

- (1) Direct material
- (2) Direct labour, and
- (3) Other direct expenses.

Indirect Expenses or Overheads: The indirect expenses are grouped under three headings:

- (1) Factory Overheads
- (2) Office Overheads or Administrative Overheads, and
- (3) Selling and Distribution Overheads.

Cost of Materials: The cost of materials shown in the cost statement is the cost of direct materials used in manufacturing. If the cost of materials consumed is not given in the example, it is found out with the help of opening and closing stock as follows:

Particulars	₹
Opening stock of raw materials	✓
Add: Purchases of raw materials	✓
Add: Expenses on purchase of raw materials (e.g., carriage)	✓
	✓
Less: Closing stock of raw materials	✓
* Consumption of raw materials *	✓

Sales of Scrap: If there is some scrap of raw material which cannot be used in production, it is shown in one of the two ways in accounts:

- (1) It is deducted at its realisable price from the cost of raw materials consumed.
If it has no realisable value, it is not shown anywhere in the cost sheet.
- (2) It may also be deducted from prime cost. Particularly when scrap occurs after a substantial amount is spent on wages, it is deducted from the prime cost.

8. WORK-IN-PROGRESS:

In case of those industries where manufacturing is continuous, we find that at the end of the particular period, there are some units which are not complete and on which some processing has to be done. Such work is known as unfinished or partly finished goods or work-in-progress or work-in-process.

The valuation of work-in-progress presents some difficulty, since various units are at different stages of production. While valuing work-in-progress, the actual expenditure incurred will have to be calculated. If the units are in the initial stages of production, then only the value of raw materials already used and the wages paid for such incomplete work has to be taken into account.

In such cases, the work-in-progress is said to be valued on the basis of the prime cost. But if fairly good portion of the work is done or it is nearing completion, then while valuing work-in-progress, the value of materials used and the amount of wages paid along with proper share of factory overheads has to be taken into account. In such a case, the work-in-progress is said to be valued on the basis of 'Works Cost'.

The work-in-progress in the beginning of the period is to be added while that at the end of the period is to be deducted from the manufacturing cost. However, at what stage they should be added or deducted on their mode of valuation.

9. ILLUSTRATIONS:

Illustration 1: Suppose in a factory material consumed is ₹ 1,00,000, Direct wages paid amount to ₹ 80,000 and Factory, Overheads are ₹ 50,000. The work-in-progress at the beginning is ₹ 10,000 whereas work-in-progress at the end is valued at ₹ 12,000.

If work-in-progress is

- (I) valued on the basis of the prime cost:
- (II) valued on the basis of works cost.

How will you show Work-in-Progress in the Cost Sheet in the above mentioned two cases?

Solution:

- (1) If work-in-progress is valued on the basis of prime cost:

Particulars	₹
Materials consumed	1,00,000
Add: Direct Wages	80,000
	1,80,000
Add: Work-in-progress in the beginning	10,000
	1,90,000
Less: Work-in-progress at the end	12,000
	1,78,000
* Prime Cost *	50,000
Add: Factory overheads	
* Works Cost *	2,28,000

(2) If work-in-progress is valued on the basis of work cost:

Particulars	₹
Materials consumed	1,00,000
Add: Direct Wages	80,000
* Prime Cost *	1,80,000
Add: Factory overheads	50,000
	2,30,000
Add: Work-in-progress in the beginning	10,000
	2,40,000
Less: Work-in-progress at the end	12,000
* Works Cost *	2,28,000

Note: When in the example, no instruction is given as to the manner in which the stock of work-in progress is valued, any of the above two methods can be used. However, it is better to assume that the work-in-progress is valued at prime cost. In this book also we have adopted this base to maintain consistency.

Illustration 2: The following data are collected from Varsha Limited for the year ending on 31st March, 2026:

Particulars	₹
Opening stock of raw materials	33,000
Closing stock of raw materials	54,000
Purchases of raw materials	1,24,500
Transportation of incoming goods	6,750
Direct labour	1,08,000
Indirect labour	21,000
Direct expenses	24,000
Factory rent	10,500
Office rent	1,800
Salesman's salary	3,600
Indirect material	600
Depreciation on machinery	2,400
Depreciation on furniture	300
Office salary	3,300
Other expenses (factory)	9,000
Other expenses (office)	1,500
Remuneration to manager (₹ 7,500 factory, ₹ 10,500 office, ₹ 9,000 sales department)	27,000
Sales expenses	6,300
Transportation of outgoing goods	1,800
Income-tax	18,000
Sales	3,90,000

From the above data, prepare Cost Sheet and find out (1) Basic cost (2) Factory cost (3) Production cost (4) Sales cost (5) Profit [S.U., S.Y., Mar., 2004]

- Solution:** Notes: (1) Transportation of incoming goods is treated as purchase expenses of materials.
- (2) Carriage outward or transportation of outgoing goods is treated as selling expenses of finished goods.
- (3) Income-tax is purely financial item and will not be shown in Cost accounts.

Varsha Limited: Statement of Cost for the year ended 31/3/2026

Particulars	₹	Total Cost ₹
Raw Materials Consumed:		
Opening stock of raw materials	33,000	
Add: Purchases of raw materials	1,24,500	
Add: Transportation of incoming goods	6,750	
	1,64,250	
Less: Closing stock of raw materials	54,000	
Cost of raw materials consumed:		1,10,250
Add: Direct Labour		1,08,000
Add: Direct Expenses		24,000
Prime Cost		2,42,250
Add: Factory Overheads:		
Indirect labour	21,000	
Factory rent	10,500	
Indirect Material	600	
Depreciation on Machinery	2,400	
Other Expenses (factory)	9,000	
Remuneration to Manager (factory)	7,500	51,000
Factory Cost		2,93,250
Add: Office or Administration Overheads:		
Office rent	1,800	
Depreciation on furniture	300	
Office salary	3,300	
Other expenses (office)	1,500	
Remuneration to Manager (office)	10,500	17,400
Production Cost or Office Cost		3,10,650
Add: Selling and Distribution Overheads:		
Salesman's Salary	3,600	
Remuneration to Manager (Sales departments)	9,000	
Sales expenses	6,300	
Transportation of outgoing goods	1,800	20,700
Cost of Sales (Total Cost)		3,31,350
Add: Profit		58,650
* Sales *		3,90,000

Illustration 3: From the following information, prepare a statement showing (A) Prime Cost (B) Works Cost (C) Cost of production (D) Cost of sales, and (E) Net Profit. During March, 2026, there was production of 1,000 units.

Particulars	₹	Particulars	₹
Opening Stock:		Carriage outward	1,500
Raw materials	24,000	Power-coal	5,000
Finished goods	16,000	Office salaries	13,000
Closing Stock:		Office rent, rates & taxes	7,000
Raw materials	20,000	Postage and telegram	2,000
Finished goods	17,000	Printing and stationery	1,000
Purchases of Raw materials	82,000	Salesmen's salary	3,000
Sales	1,90,000	Advertisement	2,000
Direct wages	32,000	Factory rent, rates and tax	2,000
Factory wages	1,000	Depreciation on Plant and	
Carriage inward	2,000	Machinery	3,000
		Bad debts	500

Solution:

STATEMENT OF COST

For the month of March, 2026 [Production: 1,000 units]

Particulars	₹	Total Cost ₹
Raw Materials Consumed:		
Opening stock of raw materials	24,000	
Add: Purchases of raw materials	82,000	
Add: Carriage inwards	2,000	
	1,08,000	
Less: Closing stock of raw materials	20,000	
Cost of raw materials consumed:		88,000
Add: Direct Wages		32,000
(A) PRIME COST		1,20,000
Add: Factory Overheads:		
Factory wages	1,000	
Power-coal	5,000	
Factory rent, rates and taxes	2,000	
Depreciation on plant and machinery	3,000	11,000
(B) WORKS COST		1,31,000

Add: Office or Administration Overheads:

Office salaries
Office rent, rates and taxes
Postage and telegram
Printing and stationery

13,000	
7,000	
2,000	
1,000	23,000

(C) COST OF PRODUCTION

Add: Opening stock of finished goods

Less: Closing stock of finished goods

(D) COST OF PRODUCTION OF GOODS SOLD

Add: Selling and Distribution Overheads:

Carriage outward
Bad debts
Salesmen's salary
Advertisement

1,500	
500	
3,000	
2,000	7,000

(E) COST OF SALES OR TOTAL COST

Add: Net Profit

*** SALES ***

1,54,000
16,000
1,70,000
17,000
1,53,000
1,60,000
30,000
1,90,000

Illustration 4: From the following information extracted from the records of a factory relating to a commodity, prepare the cost sheet showing total profit and profit per unit:

Particulars	₹
Purchase of raw materials	1,15,000
Carriage inwards	4,000
Direct wages	96,000
Machine hours worked	10,000 hours
Machine hour rate	₹ 4 per hour
Opening stock of raw materials	25,000
Opening stock of finished stock (4,000 units)	40,000
Closing stock of raw materials	20,000
Closing stock of finished stock	5,000 units
Opening work-in-progress	₹ 5,000
Closing work-in-progress	₹ 15,000
Office overheads	4% of work cost
Selling and distribution expenses	₹ 1 per unit
Sales	3,00,000
Production during the year	26,000 units

Solution: Notes: (1) As the basis of valuation of work-in progress is not given, it has been assumed to be on Prime Cost basis.

(2) The number of units sold has not been given in the example, which will be found out as follows:

$$\begin{aligned}\text{Units sold} &= \text{Opening stock of finished goods} + \text{units produced} - \text{closing stock of finished goods} \\ &= 4,000 \text{ units} + 26,000 \text{ units} - 5,000 \text{ units} \\ &= 25,000 \text{ units}\end{aligned}$$

(3) The selling and distribution overheads will be calculated on the basis of units sold.

COST SHEET (Production: 26,000 units)

Particulars	₹	Total Cost ₹
Raw Materials Consumed:		
Opening stock of raw materials	25,000	
Add: Purchases of raw materials	1,15,000	
Add: Carriage inwards	4,000	
	1,44,000	
Less: Closing stock of raw materials	20,000	
Cost of raw materials consumed:		1,24,000
Add: Direct Wages		96,000
		2,20,000
Add: Opening stock of Work in Progress		5,000
		2,25,000
Less: Closing stock of Work in Progress		15,000
Prime Cost		2,10,000
Add: Factory Overheads:		
(Machine hours worked: 10,000 hours × rate ₹ 4)		40,000
Works Cost		2,50,000
Add: Office or Administration Overheads:		
(4% of work cost = 2,50,000 × 4%)		10,000
Cost of Production		2,60,000
Add: Opening stock of finished goods		40,000
		3,00,000
Less: Closing stock of finished goods $\left(2,60,000 \times \frac{5,000}{26,000}\right)$		50,000
Cost of Production of Goods Sold		2,50,000
Add: Selling and Distribution Overheads:		
(Sales Units 25,000 × per unit ₹ 1)		25,000
Cost of Sales or Total Cost		2,75,000
Add: Profit		25,000
* SALES *		3,00,000

Cost Concepts and Cost Sheet

Total units sold are 25,000 and total profit is ₹ 25,000

$$\therefore \text{Profit per unit} = \frac{\text{Total Profit}}{\text{Units Sold}} = \frac{\text{Rs. 25,000}}{25,000 \text{ Units}} = ₹ 1$$

Note: Remember that in cost accounts the closing stock is valued at cost of production.

Illustration 5:

From the following information, prepare a statement of cost for the year ending 31/3/2026 and

- (1) The percentage of works overheads to direct wages.
- (2) The percentage of office overheads to works cost.
- (3) The percentage of profit on sales.

Particulars	1/4/2025 ₹	31/3/2026 ₹
Stock of Raw Materials	80,000	90,000
Stock of work-in-progress (at factory cost)	30,000	40,000
Stock of Finished Goods	1,60,000	1,12,000

Other Information:

Particulars	₹
Purchases of Raw Materials	14,20,000
Direct wages	6,90,000
Factory Overheads	2,30,000
Office Overheads	2,32,000
Selling-distribution Overheads:	
Selling Overheads	1,60,000
Distribution Overheads	40,000
Sales	35,00,000

[Guj. Uni., S.Y., April, 2013]

COST SHEET

for the year ending on 31/3/2026

Particulars	₹	Total Cost ₹
Raw Materials Consumed:		
Opening stock of raw materials	80,000	
Add: Purchases of raw materials	14,20,000	
	15,00,000	
Less: Closing stock of raw materials	90,000	
Cost of Raw Materials Consumed		14,10,000
Add: Direct Wages		6,90,000
Prime Cost		21,00,000

Add: Factory Overheads:		2,30,000
		23,30,000
Add: Opening stock of Work in Progress*		30,000
		23,60,000
Less: Closing stock of Work in Progress*		40,000
Works Cost		23,20,000
Add: Office or Administration Overheads:		2,32,000
Production Cost of Goods Produced		25,52,000
Add: Opening stock of finished goods		1,60,000
		27,12,000
Less: Closing stock of finished goods		1,12,000
Production Cost of Goods Sold		26,00,000
Add: Selling and Distribution Overheads:		
Selling Overheads	1,60,000	
Distribution Overheads	40,000	2,00,000
Cost of Sales or Total Cost		28,00,000
Add: Profit		7,00,000
* SALES *		35,00,000

* As the opening and closing stock of work-in progress is valued at factory cost they would be shown in cost sheet at Factory Cost.

(1) Percentage of works overheads to direct wages:

$$= \frac{\text{Factory Overheads}}{\text{Direct Wages}} \times 100$$

$$= \frac{\text{Rs.2,30,000}}{\text{Rs.6,90,000}} \times 100 = 33 \frac{1}{3} \%$$

(2) Percentage of office overheads to works cost:

$$= \frac{\text{Office Overheads}}{\text{Works Cost}} \times 100$$

$$= \frac{\text{Rs.2,32,000}}{\text{Rs.23,20,000}} \times 100 = 10\%$$

(3) Percentage of Profit on Sale:

$$= \frac{\text{Profit}}{\text{Sale}} \times 100$$

$$= \frac{\text{Rs.7,00,000}}{\text{Rs.35,00,000}} \times 100 = 20\%$$

10. TENDER PRICE:

A manufacturing company is called upon to quote the prices at which it can supply its goods. In such a case, it has to send the tender form duly filled in, in which it has to mention the amount of tender, i.e., the price at which it is prepared to supply the goods or execute the job. While ascertaining the amount of quotation or tender, the cost of direct expenses like cost of material and labour cost can be calculated. But in order to find the total cost, reasonable proportion of overhead

charges will have to be taken into account. For this purpose, overhead charges are estimated on certain predetermined basis. The costing data of last year or period will provide necessary information for this purpose. If the price of material, wage rate etc. are likely to change in the coming period during which goods are to be supplied, then necessary changes should be made in the estimated expenses. Thus the statement of cost of the last period or year will provide detailed and useful information for calculating the amount of tender.

Generally, the overheads are included in the tender price on estimated basis. The estimates are generally like this (1) The factory overheads are generally charged at a certain percentage on wages (2) the administration overheads are generally charged at a certain percentage on factory cost.

Remember:

(1) The base of estimating tender price is the last year's cost statement. Generally, the details about the overheads are not given in the example. Hence, percentage of overheads on the basis of last year's cost sheet, is calculated and used in the statement of tender.

(2) Generally, factory overheads are charged at certain percentage on direct labour and is calculated as follows on the basis of figures of last year's cost sheet.

$$= \frac{\text{Factory Overheads}}{\text{Direct Wages}} \times 100$$

The Administrative overheads are charged as a percentage on factory cost and the percentage is found as under on the basis of last year's cost sheet.

$$= \frac{\text{Administrative Overheads}}{\text{Factory Cost}} \times 100$$

(3) If there is likelihood of any change in any of the expenses or overheads during next year, then first of all, the amount is estimated on the basis of percentage. Then the increase or decrease is adjusted.

(4) Sometimes, the number of units produced last year is given in the example and the number of units to be produced for tender purposes is also given. In such a case, it is not necessary to find out percentage as above.

The cost per unit for each element of cost is calculated and each expense is calculated on that basis in the tender cost sheet. Even the increase or decrease in each of the item of cost is calculated on the basis of per unit expense.

(5) The profit to be included in the tender price is calculated as follows:

If the rate of profit to be included is the same as that earned last year, then the percentage of profit on sale is calculated on the basis of figures of last year's cost sheet. From this figure, the percentage of profit on cost is calculated.

On the basis of this percentage, profit is added to the cost of sales in the cost sheet prepared for tender purposes.

Illustration 6: From the following figures, you are required to prepare a Statement showing (a) the cost of materials used, (b) the works cost, (c) the total cost and (d) the percentage of works overheads to productive wages and the percentage of office overheads to works cost:

Particulars	₹
Stock on 1st April, 2025:	
Finished Goods	
Raw Materials	38,000
Purchases	12,800
Productive Wages	50,800
Sales	2,92,000
Works Overheads	1,98,800
Office Expenses	5,92,000
Stock on 31st March, 2026:	43,736
Finished Goods	35,524
Raw Materials	30,000
	13,600
	43,600

What price should the Company quote to manufacture a machine which, it is estimated, will require an expenditure of ₹ 20,000 on materials and ₹ 12,000 on wages, so as to yield a net profit of 20 % on the selling price?

Solution:

STATEMENT OF COST
for the year ended 31st March, 2026

Particulars	₹	Total Cost ₹
Raw Materials Consumed:		
Opening stock of raw materials	12,800	
Add: Purchases of raw materials	2,92,000	
	3,04,800	
Less: Closing stock of raw materials	13,600	
(A) Cost of Raw Materials Consumed		2,91,200
Add: Productive Wages		1,98,800
Prime Cost		4,90,000
Add: Works Overheads		43,736
(B) Works Cost		5,33,736
Add: Office Expenses		35,524
(C) Production Cost of Goods Produced		5,69,260
Add: Opening stock of finished goods		38,000
		6,07,260
Less: Closing stock of finished goods		30,000
Cost of Sales or Total Cost		5,77,260
Add: Profit		14,740
* SALES *		5,92,000

Cost Concepts and Cost Sheet

(d) The percentage of works overheads to productive wages:

$$\begin{aligned} &= \frac{\text{Rs. } 43,736}{\text{Rs. } 1,98,000} \times 100 \\ &= 22\% \end{aligned}$$

(e) The percentage of office overheads to works cost:

$$\begin{aligned} &= \frac{\text{Rs. } 35,524}{\text{Rs. } 5,33,736} \times 100 \\ &= 6.66\% \end{aligned}$$

Statement of Estimated Cost of a Machine

Particulars	₹
Cost of Materials	20,000
Add: Productive Wages	12,000
Prime Cost	32,000
Add: Works Overheads (22% on productive wages)	2,640
Works Cost	34,640
Add: Office Overheads (6.66% on works cost)	2,307
Cost of Production	36,947
Add: Profit (25% on cost i.e., 20% on selling price)	9,237
* Quotation Price *	46,184

Notes:

(1) As the selling and distribution expenses are not given, the cost of production will be the total cost.

(2) In the example, we are required to calculate the tender price of a machine for which only cost of materials, wages and desired rate of profit are given. In order to ascertain the total cost, works overheads and office overheads are added on the basis of the two calculated percentages of the last year.

Illustration 7: Following information of Manan Machines Ltd. is available for the year ended on 31/3/2026. Prepare cost sheet:

Particulars	₹
Stock of finished goods (1/4/2025)	51,400
Stock of finished goods (31/3/2026)	43,000
Purchases of raw materials	2,00,000
Depreciation on machinery	8,500
Depreciation on furniture	5,210
Factory rent	4,750
Direct wages	1,20,000
Sales	5,04,000

Indirect labour	1,250
Salary	16,480
Carriage inward	2,000
Carriage outward	1,450
Power	2,670
Income tax	4,475
Donation	3,300
Advertisement expenses	7,500
Packing expenses	3,500
Office rent	4,520
Manager's salary (for factory 80% and for office 20%)	12,000
Drawing office expenses	3,230
Counting House salary	6,990
Expenses for delivery van	7,550
Opening stock of raw materials	20,000
Closing stock of raw materials	16,000

Find out following percentage after preparing cost sheet:

- (1) Percentage of factory overheads with direct labour.
- (2) Percentage of office overheads with factory cost.
- (3) Percentage of selling and distribution expenses with production cost of goods sold.

In addition, it comes to knowledge that Manan Ltd. will receive an order for manufacturing special machine. For this special order, consumption of material is estimated ₹ 40,000 and expenses for labour will be ₹ 16,000. Company desires to earn profit at 16 2/3% on selling price.

Prepare Tender Sheet and decide the selling price.

[Sau. Uni., S.Y., Nov. 2014]

Solution:

Notes:

- (1) Income-tax, Donations etc. are financial items, not connected in any way with cost. So, they would not be shown in Cost Sheet.
- (2) Drawing office expenses would be treated as factory overhead, while Counting house salary would be considered as administrative expense.

Manan Machines Ltd. Cost Sheet for the year ended 31/3/2026

Particulars	₹	Total Cost ₹
Raw Materials Consumed:		
Opening stock of raw materials	20,000	
Add: Purchases of raw materials	2,00,000	
Add: Carriage Inward	2,000	
	2,22,000	
Less: Closing stock of raw materials	16,000	
Cost of raw materials consumed:		2,06,000
Add: Direct Labour		1,20,000
Prime Cost		3,26,000
Add: Factory Overheads:		
Depreciation on Machinery	8,500	
Factory rent	4,750	
Power	2,670	
Manager's salary (12,000 × 80%)	9,600	
Drawing office expenses	3,230	
Indirect labour	1,250	30,000
Works Cost / Factory Cost		3,56,000
Add: Office or Administration Overheads:		
Depreciation on Furniture	5,210	
Salary	16,480	
Office rent	4,520	
Manager's salary (12,000 × 20%)	2,400	
Counting House salary	6,990	35,600
Production Cost of Goods Produced		3,91,600
Add: Opening stock of finished goods		51,400
		4,43,000
Less: Closing stock of finished goods		43,000
Production Cost of Goods Sold		4,00,000
Add: Selling and Distribution Overheads:		
Carriage outward	1,450	
Advertisement expenses	7,500	
Packing expenses	3,500	
Expenses for delivery van	7,550	20,000
Cost of Sales (Total Cost)		4,20,000
Add: Profit		84,000
* Sales *		5,04,000

(1) Percentage of factory overheads with direct labour:

$$= \frac{\text{Rs. } 30,000}{\text{Rs. } 1,20,000} \times 100 = 25\%$$

(2) Percentage of office overheads with factory cost:

$$= \frac{\text{Rs. } 35,000}{\text{Rs. } 3,56,000} \times 100 = 10\%$$

(3) Percentage of selling and distribution expenses with production cost of goods sold:

$$= \frac{\text{Rs. } 20,000}{\text{Rs. } 4,00,000} \times 100 = 5\%$$

Estimated Cost Sheet for Special Machine

Particulars	Total Cost ₹
Consumption of Materials	40,000
Add: Direct Labour	16,000
Prime Cost	56,000
Add: Factory Overheads: (25% on direct labour)	4,000
Works Cost	60,000
Add: Office Overheads: (10% on works cost)	6,000
Production Cost	66,000
Add: Selling-distribution Overheads: (5% on production cost)	3,300
Cost of goods sold or Cost of sales	69,300
Add: Profit (16 ² / ₃ % on selling price or 20% on cost price)	13,860
* Tender Price *	83,160

Illustration 8: A firm manufactured and sold 1,000 typewriters in the year 2025. Its summarised Trading and Profit & Loss Account for the year 2025 is set out below:

Dr. Trading and Profit & Loss Account		Cr.	
Particulars	₹	Particulars	₹
To To Cost of Materials	1,60,000	By By Sales	8,00,000
To Direct Wages	2,40,000		
To Manufacturing charges	1,00,000		
To Gross Profit c/d	3,00,000		
	8,00,000		8,00,000
To Management & Staff Salaries	1,20,000	By By Gross Profit	3,00,000
To Rent, Rates & Insurance	20,000		
To General Expenses	40,000		
To Selling Expenses	60,000		
To Net Profit	60,000		
	3,00,000		3,00,000

For the year 2026, it is estimated that:

- (1) The output and sales will be of 1,200 typewriters.
- (2) Price of materials will rise by 20%.
- (3) Wage rates will rise by 5%.
- (4) Manufacturing charges will increase in proportion to the combined cost of Materials and Wages.
- (5) Selling expenses per unit will remain unchanged.
- (6) Other expenses will remain unaffected by the rise in output.

Prepare a statement showing the price at which typewriters to be manufactured in 2026 should be marketed so as to show a profit of 10% on selling price.

[North Guj. Uni., S. Y., April, 2016]

Solution:

COST SHEET for the year ended 31st December, 2025

(Output: 1,000 Typewriters)

Particulars	Per Unit ₹	Total ₹
Cost of Materials	160	1,60,000
Add: Direct Wages	240	2,40,000
Prime Cost	400	4,00,000
Add: Manufacturing overheads	100	1,00,000
Works Cost	500	5,00,000
Add: Administration Expenses:		
Management & Staff Salaries	1,20,000	
Rent, Rates & Insurance	20,000	
General Expenses	40,000	
Cost of Production	680	6,80,000
Add: Selling Expenses	60	60,000
Cost of Sales (Total Cost)	740	7,40,000
Add: Net Profit	60	60,000
Sales	800	8,00,000

ESTIMATED COST SHEET FOR 2026

(Output: 1,200 Typewriters)

Particulars	Per Unit ₹	Total ₹
Cost of Materials (160 + 20% Increase)	192	2,30,000
Add: Direct Wages (240 + 5% increase)	252	3,02,400
Prime Cost	444	5,32,800
Add: Manufacturing overheads (100 + 11% increase)	111	1,33,200
Works Cost	555	6,66,000
Add: Administration Expenses:		
Management & Staff Salaries	1,20,000	
Rent, Rates & Insurance	20,000	
General Expenses	40,000	
Cost of Production	705	8,46,000
Add: Selling Expenses (Same per unit as in 2025)	60	72,000
Cost of Sales (Total Cost)	765	9,18,000
Add: Net Profit (10% on S.P.)	85	1,02,000
Sales	850	10,20,000

Note: In 2025 combined cost of wages and materials per unit was ₹ 400; whereas in 2026 it will be ₹ 444. Thus there is an increase of ₹ 44 i.e. 11% (400 : 100 : 44 : ?)

Illustration 9: The following figures relate to cost of a commodity for the year ending on 31st March, 2025:

Particulars	₹
Raw materials purchased	41,000
Direct wages	13,000
Production expenses	5,200
Administrative expenses	7,800
Stock on 1st April, 2024:	
Raw materials	5,000
Finished goods (1,000 tons)	5,000
Stock on 31st March, 2025:	
Raw materials	7,000
Finished goods (2,000 tons)	10,000
Sale of Finished goods	82,500

Advertisement, discount allowed and selling expenses came to ₹ 0.50 paise per ton sold. The sales amounted to 12,000 tons during this period.

From the information given above, prepare A Statement showing

- (1) Cost per unit and
- (2) Profit for the period.

It is estimated by the manufacturing firm that production will be 15,600 tons for the year ending 31st March, 2026. You are required to calculate the selling price per ton of product, taking into account the following information:

- (1) Prices of materials will go up by 5% and wage rate will rise by 25% as compared to last year.
- (2) Production expenses will rise in proportion to the combined cost of materials and wages.
- (3) Administration overheads will remain unaffected by increase in output.
- (4) Selling expenses per unit will remain unaffected.
- (5) Last year's rate of profit is to be maintained.

[North Guj. Uni., T.Y., April, 2006; Guj. Uni., S.Y., April, 2013]

Solution: Production for the year ending 31st March, 2025 = Sales + Closing stock - Opening stock = 12,000 tons + 2,000 tons - 1,000 tons = 13,000 tons.

COST SHEET

Particulars	For the period 1/4/'15 to 31/3/'16 (output: 13,000 tons)		Budget for 1/4/'16 to 31/3/'17 (output: 15,600 tons)		
	Total ₹	Per Unit ₹	Increase ₹	Per Unit ₹	Total ₹
Raw Material Consumed:					
Opening Stock	5,000				
+ Purchases	41,000				
	46,000				
- Closing Stock	7,000				
	39,000	3.00	0.15	3.15	49,140
Add: Wages	13,000	1.00	0.25	1.25	19,500
Prime Cost	52,000	4.00	0.40	4.40	68,640
Add: Factory overheads	5,200	0.40	0.04	0.44	6,864
Factory Cost	57,200	4.40	0.44	4.84	75,504
Add: Administration overheads	7,800	0.60	-0.10	0.50	7,800
Cost of Production	65,000	5.00	0.34	5.34	83,304
Add: Opening Stock of Finished Goods	5,000				
	70,000				
Less: Closing Stock	10,000				
	60,000	5.00	0.34	5.34	83,304
Add: Selling overheads	6,000	0.50	-	0.50	7,800
Cost of Sales/Total Cost	66,000	5.50	0.34	5.84	91,104
Add: Profit (25% on cost)	16,500	1.375	0.085	1.46	22,776
* Sales *	82,500	6.875	0.425	7.30	1,13,880

Illustration 10: Following particulars have been extracted from the cost records of Bhavya Manufacturing Co. Ltd. during the year 2025:

Particulars	₹	Particulars	₹
Direct Materials	16,00,000	Direct Wages	8,00,000
Direct Expenses	2,00,000	Factory Expenses	6,00,000
Office Expenses	3,00,000	Selling Expenses	4,00,000

Production was of 8,000 tables during the year and have been sold out for ₹ 46,80,000. It is ascertained that 30% of the factory expenses and 20% of selling expenses are fixed.

During the year 2026 the company plans to manufacture 10,000 tables. You have to prepare:

A cost sheet for the year 2026, showing the price at which table be sold, so as to get same rate of profit on cost as in the year 2025.

When cost of direct materials per unit will increase by 15% and direct wages per unit will increase by 10%. Fixed factory expenses will increase by ₹ 20,000. Office expenses will increase by 20% but otherwise no changes are anticipated.

[Sau. Uni., T.Y., April, 1997., North Guj. Uni., S.Y., April, 2016]

Solution:

Bhavya Manufacturing Co. Ltd.

Cost Sheet for the year ended 31/12/2025

[Production: 8,000 Tables]

Particulars	Per Unit ₹	Total ₹
Direct Materials	200.00	16,00,000
Add: Direct Wages	100.00	8,00,000
Direct Expenses	25.00	2,00,000
Prime Cost	325.00	26,00,000
Add: Factory Overheads:		
Fixed (6,00,000 × 30%)	22.50	1,80,000
Variable (6,00,000 × 70%)	52.50	4,20,000
Works Cost	400.00	32,00,000
Add: Office Overheads:		
Fixed	37.50	3,00,000
Cost of Production	437.50	35,00,000
Add: Selling-distribution Overheads:		
Fixed (4,00,000 × 20%)	10.00	80,000
Variable (4,00,000 × 80%)	40.00	3,20,000
Cost of Sales (Total Cost)	487.50	39,00,000
Add: Net Profit	97.50	7,80,000
Sales	585.00	46,80,000

Rate of Profit in 2025:

$$\text{Rate of profit on cost} = \frac{\text{Rs.7,80,000}}{\text{Rs.39,00,000}} \times 100 = 20\%$$

Cost Concepts and Cost Sheet

Estimated Cost Sheet for 2026 (Production: 10,000 Tables)

Particulars	Per Unit ₹	Total ₹
Direct Materials (200 + 30% increase)	230.00	23,00,000
Add: Direct Wages (100 + 10% increase)	110.00	11,00,000
Direct Expenses	25.00	2,50,000
Prime Cost	365.00	36,50,000
Add: Factory Overheads:		
Fixed (1,20,000 + 20,000 increase)	20.00	2,00,000
Variable	52.50	5,25,000
Works Cost	437.50	43,75,000
Add: Office Overheads:		
Fixed (3,00,000 + 20% increase)	36.00	3,60,000
Cost of Production or Office Cost	473.50	47,35,000
Add: Selling-distribution Overheads:		
Fixed	8.00	80,000
Variable	40.00	4,00,000
Total Estimated Cost	521.50	52,15,000
Add: Profit (20% on cost)	104.30	10,43,000
Sales	625.80	62,58,000

Illustration 11: The Trading and Profit and Loss Account of Bajaj Mfg. Co. for the year ending 31/12/2025 are as follows:

Dr. Trading and Profit & Loss Account Cr.			
Particulars	₹	Particulars	₹
To Raw materials purchased	68,000	By Sales	2,50,000
To Carriage inward	3,000	By Closing stock of Raw Materials	4,000
To Productive wages	36,000		
To Railway freight	3,000		
To Production expenses	14,000		
To Gross Profit c/d	1,30,000		
	2,54,000		2,54,000
To Office salaries	16,000	By Gross Profit b/d	1,30,000
To Office rent	15,000	By Interest	10,000
To Other Adm. Expenses	9,000	By Discount received	1,000
To Advertising	3,000	By Sundry receipts	2,500
To Distribution cost	6,000		
To Other selling cost	5,470		
To Commission on sales (per unit ₹ 6)	15,000		
To Net Profit	74,030		
	1,43,500		1,43,500

Estimates for the year 2026 are as under:

- (1) Output and sales will rise by 40%.
- (2) Price of material will rise by 12.5%; carriage inward and railway freight will rise in proportion to output.
- (3) Because of increase in output, five new workers will be recruited and each will be paid a salary of ₹ 150 per month.
- (4) Half the production expenses is variable. Fixed cost will rise by 25%.
- (5) The company has purchased the rented house from 1/1/2026 in respect of which the municipality has assessed rates and taxes of ₹ 6,000.
- (6) Office salaries will rise by 8%.
- (7) Distribution cost includes packing charges at the rate of ₹ 1 per unit.

Prepare a statement showing selling price per unit for 2026 if the sales are to be made so as to make a profit of 25% on selling price.

Solution:

(1) The number of units sold in 2025 will be calculated on the basis of commission on sales. Commission of ₹ 6 is payable on sale of 1 unit, therefore if ₹ 15,000 is paid for commission, the number of units sold will be 2,500.

(2) The production and sales during 2026 will rise by 40% i.e. $2,500 \times 40\% = 1,000$ units and thus it will be $2,500 + 1,000 = 3,500$ units.

The cost of raw materials used for 2,500 units during 2025 was ₹ 64,000 (₹ 68,000 purchases Less ₹ 4,000 closing stock); On that basis the cost for 3,500 units would have been ₹ 89,600, but there would be a price rise of 12.5% during 2026 i.e. there would be a price rise of ₹ 11,200. Thus the total cost of raw material will be ₹ 1,00,800.

(4) If there is no proportionate increase in the number of workers during 2026, and only 5 new workers are recruited, then there will be an increase of ₹ 9,000 in total wages for 5 workers at ₹ 150 p.m. for 12 months.

(5) Half of the production expenses is variable which comes to ₹ 7,000. This will rise in proportion to production. For 2,500 units it was ₹ 7,000 then for 3,500 units it will be ₹ 9,800; The remaining ₹ 7,000 are fixed expenses which will rise by 25% i.e., there will be an increase of ₹ 1,750; thus the total fixed expenses will be ₹ 8,750; Total Production Expenses = $9,800 + 8,750 = ₹ 18,550$.

(6) Now office rent will not be payable in 2026, as the company has purchased the building but the rates and taxes of ₹ 6,000 will have to be paid.

(7) Office salaries are ₹ 16,000 which will increase by 8% i.e., by ₹ 1,280; thus the total salaries will be ₹ 17,280.

(8) Distribution cost includes ₹ 1 packing charge per unit which will rise by ₹ 1,000 due to increase in sales by 1,000 units i.e., the total distribution cost will be ₹ 7,000.

(9) It is assumed that other administrative expenses, other selling expenses and advertising expenses have remained at the same level.

(10) Railway freight and carriage inward for 2,500 units were ₹ 3,000 which will rise proportionately for 3,500 units to ₹ 4,200 ($3,000 \times 3,500/2,500$).

Estimated Cost Sheet for the year 2026

Particulars	₹	Total Cost ₹
Raw Materials Consumed	89,600	
+ 12.5% increase	11,200	
Add: Carriage inward (3,000 + 1,200 increase)	4,200	
Add: Railway freight (3,000 + 1,200 increase)	4,200	1,09,200
Add: Production Wages	36,000	
+ Wages of five new workers	9,000	45,000
Prime Cost		1,54,200
Add: Production overheads:		
Variable	9,800	
Fixed (7,000 + 1,750 increase)	8,750	18,550
Factory Cost		1,72,750
Add: Administration overheads:		
Office salaries (16,000 + 1,280 increase)	17,280	
Muni. rates and taxes	6,000	
Other Adm. expenses	9,000	32,280
Cost of Production		2,05,030
Add: Selling and Distribution Overheads:		
Advertising	3,000	
Distribution Expenses (6,000 + 1,000 increase)	7,000	
Other selling Expenses	5,470	
Commission on Sales ($3,500 \times ₹ 6$)	21,000	36,470
Cost of Sales (Total Cost)		2,41,500
Add: Profit 25% on selling price (or $33 \frac{1}{3}\%$ on cost)		80,500
* Sales (for 3,500 units) *		3,22,000

$$\begin{aligned} \text{Selling Price per unit} &= \frac{\text{Rs. } 3,22,000}{3,500 \text{ Units}} \\ &= ₹ 92. \end{aligned}$$

Variable Expenses and Fixed Expenses:

In the overheads or indirect expenses there are certain expenses which are variable, changing with change in total production and also certain fixed expenses which do not change in total e.g. power bill of a factory is a variable factory overhead, while factory rent is a fixed expense, which does not change with increase or decrease in total output.

In preparing a statement of tender, the fixed expenses are to be shown on the basis of last year's expenses the total fixed expenses remain the same, irrespective of change in production e.g. if the factory rent for the last year was ₹ 80,000, it will be ₹ 80,000 for the current year also. If last year the production was 8,000 units, then per unit fixed cost was ₹ 10. If during the current year the production increases to 10,000 units, then also the total fixed cost will remain the same at ₹ 80,000. But per unit fixed cost will be $\text{₹ } 80,000 \div 10,000 \text{ units} = \text{₹ } 8 \text{ per unit}$. Thus per unit fixed cost has decreased.

If it is stated that fixed expenses are likely to increase by 10% during the current year, then the fixed expenses of $\text{₹ } 80,000 + 10\% \text{ increase } \text{₹ } 8,000 = \text{₹ } 88,000$ will be the total fixed cost. So, the fixed cost per unit will be $\text{₹ } 88,000 \div 10,000 \text{ units} = \text{₹ } 8.80 \text{ per unit}$.

Variable expenses are those which change with the change in total output. If the output is doubled then these expenses will also be doubled. E.g. cost of raw material used is variable expenses. If cost of raw material used is ₹ 1,00,000 for 10,000 units produced, then for 20,000 units produced, it will be ₹ 2,00,000. This per unit variable cost will remain the same, but the total variable cost will increase or decrease with the change in output.

In a tender statement, per unit variable expenses will remain the same during the current year, as it was during last year. Here, the total expense is not important but per unit cost is important e.g. if the variable factory overhead during the last year was ₹ 40 then in the tender statement of the current year also, it will be shown as ₹ 40 per unit. If however, it is stated that the variable expenses will increase by 20% during the current year, then the variable cost per unit will be $\text{₹ } 40 + 20\% \text{ increases } 8 = \text{₹ } 48 \text{ per unit}$.

Remember that

- (1) The fixed expenses remain the same in total, while per unit fixed cost changes with changes in output
- (2) Variable expenses remain the same per unit, while the total cost changes.

The Dinesh Mills Company sold all its production for ₹ 3,60,000 during the year 2025. The cost per unit of the company was as under:

Particulars	₹
Material Expenses	
Add: Wages	60
Add: Direct Expenses	45
Add: Factory Overheads:	15
Fixed	
Variable	6
Add: Office Overhead expenses	9
Fixed	
Add: Sales Overhead expenses	15
Fixed	
Variable	9
	6
Total Cost	165
Add: Profit	15
Sales Price	180

Out of the total production capacity of the company 80% of the production was done in 2025, while the estimate for the year 2026 is as under:

- (1) During the first six months of 2026, the production will be 80% of its capacity and for the remaining six months it will be 100%.
- (2) There will be 20% increase in all variable expenses while there will be 10% increase in all fixed expenses.

Prepare a statement showing tender price for the year 2026. Company intends to realise $33\frac{1}{3}\%$ profit on sales price.

[Guj. Uni., S.Y., April, 1996]

Solution:

- (1) First, let us find out how many units were produced during last year.

Sales ₹ 3,60,000 ÷ ₹ 180 selling price per unit = 2,000 units.

Now, this production of 2,000 units was at 80% capacity and so the production at 100% capacity will be $2,000 \times 100/80 = 2,500$ units.

- (2) Now, we should calculate, how many units will be produced during 2026:
 - (i) During first 6 months, the production will be 80% and at 80% annual production is 2,000 units, so for 6 months it will be 1,000 units
 - (ii) During the remaining 6 months production will be 100%.

At 100% capacity the annual production is 2,500 units,

So, for 6 months, it will be $2,500 \times 1/2 = 1,250$ units

- (3) It is stated that the company wants to earn profit of $33\frac{1}{3}\%$ on selling price. But from the cost sheet, we shall get cost price and not selling price. Hence, this percentage on selling price should be converted into the percentage on cost price.

Here, percentage is given on selling price, hence, we assume selling price to be ₹ 100

If selling price

Less: Profit at 33 1/3%

Cost

If Cost is, ₹ 66.67 then profit is ₹ 33.33

∴ for ₹ 100 cost, profit is (?)

$$= \frac{100 \times 33.33}{66.67} = 50\%$$

∴ 33 1/3% profit on selling price = 50% profit on cost

(4) Here it is stated that variable expenses will increase by 20%. It means that per unit variable expenses should be increased by 20%.

While there is going to be 10% increase in fixed expenses. This means that the total fixed expenses will increase by 10%.

Estimated Cost Sheet for the year 2026

[Output: 2,250 Units]

Particulars	Per Unit ₹	Total ₹
Cost of Material (₹ 60 + 20% increase)	72	1,62,000
Add: Wages (₹ 45 + 20% increase)	54	1,21,500
Add: Direct Expenses (₹ 15 + 20% increase)	18	40,500
Prime Cost	144	3,24,000
Add: Factory Overheads:		
(1) Total Fixed Expenses: (Last year 2,000 units × ₹ 6 = ₹ 12,000 + 10% increase 1,200 = ₹ 13,200)	5.87	13,200
(2) Variable cost per unit (₹ 9 + 20% increase 1.80 = 10.80)	10.80	24,300
Works Cost	160.67	3,61,500
Add: Office Overheads (Fixed):		
Total Expenses (2,000 units × ₹ 15 = 30,000 + 10% increase 3,000 = ₹ 33,000)	14.67	33,000
Cost of Production	175.34	3,94,500
Add: Selling and Distribution Overheads		
(1) Total Fixed Exp. (2,000 × ₹ 9 = 18,000 + 10% increase 1,800 = ₹ 19,800)	8.80	19,800
(2) Variable cost per unit (₹ 6 + 20% increase 1.20 = ₹ 7.20)	7.20	16,200
Total Cost	191.34	4,30,500
Add: Profit 50% on cost price	95.66	2,15,250
Sales	287.00	6,45,750

Sometimes it becomes difficult to separately record the overheads of different items produced in the factory. In such circumstances, overheads are combined for two or more items and recorded as such for administrative convenience.

Finally, they are apportioned over various articles produced on some reasonable basis. The bases selected for allocation depends upon the nature of production, the type of expenses and the number of units produced, some bases of allocation are determined on permanent basis in a manufacturing unit.

For this purpose, the overheads are grouped into fixed expenses and variable. A certain percentage of variable expenses and fixed expenses on the cost of materials used or wages paid or on prime costs is taken into account.

Illustration 13:

M/s. Raj Enterprise manufactures two types of pipes 'A' and 'B': Production cost for the year ended 31st March, 2026 were:

Particulars	₹
Raw materials consumed	6,30,000
Direct Wages	2,94,000
Direct expenses	1,11,000
Factory Indirect expenses	1,56,000

Additional information is as under:

- (1) Direct materials per unit for type 'A' pipe consists four times as much as that in type 'B' pipe.
 - (2) Direct wages per unit for type 'B' were 60 % of those for type 'A'.
 - (3) Direct expenses per unit for type 'B' is ₹ 3 and remaining expenses for the type 'A'.
 - (4) Factory overheads per unit was same for 'A' and 'B'.
 - (5) Office overheads for each type was 20% of prime cost.
 - (6) Selling cost for 'A' and 'B' ₹ 9 and ₹ 6 respectively.
 - (7) Production and sales during the year:
 'A' Type - 7,500 pipes of which 7,000 were sold.
 'B' Type - 12,000 pipes of which 11,800 were sold.
 - (8) Selling price per pipe for 'A' ₹ 150 and for 'B' ₹ 65.
- Prepare a cost-sheet showing cost per pipe and total cost.

[Sau. Uni., T.Y., March, 1998]

Solution:**Notes:**

- (1) The material cost of type 'A' is four times that of B. But the number of units of both types is not the same. Hence, the total material cost is to be divided between A and B in the proportion of the combined effect of the expenses and quantity both combined.

$$\text{Pipe A: Production } 7,500 \times 4 \text{ times} = 30,000$$

$$\text{Pipe B: Production } 12,000 \times 1 = 12,000$$

$$\therefore \text{The proportion of apportionment} = 30,000 : 12,000 \\ = 5 : 2$$

- (2) The direct wages would also be divided as in case of materials.

Suppose the per unit wages of A are ₹ 1, so the labour cost per unit of B would be ₹ 0.60. So, the proportion of apportionment of labour cost would be as follows:

$$\text{Pipe A: Units } 7,500 \times 1 = 7,500$$

$$\text{Pipe B: Units } 12,000 \times 0.60 = 7,200$$

$$\therefore \text{The proportion would be} = 7,500 : 7,200 \\ = 25 : 24$$

- (3) The direct expenses of pipe B are ₹ 3 per unit, and the combined expenses of A and B is ₹ 1,11,000. Taking this into account, the direct expenses of pipe A per unit would be determined as follows:

Combined expenses	₹ 1,11,000
Less: Less: B's share of exp. (12,000 × ₹ 3)	₹ 36,000
Share of Pipe A in total expenses	<u>₹ 75,000</u>

$$\therefore \text{Direct expense of Pipe A per unit} = \frac{\text{Rs. } 75,000}{7,500 \text{ Units}} \\ = ₹ 10$$

- (4) Factory overheads of both types of pipes are equal per unit. Hence, factory overheads would be treated as variable expenses. The factory overheads per unit for both types of pipe would be calculated as follows:

$$\begin{aligned} \text{Factory expenses per pipe} &= \frac{\text{Total Factory Expenses}}{\text{Units of A + Units of B}} \\ &= \frac{1,56,000}{7,500 + 12,000} \\ &= \frac{1,56,000}{19,500} \\ &= ₹ 8 \end{aligned}$$

- (5) Office overheads per pipe are calculated at 10% of the prime cost of each type.
- (6) Selling and distribution expenses would be calculated by multiplying the number of units by expenses per unit.
- (7) In cost accounts, the closing stock would be valued at cost of production of finished goods.

M/s. Raj Enterprise
Statement of Cost and Profit for the year ended 31/3/2026

Particulars	Combined Cost ₹	Pipe A (Production 7,500 Pipes)		Pipe B (Production 12,000 Pipes)	
		Total Cost ₹	Per Unit ₹	Total Cost ₹	Per Unit ₹
Materials consumed	6,30,000	4,50,000	60	1,80,000	15
Add: Direct wages	2,94,000	1,50,000	20	1,44,000	12
Add: Direct expenses	1,11,000	75,000	10	36,000	3
Prime Cost	10,35,000	6,75,000	90	3,60,000	30
Add: Factory Overheads per pipe ₹ 8	1,56,000	60,000	8	96,000	8
Works Cost	11,91,000	7,35,000	98	4,56,000	38
Add: Office Overheads 20% on Prime Cost	2,07,000	1,35,000	18	72,000	6
Production Cost of Goods Produced	13,98,000	8,70,000	116	5,28,000	44
Less: Closing stock of finished goods	66,800	58,000	—	8,800	—
Production Cost of Goods Sold	13,31,200	8,12,000	116	5,19,200	44
Add: Selling overheads Pipe A: ₹ 9 and Pipe B: ₹ 6	1,33,800	63,000	9	70,800	6
Cost of Sales	14,65,000	8,75,000	125	5,90,000	50
Add: Profit	3,52,000	1,75,000	25	1,77,000	15
Sales	18,17,000	10,50,000	150	7,67,000	65

Calculation of division of Combined Expenses:

(1) The cost of raw materials to be divided in the ratio of 5 : 2

$$\text{Pipe A: } 6,30,000 \times \frac{5}{7} = ₹ 4,50,000$$

$$\text{Pipe B: } 6,30,000 \times \frac{2}{7} = ₹ 1,80,000$$

(2) Direct wages would be divided in the proportion of 25 : 24

$$\text{Pipe A: } 2,94,000 \times \frac{25}{49} = ₹ 1,50,000$$

$$\text{Pipe B: } 2,94,000 \times \frac{24}{49} = ₹ 1,44,000$$

(3) Direct Expenses: Pipe A per unit ₹ 10 and Pipe B per unit ₹ 3.

(4) Factory overhead is variable expense. In both types of pipe per unit it is ₹ 8.

(5) Selling expenses for both types of pipes would be calculated as follows:

$$\text{Pipe A: No. of pipes sold } 7,000 \times ₹ 9 \text{ per pipe} = ₹ 63,000$$

$$\text{Pipe B: No. of pipes sold } 11,800 \times ₹ 6 \text{ per pipe} = ₹ 70,800$$

(6) The value of closing stock of finished goods would be calculated at cost of production:

$$\text{Units in stock of A} = 7,500 - 7,000 = 500 \text{ pipes}$$

$$\begin{aligned} \text{Value of closing stock of Type A} &= 500 \times \text{Production cost of per pipe ₹ 116} \\ &= ₹ 58,000 \end{aligned}$$

$$\text{Pipe B closing units} = 12,000 - 11,800 = 200 \text{ pipes.}$$

$$\begin{aligned} \text{Value of closing stock of Type B} &= 200 \times \text{Production cost of per pipe ₹ 44} \\ &= ₹ 8,800. \end{aligned}$$

12. RECTIFICATION OF DEFECTIVE GOODS:

It is not possible that all units manufactured will be good units. Some defective units are bound to occur. If the defects can be rectified, efforts are made for it. For rectifying the defects, some expenses on material and labour are bound to be incurred. Such reasonable expenses are treated as factory overheads and absorbed in cost like that.

Illustration 14:

The following particulars are obtained from the records of a factory:

Materials issued ₹ 64,000; Wages paid ₹ 56,000; Factory Overheads 60% of Wages. Out of the materials issued ₹ 800 worth of goods have been returned to the stores and ₹ 400 transferred to other jobs.

10% of the production has been scrapped as bad and a further 20% has been brought up to the specification by increasing the factory overhead to 80% of the Wages.

If the scrapped production fetches only ₹ 470, find the production cost per unit of the finished product if the total product (including the quantity scrapped) be 100 units.

Solution: Statement of Cost

Particulars	Total Cost ₹	Units Produced
Materials Consumed:		
Materials issued 64,000		
Less: Returns to Stores 800		
Less: Transferred to other jobs 400		
Add: Wages	62,800	
Prime Cost	56,000	
Add: Factory Overheads (60% of wages)	1,18,800	
	33,600	
	1,52,400	100
Less: Sale proceeds of scrapped production (10% of the production)	470	10
	1,51,930	90
Add: 20% of the production brought to specification by increasing factory overhead to 80% of the wages*	2,240	
Cost of Production	1,54,170	90

Production Cost per unit ₹ 1,54,170 ÷ 90 units = ₹ 1,713

***Note:** 20% of the total production has been brought to the specification by increasing the factory overheads to 80% of wages. Factory overheads are recovered at 60% of wages. Hence, in order to make it 80% of wages, 20% has to be increased, which will be calculated as under: Wages of 20% of production 56,000 × 20/100 = 11,200.

Increase of Factory Overheads by 20% in that = 11,200 × 20/100 = ₹ 2,240.

13. COST ACCOUNT OR PRODUCTION ACCOUNT:

Sometimes, instead of preparing Cost-Sheet, a Cost Account can be prepared showing details of costs of jobs, processes or contracts. The same details are available from this account as in Cost sheet.

Cost Account is prepared in the same way as the Production Account in the financial accounts. The difference is that the administrative and selling overheads are shown in the Cost Account, while they are not shown in Production Account in financial accounts. Administrative and selling expenses are shown in Profit & Loss Account.

14. IMPORTANT POINTS:

(1) **Industries:** Unit costing is applicable in industries where units produced are identical and there is a natural unit of output like metre, litre etc.

(2) **Cost Sheet:** In unit costing, a cost sheet or cost statement is prepared to find out cost of production per unit of output. The expenses incurred on production are divided into two parts: Direct and Indirect. Direct expenses include material and labour cost. The total of these two is called Prime Cost. The indirect expenses or overheads are divided into three groups: Factory (or works) overhead, Administrative (or office) overhead and selling and Distribution overhead. When factory overheads are added to prime cost, the factory cost or works cost is obtained. When office overheads are added to Factory cost, the total amount obtained is called Cost of Production. By adding selling and distribution overheads to cost of production, we get Cost of Sales or Total Cost. Of course, before adding selling overheads, it is necessary to make adjustment for stock of finished goods. The opening stock is added to the cost production and closing stock is deducted therefrom to get cost of production of goods sold.

(3) **Cost of Materials Consumed:** If the cost of materials used is not directly given in the example, then it is to be found out as follows. Opening stock of raw material and purchases of raw materials, including purchase expenses are added and the closing stock of raw material is deducted. This will give the cost of raw materials used. If the sale of scrap of material is given, it is deducted to get the cost of materials consumed.

(4) **Valuation of Work-in-Progress:** When opening and closing stock of work in progress are given, it is necessary to know at which price they are valued. If work in progress is valued at prime cost, then the opening stock is added and closing stock is deducted before finding out prime cost. If however, work-in-progress is valued at factory cost, then opening stock is added and closing stock is deducted, before finding out Factory Cost or Works Cost.

(5) **Cost Sheet in Account Form:** A cost sheet can also be presented in the form of an Account. In such a case, all expenses are written on the debit side and the total of debit side is shown on credit side in stages to show prime cost, factory cost and cost of production. While finding out gross profit, the opening stock of finished goods is shown on debit side and closing stock is shown on credit side.

(6) **Overheads to be Added as a Percentage in Tender:** Frequently, students are asked to find out tender price or find out cost for future period, on the basis of figures given for the current period. In such a case, the future estimate is put on the basis of current year's expenses, with some changes, if any. But generally the figures of overheads are not given.

In that case, the percentages of overheads have to be found out as follows and they are used for future estimates:

- (1) Percentage of Factory Overhead to Direct Wages.
- (2) Percentage of Administrative Overhead to Factory Cost.

Tender statement is to be prepared on the basis of these percentages. The cost of raw materials used and direct wages for the future are given. If some increase is likely to take place in future in overheads, then the overhead on the basis of above percentage is first found out and then the increase is added to it.

(7) Estimate of Overhead per Unit of Output: Sometimes in a tender statement, overhead is sometimes added not on the basis of percentage as above, but at the particular rate per unit produced. The number of units produced during current year and the number of units likely to be produced in future or for tender are given in the example. In such a case, there is no need to find out above percentages of overheads. But for current year the rate of overhead per unit of output is found out. Then overhead on that basis is added in the future estimate according to the number of units to be produced. Any increase or decrease likely to take place must be taken into account.

(8) Profit to be Added for Tender: In an example, the profit to be added for tender is to be taken at the same rate as that of current year. In such a case, percentage of profit on sales or on cost for the current year is found out. The same percentage of profit is added in the tender statement.

(9) Percentage Converted: If the percentage of profit is given on sales, then it can be converted into percentage on cost as follows.

- (1) 10% profit on sales = 11 1/9% on cost (1/9th)
- (2) 16 2/3% profit on sales = 20% on cost (1/5th)
- (3) 20% profit on sales = 25% on cost (1/4th)
- (4) 25% profit on sales = 33 1/3% on cost (1/3rd)
- (5) 33 1/3% profit on sales = 50% on cost (1/2)
- (6) 50% profit on sales = 100% on cost

(10) Sale of Scrap: If the item of sale of scrap is given in the example, it is deducted from total before arriving at factory cost. However, if the sale is of material scrap, it should be deducted before obtaining cost of raw materials used.

(11) Fixed and Variable Expenses: Sometimes, the expenses are given in the example as divided between two parts: fixed and variable. In such a case the total amount of fixed expenses must be added without change. While, the variable expenses should be added per unit of output.

(12) Change in Fixed Expenses: If any increase or decrease is given, then it is added to the total fixed expenses given. This is because, the fixed expenses remain fixed in total.

(13) Change in Variable Expenses: The variable expenses per unit remain unchanged. Hence, in the tender statement, per unit variable expenses of the current year should be added. If there is any increase or decrease, then the change in per unit expenses must be made.