

CHAPTER-5

PROCESS COSTING

Ans.1.

Statement of Production
(based on 100 kg. of input)

Process No.	Input Kg.	Loss Percentage	Loss Kg.	Output Kg.
I	100	25	25	75
II	75	20	15	60
III	60	20	12	48
IV	48	16 ² / ₃	8	40

Quantity of Raw Material required for 40,000 kg. of output.

As is apparent from the above table, 40 kg of output requires 100 kg. of raw material to be fed at the beginning of Process I.

Therefore 1 kg of output require 2.5 kg. of raw material to be fed at the beginning of the process I.

Hence 40,000 kg. of output will require 1,00,000 kg. of raw material at the beginning of the Process I.

$$\begin{aligned} \text{Cost of Raw Material required : } & 1,00,000 \text{ kg.} \times \text{₹ } 5 \\ & = \text{₹ } 5,00,000 \end{aligned}$$

$$\begin{aligned} \frac{\text{Material Cost}}{\text{P.V. of Output}} &= \frac{5,00,000}{40,000} \\ &= \text{₹ } 12.50 \end{aligned}$$

Effect of increase or decrease in the material cost : For every increase or decrease of Re.1, in the cost of raw material, the corresponding increase or decrease in the material cost of 1 kg. of the end product is ₹ 2.50. Therefore the material cost of the end product / finished product goes up or down by ₹ 2.50 per kg. as the cost of raw material goes up or down by Re.1/- per kg.

Ans.2. (i)

Statement of Production
(for a month)

Operations No.	Input Total No.	Total No.	Rejections % Rejection to output	Output Total No.
1	60,000	20,000	50%	40,000
2	66,000	6,000	10%	60,000
3	48,000	8,000	20%	40,000

Input required for final output of 100 units:

	No. of Pcs.
Output of process 3	100
Loss in process, 20%	20
Input to process 3 or output of process 2	120
Loss in process 2, 10%	12
Input to process 2 or output of process 1	132
Loss in process 1, 50%	66
Input in process 1	198

- (ii) To produce 100 pieces of final output 198 pieces of initial input is used. The weight of one piece of finished output is 0.10 kg. Thus the weight of input to produce one piece of output is 0.198 kg. The rate being ₹ 20, the cost of materials for producing 1 piece is ₹ 3.96.

i.e. $\frac{198}{100} \times 0.10$

Ans.3.

Statement of Cost

- (i) **Pressing process :**

Elements of cost	Cost ₹	Equivalent Production Units (Refer to Working Note 1)	Cost per unit (₹)
Material cost	96,000	1,200	80
Conversion cost	3,36,000	1,120	300
Total			380

Cost of 1,000 completed units @ ₹ 380/- p.u. = ₹ 3,80,000

Cost of 200 units under Work-in-Process :

Material cost = 200 × ₹ 80 = ₹ 16,000

Conversion cost = 120 × ₹ 300 = ₹ 36,000

Total = ₹ 52,000

- (ii) **Polishing Process**

Element of cost	Cost ₹	Equivalent Production Units (Refer to Working Note 1)	Cost per unit (₹)
Cost of units introduced (₹)	3,80,000		
Material cost (₹)	8,000	3,88,000	1,000
Conversion cost	54,000	750	72
			460

Total Cost of 500 completed units @ ₹ 460 p.u. = ₹ 2,30,000

Material cost = 500 × ₹ 388 = ₹ 1,94,000

Conversion cost = 250 × ₹ 72 = ₹ 18,000

Total = ₹ 2,12,000

Selling price per unit

Cost per unit ₹ 460.00

Profit @ 25% on sale price ₹ 153.33

Or 33 $\frac{1}{3}$ % on cost

Selling price (p.u.) ₹ 613.33

Working Note :

1.

Statement of equivalent production of pressing process

Input (Units)	Output	Units	Equivalent units			
			Material		Conversion	
			Qty. (Units)	%	Qty. (Units)	%
1,200	Completed	1,000	1,000	100	1,000	100
	Work in process	200	200	100	120	60
1,200		1,200	1,200		1,120	

2. **Statement of equivalent production of polishing process**

Input (Units)	Output	Units	Equivalent units			
			Material		Conversion	
			Qty. (units)	%	Qty. (units)	%
1,000	Completed	500	500	100	500	100
	Work in process	500	500	100	250	50
1,000		1,000	1,000		750	

Ans.4. **Statement of equivalent production units (Process – I)**

TABLE 1

Particulars	Units Introduced	Units Out	Equivalent Production			
			Material % Completion	Labour and Overhead		
				Units	% Completion	Units
Units in	40,000	----	----	----	----	----
Units completed and transferred to Process - I		36,000	100	36,000	100	36,000
Normal loss		2,000	----	----	----	----
Closing work-in-progress		2,000	100	2,000	50	1,000
Total	40,000	40,000	---	38,000	---	37,000

Computation of cost per equivalent unit for each cost element

TABLE 2

	Total Cost	Equivalent	Cost per Equivalent
	₹	Units	Unit ₹
Direct materials	60,000	38,000	1.5780
Labour	12,000	37,000	0.3243
Factory overheads	24,000	37,000	0.6487
Total			2.5519

Process – I Account

	Units	₹		Units	₹
To Units introduced (Direct materials)	40,000	60,000	By Normal Loss	2,000	NIL
To Labour		12,000	By Process – III transferred (Refer to Working Note - 1)	36,000	91,869
To Factory overheads	----	24,000	By Work in-process (Refer to Working Note 2)	2,000	4,131
	40,000	96,000		40,000	96,000

Statement of equivalent production units (Process – II)

TABLE 3

Particulars	Units Introduced	Units Out	Equivalent Production			
			Material		Labour and Overheads	
			% Completion	Units	% Completion	Units
Units transferred from process- I	36,000	32,000	100	32,000	100	32,000
Normal loss	----	1,500	----	----	----	----
Closing work-in-process	----	2,500	100	2,500	50	1,250
	36,000	36,000	----	34,500	----	33,250

Computation of cost per equivalent unit for each cost element

TABLE 4

	Total Cost	Equivalent	Cost per Equivalent
	₹	Units	Units ₹
Cost of 36,000 units transferred from Process – I	91,869	34,500	2.6629
Labour	16,000	33,250	0.4812
Factory overheads	20,000	33,250	0.6015
Total			3.7456

Process - II Account

	Units	₹		Units	₹
To Units introduced (Transferred from Process-I)	36,000	91,869	By Normal Loss	1,500	----
To Labour	----	16,000	By Finished stock transferred (Refer to Working Note 3)	32,000	1,19,859
To Factory overheads	----	20,000	By Work-in-process (Refer to Working Note 4)	2,500	8,010
	36,000	1,27,860		36,000	1,27,869

Working Notes :

- Cost of 36,000 completed units in Process – I :
 = 36,000 × Cost per unit (Refer to Table 2)
 = 36,000 × ₹ 2.5519 = ₹ 91,869.
- Cost of 2,000 units under work-in-process in Process - I :**
 = Cost of 2,000 equivalent units of material + Cost of 1,000 equivalent units of labour and overheads (Refer to Tables 1 and 2).
 = 2,000 × ₹ 1.5789 + 1,000 × ₹ 0.3243 + 1,000 × ₹ 0.6487
 = ₹ 4,131
- Cost of 32,000 units of finished stock in Process - II :**
 = 32,000 × Cost per unit (Refer to Table 3)
 = 32,000 × ₹ 3.7456 = ₹ 1,19,589
- Cost of 2,500 units under work-in-process in Process - II :**
 = Cost of 2,500 equivalent units of material + Cost of 1,250 equivalent units of labour and overhead (Refer to Tables 3 and 4)
 = 2,500 × ₹ 2.6629 + 1,250 × ₹ 0.4812 + 1,250 × ₹ 0.6015
 = ₹ 6657.25 + ₹ 601.50 + ₹ 751.88
 = ₹ 8,010.63.