UNIT 10 UNIT COSTING

Structure

10.0 OBJECTIVES

After studying this unit, you should be able to:

- prepare cost sheet and ascertain the prime cost, the factory/works cost, the cost of production, the cost of goods sold, the cost of sales and profit
- prepare production account
- prepare a statement of quotation and ascertain the selling price/price of the tender.

1 . INTRODUCTION

. Unit costing is one of the most 'commonly used method of costing by firms which are engaged in manufacturing products with identical units such' as coal, bricks, shoes, sugar, cement, etc. Under this method, cost and profit per unit of output is ascertained by preparing monthly or quarterly cost sheets showing details of the various components of total cost. In this unit, you will learn how cost sheet is prepared and how cost and profit per unit of output is determined.

10.2 MEANING AND APPLICABILITY

Unit costing refers to a method of costing used by industries engaged in mass production of homogeneous/identical products. The basic feature of unit costing is that the cost units are identical. Unit costing is also known as "Single Output Costing". Single or Output Costing is the torm of unit costing used when the enterprise produces basically one homogeneous product or one homogeneous product in two or more grades. Under this method, the cost per unit is arrived at by dividing the total cost by the total number of units produced. Thus, the cost ascertainment involves the following two stages:

i) collection and functional analysis of all costs,

ii) division of total cost by the total number of units produced in order to determine the cost per unit.

This procedure is applicable only when the organisation produces only one product. If, however, the organisation produces several grades of the same product, it becomes imperative to apportion the various costs between the various grades so that the cost of each grade can be determined separately.

Unit costing method can be successfully applied in those industries engaged in assembling, such as automobiles, electronics, typewriters, etc., and also in those industries engaged in production of homogeneous products, such as collieries, quarries, brick making, brewaries, dairies, sugar, cement works etc.

10.3 PREPARATION OF STATEMENT OF COST/ COST SHEET

Under this method of costing, it is customary to prepare a statement of cost which is popularly known as 'Cost Sheet' at periodical intervals. It shows detailed break-up of the total cost and the cost per unit at each stage. It should contain as much information regarding costs as may be necessary for the purposes of cost analysis and cost control. In actual practice, the corresponding figures of the preceding period are also shown in the Cost Sheet for purposes of comparison. This facilitates cost control.

You learnt about the preparation of Cost Sheet in Unit 3 Block 1. We shall now study about it in more detail. The proforma of Cost Sheet is given here again in Figure 10.1.

Figure 10.1 : Proforma of Cost Sheet

COST SHEET OF .....

for the month ending .....

Output : ..... Units

		Total Rs.	Per Unit Rs.
Raw Materials Consumed			
Opening Stock of Raw Materials	.....		
Add : Purchases of Raw Materials	.....		
	.....		
Less : Closing Stocks of Finished Goods	.....		
		.....	.....
Direct Labour		.....	.....
Other Direct Expenses		.....	.....
PRIME COST		.....	.....
Fnctory Overheads			
.....	.....		
.....	.....		
.....	.....		
		.....	.....
WORKS COST		.....	.....
Office & Administrative Overheads			
.....	.....		
.....	.....		
.....	.....		
		.....	.....

COST OF PRODUCTION	.....	.....
(..... units)		
Add : Opening Stock of Finished Goods	.....	.....
(..... units)		
Less : Closing Stock of Finished Goods	.....	.....
(..... units)		
COST OF GOODS SOLD	.....	.....
(..... units)		
Selling & Distribution Overheads		
.....	.....	
.....	.....	
.....	.....	
	.....	.....
COST OF SALES	.....	.....
(..... units)		
PROFIT (LOSS)	.....	.....
SALES/SELLING PRICE	.....	.....

Look at Illustration I and see how Cost Sheet is prepared from the given data.

Illustration 1

In a factory 20,000 units of Product X were manufactured in the month of September, 1990. From the following figures obtained from the costing records, prepare a Cost Sheet showing the total cost and cost per unit :

	Rs.
Direct Material Consumed	2,00000
Direct Wages	1,60000
Other Direct Expenses	40000
Factory Overheads	80000
Office & Administrative Overheads	60000
Selling & Distribution Overheads	60000

Solution

Cost Sheet of Product 'X' for the Month of September, 1990

Output : 20,000 Units

	Total Cost	Cost Per Unit
	Rs.	Rs.
Cost of Direct Materials	2,00,000	10.00
Cost of Direct Labour	1,60,000	8.00
Cost of Other Direct Expenses	40,000	2.00
PRIME COST	4,00,000	20.00
Add : Factory Overheads	80,000	4.00
FACTORY/WORKS COST	4,80,000	24.00
Add : Office & Administrative Overheads	60,000	3.00

COST OF PRODUCTION	5,40,000	27.00
Add : Selling & Distribution Overheads	60,000	3.00
TOTAL COST/COST OF SALES	6,00,000	30.00

Note : Cost per *unit* for each component of total cost has been arrived at by dividing the amount by the total output.

10.3.1 Ascertainment of Cost of Direct Materials

While considering the cost of direct materials, only the cost of direct materials actually used or consumed should be taken into account. Normally, all the raw materials purchased in a particular period are not consumed during the same period. Certain amount of raw materials is always kept in stock so that production may not be interrupted for want of materials. In most cases, the cost of direct materials actually used in production is not given. It should be determined in the following manner :

Cost of Direct Materials Used in Production			Rs.
Cost of Opening Stock of Raw Materials		.....	
Add : Cost of Raw Materials purchased	.....		
Add : Carriage/Freight on purchases, if any	.....	.....	
Cost of Raw Materials available for use		.....	
Less : Cost of Closing Stock of Raw Materials		.....	.....

Look at Illustration 2 and see how cost of direct materials consumed is worked out.

Illustration 2

From the particulars given below, determine the cost of direct materials consumed.

	Rs.
Opening Stock of Raw Materials	40,000
Purchase of Raw Materials	2,40,000
Carriage Inwards	20,000
Closing Stock of Raw Materials	50,000
Carriage Outwards	20,000
Production Wages	1,80,000

Solution

Cost of Direct Materials Used in Production		Rs.	Rs.
Cast of Opening Stock of Raw Materials		40,000	
Add : Cost of Raw Materials purchased	2,40,000		
Add Carriage Inward	20,000	2,60,000	
Cost of Raw Materials available for use		3,00,000	
Less : Cost of Closing Stock of Raw Materials		50,000	2,50,000

Value of stock of raw materials may be determined in any one of the methods discussed in Unit 5 on materials. However, in the absence of any indication in the given problem, it would be better to value the stock of raw materials on FIFO basis and to give a note to that effect.

10.3.2 Ascertainment of Cost of Direct Labour

While considering the cost of direct labour, only the cost of direct labour actually used in production should be taken into account. If there are outstanding or prepaid direct wages, the same should be adjusted in the following manner :

Cost of Direct Labour Used in Production	Rs.	
Direct Wages paid	.....	
Add : Outstanding Direct Wages, if any	.....	
Less : Pre-paid Direct Wages, if any	.....	.....
	.....	

10.3.3 Ascertainment of Cost of Other Direct Expenses/ Chargeable Expenses

Similarly, if there are outstanding or pre-paid direct/chargeable expenses, the same should be adjusted in the same manner as direct labour in order to ascertain the actual cost of direct/chargeable expenses. These expenses include hire-charges paid for special machinery or plant taken on hire, cost of special moulds, designs, and patterns, cost of patents and royalties, etc.

10.3.4 Ascertainment of Prime Cost

Prime cost refers to the direct cost. It is the sum total of three direct elements of cost i.e., direct materials, direct labour and other direct expenses.

While determining the prime cost, we should always take the summation of the cost of direct materials, direct labour and expenses actually used in production. However, it is important to note here that direct materials will not form part of prime cost in those industries where the product is extracted from natural resources like collieries, quarries.

10.3.5 Ascertainment of Factory/ Works Cost

Factory/Works Cost refers to the summation of prime cost and factory overheads. Factory overheads include cost of indirect materials, indirect labour and other indirect expenses incurred in the factory which are related to production. It is determined as follows :

	Rs.
Cost of Direct Materials	.....
Cost of Direct Lubour	.....
Cost of other Direct Expenses	.....
PRIME COST	.....
Add Rctory Overheads	.....
FACTORY/WORKS COST	.....

Illustration 3

From the following particulars, prepare a statement showing (a) Cost of Direct Materials consumed, (b) Prime cost, (c) Factory overheads and (d) Factory Cost.

	Rs.
Stock of Raw Materials on 1.4.90	24,000
Stock of Raw Materia.. on 30.4.90	31,000
Purchase of Raw Materials	1,10,000
Productive Wages	75,000
Drawing Office Salaries	7,800
Counting House Salaries	8,500
Freight on Purchase of Materials	6,000
Rent, Ratcs, Tnxcs & Insurance (Factory)	9,000
Rent, Ratcs, Taxes & Insurance (Office)	6,000
Carriage Outwards	9,500
Repairs of Plant & Machinery	4,500
Travelling Expenses	12,000

Gas and Water Charges (Factory)	3,500
Gas and Water Charges (Office)	1,200
General Charges	7,500
Manager's Salary (¾ time devoted to Factory and ¼ time devoted lo Office)	24,000
Depreciation on Plant & Machinery	6,500
Depreciation on Furniture	1,000
Directors' Fees	9,000
Advertisement	15,000

Solution

Statement of Cost for the month of April, 1990

	Rs.	Rs.	Rs.
Cost of Direct Materials Consumed			
Cost of Opening Stock of Raw Materials		24,000	
Add : Cost of Raw Materials purchased	1,10,000		
Add : Freight on purchases	6,000	1,16,000	
Cost of Raw Materials available for use		1,40,000	
Less : Cost of Closing Stock of Raw Materials		31,000	1,09,000
Cost of Direct Labour			75,000
PRIME COST			1,84,000
Factory Overheads			
Drawing Office Salaries		7,800	
Rent, Rates, Taxes & Insurance (Factory)		9,000	
Repairs to Plant & Machinery		4,500	
Gas & Water Charges		3,500	
Managers Salary (¼ × 24,000)		18,000	
Depreciation of Plant & Machinery		6.500	49,300
FACTORY/WORKS COST			2,33,300

10.3.6 Ascertainment of Cost of Production

Cost of production refers to the summation of factory/works cost and office & administrative overheads. Office and administrative overheads include the cost of indirect materials, indirect labour and other indirect expenses incurred in office which are related to administration. Based on data given in Illustration 3, the 'Cost of Production' will be determined as follows :

		Rs.
FACTORY/WORKS COST		2,33,300
Add : Office & Administrative Overheads		
	Rs.	
Counting House Salaries	8,500	
Rent. Rates, Taxes & Insurance (Office)	6,000	
Gas & Water Charges (Office)	1,200	
General Charges	7,500	
Managers Salary (¼ × 24,000)	6,000	
Depreciation on Furniture	1,000	
Directors' Fees	9,000	39,200
COST OF PRODUCTION		2,72,500

administrative expenses do not form part of the cost of production. But, Cost Accounting literature in India still makes a distinction between the terms 'cost of production' and 'works cost'.

Accordingly, in the Indian context, the cost of production includes office and administration expenses for cost accounting purposes.

10.3.7 Ascertainment of Total Cost/Cost of Sales

Total Cost/Cost of Sales refers to the summation of cost of production of goods produced and selling & distribution overheads. Selling and distribution overheads include cost of indirect materials, indirect labour and other indirect expenses which are incurred for the purpose of sale and distribution. Based on data given in Illustration 3, the Total Cost/Cost of Sales will be determined as follows :

		Rs.
COST OF PRODUCTION OF GOODS PRODUCED		2,72,500
Add : Selling & Distribution Overheads		
Carriage Outwards	9,500	
Travelling Expenses	12,000	
Advertisement	15,000	36,500
TOTAL COST/COST OF SALES		3,09,000

10.3.8 Treatment of Items of Expenses and Losses of Purely Financial Nature

It is important to note that there are certain items of expenses and losses which are of purely financial nature and are to be excluded from cost. These items are: cash discount allowed, interest paid, fines and penalties paid, income tax paid, dividend paid, obsolescence loss, loss on sale of fixed assets, loss on sale of investments, etc.

Illustration 4

The following particulars have been obtained from the cost records of P Manufacturing Company Limited for the month of August, 1990 :

Output and Sales for the month	.....	10,000 Units
		Rs.
Stock of Raw Materials as on 1.8.90	.....	15,000
Stock of Raw Materials as on 31.8.90	.....	20,000
Drawing Office Salaries	.....	9,000
Counting House Salaries	.....	6,000
Direct Wages paid	.....	58,000
Direct Expenses	.....	20,000
Purchase of Raw Materials	.....	92,000
Cnrriage Inwards	.....	3,000
Carriage Outwards	.....	4,500
Cash Discount allowed	.....	1,500
Power and Consumable Stores	.....	12,000
Indirect Wages	.....	15,000
Ligbting of Factory	.....	5,500
Repairs to Plant & Machinery	.....	6,500
Depreciation on Plant & Machinery	.....	5,000
Debenture Interest	.....	10,000
Office Rent	.....	12,000
Directors' Fees	.....	6,000
Travelling Expenses	.....	7,500

Salesmen's Salaries and Commission	.....	18,000
Office Salaries	.....	9,000
Genera1 Charges	.....	7,000
Advertisement	.....	10,000
Outstanding Direct Wages	.....	2,000
Sale Proceeds of Factory Scrap	.....	3,000

You are required to prepare the Cost Sheet for the month of August, 1990 showing the various elements of cost per unit.

Solution

Cost Sheet of P. Manufacturing Co. Ltd. for the Month of August, 1990

Output: 10,000 Units

			Total Cost	Cost per unit
			Rs.	Rs.
Cost of Direct Materials Used	Rs.			
Cost of Opening Stock of Raw Materials		15,000		
Add : Cost of Raw Materials purchased	92,000			
Add : Carriage Inwards	3,000	95,000		
Cost of Raw Materials available for use		1,10,000		
Less : Cost of Closing Stock of Raw Materials		20,000	90,000	9.00
Cost of Direct labour				
Direct Wages paid		58,000		
Add : Outstanding Direct Wages		2,000	60,000	6.00
Cost of Direct Expenses			20,000	
PRIME COST			1,70,000	17.00
Add : Factory Overheads				
Drawing Office Salaries		9.000		
Power and Consumable Stores		12,000		
Indirect Wages		15,000		
Lighting of Factory		5,500		
Repairs to Plant & Machinery		6,500		
Depreciation on Plant & Machinery		5,000		
		53,000		
Less : Sale proceeds of Factory Scrap		3,000	50,000	5.00
FACTORY/WORKS COST			2,20,000	22.00
Add : Office & Administrative Overheads				
Counting House Salaries		6,000		
Office Rent		12,000		
Directors' Fees		6,000		
Office Salaries		9,000		
General Charges		7,000	40,000	4.00
COST OF PRODUCTION			2,60,000	26.00
Add : Soiling & Distribution Overheads				
Carriage outwards		4,500		

Travelling Expenses	7,500		
Salesmen's Salaries & Commission	18,000		
Advertisement	10,000	40,000	4.00
COST OF SALES		3,00,000	30.00

Note : Cash Discount allowed and Debenture Interest are items of purely financial nature and, as such, are excluded from cost.

10.4 PREPARATION OF PRODUCTION ACCOUNT

Production Account is another way of presentation of cost information. It is prepared in the form of a ledger account. No separate column is shown for cost per unit. All the possible break up of cost should be shown in stages in the manner shown below.

illustration 5

Based on data given in Illustration 4, prepare Production Account.

Solution

Production Account of P. Manufacturing Co. Ltd. for the Month of August, 1990

Dr.				Cr.
		Rs.		Rs.
To Opening Stock of Raw Materials		15,000	By Closing Stock of	20,000
To Raw Materials purchased		92,000	By Cost of Direct Materials used c/d	90,000
To Carriage Inwards		3,000		
		1,10,000		1,10,000
To Cost of Direct Materials used b/d		90,000	By Prime Cost c/d	1,70,000
To Direct Wages	58,000			
Add : Outstanding Direct Wages	2,000	60,000		
To Cost of Direct Expenses		20,000		
		1,70,000		1,70,000
To Prime Cost b/d		1,70,000	By Factory/Works Cost c/d	2,20,000
To Factory Overheads				
Drawing Office Salaries	9,000			
Power & Consumable Stores	12,000			
Lighting of Factory	5,500			
Indirect Wages	15,000			
Repairs to Plant & Machinery	6,500			
Depreciation on Plant & Machinery	5,000			
	53,000			
Less : Sale proceeds of Fact. Scrap	3,000	50,000		
		2,20,000		2,20,000
To Factory/Works Cost b/d		2,20,000	By Cost of production c/d	2,60,000
To Office & Administration Overheads				
Counting House Salaries	6,000			
Office Rent	12,000			

Directors' fees	6,000			
Office Salaries	9,000			
General charges	7,000	40,000		
		2,60,000		2,60,000
To Cost of Production b/d		2,60,000	By Cost of Sales c/d	3,00,000
To Selling & Distribution Overheads				
Carriage Outward	4,500			
Travelling Expenses	7,500			
Salesmen's Salaries	18,000			
Advertisement	10,000	40,000		
		3,00,000		3,00,000
To Cost Sales b/d		3,00,000		

Note : If sales are given in the problem, the same should be shown on the credit side and the differencebetween Sales and Cost of Sales should be treated as profit/loss on sale.

Check Your Progress A

1 Fill up the blanks:

a) Cost of Direct Materials Consumed = ...

b) Prime Cost = ...

c) Cost of Sales = ...

d) Cost of Production = Factory Cost + ...

e) Selling Price = Cost of Sales + ...

2 State whether each of the following equations are True or False.

a) Factory Cost = Prime Cast + Office overheads

b) Prime Cost = Direct Cost

c) Total Cost = Prime Cost + All Indirect Costs

d) Cost of Production = Factory Cost + Selling & Distribution Overheads

e) Cost of Sales = Factory Cost + Selling & Distribution Overheads

3 Name the industries to which unit costing can be successfully applied.

.....

.....

.....

10.5 SPECIAL POINTS TO BE NOTED

10.5.1 Value of Scrap/Wastage

Scrap iefers to the incidental residue of certain types of manufacture or defective products beyond any rectification. If there is any realisable value of such scrap, the same should reduce the cost of goods produced and, as such, it should be deducted from cost of materials consumed or factory overheads or factory cost/works cost.

10.5.2 Opening and Closing Work-in-Progress

Work-in-progress refers to partly finished or semi-finished goods: Work on such goods has already started but not completed till the end of a particular period. The cost incurred in

respect of closing work-in-progress must be deducted from factory/works cost in order to ascertain the works cost of the completed units (finished goods). It should be noted that the work-in-progress of the previous period is the opening work-in-progress in the current period which has been converted into finished goods in the current period. Hence, the cost of opening stock of work-in-progress should be added to the works cost of the current period. The reason why the cost of opening and closing work-in-progress is adjusted in the works cost is that it (cost of uncompleted units) includes only the cost of raw materials, direct labour and factory overheads.

If the cost of opening and closing stock of work-in-progress is given; the same should be adjusted after the factory overheads have been added to the Prime Cost in the following manner:

		Rs.
Cost of Direct Materials		.....
Cost of Direct Labour		.....
Cost of Direct Expenses		.....
PRIME COST		.....
Add : Factory Overheads	.....	
Less : Value of Scrap, if any	.....	.....
GROSS FACTORY/WORKS COST		.....
Add : Cost of Opening Stock of Work-in-progress,if any		.....
		.....
Less : Cost of Closing Stock of Work-in-progress,if any		.....
FACTORY/WORKS COST OF GOODS COMPLETED		.....

It is important to note that, in such a situation, the calculation of cost pe: unit should be started after the stage of factory cost.

10.5.3 Opening and Closing Stocks of Finished Goods

It is unlikely that all the units of finished goods produced during a particular period will be sold in the same period. In fact, it is the management policy to keep some closing stock of finished goods so that sales for the next period remain uninterrupted. The cost of closing stock of finished goods should be deducted from the cost of production of goods produced in order to ascertain the cost of production of goods sold during the current period. Since the closing stock of finished goods of the preceding period i.e., the opening stock for the current period is likely to be sold during the current period (on FIFO basis), the same should be added to the cost of production. Thus, the adjustments for opening and closing stocks of finished goods are made in the following manner:

	Rs.
Cost of Opening Stock of Finished Goods, if any	.....
Add : Cost of Production of Goods produced	.....
Cost of Production of Goods available for sale	.....
Less : Cost of Closing Stock of Finished Goods, if any	.....
Cost of Production of Goods Sold	.....

Illustration 6

The following information has been obtained from the costing records of a manufacturing company for the month of October, 1990:

Cost of Raw Materials on 1-10-90	.:..	75,000
Cost of Rnw Materials purchased	....	9,60,000

Carriage on Purchases	....	15,000
Chargeable Expenses	....	80,000
Direct Wages paid	....	4,20,000
Factory Overheads	....	2,30,000
Cost of Work-in-progtesson 1-10-90	....	60,000
Cost of Raw Materials on 31-10-90	....	90,000
Cost of Work-in-progress on 31-10-90	....	75,000
Cost of Stock of Finished Goods on 1-10-90	....	1,50,000
Cost of Stock of Finished Goods on 31-10-90	....	1,80,000
Office & Administrative Overheads	....	1,25,000
Selling & Distribution Overheads	....	1,30,000
Sales	....	22,50,000

You are required to prepare

i) **Cost Sheet showing the cost of production of goods produced,** and

ii) **Statement** showing **cost of** sales and **profit** for **the month** of **October, 1990.**

Solution

1) **Cost Sheet** for **the Month** of October, 1990

			Rs.
Cost of Direct Materials used			
Opening Stock of Raw Materials		75,000	
Add : Raw Materials purchased	9,60,000		
Add Carriage on Purchases	15,000	9,75,000	
		10,50,000	
Less : Closing Stock of Raw Materials		90,000	9,60,000
Cost of Direct Labour			4,20,000
Cost of Chargeable Expenses			80,000
PRIME COST			14,60,000
Add : Factory Overheads			2,30,000
GROSS FACTORY/WORKS COST			16,90,000
Add : Cost of Opening Stock of Work-in-progress			60,000
			17,50,000
Less : Cost of closing stock of Work-in-progress			75,000
FACTORY/WORKS COST			16,75,000
Add : Office & Administrative Overheads			1,25,000
COST OF PRODUCTION OF GOODS PRODUCED			18,00,000

2) **Statement showing** the **cost of Sales and Profit** for **the Month** of October, 1990

	Rs.
Cost of Opening Stock of Finished Goods	1,50,000
Add : Cost of Production of Goods produced	18,00,000
Cost of Production of Goods available for sale	19,50,000
Less : Cost of Closing Stock of Finished Goods	1,80,000
COST OF PRODUCTION OF GOODS SOLD	17,70,000
Add : Selling & Distribution Overheads	1,30,000

COST OF SALES	19,00,000
Profit (Balancing figure)	3,50,000
SALES	22,50,000

Sometimes, the cost of closing stock of finished goods is not given. In that case, the same can be worked out by multiplying the number of units in stock by cost of production per unit as ascertained in the cost sheet. The cost of opening stock of finished goods is usually given. But, if the same is not given, it can also be worked out with the help of the cost of production per unit for the current period based on the assumption that cost of production per unit for the current period and that of the preceding period are the same.

It is considered desirable to include an additional column for the quantity of goods in the Statement of Cost of Sales and Profit. This facilitates the ascertainment of the quantity of goods sold or the quantity of goods in stock, as the case may be.

10.5.4 Selling and Distribution Overheads

Quite often, instead of giving the selling and distribution overheads in the cost data the rate of 'selling and distribution overheads per unit' is given. In such a situation, the amount of selling and distribution overheads should be worked out by multiplying the number of units sold by the selling and distribution expenses per unit. It should be noted that ***this rare is lo be applied ro rhe units sold and nor ro rhe units produced.***

10.5.5 Computation of Recovery Rates for Overheads

Sometimes, you are required to calculate overheads recovery rates based on the cost sheet prepared by you. Such rates are usually in respect of factory overheads and administration overheads. Factory overhead rate is usually calculated as a percentage of direct wages as follows:

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

Administration Overhead rate is usually calculated as a percentage of works cost as follows:

$$\frac{\text{Office Administration Overheads}}{\text{Factory/Works Cost}} \times 100$$

Selling and distribution overheads rate may be computed either as a percentage of works cost or as a percentage of sales.

Illustration 7

The following is the cost data relating to product D for the year ending December 31, 1990.

	Rs.
Purchase of Raw Materials	1,20,000
Factory Rent & Insurance	8,000
Carriage Inwards	1,440
Other Factory Overheads	40,000
Direct wages	60,000
Stock on 1-1-1990	
Raw Materials	20,000
Finished Goods (1,000 tons)	15,000
Administrative Overheads	28,400
Sales	2,99,000
Stock on 31-12-1990	
Raw Materials	22,240
Finished Goods (2,000 tons)	?

There was no stock of work-in-progress either at the beginning or at the end. Advertising and other selling costs were Re. 1 per ton. During the year 16,000 tonnes of product D was produced.

As certain (a) total the cost of production (b) the cost of goods sold (c) the cost of sales, and, (d) the net profit for the year; and work out (i) the percentage of factory overheads on direct wages (ii) the percentage of administration overheads on works cost, and (iii) the net profit per ton.

Solution

Cost sheet of Product D for the Year ending December 31.1991

Output: 16,000 Tons.

Cost of Direct Materials used		
Opening Stock of Raw Materials	20,000	
Raw Materials purchased	1.440	
Add : Carriage inwards	1,20,000	
	1,41,440	
Less : Closing Stock of Raw Materials	22,240	
Direct Wages		1,19,200
PRIME COST		60,000
		1,79,200
Factory Overheads		
Rent & Insurance	8,000	
Other Factory Overheads	40,000	48,000
Works Cost		2,27,200
Administrative Overheads		28,400
COST OF PRODUCTION		2,55,600
Cost of Production per Unit	2,55,600 / 16,000	
	= Rs. 15,975	

Statement of Cost of Sales and Profit

	Quantity (Tons)	Amount (Rs.)
Opening Stock of Finished Goods	1,000	15,000
Add : Cost of Production	16,000	2,55,600
	17,000	2,70,600
Less : Closing Stock of Finished Goods	2,000	31.950
COST OF GOODS SOLD		2,38,650
Add : Selling & Distribution Overheads		15,000
(15,000 × Re. 1)		2,53,650
COST OF SALES		45,350
Net Profit		2,99,000
SALES		

i) Percentage of Factory Overheads to Direct Wages

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

$$= \frac{48,000}{60,000} \times 100$$

$$= 80\%$$

ii) **Percentage of Administration Overheads to Works Cost**

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

$$= \frac{28,400}{2,27,200}$$

$$= 12.5\%$$

iii) **Net Profit per Unit**

$$= \frac{\text{Net Profit}}{\text{Number of Units sold}}$$

$$= \frac{45,350}{15,000}$$

$$= \text{Rs. } 3.02$$

Check Your Progress B

1 Fill up the blanks :

a) Realisable value of factory scrap should be deducted from .....

b) Percentage of factory overheads to cost of direct labour = ...

c) Opening and closing stock of work-in-progress should be adjusted after the factory overheads are added to the ..... but before the stage of .....

d) Selling and distribution overheads are incurred only on ..... and not on .....

2 State whether each of the,following statements is True or False.

a) Closing stock of work-in-progress should be valued on the basis of prime cost.

b) Closing stock of finished goods should be valued on the basis of cost of sales.

c) Selling and distribution overheads are incurred on the cost of production of goods produced.

d) Office & Administrative overheads are recovered usually on the basis of percentage to factory cost.

e) Selling and distribution overheads are recovered on the basis of percentage of works cost or percentage of sales.

10.6 PREPARATION OP STATEMENT OP QUOTATION/TENDERING PRICE

Sometimes, the prospective buyer invites quotations from a number of suppliers for some goods with certain specifications. The term 'Quotation' refers to quoting the minimum price for obtaining a specific order. Such a price is quoted before the commencement of actual production in anticipation of obtaining the particular order. In such a situation, first the cost of such specific order should be estimated and then a reasonable amount of profit should be added thcroto in order to determine the price to be quoted.

While quoting the price for such specific order, one has to be cautious about the fact that the price is neither too high nor too low. In case the price is too high, offer will be rejected outright. On the other hand, if the price is too low, it will result in either lower profit or loss. .Therefore. it is important to estimate the cost as accurately as possible, Although, estimation of cost is primarily based on past performance, all future trends must also be taken into account.

Statement of quotation is prepared in the same manner as Cost Sheet as shown in Illustration 8.

Illustration 8

X Manufacturing Co. Ltd. receives an enquiry for the supply of 20,000 units of its products. The costs are estimated as follows :

Raw Materials 1,00,000 Kgs @ Rs. 2 per Kg.

Direct Wages 10,000 Hours @ Rs. 8 per hour.

Variable Overheads :

Factory @ Rs. 4.80 per labour hour

Selling & Distribution Rs. 32,000

Fixed Overheads :

Factory Rs. 12,000

Office & Administration Rs. 1,00,000

Selling & Distribution Rs. 28,000

The company adds 20% to its cost as its margin of profit. Prepare a Statement of quotation showing the price to be quoted.

Solution

Statement of Quotation Showing the Price to be Quoted per unit and for 20,000 Units

		Total	Per Unit
		Rs.	Rs.
Estimated Cost of Direct Materials		2,00,000	10.00
Estimated Cost of Direct Labour		80,000	4.00
Estimated Prime Cost		2,80,000	14.00
Add : Estimated Factory Overheads			
Variable	48,000		
Fixed	12,000	60,000	3.00
Estimated Factory Cost		3,40,000	17.00
Add : Estimated Office & Administrative Overheads		1,00,000	5.00
Estimated Cost of Production		4,40,000	22.00
Add : Estimated Selling & Distribution Overheads			
Variable	22,000		
Fixed	28,000	60,000	3.00
Estimated Cost of Sale		5,00,000	25.00
Add : Desired Profit @ 20% on Cost Price		1,00,000	5.00
Estimated Selling Price		6,00,000	30.00

Sometimes; cost records for a particular period are given and the estimated cost of materials' and labour of a work order are provided for the purpose of ascertaining its selling price to be quoted. In-such a situation, you should prepare the cost sheet first and ascertain the recovery rates for factory overheads as a percentage to direct wages, for administrative overhead6 as a percentage of works costs, and for selling and distribution overheads as a percentage of cost of goods sold (or as suggested). These rates must be duly adjusted with the anticipated changes, if any, before preparing the statement of quotation. Look at Illustration 9 and study how the statement of auotation for a work order is prepared with the help of a given cost data.

Illustration 9

The following figures have been obtained from the cost records of a manufacturing company for the year 1989:

	Rs.
Cost of Materials	2,40,000
Wages for Direct Labour	2,00,000
Factory Overheads	1,20,000
Distribution Expenses	56,000

Administration Expenses	1,34,400
Selling Expenses	89,600
Profit	1,68,000

A work order was executed in 1990 and the following expenses were incurred :

	Rs.
Cost of Materials	32,000
Wages for Labour	20.000

Assuming that in 1990 the rate for factory overheads went up by 20%.distribution charges went down by 10% and selling and administration charges wept up by 12½%, at what price should the product be quoted so as to earn the same rate of profit on the selling price as in 1989. Show the full workings.

Factory overheads are based on direct wages while administration, selling and distribution expenses are based on factory cost.

Solution

Statement of Cost for the Year 1989

	Rs.
Cost of Direct Materials	2,40,000
Direct Wagcs	2,00,000
PRIME COST	4,40,000
Factory Overhcnds	1,20,000
WORK COST	5.60.000
Administration Overheads	1,34,400
COST OF PRODUCTION	6,94,400
Selling Overheads	89,600
Distribution Overheads	56,000
COST OF SALES	8,40,000
Profit	1,68,000
SALES	10,08,000

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

$= \frac{1,20,000}{2,00,000} \times 100$

$= 60\%$

Administration Overheads Rate $= \frac{\text{Admin. Overheads}}{\text{Works Cost}} \times 100$

$= \frac{1,34,400}{5,60,000} \times 100$

$= 24\%$

Selling Overheads Rate $= \frac{\text{Selling Overheads}}{\text{Works Cost}}$

$= \frac{89,600}{5,60,000} \times 100$

$= 16\%$

Distribution Overheads Rate $= \frac{\text{Dist. Overheads}}{\text{Work Cost}} \times 100$

$= \frac{56,000}{5,60,000} \times 100$

$= 10\%$

Rate of Profit $= \frac{\text{Profit}}{\text{Cost of Sales}} \times 100$

$= \frac{1,68,000}{8,40,000} \times 100$

$=$ 20% of cost of sales

Statement of Quotation for a Work Order

	Rs.
Cost of Direct Materials	32,000
Direct Wages	20,000
PRIME COST	52,000
Factory Overheads (60% of wages plus 20% thereof i.e., 72% of wages)	14,400
WORK COST	66,400
Administration Overheads (24% of works cost plus 12½% thereof i.e., 27% of works cost)	17,928
COST OF PRODUCTION	84,328
Selling Overheads (16% of works cost plus 12½% thereof i.e., 18% of works cost)	11,952
Distribution Overheads (10% of works cost minus 10% thereof i.e., 9% of works cost)	5,976
COST OF SALES	1,02,256
Profit (12% of cost of sales)	20,451
ESTIMATED SELLING PRICE	1,22,707

10.7 COMPREHENSIVE ILLUSTRATIONS

Illustration 10

The following particulars relating to the year 1989 have been taken from the books of a Chemical Works manufacturing and selling a chemical mixture :

	Kg.	Rs.
Stock on 1st January. 1989		
Raw Materials	2,000	2,000
Finished Mixture.	500	1,750
Factory Stores		7,250
Purchases		
Raw Materials	1,60,000	1,80,000
Factory Stores		24,250
Sales		
Finished Mixture	1,53,050	9,18,000
Factory Scrap		8,170
Factory Wages		1,78,650
Power		30,400
Depreciation on Machinery		18,000
Salaries		
Factory		72,220
Office		37,220
Selling		41,500

Expenses		
Direct		18,500
Ofiice		18,200
Selling		18,000
Stock on 31st December. 1989		
Raw Materials	1,200	?
Finished Mixture	450	?
Factory Stores		5,500

The Stock of finished mixture at the end of 1989 is to be valued at the factory cost of the mixture for that year. The purchase price of raw materials remained unchanged throughout the year.

Prepare a statement giving the maximum possible information about cost and its break up for the year 1989.

Solution

Cost Sheet of a Chemical Works for the Year 1989

Output : 1,53,000 Kg.

			Total Cost	Cost per Unit
			Rs.	Rs.
Cost of Direct Materials used				
Cost of Opening Stock of Raw Materials		2,000		
Add : Cost of Rnw Materials purchased		1,80,000		
		1,82,000		
Less : Cost of Closing Stock of Raw Materials		1.350	1,80,650	1.181
Cost of Direct Labour			1,78,650	1.168
Cost of Direct Expenses			18.500	0.121
PRIME COST			3,77,800	2.470
Factory Overheads				
Cost of Factory Stores consumed :				
Opening Stock	7,250			
Add : Purchases	24,250			
	31,500			
Less : Closing Stock	5,550	25.950		
Power		30,400		
Depreciation of Machinery		18.000		
Factory Salaries		72,220		
		1,46,570		
Less : Sale of Factory Scrap		8,170	1,38,400	0.904
WORKS COST			5,16,200	3.374
Office & Adm. Overheads				
Office Salaries		37,220		
Office Expenses		18.200	55,420	0 = 362
COST OF PRODUCTION			5,71,620	3.736

Statement showing Cost of Sales and Profit for the Year 1989

		Rs.
Cost of Opening Stock of Finished Mixture (500 Kg.)		1,750
Add : Cost of Production of Finished Mixture (1,53,000 Kg.)		5,71,620
		5,73,370
Less : Cost of Closing Stock Finished Mixture (450 Kg.)		1,518
COST OF GOODS SOLD (1,53,050 Kg.)		5,71,852
Selling & Distribution Overheads		
Salaries	41,500	
Selling Expenses	18,000	59,500
COST-OF SALES (1,53,050 Kg.)		6,31,352
Profit (balancing figure)		2,86,648
Sales (1,53,050 Kg. finished mixture)		9,18,000

Working Notes

I) Production during the year = Goods Sold + Closing Stock − Opening Stock = (1,53,050 + 450 − 500)
= 1,53,050 Kg.

2) Value of Closing Stock of Raw Materials = $\frac{1,80,000}{1,60,000} \times 1200$
= Rs. 1,350

3) Value of Closing Stock of Finished Mixture = Rs. $\frac{5,16,200}{1,53,000} \times 450$ = Rs. 1,518

Illustration 11

Work out in Cost Sheet form the unit cost of production per ton of Special Paper manufactured by a paper mill in March, 1990 from the following data ;

Direct Materials

Paper Pulp 500 tons @ Rs. 50 per ton

Other Materials 100 tons @ Rs. 30 per ton

Direct Labour

80 Skilled men @ Rs. 3 per day for 25 days

40 Unskilled men @ Rs. 2 per day for 25 days

Direct Expenses

Special Equipment Rs. 3,000

Special Dyes Rs. 1,000

Works Overheads

Variable @ 100% and Fixed @ 60% on Direct Wages

Administrative Overheads @ 10%

Selling and Distribution Overheads @ 15% on Works Cost

Forty 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.

Solution

Cost Sheet of a Paper Mill for the Month of March, 1990

Output : 400 Ton

		Total Cost	Cost per Ton
		Rs.	Rs.
Cast of Direct Materials used			
Paper Pulp = 500 x Rs. 50 =	25,000		

Other Materials = 100 × Rs. 30 =	3,000		
	28,000		
Less : Sale of Waste Materials	800	27,200	68.00
Cost of Direct Labour			
Skilled Men = 80 × Rs. 3x25	6,000		
Unskilled Men = 40 × Rs. 2 × 25	2,000	8,000	20.00
Cost of Direct Expenses			
Special Equipment	3,000		
Special Dyes	1,000	4,000	10.00
PRIME COST		39,200	98.00
Works Overheads			
Variable (100%on direct wages)	8,000		
Fixed (60%on direct wages)	4,800	12,800	32 = 00
WORKS COST		52,000	130.00
Administrative or Overheads (10%on Works Cost)		5,200	13.00
COST OF PRODUCTION		57,200	143.00
Selling & Distribution Overheads (15% on Works Cost)		7,800	19.50
COST OF SALES		65,000	162.50

Illustration 12

Cooling Ltd. manufactured and sold 1,000 refrigerators in the year ending 31st March, 1990. The summarised Trading and Profit & Loss Account is set out below :

	Rs.		Rs.
To Cost of Materials	8,00,000	By Sales	40,00,000
To Direct Wages	12,00,000		
To Other Manufacturing Cost	5,00,000		
To Gross Profit c/d	15,00,000		
	40,00,000		40,00,000
To Management and Staff Salaries	6,00,000	By Gross Profit b/d	15,00,000
To Rent, Rates and Insurance	1,00,000		
To Selling Expenses	3,00,000		
To General Expenses	2,00,000		
To Net Profit	3,00,000		
	15,00,000		15,00,000

For the year ending 31st March 1991, it is estimated that–

a) Output and Sales will be 1,200 refrigerators.

b) Prices of Material will go up by 20% on the level of previous year.

c) Wages will rise by 5%.

d) Manufacturing costs will rise in proportion to the combined cost of Material and wages.

e) Selling cost per unit will remain unaffected.

f) Other expenses will also remain constant.

You are required to submit a statement to the Board of Directors showing the price at which the refrigerators should be marketed so as to show profit of 10% on selling price.

Solution :

Statement Showing Estimated Selling Price of Refrigerators for the Year ending 31.3.1991

Output : 1,200

	Total	Per Unit
	Rs.	Rs.
Cost of Direct Materials	11,52,000	960
Cost of Direct labour	15,12,000	1,260
PRIME COST	26,64,000	2,220
Add : Factory Overheads	6,66,000	555
FACTORY COST	33,30,000	2,775
Add : Office & Administrative Overheads	9,00,000	750
COST OF PRODUCTION	42,30,000	3,525
Add : Selling & Distribution Overheads	3,60,000	300
COST OF SALES	45,90,000	3,825
Add : Profit @ 10% on Selling Price i.e., 1/9 on Cost of Sales	5,10,000	425
Estimated Selling Price	51,00,000	4,250

Working Notes

1) For the sake of convenience, it is desirable that the cost sheet for the last year is prepared as follows :

Cost Sheet of Cooling Ltd. for the Year ended 31.3.1990

		Total Cost	Cost per Unit
		Rs.	Rs.
Cost of Direct Materials		8,00,000	800
Cost of Direct Labour		12,00,000	1,200
PRIME COST		20,00,000	2,000
Add : Factory Overheads (Other Manufacturing Costs)		5,00,000	500
FACTORY COST		25,00,000	2,500
Add : Office & Administrative Overheads			
Management & Staff Salaries	6,00,000		
Rent, Rates & Insurance	1,00,000		
General Expenses	2,00,000	9,00,000	900
COST OF PRODUCTION		34,00,000	3,400
Add : Selling & Distribution Overheads		3,00,000	300
COST OF SALES		37,00,000	3,700

2) It is important to note here that the cost of all variable items should be determined per unit and the same should be multiplied by the output for the next year, Thus, increase in the volume of output will be automatically taken care of.

3) Cost of direct material per unit for the next year

$$= 800 + \left(\frac{20}{100} \times 800\right) = 800 + 160 = \text{Rs. } 960$$

4) Cost of direct labour per unit tor the next year

$$= 1{,}200 + \left(\frac{5}{100} \times 1{,}200\right) = 1{,}200 + 60 = \text{Rs. } 1{,}260$$

5) Increase in combined cost of material and labour i.e., Prime Cost

$$\left(\frac{2{,}220 - 2{,}000}{2{,}000}\right) \times 100 = \frac{220}{2{,}000} \times 100 = 11\%$$

∴ Manufacturing cost per unit for the next year

$$= 500 + \left(\frac{11}{100} \times 500\right) = 500 + 55 = \text{Rs. } 555$$

10.8 LET US SUM UP

Unit costing is a method of costing used in those industries which are engaged in mass production of homogeneous/identical products. This method of costing is applied in a large number of industries like automobiles, electronics, collieries, quarries, brick making, etc.

A Statement of Cost/Cost Sheet is prepared at periodical intervals showing the total cost and cost per unit of each element of cost side by side. The cost per unit is arrived at by dividing the total cost incurred by the total number of units produced. An alternative way of presentation of this cost information is in the form of a ledger account called 'Production Account'.

Sometimes, a statement of quotations is required to be prepared in order to find out the price to be quoted to the prospective buyer for obtaining a specific order. While preparing this statement, cost for the specific order should be estimated first and, thereafter, a reasonable amount of profit should be added to the estimated cost. The resultant figure shall represent the selling price to be quoted.

10.9 KEY WORDS

Chargeable Expenses : Other direct expenses.

Cost of Production of Goods Sold : Cost of opening stock of finished goods plus cost of production of goods produced minus cost of closing stock of finished goods.

Cost of Production of Goods Produced : Total of factory/works cost and office and administrative overheads.

Cost of Sales : Tctal of cost of production of goods sold and selling & distribution overheads.

Factory/Works Cost : Total of prime cost and factory overheads.

Production Account : Statement of cost prepared in the form a ledger account. It is similar to Manufacturing Account prepared in financial accounts.

Prime Cost : Direct cost i.e., total of cost incurred on direct materials, direct labour and direct expenses.

Selling Price/Price of Tender : Total of cost of sales and desired amount of profit.

Work-in-Progress : Semi-finished goods.

10.10 ANSWERS TO CHECK YOUR PROGRESS

A 1 a) Cost of opening stock of raw materials + Cost of raw materials purchased − Cost of closing stock of raw materials.

b) Cost of direct materials + Cost of direct labour + Cost of direct expenses.

c) Cost of production of goods sold + Selling & Distribution overheads.

d) Office & Administrative overheads.

e) Profit.

2 a) False, b) True, c) True, d) False, e) False.

3 Automobiles, Electronics, Collieries, Quarries, Brick making etc.

B 1 a) factory overheads.

b) $\frac{\text{Factory overheads}}{\text{Cost of direct labour}} \times 100$

c) prime Cost, factory Cost

d) goods sold, goods produced

2) a) False, b) False, c) False, d) True, e) True.

10.11 TERMINAL QUESTIONS/EXERCISES

Questions

1) Define Unit Costing. Mention the industries to which this method of costing is applicable.

2) What is a cost sheet? In what respect does it differ from a Production Account?

3) Describe in brief the various components of Total Cost.

Exercises

1) Prepare a Cost Sheet from the following data to find out profit and cost per unit :

Raw Materials consumed	Rs. 1,60,000
Dirccr Wages	Rs. 80,000
Factory Overheads	20% of Direct Wage,
Administrative Overheads	10% of Factory Cost
Selling Overheads	Rs. 12,000
Units produced	4,000
'Units sold	3.600
Selling Price	Rs. 100 per unit

(Answer : Prime Cost : Rs. 2,40,000; Factory Cost : Rs. 2,56,000; Cost of production of goods produced : Rs. 2,81,600; Cost of Sales : Rs. 2,65,440; and Profit : Rs. 94,560)

2) You are the chief of the Cost Accounting Department of Leather Products India Ltd. Your organisation manufactures shoes. The following figures have been extracted from the account books relating to the production of shoes for the year 1989.

	Rs.
Raw Materials consumed (including abnormal wastage of Rs. 10,000)	5,10,000
Direct Wages paid	4,00,000
Factory Overheads	1,00,000
Tools consumed	10,000
Depreciation of Machines (Factory)	5,000
.Machines imported	1,00,000
Work Expenses (Misc.)	50,000
Office Expenses	25,000
Overheads for Office	40,000
Managing Director's Salary	50,000
Stationery & Printing (Office)	5,000
Depreciation of Machines (Office)	1,000
Selling and Distribution Expenses	25,000
Entertainment of customers	20,000
Advertising	30,000
Dividend paid	1,00,000

"Prepare a cost analysis statement after considering the following :

i) The profit rate is 20% on sales

i) Wages outstanding Rs. 25,000.

Hint : Abnormal wastage of raw materials should be treated separately and as such, it should not form part of cost.

(Answer : Cost of raw materials consumed : Rs. 5,00,000; Cost of direct labour : Rs. 4,25,000; Prime Cost : Rs. 9,25,000; Factory Overheads : Rs. 1,65,000; Factory Cost : Rs. 10,90,000; Administrative Overheads : Rs. 1,21,000; Cost of production of goods produced : Rs. 12,11,000; Selling & Distribution Overheads : Rs. 75,000; Cost of Sales : Rs. 12,86,000; Profit : Rs. 3,21,500 & Sales : Rs. 16,07,500)

3) The following details have been obtained from the cost records of Comet Paints Limited:

	Rs.
Stock of Raw Materials on 1st September, 1990	75,000
Stock of Raw Materials on 31st September, 1990	91,500
Direct Wages	52,500
Indirect Wages	2,750
Sales	2,11,000
Work-in-progress on 1st September. 1990	28,000
Work-in-progress on 30th September, 1990	35,000
Purchase of Raw Materials	66,000
Factory Rent, Rates and Power	15,000
Depreciation of Plant and Machinery	3.500
Expenses on Purchases	1,500
Carriage Outwards	2,500
Advertising	3,500
Office pent & Taxes	2,500
Travellers' Wages and Commission	6,500
Stock of Finished Goods on 1st September, 1990	54,000
Stock of Finished Goods on 30th September, 1990	31,000

Prepare a Production Account giving the maximum possible break up of costs and profit.

(Answer : Copt of Raw Materials consumed : Rs. 51,000; Prime Cost : Rs. 1,03,500; Factory Overheads : Rs. 21,250; Factory Cost : Rs. 1,17,750; Cost of Production of goods produced : Rs. 1,20,250; Cost of Production of Goods Sold : Rs. 1,43,250; Selling & Distribution overheads : Rs. 12,500; Cost of Sales : Rs. 1,55,750; and Profit : Rs. 55,250)

4) A company makes two distinct types of vehicles A and B. The total expenses during a period as shown by the books for assembly of 600 of A and 800 of B are as under :

	Rs.
Material	1,98,000
Wages	12,000
Stores overheads	19,800
Running Expenses of Machine	4,400
Depreciation	2,200
Labour Amenities	1,500
Works General Expenses	30,000'
Administration and Selling Expenses	26,790

Other Data available to you are–

	A : B
Material Cost Ratio per Unit	1 : 2
Direct Labour Ratio per Unit	2 : 3
Machine Utilization Ratio per Unit	1 : 2

Calculate the cost of each vehicle per unit giving reasons for the basis of apportionment adopted by you.

Hint : a) Calculate the effective ratio by taking into account the total output of two vehicles as follows:

Effective Material Ratio = 1 × 600 : 2 × 800
= 600 : 1600 = 3 : 8

Effective Labour Ratio = 2 × 600 : 3 × 800
= 1200 : 2400 = 1 : 2

Effective Machine Utilisation Ratio = 1 × 600 : 2 × 800
= 600 : 1600 = 3 : 8

b) Apportion Material and Stores overhead in Material ratio, Direct wages, Labour amenities and Works general expenses in Labour ratio, Running expenses of Machine and Depreciation in Machine utilization ratio and Administrative & selling expenses in the ratio of works cost.

(Answer: Prime Cost : A - Rs. 58,000/Rs. 96.67, B - Rs. 1,52,000/Rs. 190.00; Factory Overheads : A - Rs. 17,700/Rs. 29.50; B - Rs. 40,200/Rs. 50.25; Works Cost : A - Rs. 75,700/Rs. 126.17; B - Rs. 1,92,200/Rs. 240 = 25; Total Cost/Cost of Sales; A - Rs. 83,270/Rs. 138.79, B - Rs. 2,11,420/ Rs. **264.28)**

5) From the following information prepare the Cost Sheet of Pig Iron showing cost of Pig Iron produced and Cost per tonne of each item of expenditure:

	Stock on 1st August, 1990	Purchases during the month of August, 1990	Stock on 31st August, 1990
	Rs.	Rs.	Rs.
Iron Ore	10,800	56,000	10,200
Lime Stone	4,500	15,000	4,800
Coal	94,000	70,000	47,000
Coke	10,500	59,000	7,200
Sundries	6,500	24,000	7,500
Wages Paid	Rs. 66,000		
Works Charges	Rs. 44,500		
Sale of Slag during the month was	Rs. 8,500		
Production of Pig Iron during the month was	1,000 Tonnes		

(Answer: Cost of Direct Materials used : Rs. 2,73,600; Factory Cost/Cost of Production : Rs. 3,75,600; Cost per tonne : Rs. 375.60)

6) The following particulars have been **made** available from the Cost Ledger of a company :

	Rs.
Stock of Raw Materials on 31.12.1990	25,600
Stock of Finished Goods on 31.12.1990	56,000
Purchases of Raw Materials	5,84,000
Direct Wages	3,97,000
Sales	11,84,000
Stock of Raw Materials on 31.12 1991	27,200
Stock of Finished Goods on 31.12.1991	60,000
Works Overheads	88.072
Office and General Charges	71,048

The company is required to submit a tender for a large machine. The Cost Department estimates that the materials will cost Rs. 40,000 and wages to fabricate the machine Rs. 24,000. The tender is to be made at a net profit of 20% on selling price

Prepare a statement showing a) Cost of materials used, b) total cost, c) percentage of factory overheads to direct wages, and d) percentage of office overheads to works cost.

Also prepare a statiment of quotation showing the price at which the tender of the machine can be submitted.

(Answer: Cost of materials used : Rs. 5,82,400; Total cost Rs. 11,38,520; Percentage of Factory Overheads to Direct Wages 22%; Percentage of Office Overheads to Works Cost 6.65%; Price to be quoted in tender : Rs. 92,360.)

Note: These questions will help you to understand the unit better. Try to write answers for them. But do not submit your answers to the University. These are for your practice only.