

ILLUSTRATION 1.

Product 'Z' is obtained after it passes through three distinct processes. The following information is obtained from the accounts for the month ending December 31, 20X1:

	Total	Process		
	Rs	I Rs	II Rs	III Rs
Direct Materials	7,542	2,600	1,980	2,962
Direct Wages	9,000	2,000	3,000	4,000
Production Overheads	9,000	-	-	-

1,000 units @ Rs 3 each were introduced to process I. There was no stock, materials or work-in-progress at the beginning or end of the period. The output of each process passes direct to the next process and finally to finished stores. Production Overheads are recovered on the basis of direct wages. Management Expenses Rs 1,000. Selling Expenses @ Rs 5 per unit. The following additional data is obtained.

Process	Output during the month	Percentage of Normal Loss to Input	Value of Scrap per unit Rs
Process I	950	5%	2
Process II	840	10%	4
Process III	750	15%	5

40% units of finished goods were sold at a profit of 20% on the selling price. There was no opening/closing stock of work-in process in any process.

Required : Prepare Process Cost Accounts, Finished Stock Account and Profit and Loss Account Normal Loss, Abnormal Gain or Loss Accounts.

(15)

SOLUTION**Process I Account**

Particulars	Units	Rs	Particulars	Units	Rs
To Units Introduced	1,000	3,000	By Normal Loss A/c	50	100
To Direct Materials		2,600		950	9,500
To Direct Wages		2,000			
To Production overheads @ 100% of Direct Wages		2,000			
	1,000	9,600		1,000	9,600

Note: Cost per unit = $\frac{\text{Total Cost} - \text{Scrap Value of Normal Loss}}{\text{Input} - \text{Normal Loss}}$

$$= \frac{\text{Rs } 9,600 - \text{Rs } 100}{1000 - 5\% \text{ of } 1000} = \text{Rs } 10 \text{ per unit.}$$

Process II Account

Particulars	Units	Rs	Particulars	Units	Rs
To Process I A/c (Tr. From process I)	950	9,500	By Normal Loss A/c	95	380
To Direct Materials		1,980	By Abnormal Loss A/c @ Rs 20	15	300
To Direct Wages		3,000	By Process III A/c [Units t/f @ Rs 20]	840	16,800
To Production Overheads		3,000			
	950	17,480		950	17,480

Note: Cost per unit = $\frac{\text{Total Cost} - \text{Scrap Value of Normal Loss}}{\text{Input} - \text{Normal Loss}}$

$$= \frac{\text{Rs } 17,480 - \text{Rs } 380}{950 - 10\% \text{ of } 950} = \text{Rs } 20 \text{ per unit.}$$

Process III Account

Particulars	Units	Rs	Particulars	Units	Rs
To Process II A/c (Tr. From process II)	840	16,800	By Normal Loss A/c	126	630
To Direct Materials		2,962	By Finished Stock A/c [Units t/f @ Rs 20]	750	28,500
To Direct Wages		4,000			
To Production Overheads		4,000			
	36	1,368			
	876	29,130		876	29,130

Note: Cost per unit = $\frac{\text{Total Cost} - \text{Scrap Value of Normal Loss}}{\text{Input} - \text{Normal Loss}}$

$$= \frac{\text{Rs } 27,762 - \text{Rs } 630}{840 - 15\% \text{ of } 840} = \text{Rs } 38 \text{ per unit.}$$

Abnormal Loss Account

Particulars	Units	Rs	Particulars	Units	Rs
To Process II A/c	15	300	By Bank A/c (Sale Proceeds)	15	60
			By Costing P. & L. A/c (Loss)	-	240
	15	300		15	300

Abnormal Gain Account

Particulars	Units	Rs	Particulars	Units	Rs
To Normal Loss A/c	36	180	By Process II A/c	36	1,368
To Costing P & L A/c (Gain)		1,188			
	36	1,368		36	1,368

Normal Loss Account

Particulars	Units	Rs	Particulars	Units	Rs
To Process A/c	50	100	By Bank A/c (Sale proceeds)		
To Process II A/c	35	380	Process I	50	100
To Process III A/c	126	630	Process II	95	380
			Process III	90	450
			By Abnormal Gain A/c	36	180
	271	1,110		271	1,110

Finished Stock Account

Particulars	Units	Rs	Particulars	Units	Rs
To Process III A/c	750	28,500	By Profit & Loss A/c [40% of 750]	300	11,400
				450	17,100
	750	28,500		750	28,500

Profit and Loss Account

Particulars	Rs	Particulars	Rs
To Cost of Goods Sold	11,400	By Sales	14,250
To Abnormal Loss	240	[300 units @ Rs 38 + 25%]	
To Management Expenses	1,000	By Abnormal Gain	1,188
To Selling Expenses [300 x Rs 5]	1,500		
To Net Profit	1,298		
	15,438		15,438

Note: It has been assumed that the units of abnormal loss have also been sold at the same rate (i.e. Rs 4) applicable to scrap of normal loss.

ILLUSTRATION 2.

From the following information prepare: (a) Statement of Equivalent Production; (b) Statement of Cost per Equivalent Unit; (c) Statement of Evaluation; (d) Process Account:

- Opening work-in-progress : 800 units valued as under :
Material Rs. 3,200, Labour Rs. 960, Overheads Rs. 320
- Input of materials : 9,200 units
- Current cost incurred in process :
Material Rs. 36,800
Labour Rs. 16,900
Overheads Rs. 8,250
- Normal loss : 8% of total input [i.e., opening WIP + units put in]
- Scrap realized @ RS. 40 per 10 Units.
- Closing work-in-progress: 900 units.
- Transfer to next process: 8,700 units.
- Degree of Completion:

	Opening Stock (%)	Closing Stock (%)
Material	100	100
Labour	60	70
Overheads	40	30

- Method of Valuation: FIFO

(15)

SOLUTION**(a) Statement of Equivalent Production**

Output	Units	Material		Labour		Overheads	
		% Completion	Units	% Completion	Units	% Completion	Units
A. Opening WIP	800	-	-	40	320	60	480
B. Units introduced & Completely [8,700 – 800]	7,900	100	7,900	100	7,900	100	7,900
C. Closing WIP	900	100	900	70	630	30	270
D. Less: Abnormal Gain	(400)	100	(400)	100	(400)	100	(400)
E. Eq. Units [A+B+C-D]	9,200		8,400		8,450		8,250

(b) Statement of Cost per Equivalent Unit

Particulars	Cost Rs.	Equivalent Rs	Cost per Equivalent Unit Rs.
Net Material Cost*	33,600	8,400	4
Labour Cost	16,900	8,450	2
Overheads	8,250	8,250	1

* Net Material Cost = Rs. 36,800 – Rs 3,200 = Rs. 33,600

(c) Statement of Evaluation

Particulars	Elements of Cost	Equivalent Units	Cost Per Equivalent Unit	Cost of Equivalent Units Rs.	Total
		Rs.	Rs.	Rs.	
Opening WIP (800 units) Cost incurred during Previous period Cost incurred during Current period:					4,480
	Material	-	-	-	
	Labour	320	2	640	
	Overheads	480	1	480	1,120
Units introduced and completed (7900 units)	Material	7,900	4	31,600	
	Labour	7,900	2	15,800	
	Overheads	7,900	1	7,900	55,300
Total cost of 8,7000 units of finished output					60,900
Closing WIP (900 units)	Material	900	4	3,600	
	Labour	630	2	1,260	
	Overheads	270	1	270	5,130
Total cost of 900 units of closing WIP					5,130

(d) Process I Account

Particulars	Units	Rs.	Particulars	Units	Rs.
To Opening WIP	800	4,480	By Normal Loss	800	3,200
To Direct Material	9,200	36,800	By Process I A/c (Transfer		
To Direct Labour	-	16,900	to next process	8,700	60,900
To Abnormal Gain @ Rs. 7	400	8,250	By Closing WIP	900	5,130
	10,400	69,230		10,400	69,230

Abnormal Gain Account

Particulars	Units	Rs.	Particulars	Units	Rs.
To Normal Loss A/c	400	1,600	By Process I	400	2,800
To Costing P & L A/c	-	1,200			
	400	2,800		400	2,800

ILLUSTRATION 3.

The following information is given in respect of Process No. 3 for the month of January 2001.

Opening Stock – 2001 units made up of:

Direct Material I	Rs. 12,350
Direct Material II	Rs. 13,200
Direct Labour	Rs. 17,500
Overheads	Rs. 11,000

Transferred from Process No. 2: 20,000 units @ R.6.00 per unit

Transferred to Process No. 4: 17,000 units

Expenditure incurred in Process No. 3:

Direct Material I	Rs. 12,350
Direct Material	Rs. 30,000
Direct Labour	Rs. 60,000
Overheads	Rs. 60,000

Scrap 1,000 units – Degree of Completion: Direct Materials 100%, Direct Labour 60%. Overheads 40%. Normal loss 10% of production.

Scrapped units realized Rs. 4 per unit.

Closing Stock: 4,000 units – Degree of completion: Direct Material 80%, Direct Labour 60% and overheads 40%.

Required: Prepare Process No. 3 Account, alongwith necessary supporting statements.

(15)

SOLUTION

Note: Weighted Average Method of Valuation has been used since the degree of completion of opening stock is not given.

Statement of Equivalent Production [Average Cost Method]

Particulars	Total Unit	Material I		Material II		Labour		Overhead	
		%	Units	%	Units	%	Units	%	Units
Units completely Processed	17,000	100	17,000	100	17,000	100	17,000	100	17,000
Normal Loss 10% of (2,000 units + 20,000 units – 4,000 units)	1,800	-	-	-	-	-	-	-	-
Abnormal gain	(800)	100	(800)	100	(800)	100	(800)	100	(800)
Closing Stock	4,000	100	4,000	80	3,200	60	2,400	40	1,600
	22,000		20,200		19,400		18,600		17,800

Statement of Cost

Particulars	Cost Rs.	Equivalent Units	Equivalent Cost per Unit (Rs.)
Material I:			
Opening balance 2000 units	12,350		
Cost of 20,000 units @ Rs.6/- per unit	1,20,000		
Less: Scrap realized (1,800 units x Rs. 4)	(7,200)		
	<u>1,25,150</u>	20,200	6.1955
Material II:			
Opening Stock	13,200		
In Process II	<u>30,000</u>		
	43,200	19,400	2.2268
Labour:			
Opening Labour	17,500		
In Process II	<u>60,000</u>		
	77,500	18,600	4.1667
Overheads:			
Opening Stock	11,000		
In Process III	<u>60,000</u>		
	71,000	17,800	3.9888
			<u>16.5778</u>

Cost of 17,000 finished goods units = 17,000 units x Rs. 16.5778 = 2,81,822.60 or Rs 2,81,822 (Say)

Cost of 800 abnormal units = 800 units x Rs.16.5778 = 13,262.24 or 13,262 (say)

Cost of 4,000 closing work-in-process units = 48,289.92 or 48,290 (say)

Material I 4,000 units x Rs. 6.1955 = 24,782.00

Material II 3,200 units x Rs. 2.2268 = 7,125.76

Labour 2,400 units x Rs. 4.1667 = 10,000.08

Overhead 1,600 units x Rs. 3.9888 = 6,382.08

48,289.02

Process 3 Account

Particulars	Units	Rs.	Particulars	Units	Rs.
To Opening WIP	2,000	54,050	By Normal Loss	1,800	7,200
To Process 2	20,000	1,20,000	By Finished goods units	17,000	2,81,822
To Direct Material II		30,000	By Closing balance	4,000	48,290
To Direct Labour		60,000			
To Overheads		60,000			
To Abnormal gain	800	13,262			
	22,800	3,37,312		22,800	3,37,312

Working Note: Normal loss given is 10% production. The word production here means those units which come upto the state of inspection. In that case, opening stock plus receipts minus closing stock WIP will in represent units of production (2,000 units + 20,000 units – 4,000 units). In this case the units of production comes to 18,000 units and hence 1,800 units as normal loss units.

ILLUSTRATION 4.

ABC Limited manufacture a product 'ZX' by using the process namely RT. For the month of May, 2007, the following date are available:

	Process RT
Material Introduced (units)	16,000
Transfer to next process (units)	14,400
Work in process:	
At the beginning of the month (units) (4/5 completed)	4,000
At the end of the month (units) (2/3 completed)	3,000
Cost records:	
Work in process at the beginning of the month	

	Rs
Material	30,000
Conversion Cost	29,200
Cost during the month : Materials	1,20,000
Conversion cost	1,60,800

Normal spoiled units are 10% of goods finished output transferred to next process.

Defects in these units are identified in their finished state. Material for the product is put in the process at the beginning of the cycle of operation, whereas labour and other indirect cost flow evenly over the year. It has no realizable value for spoiled units.

Required:

- Statement of Equivalent Production (Average cost method)
- Statement of Cost and Distribution of cost;
- Process Accounts.

(15)

SOLUTION**Statement of Equivalent Production of Process RT**

Input units	Details	Output Units	Equivalent Production			
			Material	%	Conversion Cost	%
4,000	Opening WIP					
16,000	Introduced completed	14,400	14,400	100%	14,400	100%
	and transfer to next					
	Normal spoilage	1,440	1,440	100%	1,440	100%
	Abnormal Spoilage	1,160	1,160	100%	1,160	100%
	Closing WIP	3,000	3,000	100%	2,000	66.67%
20,000		20,000	20,000		19,000	

Statement Showing cost of each Element

	Opening (Rs.)	Cost in Process (Rs.)	Total (Rs.)	Equivalent Units	Cost per Unit
Materials	30,000	1,20,000	1,50,000	20,000	7.50
Conversion Cost	29,200	1,60,800	1,90,000	19,000	10.00

Statement showing apportionment of cost

Units completed	Material	14,400	7.50	
	Conversion cost	14,400	10.00	2,52,000
	Normal spoilage (10%)			25,200
Closing Stock	Material	3,000	7.50	
	Conversion Cost	2,000	10.00	42,500
Abnormal stock	Material	1,160	7.50	
	Conversion cost	1,160	10.00	20,300

Process Account

Particulars	Rs.	Particulars	Rs
To Opening WIP	59,200	By Profit and Loss A/c (Abnormal)	20,300
To Material	1,20,000	By Transfer to next process	2,77,200
To Conversion cost	1,60,800	By Closing WIP	42,500
	3,40,000		3,40,000

ILLUSTRATION 5.

Product A passes through three processes before it is transferred to finished stock. The following information is obtained for the month of July:

Particular	Process I Rs	Process II Rs	Process III Rs	Finished stock Rs.
Opening stock	5,000	8,000	10,000	20,000
Direct materials	40,000	12,000	15,000	
Direct wages	35,000	40,000	35,000	
Manufacturing overheads	20,000	24,000	20,000	
Closing Stock	10,000	4,000	15,000	30,000
Profit % on transfer price to next process	25%	20%	10%	
Inter- process for opening stock	-	1,395	2,690	6,534

Stock in processes is valued at prime cost and finished stock has been valued at the price at which it is received from process III. Sales during the period were Rs 4, 00,000.

Required: Prepare and compute: (a) Process Cost Accounts showing profit element at each stage; (b) Actual realized profit, and (c) Stock valuation for Balance Sheet purposes.

(15)

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Process I Account

Particulars	Total Rs.	Cost Rs.	Profit Rs.	Particulars	Total Rs.	Cost Rs.	Profit Rs.
To Opening Stock	5,000	5,000	-	By Process II			
To Direct Materials	40,000	40,000	-	(Transfer)	1,20,000	90,000	30,000
To Direct Wages	35,000	35,000	-				
Less: Closing Stock	80,000	80,000	-				
Stock	10,000	10,000	-				
Prime Cost	70,000	70,000	-				
To Mfg. Overheads	20,000	20,000	-				
Process Cost							
(@ or 33 1/3 % on cost)	30,000	-	30,000				
	1,20,000	90,000	30,000		1,20,000	90,000	30,000

Process II Account

Particulars	Total Rs.	Cost Rs.	Profit Rs.	Particulars	Total Rs.	Cost Rs.	Profit Rs.
To Opening Stock	8,000	6,605	1,395	By Transfer			
To Transfer from Process I				Process III	2,50,000	1,69,303	80,697
To Direct Materials	12,000	12,000	-				
To Direct Wages	40,000	40,000	-				
Less: Closing Stock	1,80,000	1,48,605	31,395				
	4,000	3,302	698				
Prime Cost	1,76,000	1,45,303	30,697				
To Mfg. Overheads	24,000	24,000	-				
Process Cost	2,00,000	1,69,303	30,697				
To Gross Profit							
(@ 20% on transfer price or 25% on cost)	50,000	-	50,000				
	2,50,000	1,69,303	80,697		2,50,000	1,69,303	80,697

Process III Account

Particulars	Total Rs.	Cost Rs.	Profit Rs.	Particulars	Total Rs.	Cost Rs.	Profit Rs.
To Opening Stock	10,000	7,310	2,690	By Transfer			
To Transfer from Process II				Process III	2,50,000	1,69,303	80,697
To Direct Materials	15,000	15,000	-				
To Direct Wages	35,000	35,000	-				
Less: Closing Stock	3,10,000	2,26,613	83,387				
	15,000	10,965	4,035				
Prime Cost	2,95,000	2,15,648	79,352				
To Mfg. Ov. h.	20,000	20,000	-				

Process Cost	3,15,000	2,35,648	79,352				
To Gross Profit							
(@ 10% on transfer price or 1/9 on cost)	35,000	-	35,000				
	3,50,000	2,35,648	1,14,352		2,50,000	1,69,303	80,697

Finished Stock Account

Particulars	Total Rs.	Cost Rs.	Profit Rs.	Particulars	Total Rs.	Cost Rs.	Profit Rs.
To Opening Stock	20,000	13,466	6,534	By Sales	4,00,000	2,28,916	1,71,084
To Transfer from Process III	3,50,000	2,35,648	1,14,352				
Less: Closing Stock	3,70,000	2,49,114	1,20,886				
	30,000	20,198	9,802				
Cost of Goods Sold	3,40,000	2,28,916	1,11,084				
To Gross Profit	60,000	-	60,000				
	4,00,000	2,28,916	1,71,084		4,00,000	2,28,916	1,71,084

Working Notes:

(a) Computation of Cost of Closing Stock and Unrealised Profit included therein:

Process I: Unrealised Profit: Nil

$$\begin{aligned} \text{Process II: Cost of Closing Stock} &= \text{Cost} \times \frac{\text{Closing Stock}}{\text{Total}} \\ &= \frac{1,48,605}{1,80,000} \times 4,000 = \text{Rs } 3,302 \end{aligned}$$

$$\text{Profit: Total} - \text{Cost} = \text{Rs } 4,000 - 3,302 = \text{Rs } 698$$

$$\begin{aligned} \text{Process III: Cost of Closing Stock} &= \text{Cost} \times \frac{\text{Closing Stock}}{\text{Total}} \\ &= \frac{2,26,613}{3,10,000} \times 15,000 = \text{Rs } 3,302 \end{aligned}$$

$$\text{Profit: Total} - \text{Cost} = \text{Rs } 15,000 - 10,965 = \text{Rs } 4,035$$

$$\begin{aligned} \text{Finished Stock : Cost of Closing Stock} &= \text{Cost} \times \frac{\text{Closing Stock}}{\text{Total}} \\ &= \frac{2,49,114}{3,70,000} \times 30,000 = \text{Rs } 20,198 \end{aligned}$$

$$\text{Profit: Total} - \text{Cost} = \text{Rs } 30,000 - \text{Rs } 20,198 = \text{Rs } 9,802$$

(b) Computation of Actual Realised Profit

Particulars	Apparent Profit Rs.	Unrealised Profit			Actual Realised Profit Rs.
		Op. Stock Rs.	Cl. Stock Rs.	Net Rs.	
Process I	30,000	-	-	-	30,000
Process II	50,000	1,395	698	+ 697	50,697
Process III	35,000	2,690	4,035	- 1,345	33,655
Finished Stock	60,000	6,534	9,802	- 3,268	56,732
Total	1,75,000	10,619	14,535	- 3,916	1,71,084

(c) Stock Valuation for Balance Sheet

Cost of Stock:	Rs.
Process I	10,000
Process II	3,302
Process III	10,965
Finished Stock	20,198
Total	44,465