Question	PROCESS COSTING
1	HW Typed
2	HW Typed
3	HW Typed
4	HW Typed
5	HW Typed
6	HW Typed
7	HW Typed
8	CW
9	HW Typed
10	HW Typed
11	HW Typed
12	CW
13	HW Typed
14	HW Typed
15	HW Typed
16	HW Typed Discussed in class
17	CW
18	CW
19	HW Typed
20	CW
21	CW
22	HW Typed
23	HW Typed
24	HW Typed
25	HW Typed
26	CW
27	HW Typed
28	HW Typed
29	CW
30	HW Typed

Question	PROCESS COSTING
31	CW
32	HW Typed
33	HW Typed
34	CW
35	HW Typed
36	CW
37	CW
38	HW Typed
39	HW Typed
40	CW
41	HW Typed
42	HW Typed
43	HW Typed
44	CW
45	HW Typed
46	HW Typed
47	CW
48	HW Typed
49	HW Typed
50	CW
51	HW Typed
52	HW Typed
53	HW Typed
54	HW Typed
55	HW Typed
56	HW Typed

Sol 8

Process I A/c

To Input	25000	22,0000	By Normal loss (10% × 25000)	2500	9.9	24750
To Material		₹1,92,000				
To Labour		₹22,4000	By Abnormal loss	500 (B/S)	32.5 *1	16250
To Man. Exp		₹1,9000				
			By Process II A/c	22,000	32.5 *1	7,15,000
	25000	7,56,000		25000		7,56,000

Working (1) $CPU_1 = *_1 = \left(\frac{756000 - 24750}{25000 - 2500}\right) = 32.5$

Process II A/c

To Process I A/c	22000	32.5	7,15,000	By Normal loss (10% × 22000)	2200	8.6	18920
To Material			96020				
To Labour			128000				
To Man. Exp			60000			*2	
To Abnormal gain (B/S)	200	*2 49.5	9900	By Finished goods	20000	49.5	999000
	22,200		10,08,920		22,200		10,08,920

$CPU = \left(\frac{999020 - 18920}{22000 - 2200}\right) = 49.5$

Q.12

Process I A/c

		@					
To Input	4000	20	80,000	By Normal loss (2% × 4000)	80	27	2160
To Material			49,000				
To wages			45,000	By Abnormal loss	20 (B/W)	52	1040
To Exp			41,000	By Process I Stock A/c	3900	52	2,02,800
	4000		2,06,000		4000		2,06,000

Process I Stock A/c

To Balb/d	600	49	29,400	By Process II A/c	4000	51.6	2,06,400
To Process I	3900	52	2,02,800	By Balc/d	500	51.6	25800
	4500		2,32,200		4500		2,32,200

Working ① $CPU_1 = x_1 = \frac{206000 - 2160}{4000 - 80} = 52$

Working ② $WAM_1 = \frac{₹\,232,200}{4500} = 51.6$

Process II A/c

To Process I Stock A/c	4000	566	206400	By Normal loss (5% × 4000)	200	32.5	6500
To Material			15000				
To wages			29,000				
To Exp			4,500				
To Abnormal gain (BF)	50	*2 (63)	3150	By Process III Stock A/c	3850	*2 (63)	242550
	4050		249050		4050		249050

Process II Stock A/c

To bal b/d	550	62	34,100	By Process III	3600	62.875	226350
To Process II A/c	3850	63	242550	By bal c/d	800	62.875	50,300
	4400		276,650		4400		276,650

WN ③

$$*_2 = CPU_2 = \frac{206400 + 15000 + 29000 + 4500 - 6500}{4000 - 200} = (63)$$

WN ④

$$WAM = \frac{276,650}{4400} = (62.875)$$

Process III A/c

To Process II Stock A/c	3600	226350	By Normal loss (10% × 3600)	360	42	15120
To Material		10,000				
To Wages		20,000	By Abnormal loss (BIS)	40	76	3040
To exp		5010				
			By Process III Stock A/c	3200	76	243200
	3600	261360		3600		261360

Process III Stock A/c

To bal b/d	800	74	59,200	By FG	4000	302400
To Process III A/c	3200	76	243200	By bal c/d	0	— — —
	4000		302400		4000	302400

Now ③ CPU = $\frac{261360 - 15120}{3600 - 360} = 76$

Normal loss A/c

To Process I A/c	80	27	2160	By Bank (I)	80	27	2160
To Process II A/c	200	32.5	6500	By Abnormal gain	50	32.5	1625
To Process III A/c	360	42	15120	By Bank (II)	150**	32.5	4875
				By Bank (III)	360	42	15120
			23780				23780

Abnormal loss A/c

To Process I	20	52	1040	By Bank (I)	20	27	540
To Process III	40	76	3040	By Bank (III)	40	42	1680
				By Costing P&L (loss)			1860 (B/F)
			4080				4080

Abnormal gain A/c

To Normal loss	50	32.5	1625	By Process II A/c	50	63	3150
To Costing P&L gain (B/F)			1525				
			3150				3150

X

To Input 15000	By Normal loss 900
	By output to Y 14100 *

$\frac{1469.5}{14100} \times 100 = 10.4\%$

Y

To Input 14100	2.95 *	41595	By Normal loss (1902.5) 2
To Material		2250	
To Labour		3500	
To OH		5250	
To Abnormal gain			By Process @4 50524
			12631.5 units 53463

$CPU = \frac{\text{Total cost} - \text{Scrap sale}}{\text{Total units} - \text{Normal loss units}}$

$4 = \frac{52595 - a \times 2}{14100 - a}$

$4(14100 - a) = 52595 - 2a$

$56400 - 4a + 2a = 52595$

$56400 - 52595 = 2a$

$\frac{3805}{2} = a$

$1902.5 = a$

Sol 16

P & L

To FG (Cost of goods sold)	7,41,896	By Sales	14,00,000
To Profit (B/S)	6,58,104		
	14,00,000		14,00,000

Sol 18

Process I A/c

Particulars	Total	Cost	Profit	Particulars	Total	Cost	Profit
opening stock	1,50,000	1,50,000	–	Process II A/c	10,84,000	8,84,000	2,70,000
Material	3,00,000	3,00,000	–				
Labour	2,24,000	2,24,000	–	Closing Stock	74,000	74,000	–
Prime Cost	6,74,000	6,74,000	–				
+ factory OH	2,10,000	2,10,000	–				
Total Cost	8,84,000	8,84,000	–				
Profit	2,70,000	–	2,70,000				
	11,54,000	8,84,000	2,70,000		11,54,000	8,84,000	2,70,000

Working ①

Process I → II

25% on TP
25% on SP
$\frac{1}{4}$ on SP
$\frac{1}{3}$ on cost

Total cost = 8,84,000
– C Stock = – 74,000
COGS = 8,10,000
+ Profit 2,70,000
$\frac{1}{3}$ on cost
Transfer value = 10,80,000

Process II A/c

Particulars	Total	Cost	Profit	Particulars	Total	Cost	Profit
						(B/F)	(B/F)
Opening Stock	1,80,000	1,50,000	30,000	FG A/c	22,50,000	15,15,000	7,35,000
Process I A/c	10,80,000	8,10,000	2,70,000				
Material	3,15,000	3,15,000	–	Closing Stock	90,000	75000*	15000
Labour	2,25,000	2,25,000	–				
Prime Cost	18,00,000	15,00,000	3,00,000				
O/H	90,000	90,000	–				
Total Cost	18,90,000	15,90,000	3,00,000				
+ Profit	4,50,000	–	4,50,000				
	23,40,000	15,90,000	7,50,000		23,40,000	15,90,000	7,50,000

WN Prime cost is base for Cl stock valuation.

$$\frac{\text{Cost}}{\text{Total}} = \frac{15,00,000}{18,00,000} = \frac{?}{90,000} \rightarrow \text{cost of closing stock}$$

$$\frac{15,00,000}{18,00,000} \times 90,000 = \text{cost of closing stock} = 75000$$

WN

(II) 20% on TP → FG

20% on sale

$\frac{1}{5}$ on sale

$\frac{1}{4}$ on cost

Total cost = 18,90,000

− Cl stock = − 90,000

COGS = 18,00,000

+ Profit $\frac{1}{4}$ on cost + 4,50,000 ✓

T/f value = 22,50,000

F G A/c

Particulars	Total	Cost	Profit	Particulars	Total	Cost	Profit
Opening Stock	4,50,000	2,85,000	1,65,000	Cost of P&L (for sale)	28,00,000	16,48,500	11,51,500
Process II A/c	22,50,000	15,15,000	7,35,000	Closing Stock	2,25,000	1,51,500	73,500
Profit (B/S)	3,25,000	–	3,25,000				
	30,25,000	18,00,000	12,25,000		30,25,000	18,00,000	12,25,000

Using Process II to calculate closing stock — As per ICAI

$$\frac{Cost}{Total} = \frac{1515000}{2250000} = \frac{y}{225000},$$

$$y = 151500$$

Extra work not required in this question

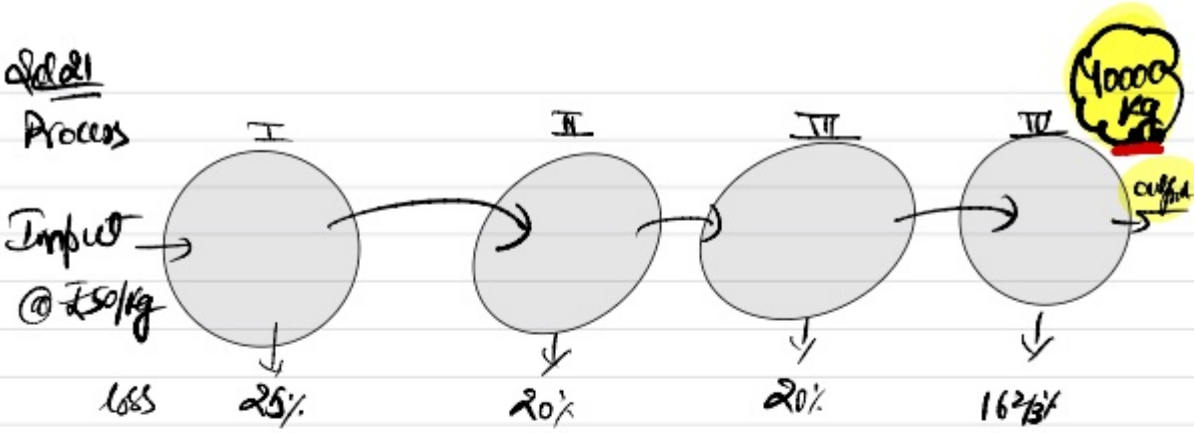
Step ① Calculation of Stock Value for Balance Sheet

	Process I	Process II	FG
Closing Stock	74,000	90,000	2,25,000
− Unrealised Profit	− 0	− 15,000	− 73,500
Net Stock for B/S	74,000	75,000	1,51,500

Step ② Calculation of Realised Profit for Balance Sheet

	Process I	Process II	FG
Profit booked	2,79,000	4,50,000	3,25,000
+ Opening Stock unrealised Profit	+ 0	+ 30,000	+ 1,65,000
− Closing Stock unrealised Profit	− 0	− 15,000	− 73,500
Realised Profit (For B/S)	2,70,000	4,65,000	4,16,500

Q&A21



Process	output	loss = output	
I	100% − 25%	= 75%	$\frac{100}{75} \times 75000kg$ = 1,00,000kg
II	100% − 20%	= 80%	$\frac{100}{80} \times 60000$ = 75000kg
III	100% − 20%	= 80%	$\frac{100}{80} \times 48000$ = 60,000kg
IV	100% − 16⅔%	= 83.33%	$\frac{100}{83.333} \times 40000$ = 48000kg (output)

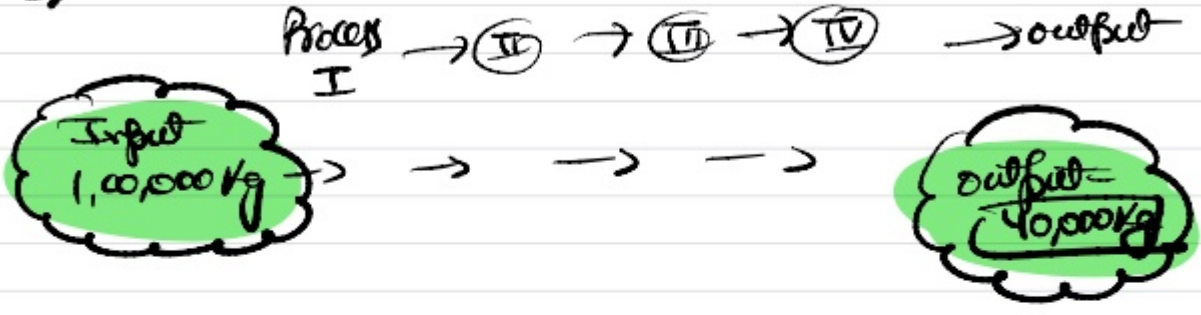
dog Note: $\frac{\text{Input}}{\text{output}} = \frac{100\%}{83.33\%} = \frac{?}{40000kg}$

$\frac{100}{83.33} \times 40000 = ?$ = (Input 48000 kg)

*

So, quantity to be fed in beginning of Process I = 1,00,000 kg
for output of 40000 kg at end.

→



So, $\frac{\text{Input}}{\text{output}} = \frac{1,00,000 \text{ kg}}{40,000 \text{ kg}} = \frac{2.5}{1}$.

So, we know that 2.5 kg Input is required for 1 kg of output.

So, if the price of input increases by ₹1/kg then impact on output price will be 1 × 2.5 = ₹2.5/kg

Thus we can say that price change of input will have 2.5 times impact on price of output.

Lol 20

Statement for Input for 1 unit of final output:

operation	Input	Labour & O/H cost for 1 unit of FG.
1	$\frac{21600}{16200} \times 1.5 = \boxed{2}$	$\frac{₹194,400}{21600} \times 2 = ₹18$
2	$\frac{20250}{18900} \times 1.4 = \boxed{1.5}$	$\frac{₹1,41,750}{20250} \times 1.5 = ₹10.5$
3	$\frac{18900}{17550} \times 1.3 = \boxed{1.4}$	$\frac{₹245700}{18900} \times 1.4 = ₹18.2$
4	$\frac{23400}{21600} \times 1.2 = \boxed{1.3}$	$\frac{₹140400}{23400} \times 1.3 = ₹7.8$
5	$\frac{17280}{14400} \times 1 = \boxed{1.2}$	$\frac{₹86400}{17280} \times 1.2 = ₹6$

₹ 60.5

WKT $\frac{\text{Input}}{\text{output}} = \frac{17280}{14400} \Leftarrow \frac{?}{1}$

$\frac{17280}{14400} \times 1 = \square$

Sol 26 Step①

Process I A/c

To op WIP	800	₹4000	By Normal loss (8% × 10000) × 4	800	₹3200
To Input	9200	₹36,800	By Abnormal loss (BP)	400	2560
To wages		₹16,740	By Process Next A/c	7900	54660
To o/H		₹8,370	By Cl. WIP	900	5490
	10,000	65,910		10000	65,910

Step② **Statement of Equivalent units (FIFO)**

Input	Particulars	output	Material %	Material units	Labour & o/H %	Labour & o/H units
800	op WIP	800	–	–	40%	320
9200	Put to Process	7100	100%	7100	100%	7100
	Normal loss	800	–	–	–	–
	Abnormal loss	400	100%	400	80%	320
	Cl WIP	900	100%	900	70%	630
	Equivalent units →			8400		8370

Step ③ Statement for cost per unit

Particulars	cost incurred ÷ Equivalent units = E.U.		
Material	(36800 − 3200) = 33,600	÷ 8400	= ₹4
Labour & OH	(16740 + 8370) = 25,110	÷ 8370	= ₹3
			₹7

Step ④ Statement of Cost apportionment

	Prior cost	Material + Labour & OH	
Opg WIP =	₹4000 +	0 × 4 + 320 × 3	= ₹4960
Put & Process =	0 +	7100 × 4 + 7100 × 3	= ₹49700
			54660
Normal loss =			−
Abnormal loss =	0 +	400 × 4 + 320 × 3	= ₹2560
CWIP =	0 +	900 × 4 + 630 × 3	= ₹5490

Q.29 (i)

Statement of Equivalent Production

Particulars		output	Material		Labour & OH	
			%	Units	%	Units
40000	op WIP	40000	0	—	75%	30,000
1,80,000	Put & Processed	1,10,000	100%	1,10,000	100%	1,10,000
	cl WIP	70000	100%	70,000	50%	35000
	Equivalent units			1,80000		1,75000

(ii)

Statement for Cost of each element

Particulars	Cost incurred	÷ Equivalent units	Cp.U
Material	(₹6,69000 − 0)	÷ 1,80,000	₹3.67
Labour & OH	(₹8,25,000 + ₹9,25,000)	÷ 1,75,000	₹8.46

(iii)

Statement of apportionment of cost

Particulars	Cost							
	Prior cost	+	Material cost	+	Labour & OH cost	=		
op WIP	1,79000	+	0	x 3.67 +	30,000	x 8.46	=	4,23,800
Put & Processed	0	+	1,10,000	x 3.67 +	1,10,000	x 8.46	=	13,34,300
								17,58,100
cl WIP	0	+	70,000	x 3.67 +	35,000	x 8.46	=	5,53,000

(iv)

Process A A/c

To opening WIP	40,000	₹1,79,000			
To Input	1,80,000	₹6,60,000			
To Labour		₹5,53,000			
To OH		₹9,25,000	By Process B A/c (transfer)	1,50,000	17,58,100
			By Closing WIP	70,000	~~553000~~ 531900
	2,20,000	23,10,000		2,20,000	23,10,000

Self Note:

Vaise toh @ as per calculation CL WIP ₹553000 ka aa raha hai lekin uss amount se Total match nahi hoga, Kyunki rounding off error hai

Isliye hum CL WIP ki value ₹531900 (By BS) rakh rahe hai to match totals.

Q. 31

Process A/c

To opWIP	4000	45,600	By Normal loss (5% x 40000)	2000	3000
To Process P	40000	1,71,000			
To Material		79,200	By Abnormal loss	2000	21,800
To Labour		1,38,230	By FG	37000	4,50,400
To OH		69,120	By CWIP	3000	27750
	44000	502950		44000	502950

Statement of Equivalent units (FIFO)

Particulars	Output	Material I		Material II		Labour & OH	
		%	units	%	units	%	units
4000 opWIP	4000	—	—	—	—	40%	1600
40000 Put & Process	33000	100%	33000	100%	33000	100%	33000
Normal loss	2000	—	—	—	—	—	—
Abnormal loss	2000	100%	2000	100%	2000	80%	1600
Closing WIP	3000	100%	3000	100%	3000	50%	1500
			38000		38000		37700

By chance yeh dono amount same aa rahe hai.

[Agar yeh dono same aane hote hai kisi question mei toh ICAI inhe merge karke Single column bana deta hai, but we should prefer seperate Columns.]

Statement of Cost per unit

Particulars	Cost incurred	÷ Equivalent units	C.P.U.
Material I	(171000 − 3000 scrap sale)	÷ 38000	4.421
Material II	79000	÷ 38000	2.079
Labour O/H	207350	÷ 37700	5.5
			12

Statement of Cost apportionment

	Process + Material I + Material II + Labour O/H = Total
① Opening WIP	45,600 + 0 × 4.421 + 0 × 2.079 + 1600 × 5.5 = 54,400
② Fresh Process	+ 33000 × 4.421 + 33000 × 2.079 + 33000 × 5.5 = 396000
	450,400
③ Abnormal loss	2000 × 4.421 + 2000 × 2.079 + 1600 × 5.5 = 21800
④ Closing WIP	3000 × 4.421 + 3000 × 2.079 + 1500 × 5.5 = 27750

Q.34

Process III A/c

To op WIP	1800	27000	By Normal loss (2250 × 6·75)	2250	15187·5
To Proun II	47700	536625			
To Material II		177840			
To wages		87,840			
To OIH		43,920			
To Abnormal gain (BF)	450	8313	By warehouse	43200	795382
			By cl WIP	4500	70978·5
	49950			49950	

WN① Production = op WIP + Input − cl WIP
= (1800 + 47700 − 4500) = 45000

✓ Normal loss = 45000 × 5% = 2250

Statement of Equivalent Units (FIFO)

Particulars	output	Material I		Material II		Labour OIH	
		%	units	%	units	%	units
1800 op WIP	1,800	—	—	20%	360	40%	720
47700 Put & Processed	41,400	100%	41400	100%	41,400	100%	41,400
Normal loss	2250	—	—	—	—	—	—
cl WIP	4500	100%	4500	70%	3150	50%	2250
— Abnormal gain	(450)	100%	(450)	100%	(450)	100%	(450)
Equivalent Units			45450		44460		43,920

Statement of cost per unit

Particulars	Cost incurred	÷ Equivalent units	Cost per unit
M (I)	(536625 − 15187.5) (scrap loss)	÷ 45,450	11.473
M (II)	177840	÷ 44,460	4
Labour & OH	(87840 + 43920)	÷ 43,920	3
		CPU ⇒	18.473

Statement of cost apportionment

Particulars		Amount (₹)
① Opening COIP =	Prev cost + Material I + Material II + Labour & OH	
	27000 + 0 × 11.473 + 360 × 4 + 720 × 3	30600
② Rest Ahead =	41400 × 11.473 + 41400 × 4 + 41400 × 3	764782
		795382
③ CWIP	4500 × 11.473 + 3150 × 4 + 2250 × 3	70978.5
④ Ab gain	450 × 11.473 + 450 × 4 + 450 × 3	(8313)

Sol 36 (a) Statement of Equivalent Units (WAM)

Particulars	output	Material		Labour & OH	
		%	units	%	units
4000 opWIP 16000 Put&Processed	14400	100%	14400	100%	14400
Normal loss	1440	—	—	—	—
Abnormal loss	1160	100%	1160	100%	1160
clWIP	3000	100%	3000	66.66%	2000
Equivalent units			18,560		17560

(b) Statement of cost Per unit

Particulars	cost incurred	÷	Equivalent units	C.P.U
Material	1,20,000 + 39000 (opWIP) − Normal loss Scrap 0	÷	18560	8.082
Conversion cost	1,60,800 + 21,200 (opWIP)	÷	17560	10.82
			Cost Per unit →	18.902

Statement of cost Distribution

Particulars		Amount
opWIP Put&Processed → 14400	Material: 14400 × 8.082 + Conversion cost: 14400 × 10.82	272188.8
Abnormal loss	1160 × 8.082 + 1160 × 10.820	21926.32
clWIP	3000 × 8.082 + 2000 × 10.82	45886

(6)

Process A/c

Particulars	units	Amount (₹)	Particulars	units	Amount (₹)
To opening WIP	4000	59,200	By Normal loss (10% × 14400)	1440	—
To Input	16000	1,20,000	By Abnormal loss (BALS)	1160	21926
To Conversion cost		60,800	By Process (Next) (BALS)	14400	272188
			By Cl. WIP	3000	45886
	20,000	3,40,000		20,000	3,40,000

Sol 37

Process A A/c

		Amt (₹)			Amt (₹)
To opWIP	2000	1,40,000	By Normal loss (40,000×5%)×20	2000	40000
To Input	38000	14,80,000	By Abnormal loss	1000	
To Labour		3,59,000	By Process B	35000	
To OH		10,77,000			
			By clWIP	2000	
	40000	30,56000		40,000	30,56,000

(A) Statement of Equivalent units

Particulars		output	Material		Labour & OH	
			%	units	%	units
2000	opWIP	2000	100%	35000	100%	35000
38000	Fresh Process	33000				
	Normal loss	2000	—	—	—	—
	Abnormal loss	1000	100%	1000	80%	800
	clWIP	2000	100%	2000	80%	1600
	Equivalent Units			38000		37,400

(B) Statement of cost

Particulars	Cost incurred		÷ Equivalent units	CPU
Material	(14,80,000 − 40000 + 80000)	= 15,20,000	÷ 38000	₹40
Labour & OH	(3,59,000 + 15000 + 10,77,000 + 45000)	= 14,96,000	÷ 37,400	₹40
			CPU =	₹80

(C)

Statement of Distribution of Cost

Particulars		Amount (₹)
Opening WIP 2000, Put & Processed 33000 ⇒ 35000 Units	35000×40 + 35000×40	28,00,000
Abnormal loss	1000×40 + 800×40	72000
Cl WIP	2000×40 + 1600×40	144000

(D)

Process A A/c

		Amt (₹)			Amt (₹)
To Op WIP	2000	1,40,000	By Normal loss (40,000×5%)×20	2000	40,000
To Input	38000	14,80,000	By Abnormal loss	1000	72000
To Labour		3,59,000	By Process B	35000	28,00,000
To OH		10,77,000			
			By Cl WIP	2000	1,44,000
	40000	30,56,000		40,000	30,56,000

Normal loss A/c

To Process A A/c	2000	20	40,000	By Bank (A)	2000	20	40,000
			40000				40000

Abnormal loss A/c

To Process A A/c	1000	72	72000	By Bank	1000	20*	20,000
				By Costing P&L (Loss)			52,000
			72000				72000

Sol 40

Process 3 A/c

To op WIP	2000	54050	By Normal loss (10% × 18000) 204	1800	7200
To Process 2 A/c	20,000	1,20,000			
To Material		39000			
To Labour		60,000	By Process 4 A/c	17000	281826
To OIH		60,000	By Cl WIP	4000	48286
To Abnormal gain	800	13262	(BS)		
	22,800	337312		22,800	337312

WN① Production = op WIP + Input − Cl WIP
= 2000 + 20,000 − 4000
= 18000

(WAM)

WN② Statement of Equivalent units

Particulars		output	Material ①		Material ②		Labour		OIH	
			%	units	%	units	%	units	%	units
2000	op WIP	17000	100%	17000	100%	17000	100%	17000	100%	17000
20000	Put/Process									
	Normal loss	1800	–	–	–	–	–	–	–	–
	Cl WIP	4000	100%	4000	80%	3200	60%	2400	40%	1600
	Ab gain	(800)	100%	(800)	100%	(800)	100%	(800)	100%	(800)
				20,200		19400		18600		17800

Statement of cost per unit (work)

Particulars	Cost incurred		Equivalent units	Cost per unit
		opening WIP / Abnormal loss scrap		
material ①	(1,29,000 + 12350	- 7800)	÷ 20,800	6.195
Material ②	(30,000 + 13800)		÷ 19,400	2.227
Labour	(69,000 + 17500)		÷ 18,600	4.167
OH	(60,000 + 11000)		÷ 17,800	3.989
			Cost per unit	16.578

Statement of cost apportionment

Particulars			Amount (₹)
opening WIP (fully processed)	17000 × 16.578	=	281826
Closing WIP	4000 × 6.195 3200 × 2.227 2400 × 4.167 1600 × 3.989	48298.6 ~	48294
Abnormal gain	800 × 16.578	= 13262.4 ~	13262

Sol 44

Process I A/c

To Material	40000	15000	By Process II	30000	36965
To Labour		18000	By CWIP	10000	8035
To OH		12000			
	40000	45000		40000	45000

WN① Statement of Equivalent units

Particulars	Output	Material %	Material Units	Labour/OH %	Labour/OH Units
40000 Put to Process II	30000	100%	30,000	100%	30000
CWIP	10,000	100%	10000	50%	5000
			40,000		35,000

WN② Statement of Cost P.U

Particulars	Cost incurred	÷ Equivalent units	C.P.U
Material	(₹15000 − ₹500 (Rewind Scrap Sale))	÷ 40,000	0.375
Labour/OH	(₹18000 + ₹12000)	÷ 35,000	0.857
			1.232

WN③ Statement of Cost apportionment

Put Processed = 30,000 × 1.232 = 36,960 ✓

CWIP = (10,000 × 0.375) + (5000 × 0.857) ⇒ 8035 ✓

Process II A/c

To Process① A/c	30,000	36965	By Normal loss	200	—
To packing		4000			
To Labour		3500	By FG	28000	46607
To OIH		4500	By cl WIP	1800	2358
	30000	48,965		30000	48,965

(BIS)

WN④ **Statement of Equivalent units**

Particulars	output	Material ①		Material ②		Labour & OIH	
		%	units	%	units	%	units
30,000 Add: Process	28000	100%	28000	—	—	100%	28000
Normal loss	200	—	—	—	—	—	—
Cl WIP	1800	100%	1800	—	—	25%	450
			29800				28450

(Kyunki iss Question mei Subsequent Process mei koi bhi Input nahi hua hai.)

WN⑤ **Statement of Cost per unit**

Particulars	Cost incurred		Equivalent units	CPU
Material ①	₹36965	÷	29,800	1.240
Material ②	—			
Labour & OIH (3500+4500)		÷	28450	0.281
				1.521

WN ⑥

Statement of cost apportionment

Fuel & Processed	$28000 \times 1.521 =$	42,588
	Packing cost	+ 4000
		46,588
CCO IP	$= \begin{pmatrix} 1800 \times 1.240 \\ + 450 \times 0.281 \end{pmatrix}$	$= 2358.45$

Sol 47

Process A/c

	Units	Amount		Units	Amount
To Op WIP	1100	48260	By Normal loss (10% x 7220) 720	722	14440
To Material Input	7220	241870	By Abnormal loss	1478	78334
To Labour		56208	By FG	5900	312340
To O/H		67840	By Cl WIP	220	9064
	8320	414178		8320	414178

WN

To Calculate RM Input

Op WIP	1100	Normal loss / Abnormal loss	→ 2200 (given)
Input	x → B/f 7220	FG	5900
		Cl WIP	220
	8320		8320

Step ①

Statement of Equivalent units

Particulars		Output	Material %	Material units	Labour %	Labour units	O/H %	O/H units
1100	Op WIP	1100	—	—	60%	660	40%	440
7220	Put & Processed	4800	100%	4800	100%	4800	100%	4800
	Normal loss	722	—	—	—	—	—	—
	Abnormal loss	1478	100%	1478	100%	1478	100%	1478
	Cl WIP	220	100%	220	40%	88	30%	66
Equivalent units				6498		7026		6784

Step ② **Statement for Cost P.U.**

Particulars	Incurred	÷ Equivalent units	CPU
Material	(Material cost − Normal loss scrap 14440) ÷	6498	35 (given)
Labour	Labour cost ÷	7026	8 (given)
O/H	O/H cost ÷	6784	10 (given)

So, $\frac{\text{Material cost} - 14440}{6498} = 35$

So, material cost = ₹2,41,870 ✓

$\frac{\text{Labour cost}}{7026} = ₹8$, So, labour cost = ₹56,208 ✓

$\frac{\text{Overhead cost}}{6784} = ₹10$, So, labour cost = ₹67,840 ✓

Step ③ **Statement of cost apportionment**

Op WIP + Put & Processed = ₹48260 + 0×35 + 660×8 + 440×10 + 4800(35+8+10) = 3,12,340

Cl WIP: 220×35 + 88×8 + 66×10 = 9064

Ab loss: 1478×(35+8+10) = 78334

Sol 50

Process A A/c

		Amt (₹)			
To Input	40,000	3,60,000	By Normal loss (5% × 40000) × 15	2000	30000
To Material		2,42,000	By Abnormal loss	1000 (B/F) *1	27000
To Labour		2,58,000	By Process B A/c	29600 *1	799200
To Exp		1,96,000	By P&L A/c	7400 *1	199800
	40000	10,56,000		40000	10,56,000

WN (i) Output = 37000 → 80% Process B → at CPU = 29600
→ 20% sold @ ₹37 ⇒ 7400
(via P&L A/c)

WN (ii) $CPU = *_1 = \left(\frac{1056000 - 30,000}{40000 - 2000}\right) = 27^*$

Process B A/c

To Process A A/c (@ 27)	29600	799200	By Normal loss (10% × 29600) 20	2960	59,200
To Material		225000	By P&L	27000 *2	12,96,000
To Labour		190000			
To Exp		123720			
To Abnormal gain	360 (B/S) *2	17,280			
	29,960			29,960	

Normal loss A/c

To Process A A/c	2000	15	30000	By Bank (A)	2000	15	30000
To Process B A/c	2960	20	59,200	By Abnormal gain	360	20	7200
				By Bank (B)	2600	20	52000

Abnormal loss A/c

To Process A A/c	1000	27	27000	By Bank	1000	15*	15000
				By P&L A/c (B/S)			12000
			27000				27000

Abnormal gain A/c

To Normal loss	360	20	7200	By Process B A/c	360	48	17,280
To P&L (gain) (B/S)			10080				
			17,280				17,280

WN(ii) CPU - ₹2 = $\frac{1337920 - 59200}{29600 - 2960}$ = ₹48 ₹2

P&L A/c

To Process A A/c (₹400 x 27)	199800	By Bank (sale) (₹400 x 37)	2,73,800
To Process B A/c (27000 x 48)	12,96,000	By Bank (sale) (27000 x 61)	16,47000
To Interest	4,48,080	By Abnormal gain A/c	10080
To Abnormal loss A/c	12000	By Net loss (B/S)	25000
	19,55,880		19,55,880

Chapter 10: Process Costing
Solutions

Solution 1:

Process- I Account

Particulars	Units	(₹)	Particulars	Units	(₹)
To Material	5,000	40,000	By Normal loss	250	0
To Wages	-	30,000			
To Overhead	-	27,000	By Process II	4,750	97,000
	5,000	97,000		5,000	97,000

Value of Normal loss = Scrap realisable value less cost to sale
Since, scraps do not realise any value, hence, the value of normal loss is zero.
Value of units transferred to Process-II:

$= \frac{Total\ Cost - Realisable\ value\ of\ normal\ loss}{Total\ input\ units - Normal\ loss\ units}$ x Units Transferred

$= \frac{₹97,000 - 0}{5,000\ units - 250\ units} \times 4,750$ units = 97,000

Solution 2:

Process - I account

Particulars	Units	₹	Particulars	Units	₹
To Materials	5,000	40,000	By Normal loss	250	500
To Wages		30,000			
To Overhead		27,000	By Process II	4,750	96,500
	5,000	97,000		5,000	97,000

Value of Normal loss = Scrap realizable value less cost to sale
= 250 units × ₹2 = ₹500
Value of units transferred to Process-II:

$= \frac{Total\ Cost - Realisable\ value\ of\ normal\ loss}{Total\ input\ units - Normal\ loss\ units} \times$ Units transferred

$= \frac{₹97,000 - ₹500}{5,000\ units - 250\ units} \times 4,750$ units = 96,500

Solution 3:

Process - I account

Particulars	Units	₹	Particulars	Units	₹
To Materials	5,000	40,000	By Normal loss	250	500
To Wages		30,000	By Abnormal Loss	200	4063
To Overhead		27,000	By Process II	4,550	92,437
	5,000	97,000		5,000	97,000

Value of Normal loss = Scrap realisable value less cost to sale
= 250 units × ₹2 = ₹500
Value of Abnormal loss:

$= \frac{Total\ Cost - Realisable\ value\ of\ normal\ loss}{Total\ input\ units - Normal\ loss\ units} \times$ Abnormal loss units

$= \frac{₹97,000 - ₹500}{5,000\ units - 250\ units} \times 200$ units = 4,063

Value of units transferred to Process-II:

$= \frac{Total\ Cost - Realisable\ value\ of\ normal\ loss}{Total\ input\ units - Normal\ loss\ units} \times$ Units transferred

$= \frac{₹97,000 - ₹500}{5,000\ units - 250\ units} \times 4,550$ units = 92,437

Solution 4:

Process - I Account

Particulars	Units	₹	Particulars	units	₹
To Materials	5,000	40,000	By Normal loss	250	500
To Wages		30,000			
To Overhead		27,000	By Process II	4,850	98,532

To Abnormal Gain A/c	100	2,032			
	5,100	99,032		5,100	99,032

Value of Normal loss = Scrap realisable value less cost to sale
= 250 units × ₹2 = ₹500
(even though the actual loss is less than the expected loss (Normal loss), value of the normal loss is calculated on the estimated figure)
Value of Abnormal gain:

$= \frac{Total\ Cost - Realisable\ value\ of\ normal\ loss}{Total\ input\ units - Normal\ loss\ units} \times$ Abnormal gain units

$= \frac{₹97,000 - ₹500}{5,000\ units - 250\ units} \times 100$ units = 2,032

Value of units transferred to Process-II:

$= \frac{Total\ Cost - Realisable\ value\ of\ normal\ loss}{Total\ input\ units - Normal\ loss\ units} \times$ Units transferred

$= \frac{₹97,000 - ₹500}{5,000\ units - 250\ units} \times 4,850$ units = 98,532

(Process A/c is debited with the value of abnormal gain as calculated above but the Costing Profit & Loss Account will only be credited with actual amount of abnormal gain only considering the actual realisable value through Abnormal Gain A/c, as shown below)

Abnormal Gain A/c

Particulars	Units	₹	Particulars	units	₹
To Normal Loss A/c (100 units ×₹2)	100	200	By Process-I A/c	100	2,032
To Costing P&L A/c	-	1,832			
	100	2,032		100	2,032

(The Costing P&L Account is credited only for actual gain amount

Solution 5:

Process 'A' Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Input Units	10,000	10,000	By Normal Loss A/c at 0.25	300	75
To Materials		1,000	By Abnormal Loss A/c		
To Labour		5,000	[(17,050 – 75)/9,700 × 200]	200	350
To Direct Expenses		1,050	By Process B A/c	9,500	16,625
	10,000	17,050		10,000	17,050

Process 'B' Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Process A A/c	9,500	16,625	By Normal Loss A/c at 0.50	475	238
To Materials		1,500	By Process C A/c	9,100	27,300
To Labour		8,000			
To Direct Expenses		1,188			
To Abnormal Gain A/c [(27,313 – 238)/9,025 × 75]	75	225			
	9,575	27,538		9,575	27,538

Process 'C' Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Process B	9,100	27,300	By Normal Loss A/c @ Re. 1	728	728
To Materials		500	By Abnormal Loss A/c	272	1,156
To Labour		6,500	[(36,309 – 728)/8,672 × 272]		
To Direct Expenses		2,009	By Finished Goods A/c	8,100	34,425
	9,100	36,309		9,100	36,309

Solution 6:

Process I Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)

To Direct Materials	5,000	40,000	By Process II (Transfer) at 20 p.u.	4,350	87,000
To Direct Labour		30,000	By Normal Loss (3% of 5,000)	150	-
To Manufacturing Overheads		27,000	By Abnormal Loss at 20 p.u.	500	10,000
	5,000	97,000		5,000	97,000

Working Notes:

Effective Cost per unit= $\frac{Rs.97,000}{(5,000\ units - 150\ units)}$= 20 per unit.

Solution 7:

Process I Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Raw Materials at 60 p.u.	7,500	4,50,000	By Process II – transfer (at 96.80 p.u.)	7,050	6,82,440
To Direct Labour	-	1,35,750	By Normal Loss (at 12.50 p.u.)	375	4,688
To Direct Expenses (60% of Wages)	-	81,450	By Abnormal Loss (at 96.80 p.u.)	75	7,222
To Manufacturing OH (20% of Wages)	-	27,150			
	7,500	6,94,350		7,500	6,94,350

Effective Cost per unit = $\frac{Rs.6,94,350 - Rs.4688}{7,500-375}$ = $\frac{Rs.6,89,662}{7,125}$ = 96.80 p.u.

Process II Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Process I – transfer in	7,050	6,82,440	By FG Control – transfer (at 140.05 p.u.)	6,525	9,13,826
To Direct Labour	-	1,29,250	By Normal Loss (at 37.50 p.u.)	705	26,438
To Direct Expenses (65% of Wages)	-	84,013			
To Manufacturing OH (15% of Wages)	-	19,388			
To Abnormal Gain (at 140.05 p.u.)	180	25,173			
	7,230	9,40,264		7,230	9,40,264

Effective Cost per unit = $\frac{Rs.9,15,091 - Rs.26,438}{7,050-705}$ = $\frac{Rs.8,88,653}{6,345}$ = 140.05 p.u.

Finished Stock Account

Particulars	Qty	Amount(₹)	Particulars	Qty	Amount(₹)
To Process II – transfer in	6,525	9,13,826	By Cost of Sales – transfer	6,000	8,40,300
			By balance c/d	525	73,526
	6,525	9,13,826		6,525	9,13,826

Note: Profit = 6,000 units × (140.05 × 15%) = 1,26,000 (approx.)

The following accounts are prepared for information value:

Normal Loss Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Process I	375	4,668	By Bank (Scrap Realisation)	375	4,688
To Process II	705	26,438	By Bank (Scrap Realisation)	525	19,688
			By Abnormal Gain (at 37.5 p.u.)	180	6,750
	1,080	31,126		1,080	31,126

Abnormal Loss Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)

To Process I	75	7,222	By Bank (at 12.50 p.u.)	75	938
			By Costing Profit & Loss A/c	-	6,285
	75	7,222		75	7,222

Abnormal Gain Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount(₹)
To Normal Loss A/c (at 37.50 p.u.)	180	6,750	By Process II	180	25,173
To Costing Profit and Loss A/c		18,423			
	180	25,173		180	25,173

Solution 9:

1. **Process I Account**

Particulars	Qty	Amount(₹)	Particulars	Qty	Amount (₹)
To Basic Raw Materials A	80,000	4,80,000	By Process II – transfer (6.68375 p.u.)	70,000	4,67,863
To Processing Cost (63 × 30)	-	1,890	By Normal Loss (at 1.50 p.u.)	8,000	12,000
To Direct Labour (63 × 80 ph)	-	5,040	By Abnormal Loss (6.68375 p.u.)	2,000	13,367
To General OH (125% of Labour)	-	6,300			
	80,000	4,93,230		80,000	4,93,230

Effective Cost per unit = $\frac{Rs.4,93,230 - Rs.12,000}{80,000 - 8,000} = \frac{Rs.4,81,230}{72,000}$ = 6.68375 p.u.

Process II Account

Particulars	Qty	Amount(₹)	Particulars	Qty	Amount(₹)
To Process I – transfer in	70,000	4,67,863	By Finished Goods Control (at 5.5417 p.u.)	96,000	5,32,003
To Direct Materials (Material B)	30,000	60,000	By Normal Loss(at 1 p.u.)	5,000	5,000
To Processing Cost (45 × 20)	-	900			
To Direct Labour (45 × 40)	-	1,800			
To General OH (50% of Labour)	-	900			
To Abnormal Gain (5.5417 p.u.)	1,000	5,540			
	1,01,000	5,37,003		1,01,000	5,37,003

Effective Cost per unit = $\frac{Rs.5,31,463 - Rs.5,000}{1,00,000 - 5,000} = \frac{Rs.5,26,463}{95,000}$ = 5.5417 p.u.

Normal Loss Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Process I	8,000	12,000	By Bank (Scrap Realisation)	8,000	12,000
To Process II	5,000	5,000	By Bank (Scrap Realisation)	4,000	4,000
			By Abnormal Gain – Adjustment transfer	1,000	1,000
	13,000	17,000		13,000	17,000

Abnormal Loss Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount(₹)
To Process I	2,000	13,367	By Bank (at 1.50 p.u.)	2,000	3,000
			By Costing Profit & Loss A/c (Bal. figure)	-	10,367
	2,000	13,367		2,000	13,367

2. **Effect of inquiry for further processing and sale of Process I Waste**

Net Realisable Value of Processed Waste of Process I = 3.20 – 0.90 – 040	1.90 per kg
Less: Amount realizable by way of Sale as Scrap of Process I	1.50 per kg

Net Additional Income by way of accepting the proposal for Specially prepared Waste Material	0.40 per kg
Overall Additional Profit to Company from 1,700 kg of Specially prepared Waste Material at 0.40/kg	680

Notes:

(a) Cost of Production of Waste.

(b) Whether such specially prepared waste is out of Normal or Abnormal Loss, etc. are not relevant for decision- making.

Solution 10:

(i) Process Account

Particulars	Units	Amount(₹)	Particulars	Units	Amount(₹)
To Materials	50	50	By Normal Loss	5	1
To Additional Expenditure	-	32	By Abnormal Loss	5	9
			By Transfer to next Process	40	72
	50	82		50	82

(ii) Journal Entries

Particulars		Amount (₹)	Amount (₹)
Normal Loss A/c	Dr.	1	
To Process A/c			1
(Realisation of normal loss)			
Abnormal Loss A/c	Dr.	9	
To Process A/c			9
(Abnormal loss valued)			
Cash/Debtors A/c	Dr.	1	
To Abnormal Loss A/c			1
(Abnormal spoilt units disposed of at the rate of 20 paise per unit)			
Costing Profit and Loss A/c	Dr.	8	
To Abnormal Loss A/c			8
(Balance of abnormal loss account transferred to Costing Profit and Loss A/c)			

Solution 11:

1. Process I Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Basic Raw Materials	20,000	2,00,000	By Process II – transfer (at 18.25 per kg)	18,000	3,28,500
To Direct Materials		60,000	By Normal Loss A/c (at 2.00 per kg)	1,600	3,200
To Direct Labour		40,000	By Abnormal Loss A/c (at 18.25 per kg)	400	7,300
To Production OH		39,000			
	20,000	3,39,000		20,000	3,39,000

Effective Cost per unit = $\frac{Rs.3,39,000-Rs.3,200}{20,000-1,600}=\frac{Rs.3,35,800}{18,400}$ = 18.25 per kg

Process II Account

Particulars	Qty	Amount(₹)	Particulars	Qty	Amount (₹)
To Process I – transfer	18,000	3,28,500	By Finished Goods Control A/c – transfer (at 25.50 per kg)	17,400	4,43,700
To Direct Materials		40,000			
To Direct Labour		30,000	By Normal Loss A/c (at 3 per kg)	900	2,700
To Production OH		40,250			
To Abnormal Gain (at 25.5 per kg)	300	7,650			
	18,300	4,46,400		18,300	4,46,400

Effective Cost per unit = $\frac{Rs.4,38,750-Rs.2,700}{18,000-900}=\frac{Rs.4,36,050}{17,100}$= 25.50 per kg

Working Notes:

(i) Valuation of Abnormal Loss and Units finished & transferred to Process II Account

$=\frac{Total\ Expenditure\ incurred\ in\ the\ Process-Scrap\ Realisation\ of\ Normal\ Loss}{Units\ introduced-Normsl\ Loss\ Unit}$

$=\frac{2,00,000+60,000+40,000+39,000-3,200}{20,000-1,600}=\frac{3,35,800}{18,400}$=18.25

(ii) Valuation of Abnormal Gain and Units finished & transferred to Warehouse

$=\frac{Total\ Expenditure\ incurred\ in\ the\ Process\ and\ Cost\ transferred\ for\ Previous\ Process-Normal\ Loss\ Scrap\ Realisation}{Units\ introduced\ in\ the\ Process-Normal\ Loss\ Unit}$

$=\frac{40,000+30,000+40,250+3,28,500-2,700}{18,000-900}=\frac{4,36,050}{17,100}$=25.50

2. Determination of Selling Price per Unit of the end product:

Let the Selling Price of the Product be = 100

Profit = 20% of 100 = 20

Cost = 100 – 20 = 80

If the Cost Price is 25.50 the Selling Price of the end product is $\frac{25.50}{80}\times 100$= 31.875

Solution 13:

Process- I Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Raw Materials	2,000	12,000	By Normal loss (200 units × ₹ 2)	200	400
To Direct raw material	-	17,000	By Process – II (1,840 units x ₹ 25)	1,840	46,000
To Direct wages	-	8,000			
To Direct Expenses	-	2,400			
To Production OH	-	6,000			
To Abnormal gain A/c (40 units × ₹ 25)	40	1,000			
	2,040	**46,400**		**2,040**	**46,400**

Working :

Cost per unit = $\frac{₹\ 45,400-₹\ 400}{2,000\ units-200\ units}$ = ₹ 25 per unit

Normal loss = 2,000 units x 10% = 200 units

Abnormal gain = (200 units + 1,840 units) – 2000 = 40 units

Process- II Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Process - I	1,840	46,000	By Normal loss (92 units × ₹ 5)	92	460
To Direct raw material	-	19,000	By Process- III (1,740 units ×₹ 50)	1,740	87,000
To Direct wages	-	12,000	By Abnormal loss A/c (8 units ×₹ 50)	8	400
To Direct Expenses	-	1,860			
To Production OH	-	9,000			
	1,840	**87,860**		**1,840**	**87,860**

Working:

Cost per unit = $\frac{₹\ 87,860-₹\ 460}{₹\ 1,840\ units-92\ units}$ = ₹ 50 per unit

Normal loss = 1,840 units × 5% = 92 units

Abnormal gain = 1840 – (92 units + 1,740 units) = 8 units

Process- III Account

Particulars	Units	Amount(₹)	Particulars	Units	Amount (₹)
To Process- II	1,740	87,000	By Normal loss (174 units × ₹ 10)	174	1,740

To Direct raw material	-	11,000	By Finished goods stock (1,580 units ×₹ 90)	1,580	1,42,200
To Direct wages	-	24,000			
To Direct Expenses	-	2,680			
To Production OH	-	18,000			
To Abnormal gain A/c (14 units ×₹ 90)	14	1,260			
	1,754	**1,43,940**		**1,754**	**1,43,940**

Workings :

Cost per unit = $\frac{₹\,1,42,680 - ₹\,1,740}{1,740\ units - 174\ units}$ = ₹ 90 per unit

Normal loss = 1,740 units × 10% = 174 units

Abnormal gain = (174 units + 1,580 units) – 1,740 = 14 units

Abnormal Loss Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Process- II	8	400	By sale proceeds of scrap @ ₹ 5 per unit	8	40
			By Costing Profit & Loss A/c (loss transferred)		360
Total	**8**	**400**	**Total**	**8**	**400**

Abnormal Gain Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount(₹)
To normal loss			By Process- I	40	1,000
Process I	40	80	By Process- III	14	1,260
Process II	14	140			
To Costing Profit & Loss A/c (profit transferred)		2,040			
Total	**54**	**2,260**	**Total**	**54**	**2,260**

Solution 14:

(a)

Dr. Process-X Account Cr.

Particulars	Units	(₹)	Particulars	Units	(₹)
To Material introduced	15,000	30,000	By Normal Loss A/c [(6% of 15,000 units) x ₹ 1.1]	900	990
” Additional material	--	2,600	” Process-Y A/c (₹ 2.951* × 14,100 units)	14,100	41,610
” Direct wages	--	4,000			
” Production OH	--	6,000			
	15,000	42,600		15,000	42,600

*Cost per unit of completed units = $\frac{Total\ Cost - Realisable\ value\ from\ normal\ loss}{Inputs\ units - Normal\ loss\ units}$ = $\frac{₹\,42,600 - ₹\,990}{15,000\ units - 900\ units}$ = ₹ 2.951

Dr. Process-Y Account Cr.

Particulars	Units	(₹)	Particulars	Units	(₹)
To Process-X A/c	14,100	41,610	By Normal Loss A/c [(13.44% of 14,100 units) x ₹ 2]	1,895	3,790
” Additional material	--	2,250	” Process-Z A/c (₹ 4 × 12,205 units)	12,205	48,820
” Direct wages	--	3,500			
” Production OH	--	5,250			
	14,100	52,610		14,100	52,610

#Calculation for % of wastage in process ‘Y’:

Let’s consider number of units lost under process ‘Y’ = A

Now, $\frac{Total\ Cost - Realisable\ value\ from\ normal\ loss}{Inputs\ units - Normal\ loss\ units}$ = 4

$\frac{₹\ 52{,}610 - ₹\ 2A}{14{,}100\ units - A} = ₹\ 4$

₹ 52,610 - ₹ 2A = ₹ 56,400 - ₹ 4A
2A = ₹ 3,790 => A = 1,895 units

% of wastage = $\frac{1{,}895\ units}{14{,}100\ units}$ = 13.44%

Dr. Process-Z Account Cr.

Particulars	Units	(₹)	Particulars	Units	(₹)
To Process-Y A/c	12,205	48,820	By Normal Loss A/c [(5% of 12,205 units) x ₹ 1]	610	610
” Additional material	--	2,000	” Finished Stock A/c (₹ 4.9771$ × 12,000 units)	12,000	59,726
” Direct wages	--	3,000			
” Production OH	--	4,500			
” Abnormal gain (₹ 4.9771$ × 405 units)	405	2,016			
	12,610	60,336		12,610	60,336

$Cost per unit of completed units $\frac{Total\ Cost - Realisable\ value\ from\ normal\ loss}{Inputs\ units - Normal\ loss\ units}$ = $\frac{₹\ 58{,}320 - ₹\ 610}{12{,}205\ units - 610\ units}$ = ₹ 4.9771

Alternative Solution

Dr. Process-X Account Cr.

Particulars	Units	(₹)	Particulars	Units	(₹)
To Material introduced	15,000	30,000	By Normal Loss A/c [(6% of 15,000 units) x ₹ 1.1]	900	990
” Additional material	--	2,600	” Process-Y A/c (₹ 2.951* × 14,100 units)	14,100	41,610
” Direct wages	--	4,000			
” Production OH	--	6,000			
	15,000	42,600		15,000	42,600

*Cost per unit of completed units
= $\frac{Total\ Cost - Realisable\ value\ from\ normal\ loss}{Inputs\ units - Normal\ loss\ units}$ = $\frac{₹\ 42{,}600 - ₹\ 990}{15{,}000\ units - 900\ units}$ = ₹ 2.951

Dr. Process-Y Account Cr.

Particulars	Units	(₹)	Particulars	Units	(₹)
To Process-X A/c	14,100	41,610	By Normal Loss A/c [(#13.44% of 14,100 units) x ₹ 2]	1,895	3,790
” Additional material	--	2,250	” Process-Z A/c (₹ 4 × 12,631@ units)	12,631	50,524
” Direct wages	--	3,500			
” Production OH	--	5,250			
” Abnormal gain (₹ 4 × 426 units)	426	1,704			
	14,526	54,314		14,526	54,314

Working Notes:
@1. Units Transferred from Process Z Account to Finished Stock = 12,000 Units i.e 95% of Inputs.

So, Input of Z or Output of Y is 12,000 x 100/95 = 12,631 Units and Normal Loss (5%) is 631 units.

2. Let's consider number of units lost under process 'Y' as:
For Normal loss = A
For Abnormal loss = B
Now, A + B = 1,469 [i.e. 14,100 – 12,631] ...(I)
(A x ₹ 2 per unit) + (B x ₹ 4 per unit) = [52,610 – 50,524]
2A + 4B = 2,086 ...(II)
Now, putting the values of (I) in (II), we get,
2(1,469 – B) + 4B = 2,086

2B = - 852 => B = - 426
Since, the figure B is in negative, it is an abnormal gain of 426 units
Further A (i.e normal Loss) = 1,469 + 426 = 1,895 units

% wastage in Process Y Account = $\frac{1{,}895\ units}{14{,}100\ Units}$ = 13.44 %

Dr. Process-Z Account Cr.

Particulars	Units	(₹)	Particulars	Units	(₹)
To Process-Y A/c	12,631	50,524	By Normal Loss A/c [(5% of 12,631 units) x ₹ 1]	631	631
" Additional material	--	2,000	" Finished Stock A/c (₹ 4.9494$ × 12,000 units)	12,000	59,393
" Direct wages	--	3,000			
" Production OH	--	4,500			
	12,631	60,024		12,631	60,024

$Cost per unit of completed units $\frac{Total\ Cost - Realisable\ value\ from\ normal\ loss}{Inputs\ units - Normal\ loss\ units}$ = $\frac{₹\ 60{,}024 - ₹\ 631}{12{,}631\ units - 631\ units}$ = ₹ 4.9494

Solution 15:

Process-I A/c

Particulars	Units	(₹)	Particulars	Units	(₹)
To Raw material used (₹ 65 × 6,500 units)	6,500	4,22,500	By Normal loss (250 units × ₹ 4)	250	1,000
To Direct wages	--	1,40,000	By Process- II A/c (₹ 100 × 6,000 units)	6,000	6,00,000
To Direct expenses (30% of ₹ 1,40,000)	--	42,000	By Abnormal loss (₹ 100 × 250 units)	250	25,000
To Manufacturing overhead		21,500			
	6,500	6,26,000		6,500	6,26,000

Cost per unit of completed units and abnormal loss: $\frac{Total\ Cost - Realisable\ value\ from\ normal\ loss}{Input\ Units - Normal\ loss\ units}$

= $\frac{₹6{,}26{,}000 - ₹1{,}000}{6{,}500\ units - 250\ units}$ = $\frac{₹6{,}25{,}000}{6{,}250\ units}$ = ₹ 100

Process- II A/c

Particulars	Units	(₹)	Particulars	Units	(₹)
To Process - I A/c	6,000	6,00,000	By Normal loss (500 units × ₹16)	500	8,000
To Direct wages	--	1,30,000	By Finished Stock A/c (₹144 × 5,500 units)	5,500	7,92,000
To Direct expenses (35% of ₹ 1,30,000)	--	45,500			
To Manufacturing overhead	--	24,500			
	6,000	8,00,000		6,000	8,00,000

Cost per unit of completed units and abnormal loss:

$\frac{₹8,00,000-₹8,000}{6,000\ units-500\ units}=\frac{₹7,92,000}{5,500\ units}$ = ₹144

Finished Goods Stock A/c

Particulars	Units	(₹)	Particulars	Units	(₹)
To Process II A/c	5,500	7,92,000	By Cost of Sales (₹144 × 5,000 units)	5,000	7,20,000
			By Balance c/d	500	72,000
	5,500	7,92,000		5,500	7,92,000

Solution 16:

(a) **Process X Account** **(In ₹)**

Particulars	Cost	Profit	Total	Particulars	Cost	Profit	Total
To Opening Stock	15,000	-	15,000	By Process Y A/c – transfer	2,96,000	74,000	3,70,000
To Direct Material	80,000	-	80,000				
To Direct Wages	1,25,000	-	1,25,000				
Total	2,20,000	-	2,20,000				
Less: Closing Stock	(20,000)	-	(20,000)				
Net Total Prime Cost	2,00,000	-	2,00,000				
To Overheads	96,000	-	96,000				
Total Process Cost	2,96,000	-	2,96,000				
To Profit	-	74,000	74,000				
	2,96,000	74,000	3,70,000		2,96,000	74,000	3,70,000

Working Notes:

(i) There are no unrealized profits in the Closing Stock of Process X (being the first process).

(ii) Profit in Process X = 20% on Transfer Price = 1/5th on Price
= 1/4th on Cost to Process (as per Total Column) 2,96,000 = 74,000

Process Y Account **(In ₹)**

Particulars	Cost	Profit	Total	Particulars	Cost	Profit	Total
To Opening Stock	23,000	4,000	27,000	By Process Z A/c – transfer	5,36,739	2,26,121	7,62,500
To Process X – transfer in	2,96,000	74,000	3,70,000				
To Direct Material	65,000	-	65,000				
To Direct Wages	1,08,000	-	1,08,000				
Total	4,92,000	78,000	5,70,000				
Less: Closing Stock	(27,621)	(4,379)	(32,000)				
Net Total Prime Cost	4,64,379	73,621	5,38,000				
To Overheads	72,000	-	72,000				
Total Process Cost	5,36,379	73,621	6,10,000				
To Profit	-	1,52,500	1,52,500				
	5,36,739	2,26,121	7,62,500		5,36,739	2,26,121	7,62,500

Working Notes:

(i) Unrealized Profits on Closing Stock of Process Y = $\frac{Rs.78,000}{Rs.\ 5,70,000}$ ×32,000= 4,379

(ii) Profit in Process Y = 20% on Transfer Price = 1/5th on Price
= 1/4th on Cost to Process (as per Total Column) 6,10,000 = 1,52,500

Process Z Account **(In ₹)**

Particulars	Cost	Profit	Total	Particulars	Cost	Profit	Total
To Opening Stock	30,000	10,000	40,000	By Finished Stock A/c – transfer	7,45,629	5,50,371	12,96,000
To Process Y – transfer in	5,36,379	2,26,121	7,62,500				
To Direct Material	50,000	-	50,000				

To Direct Wages	92,000	-	92,000				
Total	7,08,379	2,36,121	9,44,500				
Less: Closing Stock	(29,250)	(9,750)	(39,000)				
Net Total Prime Cost	6,79,129	2,26,371	9,05,500				
To Overheads	66,500	-	66,500				
Total Process Cost	7,45,629	2,26,371	9,72,000				
To Profit	-	3,24,000	3,24,000				
	7,45,629	5,50,371	12,96,000		7,45,629	5,50,371	12,96,000

Working Notes:

(i)Unrealized Profits on Closing Stock of Process Z = $\frac{Rs.2,36,121}{Rs.\ 9,44,500}$ ×39,000= 9,750

(ii) Profit in Process Z = 25% on Transfer Price = 1/4th on Price

= 1/3rd on Cost to Process (as per Total Column) 9,72,000 = 3,24,000

Finished Goods Control Account **(In ₹)**

Particulars	Cost	Profit	Total	Particulars	Cost	Profit	Total
To Opening FG Stock	25,000	20,000	45,000	By Sales A/c	7,41,896	6,58,104	14,00,000
To Process Z	7,45,629	5,50,371	12,96,000				
Total	7,70,629	5,70,371	13,41,000				
Less: Closing FG Stock	(28,733)	(21,267)	(50,000)				
COG'S	7,41,896	5,49,104	12,91,000				
To Profit	-	1,09,000	1,09,000				
	7,41,896	6,58,104	14,00,000		7,41,896	6,58,104	14,00,000

Working Notes:

(i)Unrealized Profits on Closing Stock of Process Z = $\frac{Rs.5,70,371}{Rs.\ 13,41,000}$ ×50,000= 21,267

(ii) Profit of 6,58,104 represents actual realized profit on the goods sold. Profit of 1,09,000 represents the profits booked in Trading Department.

(b) **Profit and Loss Account**

Particulars	Amount (₹)	Particulars	Amount (₹)
To Finished Goods A/c – COGS transfer	7,41,896	By Sales	14,00,000
To Net Profit	6,58,104		
	14,00,000		14,00,000

(c) **Reconciliation between Booked Profit and Actual Realized Profit** **(In ₹)**

Process	Process X	Process Y	Process Z	Finished Goods	Total
Profit Booked at each stage	74,000	1,52,500	3,24,000	1,09,000	6,59,500
Less: Profit in Closing Stock, if any, not realized	-	(4,379)	(9,750)	(21,267)	(35,396)
Add: Profit in Opening Stock, if any, now realized	-	4,000	10,000	20,000	34,000
Profit Realized	74,000	1,52,121	3,24,250	1,07,733	6,58,104
Valuation of Closing Stock:					
Gross Stock Value	20,000	32,000	39,000	50,000	1,41,000
Less: Unrealized Profit in Closing Stock	-	(4,379)	(9,750)	(21,267)	(35,396)
Net Stock for Balance Sheet purposes	20,000	27,621	29,250	28,733	1,05,604

Solution 19:

Process – I Account

Particulars	Total (₹)	Cost (₹)	Profit (₹)	Particulars	Total (₹)	Cost (₹)	Profit (₹)
Opening Stock	7,500	7,500	--	Process- II A/c*	54,000	40,500	13,500
Direct material	15,000	15,000	--	(Transferred)			
Direct Wages	11,200	11,200	--	Closing stock	3,700	3,700	--
Prime Cost	33,700	33,700					
Overheads	10,500	10,500	--				

Total Cost	44,200	44,200					
Profit**	13,500	--	13,500				
	57,700	44,200	13,500		57,700	44,200	13,500

*Transfer Price = $\frac{Total\ cost - Closing\ stock}{75\%}$ = $\frac{44,200 - 3,700}{75\%}$ = ₹ 54,000

** Profit on Transfer = 54,000 x 25% = ₹ 13,500

Process – II Account

Particulars	Total (₹)	Cost (₹)	Profit (₹)	Particulars	Total (₹)	Cost (₹)	Profit (₹)
Opening Stock	9,000	7,500	1,500	Finished stock	1,12,500	75,750	36,750
T/f from	54,000	40,500	13,500	A/c**			
process-I	15,750	15,750	--	(Transferred)	4,500	3,750	750
Direct material	11,250	11,250	--	Closing stock*			
Direct Wages	90,000	75,000	15,000				
Prime Cost	4,500	4,500	--				
Overheads	94,500	79,500	15,000				
Total Cost	22,500	--	22,500				
Profit***	1,17,000	79,500	37,500		1,17,000	79,500	37,500

*Cost of Closing stock = $\frac{₹\ 75,000}{₹\ 90,000}$ x ₹ 4,500 = ₹ 3,750

**Transfer Price = $\frac{Total\ cost - Closing\ stock}{80\%}$ = $\frac{94,500 - 4,500}{80\%}$ = ₹ 1,12,500

***Profit on transfer = 1,12,500 x 20 % = ₹ 22,500

Finished stock Account

Particulars	Total (₹)	Cost (₹)	Profit (₹)	Particulars	Total (₹)	Cost (₹)	Profit (₹)
Opening Stock	22,500	14,250	8,250	Costing P & L A/c	1,40,00	82,425	57,575
Process – II	1,12,500	75,750	36,750	Closing Stock*	11,250	7,575	3,675
Profit	16,250	--	16,250				
	1,51,250	90,000	61,250		1,51,250	90,000	61,250

*Cost of Closing stock = $\frac{Cost\ of\ transfer\ from\ Process\ -II}{Transfer\ price\ from\ process\ -II}$ x Value of closing stock

(As per instruction given in the question)

= $\frac{₹\ 75,750}{₹\ 1,12,500}$ x ₹ 11,250 = ₹ 7,575

Solution 22:

1. **Computation of Total and Unit Costs for each Model**

Model	Standard	Deluxe	Executive
Materials:			
Extrusion	12.00	12.00	12.00
Form	4.00	4.00	4.00
Trim	-	3.00	3.00
Finish	-	-	6.00
Conversion Costs:			
Extrusion	31.50	31.50	31.50
Form	15.43	15.43	15.43
Trim	-	17.74	17.74
Finish	-	-	27.00
Total Cost per unit	62.93	83.67	116.67

Output Quantity in April	10,500 units	5,250 units	3,500 units
Total Cost	(10,500 × 62.93) = 6,60,765.00	(5,250 × 83.67) = 4,39,267.50	(3,500 × 116.67) = 4,08,345.00

2. Valuation of WIP Inventory (1,500 units of Deluxe Model)

Particulars	Equivalent Units	Cost per E.U.	Total Cost (₹)
Materials:			
Extrusion	1,500	12.00	18,000.00
Form	1,500	4.00	6,000.00
Trim	1,500	3.00	4,500.00
Conversion Costs:			
Extrusion	1,500	31.50	47,250.00
Form	1,500	15.43	23,145.00
Trim (1,500 units × 65%)	975	17.74	17,296.50
Cost of 1,500 units of Deluxe Model Chairs WIP			1,16,191.50

Working Notes:

Computation of Cost per Equivalent Unit for each Operation

Particulars	Extrusion	Form	Trim	Finish
Equivalent Units of Materials required to produce three brands of Plastic Moulded Chairs	19,250 units	19,250 units	8,750 units	3,500 units
Total Material Costs	2,31,000	77,000	26,250	21,000
Material Cost per Equivalent Unit (Total Material Cost/Equivalent Units)	12.00	4.00	3.00	6.00
Total Conversion Costs	6,06,375	2,97,000	1,55,250	94,500
Conversion Cost per Equivalent Unit (Total Conversion Costs/Equivalent Units	31.50	15.43	17.74	27.00

Solution 23:

(a) **Process I Account**

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Prime Raw Material	4,000	80,000	By Process I Stock A/c – transfer (at 52 p.u.)	3,900	2,02,800
To Direct Materials Consumed		40,000	By Normal Loss A/c (at 27 p.u.)	80	2,160
To Direct Labour		45,000	By Abnormal Loss A/c (at 52 p.u.)	20	1,040
To Direct Expenses		41,000			
	4,000	2,06,000		4,000	2,06,000

Effective Cost per unit = $\frac{Rs.2,06,000 - Rs.2,160}{4,000-80} = \frac{Rs.2,03,840}{3,920}$ = 52 p.u.

Process I Stock Account

Particulars	Qty	Amount(₹)	Particulars	Qty	Amount (₹)
To balance b/d (at 49 p.u.)	600	29,400	By Process II – transfer out (Bal. Figure)	4,000	2,06,400
To Process I A/c – Production – transfer in	3,900	2,02,800	By balance c/d (at 51.60 p.u.)	500	25,800
	4,500	2,32,200		4,500	2,32,200

Weighted Average Cost per unit = $\frac{Total\ Cost}{Total\ Quantity} = \frac{Rs.2,32,200}{4,500\ units}$ = 51.60 p.u

Process II Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Process I Stock A/c - Transfer in	4,000	2,06,400	By Process II Stock A/c-Transfer (at 63 p.u)	3,850	2,42,550
To Direct Materials Consumed		15,000		200	6,500

To Direct Labour		20,000	By Normal Loss A/c (at 32.50 p.u)		
To Direct Expenses		4,500			
To Abnormal Gain (at 63 p.u.)	50	3,150			
	4,050	2,49,050		4,050	2,49,050

Effective Cost per unit = $\frac{Rs.2,45,463 - Rs.5,000}{4,000 - 200} = \frac{Rs.2,39,400}{3,800}$ = 63 p.u.

Process II Stock Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To balance b/d (at 62 p.u.)	550	34,100	By Process III – transfer out (Bal. Figure)	3,600	2,26,350
To Process II A/c – Production – transfer in	3,850	2,42,550	By balance c/d (at 62.875 p.u.)	800	50,300
	4,400	2,76,650		4,400	2,76,650

Weighted Average Cost per unit = $\frac{Total\ Cost}{Total\ Quantity} = \frac{Rs.2,76,650}{4,400\ units}$ = 62.875 p.u

Process III Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Process II Stock A/c – transfer in	3,600	2,26,350	By Process III Stock A/c	3,200	2,43,200
To Direct Materials Consumed		10,000	– transfer (at 76 pu)		
To Direct Labour		20,000	By Normal Loss (at 42 p.u.)	360	15,120
To Direct Expenses		5,010	By Abnormal Loss (at 76 p.u.)	40	3,040
	3,600	2,61,360		3,600	2,61,360

Effective Cost per unit = $\frac{Rs.2,61,360 - Rs.15,120}{3,600 - 360} = \frac{Rs.2,46,240}{3,240}$ = 76 p.u.

Process III Stock Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To balance b/d (at 74 p.u.)	800	59,200	By Finished Goods Control A/c	4,000	3,02,400
To Process III A/c – Production – transfer in	3,200	2,43,200	– transfer (at 75.60 p.u.)		
	4,000	3,02,400		4,000	3,02,400

Weighted Average Cost per unit = $\frac{Total\ Cost}{Total\ Quantity} = \frac{Rs.3,02,400}{4,000\ units}$ = 75.60 p.u

(b) **Normal Wastage Account**

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Process I (at 27 p.u.)	80	2,160	By Bank (Scrap Realisation)	80	2,160
To Process II (at 32.50 p.u.)	200	6,500	By Bank (Scrap Realisation)	150	4,875
To Process III (at 42 p.u.)	360	15,120	By Abnormal Gain – adjustment transfer	50	1,625
			By Bank (Scrap Realisation)	360	15,120
	640	23,780		640	23,780

(c) Abnormal Wastage Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Process I (at 52 p.u.)	20	1,040	By Bank (Scrap Realisation at 27)	20	540

To Process III (at 76 p.u.)	40	3,040	By Costing P&L (balancing figure) By Bank (Scrap realisation at 42) By Costing P & L (balancing figure)	 40 	500 1,680 1,360
	60	3,040		60	3,040

Abnormal Gain Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Normal Loss – adjustment transfer To Costing P & L A/c (balancing figure)	50 	1,625 1,525	By Process II (at 63 p.u.)	50	3,150
	50	3,150		50	3,150

Solution 24:

Statement showing Equivalent Production

Input Units	Particulars	Output Units	Materials Units	Materials %
2,800	Put & Processed	2,000	2,000	100
	Closing Stock	450	315	70%
	Normal Loss	280	-	-
	Abnormal Loss	70	70	100%
2,800		2,800	2,385	

Statement showing Apportionment of Cost

Particulars	Cost per Unit	Units	Total Cost (₹)
Closing Cost	7	315	2,205
Abnormal Loss	7	70	490
Completed Units	7	2,000	14,000
		2,385	16,695

Working Notes:

Cost per Equivalent Unit=$\frac{Rs.16,695}{2,385\ units}$= 7 per Equivalent Unit.

Process Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Total Costs of Inputs	2,800	16,695	By Finished Goods Control A/c – transfer	2,000	14,000
			By Normal Loss A/c (No Scrap Value)	280	Nil
			By Abnormal Loss A/c	70	490
			By Closing WIP c/d	450	2,205
	2,800	16,695		2,800	16,695

Solution 25:

(i) Calculation of equivalent units of production:

Input Details	Units	Output Particulars	Units	Equivalent Units			
				Material		Conversion Cost	
				%	Units	%	Units

Unit Introduced	10,000	Finished output	8,000	100	8,000	100	8,000
		Closing W-I-P	2,000	100	2,000	25	500
Total	**10,000**	Total	**10,000**		**10,000**		**8,500**

(ii) Calculation of cost per equivalent unit

	Direct Material	Conversion Costs
Total cost (₹)	33,000	17,000
Equivalent units	10,000	8,500
Cost per equivalent unit (₹)	3.30	2.00

(iii) The cost of closing work in process (W-I-P):

Costs	Equivalent units	Rate (₹)	Total Cost (₹)
Direct material	2,000	3.30	6,600
Conversion costs	5000	2.00	1,000
Total			7,600

The cost of finished products:

Costs	Equivalent units	Rate (₹)	Total Cost (₹)
Direct material	8,000	3.30	26,400
Conversion costs	8,000	2.00	16,000
Total			42,400

Solution 26:

1. Statement of Equivalent Production (FIFO Method)

Input	Particulars	Output	Materials		Labour and Overheads	
Units		Units	%	Units	%	Units
800	Opening WIP	800	-	-	40%	320
9,200	Put & Processed	7,100	100%	7,100	100%	7,100
	Normal Loss	800	-	-	-	-
	Abnormal Loss	900	100%	400	70%	320
	Closing WIP	400	100%	900	80%	630
10,000		10,000		8,400		8,370

2. Statement of Cost per Equivalent Unit

Cost Element		Total Costs	Equivalent Units	Cost per Equivalent Unit
Material	36,800			
Less: Scrap Value of Normal Loss	(3,200)	33,600	8,400	4
Labour		16,740	8,370	2
Overhead		8,370	8,370	1
Total		51,810		

3. Statement of Cost Apportionment

Particulars	Cost per Unit (₹)	Equivalent Units	Total Cost (₹)
1) Abnormal Gain			
Material	4	400	1,600
Labour	2	320	640
Overheads	1	320	320
			2,560
2) Closing WIP			
Material	4	900	3,600
Labour	2	630	1,260
Overheads	1	630	630
			5,490
3) 7,900 units are transferred to next Process			4,000

(i) Cost of Opening WIP (80 units)			
(ii) Cost incurred on Opening WIP			
Material	-	-	-
Labour	2	320	640
Overheads	1	320	320
			960
(iii) Cost of Completed 7,100 units			
Material	4	7,100	28,400
Labour	2	7,100	14,200
Overheads	1	7,100	7,100
			49,700
Total (i) + (ii) + (iii)			54,660

4. **Process Account**

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Opening WIP	800	4,000	By Process II A/c – transfer	7,900	54,660
To Direct Materials	9,200	36,800	By Normal Loss (Scrap Rate 3 p.u.)	800	3,200
To Direct Labour		16,740	By Abnormal Loss	400	2,560
To Production Overheads		8,370	By Closing WIP	900	5,490
	10,000	65,910		10,000	65,910

Solution 27:

(i) Calculation of equivalent units of production:

Input Details	Units	Output Particulars	Units	Equivalent Units			
				Material		Conversion Cost	
				%	Units	%	Units
Beginning WIP	16,000	From beginning WIP	16,000	40	6,400	80	12,800
Unit Introduced	1,00,000	Completed output	76,000	100	76,000	100	76,000
			24,000	90	21,600	40	9,600
Total	**1,16,000**	Closing W-I-P Total	**1,16,000**		**1,04,000**		**98,400**

(ii) Calculation of cost per equivalent unit for conversion costs

Particulars	Amount (₹)
Direct labour	1,82,880
Factory overheads	3,91,160
	5,74,040
Equivalent units	98,400
Cost per equivalent unit (₹)	5.83

Solution 28:

(i) **Statement of Equivalent Production (Using FIFO method)**

Particulars	Input Units	Particulars	Output Units	Equivalent Production			
				Material		Labour & O.H.	
				%	Units	%	Units
Opening WIP	10,000	Completed and transferred to Process-II					
Units introduced	55,000	- From opening WIP	10,000	-		30	3,000
		- From fresh inputs	33,500	100	33,500	100	33,500
			43,500		33,500		36,500
		Normal Loss {5% (10,000 +55,000 units)}	3,250	-			-

		Abnormal loss (9,500 – 3,250)	6,250	100	6,250	60	3,750
		Closing WIP	12,000	100	12,000	90	10,800
	65,000		**65,000**		**51,750**		**51,050**

(ii) **Abnormal Loss A/c**

Particulars	Units	(₹)	Particulars	Units	(₹)
To Process-I A/c	6,250	29,698	By Cost Ledger Control A/c	6,250	53,125
(Refer Working Note-2)			(6,250 units × ₹ 8.5)		
To Costing Profit	-	23,427			
& Loss A/c					
	6,250	**53,125**		**6,250**	**53,125**

Working Notes:

1. **Computation of Cost per unit**

Particulars	Materials (₹)	Labour (₹)	Overhead (₹)
Input costs	2,20,000	26,500	61,500
Less: Realisable value of normal	(27,625)	--	--
scrap (3,250 units x ₹ 8.5)			
Net cost	1,92,375	26,500	61,500
Equivalent Units	51,750	51,050	51,050
Cost Per Unit	3.7174	0.5191	1.2047

Total cost per unit = ₹ (3.7174 + 0.5191 + 1.2047) = ₹ 5.4412

2. **Valuation of Abnormal Loss**

	(₹)
Materials (6,250 units × ₹ 3.7174)	23,233.75
Labour (3,750 units × ₹ 0.5191)	1,946.63
Overheads (3,750 units × ₹ 1.2047)	4,517.62
	29,698

Solution 30:

1. **Statement of Equivalent Production**

Input	Particulars	Output	Materials		Labour and Overheads	
Units		Units	%	Units	%	Units
2,250	Opening WIP	2,250	-	-	40%	900
22,750	Put & Processed	17,250	100%	17,250	100%	17,250
	Normal Loss	2,500	-	-	-	-
	Abnormal Loss(Balancing Figure)	500	100%	500	70%	350
	Closing WIP	2,500	100%	2,500	80%	2,000
25,000		25,000		20,250		20,500

2. **Statement of Cost per Equivalent Unit**

Cost Element		Total Costs	Equivalent Units	Cost per Equivalent Unit
Material	88,500			
Less: Scrap Value of Normal Loss	7,500	81,000	20,250	4
Labour		20,500	20,500	1
Overhead		41,000	20,500	2
Total		1,42,500		7

Statement of Cost Apportionment

Particulars		Amount (₹)	Amount (₹)
Abnormal Loss (500 units)			
Material	{500 units × 4}	2,000	
Labour	{350 units × 1}	350	
Production Overheads	{350 units × 2}	700	3,050
Opening WIP (2,250 units)		11,250	
Add: Cost incurred			
Labour	{900 units × Re. 1}	900	
Production Overheads	{900 units × 2}	1,800	13,950
Units introduced & completed	{17,250 units × 7}		1,20,750
Total Cost of 19,500 units transferred to next process			1,34,700
Closing WIP (2,500 units)			
Material	{2,500 units × 4}	10,000	
Labour	{2,000 units × Re. 1}	2,000	
Production Overheads	{2,000 units × 2}	4,000	16,000

3. **Process I Account**

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Opening WIP	2,250	11,250	By Process II – transfer	19,500	1,34,700
To Materials	22,750	88,500	By Normal Loss (at 3 p.u.)	2,500	7,500
To Labour		20,500	By Abnormal Loss	500	3,050
To Production Overheads		41,000	By Closing WIP	2,500	16,000
	25,000	1,61,250		25,000	1,61,250

Solution 32:

(i) **Statement of Equivalent Production**

Input	Particulars	Output	Material A		Material B		Labour		Overheads	
Units		Units	%	Units	%	Units	%	Units	%	Units
Nil	FG Production	39,500	100%	39,500	100%	39,500	100%	39,500	100%	39,500
42,000	Normal Loss	840	-	-	-	-	-	-	-	-
	Abnormal Loss	460	100%	460	100%	460	80%	368	60%	276
	Closing WIP	1,200	100%	1,200	100%	1,200	50%	600	40%	480
42,000		42,000		41,160		41,160		40,468		40,256

Note: Normal Loss = 2% of Input = 2% of 42,000 = 840 units. Abnormal Loss is the balancing figure of Output Column.

(ii) **(a)** **Statement of Cost per Equivalent Unit**

Cost Element	Total Costs (₹)	Equivalent Units	Cost per Equivalent Unit (₹)
Material A	(42,000 units × 12 p.u.) = 5,04,000		
Less: NRV of Normal Loss	(840 units × 4.50 p.u.) = 3,780		
Net Cost	5,00,220	41,160	12.15
Material B	61,530	41,160	1.49
Labour	88,820	40,468	2.19
Overheads	1,76,400	40,256	4.38
Total	8,26,970		

(b) **Statement of Cost Apportionment**

Particulars	Cost per Unit (₹)	Equivalent Units	Total Cost (₹)
Abnormal Loss			
Material A	12.15	460	5,589
Material B	1.49	460	685
Labour	2.19	368	806
Overhead	4.38	276	1,209
			8,289
Closing Work-in-Progress			

Material A	12.15	1,200	14,580
Material B	1.49	1,200	1,788
Labour	2.19	600	1,314
Overhead	4.38	480	2,102
			19,784
Completed Units			
Material A	12.15	39,500	4,80,051
Material B	1.49	39,500	59,057
Labour	2.19	39,500	86,700
Overheads	4.38	39,500	1,73,089
			7,98,897

(ii) **Process II Account**

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Process I – transfer in	42,000	5,04,000	By Finished Goods Control	39,500	7,98,897
To Direct Materials		61,530	By Normal Loss (at 4.50 p.u.)	840	3,780
To Direct Labour		88,820	By Abnormal Loss	460	8,289
To Production Overhead		1,76,400	By balance c/d	1,200	19,784
	42,000	8,30,750		42,000	8,30,750

Abnormal Loss Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Process II	460	8,289	By Bank (Scrap Realized at 4.5 p.u.)	460	4,140
			By Costing P & L – transfer		4,149
	460	8,289		460	8,289

Solution 33:

Statement of Equivalent Production

Input	Particulars	Output	Material A		Material B		Labour and Overheads	
Units		Units	%	Units	%	Units	%	Units
2,000	Opening WIP	2,000	-	-	20%	400	40%	800
53,000	Put & Processed	46,000	100%	46,000	100%	46,000	100%	46,000
	Normal Loss	2,500	-	-	-	-	-	-
	Abnormal Gain	(500)	100%	(500)	100%	(500)	100%	(500)
	Closing WIP	5,000	100%	5,000	70%	3,500	50%	2,500
55,000		55,000		50,500		49,400		48,800

Working Notes:

Production Units = Opening units + Units transferred from Process II – Closing units
= 2,000 units + 53,000 units – 5,000 units = 50,000 units

Statement of Cost per Equivalent Unit

Cost Element		Total Costs	Equivalent Units	Cost Per Equivalent Unit
Material A	4,11,500			
Less: Scrap Value of Normal Loss	(7,500)	4,04,000	50,500	8
Material B		1,97,600	49,400	4
Labour		97,600	48,800	2
Overhead		48,800	48,800	1
Total		7,48,000		

Statement of Cost Apportionment

Particulars	Amount (₹)
(A) Value of Opening WIP	25,750

Add: Current Cost of completing Opening WIP		
– Material I		Nil
– Material II	(400 units × 4)	1,600
– Labour & Overheads	(800 units × 3)	2,400
Value of 2,000 completed Units		29,750
Add: Value of 46,000 completed Units	(46,000 units × 15)	6,90,000
Value of 48,000 completed units		7,19,750
(B) Value of Abnormal gain	(500 units × 15)	7,500
(C) Value of Closing WIP		
– Material I	(5,000 units × 8)	40,000
– Material II	(3,500 units × 4)	14,000
Labour & Overheads	(2,500 units × 3)	7,500
		61,500

Process III Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Opening WIP	2,000	25,750	By Process IV – transfer	48,000	7,19,750
To Process II – transfer in	53,000	4,11,500	By Normal Loss (at Scrap Rate 3 p.u.)	2,500	7,500
To Direct Materials		1,97,600	By Closing WIP	5,000	61,500
To Direct Labour		97,600			
To Production Overheads		48,800			
To Abnormal Gain	500	7,500			
	55,500	7,88,750		55,500	7,88,750

Solution 35:

(i) Statement of Equivalent Production

Particulars	Input quantity	Particulars	Total	Material		Processing Cost	
				%	Units	%	Units
Opening WIP	9,500	Units completed	83,000	100%	83,000	100%	83,000
Material Input	1,05,000	Normal loss (10% of 1,05,000)	10,500	-	-	-	-
		Abnormal loss (Bal. fig.)	4,500	100%	4,500	100%	4,500
		Closing WIP	16,500	100%	16,500	60%	9,900
	1,14,500		1,14,500		1,04,000		97,400

Statement of Cost for each element

Particulars	Material	Processing	Total cost
	(₹)	(₹)	(₹)
Cost of opening WIP	29,500	14,750	44,250
Cost incurred during the month	3,34,500	2,53,100	5,87,600
Total cost (A)	3,64,000	2,67,850	6,31,850
Equivalent production (B)	1,04,000	97,400	
Cost per kg of Chemical 'G' (A/B)	3.5	2.75	6.25

Alternative Presentation

Statement showing cost per kg of each statement

	(₹)	(₹)
Material	$\frac{29,500+3,34,500}{1,04,000}$	3.5
Processing cost	$\frac{14,750+2,53,100}{97,400}$	2.75
Total Cost per kg		6.25

(ii) Statement showing cost of Chemical 'G' transferred to Process II, cost of abnormal loss and cost of closing work-in- progress

	(₹)
Units transferred (60,000 × 6.25)	3,75,000
Abnormal loss (4,500 × 6.25)	28,125
Closing work in progress:	
Material (16,500 × 3.5)	57,750
Processing cost (9,900 × 2.75)	27,225
	84,975

(iii) Calculation of Incremental Profit / Loss after further processing

Particulars	(₹)	(₹)
Sales if further processed (A) (60,000 x 1.20 x ₹ 10)	7,20,000	
Calculation of cost in Process II		
Chemical transferred from Process I	3,75,000	
Add: Material cost	85,000	
Add: Process cost	50,000	
Total cost of finished stock (B)	5,10,000	
Profit, if further processed (C = A – B)		2,10,000
If sold without further processing then,		
Sales (60,000 x ₹ 9)	5,40,000	
Less: Cost of input without further processing	3,75,000	
Profit without further processing (D)		1,65,000
Incremental Profit after further processing (C – D)		45,000
Additional net profit on further processing in Process II is 45,000. Therefore, it is advisable to process further chemical 'G'.		

Alternative Presentation

Calculation of Incremental Profit / Loss after further processing

	(₹)
If 60,000 units are sold @ ₹ 9	5,40,000
If 60,000 units are processed in process II (60,000 × 1.2 × ₹ 10)	7,20,000
Incremental Revenue (A)	1,80,000
Incremental Cost: (B)	
Material Cost	85,000
Processing Cost	50,000
	1,35,000
Incremental Profit (A-B)	45,000

Additional net profit on further processing in Process II is 45,000. Therefore, it is advisable to process further chemical 'G'.

Solution 38:

(i) Statement of equivalent production (Average cost method)

Input Details	**Units**	**Output Particulars**	**Units**	**Equivalent Units**			
				Material		**Labour & O.H.**	
				%	**Units**	**%**	**Units**
Opening WIP	4,000	Completed and transferred	14,000	100	14,000	100	14,000
Unit Introduced	16,000	Closing W-I-P	6,000	100	6,000	33-1/3	2,000
	20,000		**20,000**		**20,000**		**16,000**

(ii) Statement showing cost for each element

Particulars	Material(₹)	Labour (₹)	Overhead (₹)	Total (₹)
Cost of opening work-in-process	6,000	1,000	1,000	8,000
Cost incurred during the month	25,600	15,000	15,000	55,600
Total cost: (A)	31,600	16,000	16,000	63,600
Equivalent units: (B)	20,000	16,000	16,000	
Cost per equivalent unit: (C) = (A ÷ B)	1.58	1	1	3.58

(iii) Statement of apportionment of cost

	Amount (₹)	Amount (₹)
1. Value of units completed and transferred (14,000 units × ₹ 3.58)		50,120
2. Value of Closing W-I-P:		
- Materials (6,000 units × ₹ 1.58)	9,480	
- Labour (2,000 units × ₹ 1)	2,000	
- Overheads (2,000 units × ₹ 1)	2,000	13,480

(iv) Process-I Cost Account

Particulars	Units	(₹)	Particulars	Units	(₹)
To Opening W-I-P	4,000	8,000	By Completed units	14,000	50,120
To Material	16,000	25,600			
To Labour	--	15,000	By Closing W-I-P	6,000	13,480
To Overhead	--	15,000			
	20,000	**63,600**		**20,000**	**63,600**

Solution 39:

(i) Statement of Equivalent Production

Particulars	Units	Particulars	Units	Equivalent Units			
				Sugarcane		Labour O.H.	
				%	Units	%	Units
Opening WIP	4,500	Completed and transferred to	39,500	100	39,500	100	39,500
Unit Introduced	1,00,000	Process- II	55,000	--	--	--	--
		Normal Loss (55%* of 1,00,000)	1,000	100	1,000	80	800
		Abnormal Loss	9,000	100	9,000	80	7,200
		Closing W-I-P					
	1,04,500		**1,04,500**		**49,500**		**47,500**

*100 kg of sugarcane extracts only 45 litre of juice.
Thus, normal loss = 100 – 45 = 55%

(ii) Statement showing cost for each element

Particulars	Sugarcane(₹)	Labour (₹)	Overhead (₹)	Total (₹)
Cost of opening work-in-process	50,000	15,000	15,000	1,10,000
Cost incurred during the month	5,00,000	2,00,000	2,00,000	13,00,000
Total cost: (A)	5,50,000	2.15,000	2.15,000	14,10,000
Equivalent units: (B)	49,500	47,500	47,500	
Cost per equivalent unit: (C) = (A ÷ B)	11.111	4.526	13.579	29.216

(iii) Statement of Distribution of cost

	Amount (₹)	Amount (₹)
1. Value of units completed and transferred (39,500 units × ₹ 29.216)		11,54,032
2. Value of abnormal loss:		
- Sugarcane (1,000 units × ₹ 11.111)	11,111	
- Labour (800 units × ₹ 4.526)	3,621	

- Overheads (800 units × ₹ 13.579)	10,863	25,595
3. Value of Closing W-I-P:		
- Sugarcane(9,000 units × ₹ 11.111)	99,999	
- Labour (7,200 units × ₹ 4.526)	32,587	
- Overheads (7,200 units × ₹ 13.579)	97,769	2,30,355

(iv) Process-I A/c

Particulars	Units	(₹)	Particulars	Units	(₹)
To Opening W-I-P:			By Normal Loss	55,000	-
- Sugarcane	4,500	50,000	By Abnormal Loss [₹25,595 + ₹ 18 (difference due to approximation)]	1,000	25,613
- Labour	--	15,000	By Process – II A/c	39,500	11,54,032
- Overhead	--	45,000	By Closing W-I-P	9,000	2,30,355
To Sugarcane introduced	1,00,000	5,00,000			
To Direct Labour		2,00,000			
To Overheads		6,00,000			
	1,04,500	**14,10,000**		**1,04,500**	**14,10,000**

Solution 41:

(i) Statement of equivalent production

Particulars	Units	Material		Labour and overhead	
		%	Units	%	Units
Production units completed	1,58,000	100	1,58,000	100	1,58,000
Normal loss	15,200	-	-	-	-
8% of (1,82,000+8,000) Closing WIP	18,000	100	18,000	70	12,600
Total	1,91,200	-	1,76,000	-	1,70,600
Less: Abnormal loss	(1,200)	100	(1,200)	100	(1,200)
Total	1,90,000	-	1,74,800	-	1,69,400

(ii) Statement of cost

Particulars	Materials	Labour	Overhead
Opening WIP	63,900	10,800	5,400
Input of materials	7,56,900	-	-
Expenses	-	3,28,000	1,64,000
Total	8,20,800	3,38,800	1,69,400
Less: sale of scrap (15,200 x 8)	1,21,600	-	-
Net cost	6,99,200	3,38,800	1,69,400
Equivalent units	1,74,800	1,69,400	1,69,400
Cost per unit	4.00	2.00	1.00

Total cost per unit = 4+2+1 = 7.00

Note: The treatment of scrap can be done alternatively as follows and rest of the problem (Calculation of Cost per Equivalent units and Statement of Cost) can be solved accordingly.

Statement of Equivalent Production:

Particulars	Output Units	Material		Labour		Overheads	
		%	Units	%	Units	%	Units
Units to next process	1,58,000	100	1,58,000	100	1,58,000	100	1,58,000
Closing WIP	18,000	100	18,000	70	12,600	70	12,600
Abnormal gain	(1,200)	100	(1,200)	80	(960)	80	(960)
Equivalent units	1,74,800	-	1,74,800	-	1,69,640	-	1,69,640

Normal Loss = 8% of (Opening WIP + New Inputs)

= 8% of (8,000+1,82,000) = 15,200 Units

Solution 42:

Process I : Statement of Equivalent Production and Cost

Input (Units	Particulars	Output (Units)	Equivalent Production					
			Materials		Labour		Overheads	
			(%)	Units	(%)	Units	(%)	Units
40,000	Completed	30,000	100	30,000	100	30,000	100	30,000
	Closing WIP	10,000	100	10,000	50	5,000	50	5,000
40,000		40,000		40,000		35,000		35,000

Particulars	Materials	Labour	Overhead	Total
Cost incurred (₹)	3,00,000	3,50,000	2,45,000	8,95,000
Equivalent units	40,000	35,000	35,000	-
Cost per equivalent unit (₹)	7.50	10.00	7.00	24.50

Process-I Account

Particulars	Units	(₹)	Particulars	Units	(₹)
To Materials	40,000	3,00,000	By Process-II A/c (30,000 units x ₹ 24.5)	30,000	7,35,000
To Labour		3,50,000	By Closing WIP*	10,000	1,60,000
To Overhead		2,45,000			
	40,000	8,95,000		40,000	8,95,000

* (Material 10,000 units × ₹ 7.5) + (Labour 5,000 units × ₹ 10) + (Overheads 5,000 units × ₹ 7)
= ₹ 75,000 + ₹ 50,000 + ₹ 35,000 = ₹ 1,60,000

Process II : Statement of Equivalent Production and Cost

Input (Units)	Particulars	Output (Units)	Equivalent Production					
			Materials		Labour		Overheads	
			(%)	Units	(%)	Units	(%)	Units
30,000	Completed	28,000	100	28,000	100	28,000	100	28,000
	Normal loss	200		-		-		-
	Closing WIP	1,800	100	1,800	25	450	25	450
30,000		30,000		29,800		28,450		28,450

Particulars	Materials	Labour	Overhead	Total
Process-I Cost	7,35,000	--	--	7,35,000
Cost incurred (₹)	--	71,125	85,350	1,56,475
Equivalent units	29,800	28,450	28,450	--
Cost per equivalent unit (₹)	24.6644	2.5000	3.0000	30.1644

Process-II Account

Particulars	Units	(₹)	Particulars	Units	(₹)
To Process-I A/c	30,000	7,35,000	By Normal loss A/c	200	--
To Packing Material	--	80,000	By Finished Goods Stock A/c	28,000*	9,24,604
To Direct Wages	--	71,125	By Closing WIP	1,800**	46,871
To Factory Overhead	--	85,350			
	30,000	**9,71,475**		**30,000**	**9,71,475**

* 28,000 × ₹ 30.1644 = ₹ 8,44,603 + ₹ 80,000 (Packing Material Cost) = ₹ 9,24,604
** 1,800 units × ₹ 24.6644 + 450 units × (₹ 2.5 + ₹ 3) = ₹ 46,871

Solution 43:

Pressing Process
Statement of Equivalent Production

Input	Particulars	Output	Materials		Conversion	
Units		Units	%	Units	%	Units
1,200	Transfer to Polishing	1,000	100%	1,000	100%	1,000
	Closing WIP	200	100%	200	60%	120
1,200		1,200		1,200		1,120

Statement of Cost per Equivalent Unit

Element	Total Cost (₹)	Equivalent Units	Cost per Unit (₹)
Material	96,000	1,200	80
Conversion	3,36,000	1,120	300
	4,32,000		

Statement of Cost Apportionment (Pressing)

Particulars		Amount (₹)
Transfer to Polishing		
Material	(1,000 × 80)	80,000
Conversion	(1,000 × 300)	3,00,000
Closing WIP		
Material	(200 × 80)	16,000
Conversion	(120 × 300)	36,000
Total		52,000

Polishing Process
Statement of Equivalent Production

Input	Particulars	Output	Material A		Material B		Conversion	
Units		Units	%	Units	%	Units	%	Units
1,000	Transfer to FG Control	500	100%	500	100%	500	100%	500
	Closing WIP	500	100%	500	100%	500	50%	250
1,000		1,000		1,000		1,000		750

Statement of Cost per Equivalent Unit

Cost Element	Total Cost	Equivalent Units	Cost per E.U.
Material A – Previous Process	3,80,000	1,000	380
Material B – Current Process	8,000	1,000	8
Conversion	54,000	750	72
Total	4,42,000		

Statement of Cost Apportionment (Polishing)

Particulars		Amount (₹)
Finished Goods		
Material A	(500 × 380)	1,90,000
Material B	(500 × 8)	4,000
Conversion	(500 × 72)	36,000
Closing WIP		
Material A	(500 × 380)	1,90,000
Material B	(500 × 8)	4,000
Conversion	(250 × 72)	18,000
Total		4,42,000

Computation of Selling Price per unit

Cost per unit	(380 + 8 + 72)	460.00

Add: Profit at 25% on Sale Price i.e. 1/4th on Price = 1/3rd on Cost of 460	153.33
Selling Price	613.33

Solution 44:

(i) Statement of Equivalent Production (Process I)

Input	Particulars	Output	Materials		Labour and Overheads	
Units		Units	%	Units	%	Units
40,000	Put & Processed	30,000	100%	30,000	100%	30,000
	Closing WIP	10,000	100%	10,000	50%	5,000
40,000		40,000		40,000		35,000

Statement of Cost per Equivalent Unit (Process I)

Cost Element	Total Costs	Equivalent Units	Cost per Unit
Material	15,000	40,000	Re. 0.375
Labour	18,000	35,000	Re. 0.514
Overhead	12,000	35,000	Re. 0.343
Total	45,000		

Statement of Cost Apportionment (Process I)

Particulars		Amount (₹)
Finished and transferred to Process II A/c		
Material	(30,000 × 0.375)	11,250
Labour	(30,000 × 0.514)	15,420
Overheads	(30,000 × 0.343)	10,290
Closing WIP		
Material	(10,000 × 0.375)	3,750
Labour	(5,000 × 0.514)	2,580
Overheads	(5,000 × 0.343)	1,710
Total		45,000

Process I Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Materials (11,250 + 3,750)	40,000	15,000	By Process II – transfer	30,000	36,960
To Labour		18,000	By Closing WIP	10,000	8,040
To Production Overheads		12,000			
	40,000	45,000		40,000	45,000

(ii) Statement of Equivalent Production (Process II)

Input	Particulars	Output	Material A		Material B		Labour & Overheads	
Units		Units	%	Units	%	Units	%	Units
30,000	Put & Processed	28,000	100%	28,000	100%	28,000	100%	28,000
	Normal Loss	200	-	-	-	-	-	-
	Closing WIP	1,800	100%	1,800	-	-	25%	450
30,000		30,000		29,800		28,000		28,450

Statement of Cost per Equivalent Unit (Process II)

Cost Element	Total Costs	Equivalent Units	Cost per Unit
Material A (Previous Process Material)	36,960	29,800	Re. 1.240
Material B (Packing Material)	4,000	28,000	Re. 0.143
Labour	3,500	28,450	Re. 0.123
Overhead	4,500	28,450	Re. 0.158
Total	48,960		

Statement of Cost Apportionment (Process II)

Particulars	Amount (₹)
Finished Goods	

Material A	(28,000 × 1.240)	34,720
Material B	(28,000 × 0.143)	4,004
Labour	(28,000 × 0.123)	3,444
Overheads	(28,000 × 0.158)	4,424
Closing WIP		
Material A	(1,800 × 1.240)	2,232
Material B		-
Labour	(450 × 0.123)	56
Overheads	(450 × 0.158)	71
Total		48,951

Process II Account

Particulars	Qty	Amount (₹)	Particulars	Qty	Amount (₹)
To Process I – Transfer in (34,720 + 2,232)	30,000	36,952	By Finished Goods Control A/c – Transfer	28,000	46,592
To Packing Materials		4,004	By Normal Loss	200	-
To Labour		3,500	By Closing WIP	1,800	2,359
To Production Overheads		4,495			
	30,000	48,951		30,000	48,951

Solution 45:

1. Statement of Equivalent Production (using WAC Method)

Input	Input Units	Output	Output Units	Materials %	Materials Units	Conversion Costs %	Conversion Costs Units
Opening WIP	40,000	Output Quantity	1,60,000	100%	1,60,000	100%	1,60,000
Input	2,00,000	Normal Loss	40,000	-	-	-	-
		Abnormal Loss	10,000	100%	10,000	100%	10,000
		Closing WIP	30,000	100%	30,000	66.67%	20,000
	2,40,000		2,40,000		2,00,000		1,90,000

2. Statement of Cost per Equivalent Unit

Particulars	Material	Processing Cost
Opening WIP	20,000	12,000
Add: Current Cost	75,000	1,02,000
Total	95,000	1,14,000
Equivalent Production Units	2,00,000	1,90,000
Cost per Unit	0.475	0.60

Total Cost per Unit = 0.475 + 0.60 = 1.075

3. Statement of Cost Apportionment

Particulars		Amount (₹)
Finished Goods	(1,60,000 × 1.075)	1,72,000
Abnormal Loss	(10,000 × 1.075)	10,750
Closing WIP		
Material	(30,000 × 0.475)	14,250
Processing Cost	(20,000 × 0.60)	12,000
Total		2,09,000

4. Further Processing of 1,20,000 kg of Product A into Product AX

Particulars		Amount (₹)
Sale Revenue from Product AX	(2,40,000 kg × 2)	4,80,000
Less: Sales Revenue from Product A	(1,20,000 kg × 1.60)	1,92,000
Additional Revenue in further processing		2,88,000
Less: Further Processing Costs	(Materials 1,32,000 + Operating Costs 1,20,000)	2,52,000
Net Benefit in further processing		36,000

Decision: Hence, further processing of 1,20,000 kg of Product A is advisable.

5. Computation of Minimum Selling Price for additional output of Product AX

Particulars		Amount (₹)
Additional Material Costs	(1,76,000 – 1,32,000)	44,000
Additional Processing Costs	(1,40,000 – 1,20,000)	20,000
Additional Opportunity Costs	(40,000 kg × 1.60)	64,000
Total Incremental Costs of further processing 40,000 kg		1,28,000
Minimum Price for additional 80,000 kg of AX (from processing 40,000 kg of Product A) = $\frac{Rs.\ 1,28,000}{80,000\ kg}$		1.60 per kg

Solution 46:

1. Statement of Equivalent Production

Particulars	Units	Materials		Labour and Overheads	
		%	Units	%	Units
Units Sold	90,000	100%	90,000	100%	90,000
Finished Goods Stock	8,000	100%	8,000	100%	8,000
WIP Stock	4,000	100%	4,000	50%	2,000
	1,02,000		1,02,000		1,00,000

Statement of Cost per Equivalent Unit

Cost Element	Cost (₹)	Equivalent Units	Cost per Unit (₹)
Direct Materials	7,14,000	1,02,000	7.00
Direct Labour	4,00,000	1,00,000	4.00
Variable Overheads	1,00,000	1,00,000	1.00
Fixed Overheads	3,50,000	1,00,000	3.50
Total	15,64,000	-	15.50

2. Valuation of Closing Stock under Absorption Costing

Particulars		Amount (₹)
Finished Stock		
Material	(8,000 × 7)	56,000
Labour	(8,000 × 4)	32,000
Variable: Overheads	(8,000 × 1)	8,000
Fixed Overheads	(8,000 × 3.50)	28,000
		1,24,000
Work-in-Progress Stock		
Material	(4,000 × 7)	28,000
Labour	(2,000 × 4)	8,000
Variable: Overheads	(2,000 × 1)	2,000
Fixed Overheads	(1,000 × 3.50)	7,000
		45,000

Profit and Loss Account for the year (Under Absorption Costing)

Particulars		Amount (₹)	Particulars	Amount (₹)
To Direct Materials		7,14,000	By Sales (90,000 × 20)	18,00,000
To Direct Labour		4,00,000	By Closing Stocks:	
To Variable Production Overhead		1,00,000	Finished Goods	1,24,000
To Fixed Production Overhead		3,50,000	Work-in-Progress	45,000
To Gross Profit		4,05,000		
		19,69,000		19,69,000
To Selling Overhead:			By Gross Profit	4,05,000
Fixed	2,00,000			
Variable (90,000 × 1.50)	1,35,000	3,35,000		
To Administration Overhead				
Fixed	50,000			
Variable (90,000 × 0.10)	9,000	59,000		
To Net Profit		11,000		
		4,05,000		4,05,000

Solution 48:

Process 'P' Account

Particulars	Kg.	Amount (₹)	Particulars	Kg.	Amount (₹)
To input	10,000	50,000	By normal loss (1,000 x 1)	1,000	1,000
To direct material	-	38,000	By Process Q [9,000 x 15.50]	9,000	1,39,500
To direct labour	-	30,000			
To production O/H [90,000 x 3/12]	-	22,500			
	10,000	1,40,500		10,000	1,40,500

Cost per unit = 1,40,500-1,000 / 10,000-1,000 = 15.50 per unit

Process 'Q' Account

Particulars	Kg.	Amount (₹)	Particulars	Kg.	Amount (₹)
To process P A/C	9,000	1,39,500	By normal loss (900 x 1)	900	900
To direct material	-	42,500	By Process R [8,200 x 31]	8,200	2,54,200
To direct labour	-	40,000			
To production O/H [90,000 x 4/12]	-	30,000			
To abnormal gain [100 x 31]	-	3,100			
	9,000	2,55,100		9,100	2,55,100

Cost per unit = 2,52,000-900 / 9,000-900 = 31 per unit

Process 'R' Account

Particulars	Kg.	Amount (₹)	Particulars	Kg.	Amount (₹)
To process Q A/C	8,200	2,54,200	By normal loss (820 x 1)	820	820
To direct material	-	42,880	By abnormal loss [80 x 52]	80	4,160
To direct labour	-	50,000	By finished goods [7,300 x 52]	7,300	3,79,600
To production O/H [90,000 x 5/12]	-	37,500			
	8,200	3,84,580		8,200	3,84,580

Cost per unit = 3,84,580-820 / 8,200-820 = 52 per unit

Calculation of Selling Price per unit:

Particulars	
Cost per unit	52.00
Add: profit 25% on selling price i.e. 1/3rd of cost	17.33
Selling price per unit	69.33

Solution 49:

Process I Account

Particulars	Units	Total (₹)	Particulars	units	Total (₹)
To Materials	10,000	40,000	By Normal Loss A/c (2% of 10,000 units)	200	-
To Wages		6,000	By Abnormal Loss A/c (₹ 5.7142 × 50 units)	50	286
To manufacturing OH		10,000	By Process-II A/c (₹ 5.7142 × 9,750 units)	9,750	55,714
	10,000	56,000		10,000	56,000

Cost per unit of completed units and abnormal loss:

$\frac{Total\ cost}{Inputs-Normal\ Loss}=\frac{Rs.\ 56,000}{10,000\ units-200\ units}$ = Rs.5.7142

Process II Account

Particulars	Units	Total (₹)	Particulars	units	Total (₹)
To Process-I A/c	9,750	55,714	By Normal Loss A/c (5% of 9,750units)	488	-
To Materials	-	20,000	By Process-III A/c (₹ 9.6862 × 9,400 units)	9,400	91,051
To Labour	-	4,000			
To Manufacturing OH	-	10,000			
To Abnormal Gain A/c (Rs. 9.6862 × 138 *units*	138	1,337			
	9,888	91,051			

Cost per unit of completed units and abnormal loss:

$\frac{Total\ cost}{Inputs-Normal\ Loss}=\frac{Rs.\ 89,714}{9,750\ units-488\ units}$ = Rs.9.6862

Process III Account

Particulars	Units	Total (₹)	Particulars	units	Total (₹)
To Process-II A/c	9,400	91,051	By Normal Loss A/c (10% of 9,400 units)	940	-
To Materials	-	10,000	By Abnormal Loss A/c (₹13.8358 ×460 units)	460	6,364
To labour	-	1,000	By Finished Stock A/c (₹13.8358 ×8,000 units)	8,000	1,10,687
To manufacturing OH	-	15,000			
	9,400	1,17,051		9,400	1,17,051

Cost per unit of completed units and abnormal loss:

$\frac{Total\ cost}{Inputs-Normal\ Loss}=\frac{Rs.\ 1,18,051}{9,400units-940units}$ = Rs.13.8358

Solution 51:

Process 'A' Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To input	8,000	72,000	By normal loss (5%)	400	800
To direct wages		12,000	By abnormal loss @ 12.50	100	1,250
To direct exp.		6,000	By process B A/C	5,000	62,500
To overheads (1:2)		5,800	By profit and loss A/C (2,500 @12.50)	2,500	31,250
	8,000	95,800		8,000	95,800

Cost of abnormal Loss in process A = 95800-800 / 8000-400 = 95,000/7600 = 12.50 per unit

Process 'B' Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To process A A/C	5,000	62,500	By normal loss	500	5,000
To Direct Wages		24,000	By finished stock A/c or Profit and Loss A/c	4,800	1,04,640
To Direct exp.		5,000			
To Overheads		11,600			
To Abnormal gain	300	6,540			
	5,300	1,09,640		5,300	1,09,640

Cost of Abnormal gain = 1,03,100-5,000 / 5,000 500 = 98,100 / 4,500 = 21.80 per unit

Working:

Profit & Loss A/c

Particulars	Amount (₹)	Particulars	Amount (₹)

To cost of sales:		By sales:	
Process A (2,500 @12.50) 31,250		Process A (2,500 x 15) = 37,500	
Process B (4,800 @ 21.80) 1,04,640	1,35,890	Process B (4,800 x 25) = 1,20,000	1,57,500
To abnormal loss:		By abnormal gain:	
Process A [(100 units @ (21.50 – 2)]	1,050	Process B [(300 units @ (21.80-2)]	3,540
To selling expenses	5,000		
To net profit	19,100		
	1,61,040		1,61,040

Note:

1. As mentioned selling expenses are not allocable to process which is debited directly to the P/L A/c.
2. It is assumed that Process A and Process B are not responsibility centres and hence, Process A and Process B have not been credited to direct sales. P/L A/c is prepared to arriving at profit/loss.

Solution 52:

(i) **Calculation of Raw Material inputs during the month:**

Quantities Entering Process	Litres	Quantities Leaving Process	Litres
Opening WIP	1,600	Transfer to Finished Goods	8,400
Raw material input (balancing figure)	8,320	Process Losses	1,200
		Closing WIP	320
	9,920		**9,920**

(ii) **Calculation of Normal Loss and Abnormal Loss/Gain:**

	Litres
Total process losses for month	1,200
Normal Loss (10% input)	832
Abnormal Loss (balancing figure)	368

(iii) **Calculation of values of Raw Material, Labour and Overheads added to the process:**

	Material	Labour	Overheads
Cost per equivalent unit	₹ 46.00	₹ 14.00	₹ 18.00
Equivalent units (litre) (refer the working note)	7,488	7,744	7,872
Cost of equivalent units	₹ 3,44,448	₹ 1,08,416	₹ 1,41,696
Add: Scrap value of normal loss (832 units × ₹ 15)	₹ 12,480	--	--
Total value added	₹ 3,56,928	₹ 1,08,416	₹ 1,41,696

Workings:

Statement of Equivalent Units (litre):

Input Details	Units	Output details	Units	Equivalent Production					
				Material		Labour		Overheads	
				Units	(%)	Units	(%)	Units	(%)
Opening WIP	1,600	Units completed:							
Units introduced	8,320	- Opening WIP	1,600	--	--	480	30	640	40
		- Fresh inputs	6,800	6,800	100	6,800	100	6,800	100
		Normal loss	832	--	--	--	--	--	--
		Abnormal loss	368	368	100	368	100	368	100
		Closing WIP	320	320	100	96	30	64	20
	9,920		**9,920**	**7,488**		**7,744**		**7,872**	

(iv) **Process Account for the month**

	Litres	Amount (₹)		Litres	Amount (₹)
To Opening WIP	1,600	1,06,560	By Finished goods [8400 x ₹ 78]	8,400	6,55,200

To Raw Materials	8,320	3,56,928	By Normal loss [832 x ₹ 15]	832	12,480
To Wages	--	1,08,416	By Abnormal loss [368 x ₹ 78]	368	28,704
To Overheads	--	1,41,696	By Closing WIP [(320 x ₹ 46) + (320 x .30 x ₹ 14) + (320x .20 x ₹ 18)]	320	17,216
	9,920	**7,13,600**		**9,920**	**7,13,600**

Solution 53:

Statement of production

Operation	Input	Rejections		Output
		Total	% of output	
1	1,80,000	60,000	50	1,20,000
2	1,98,000	18,000	10	1,80,000
3	1,44,000	24,000	20	1,20,000

(i) **Determination of input required to obtain 500 pieces of finished output:**

Particulars	No. of pieces
Output required after operation 3	500
Add: Rejection in operation 3 (20%)	100
Output required after operation 2	600
Add: Rejection in operation 2 (10%)	60
Output required after operation 1	660
Add: Rejection in operation 1 (50%)	330
Input required in operation 1	990

(ii) **Calculation of cost of raw material:**

To produce 500 pieces of final output, 990 pieces of inputs are required at operation 1. Thus, to get a finished piece of 0.5 kg. of output, the weight of input required is:

(0.5 / 500)× 990 = 0.99 kg.

The cost of raw material would be ₹ 80 × 0.99 kg. = ₹ 79.20

Solution 54:

(i) **Calculation of raw material inputs during the month:**

Quantities Entering Process	Litres	Quantities Leaving Process	Litres
Opening WIP	900	Transfer to Finished Goods	4,200
Raw material input (balancing figure)	5,260	Process Losses	1,800
		Closing WIP	160
	6,160		**6,160**

(ii) **Calculation of Normal Loss and Abnormal Loss/Gain**

Particulars	Litres
Total process losses for month	1,800
Normal Loss (10% input)	526
Abnormal Loss (balancing figure)	1,274

(iii) **Calculation of values of Raw Material, Labour and Overheads added to the process:**

	Material	Labour	Overheads
Cost per equivalent unit	₹ 23.00	₹ 7.00	₹ 9.00
Equivalent units (litre) (refer the working note)	4,734	4,892	4,966
Cost of equivalent units	₹ 1,08,882	₹ 34,244	₹ 44,694
Add: Scrap value of normal loss (526 units × ₹ 20)	₹ 10,520	-	-
Total value added	₹ 1,19,402	₹ 34,244	₹ 44,694

Workings:

Statement of Equivalent Units (litre):

Input Details	Units	Output details	Units	Equivalent Production					
				Material		Labour		Overheads	
				Units	(%)	Units	(%)	Units	(%)
Opening WIP	900	Units completed:							
Units introduced	5,260	- Opening WIP	900	-	-	270	30	360	40
		- Fresh inputs	3,300	3,300	100	3,300	100	3,300	100
		Normal loss	526	-	-	-	-	-	-
		Abnormal loss	1,274	1,274	100	1,274	100	1,274	100
		Closing WIP	160	160	100	48	30	32	20
	6,160		**6,160**	**4,734**		**4,892**		**4,966**	

(iv) **Process Account for Month**

	Litres	Amount (₹)		Litres	Amount (₹)
To Opening WIP	900	29,970	By Finished goods	4,200	1,63,800
To Raw Materials	5,260	1,19,402	By Normal loss	526	10,520
To Wages	-	34,244	By Abnormal loss	1,274	49,686
To Overheads	-	44,694	By Closing WIP	160	4,304
	6,160	**2,28,310**		**6,160**	**2,28,310**

Solution 55:

(i) Process I Statement of Equivalent Production (Under Weighted Average Method)

Particulars	Input units (in Liter)	Particulars	Output units (in Liter)	Equivalent Production			
				Material		Conversion	
				(%)	Equivalen t units (in Liter)	(%)	Equivalent units (in Liter)
Opening WIP	12,000	Units introduced and completed	40,000	100	40,000	100	40,000
New Material Introduced	60,000	Normal Loss (15% of 60,000 liters)	9,000	-	-	-	-
		Closing WIP	15,000	100	15,000	80	12,000
		Abnormal Loss (Bal. fig.)	8,000	100	8,000	100	8,000
	72,000		72,000		63,000		60,000

Statement of Cost for Each Element

Elements of Costs	Material (₹)	Conversion Cost (₹)
Costs of Opening WIP	1,75,000	1,40,000
Cost of the Process (for the period)	7,70,000	8,35,000
Total Cost	**9,45,000**	**9,75,000**
Equivalent Units (in liter)	63,000	60,000
Cost Per equivalent Units (in liter)	**₹ 15**	**₹ 16.25**

Therefore, Cost of Medicine 'X' is ₹ 31.25 per liter (₹ 15 + ₹ 16.25)

(ii) Statement showing comparative data to decide whether 30,000 Liters of Medicine 'X' should be further processed into 'XYZ'

	Alternative 1	Alternative 2
	Sell medicine 'X' after Process I (₹)	**Process further into 'XYZ' (₹)**
Sales	**12,75,000 (30,000 liters x ₹ 42.50)**	**18,75,000 (37,500 liters x ₹ 50)**
Less: Costs:		
Process I - Costs (30,000 liters x ₹ 31.25)	9,37,500	9,37,500

Material in Process II	-	2,75,000
Conversion cost in Process II	-	2,50,000
Total Cost	9,37,500	14,62,500
Profit	3,37,500	4,12,500

Hence, company should process further as it will increase profit further by ₹ 75,000 (₹ 4,12,500 – ₹ 3,37,500)

Solution 56:

(i) Statement of Equivalent Production

Particulars	Input Units	Particulars	Output Units	Equivalent Production			
				Milk		Labour & O.H.	
				%	Units	%	Units
Opening WIP	13,500	Completed and transferred to Process-II	1,18,500	100	1,18,500	100	1,18,500
Units introduced	3,00,000	Normal Loss (55%* of 3,00,000)	1,65,000	--	--	--	--
		Abnormal loss	3,000	100	3,000	80	2400
		Closing WIP	27,000	100	27,000	80	21,600
	3,13,500		3,13,500		1,48,500		1,42,500

* 100 litre of milk extracts only 45 litre of standardized milk. Thus, normal loss = 100 – 45 = 55%

(ii) Statement showing cost for each element

Particulars	Milk (₹)	Labour (₹)	Overhead (₹)	Total (₹)
Cost of opening work-in-process	1,50,000	45,000	1,35,000	3,30,000
Cost incurred during the month	15,00,000	6,00,000	18,00,000	39,00,000
Total cost: (A)	16,50,000	6,45,000	19,35,000	42,30,000
Equivalent units: (B)	1,48,500	1,42,500	1,42,500	
Cost per equivalent unit: (C) = (A ÷ B)	11.111	4.526	13.578	29.216

(iii) Statement of Distribution of cost

	(₹)	(₹)
1. Value of units completed and transferred (1,18,500 units × ₹ 29.216)		34,62,096
2. Value of Abnormal Loss: -		
Milk (3,000 units × ₹ 11.111)	33,333	
Labour (2400 units × ₹ 4.526)	10,863	
Overheads (2400 units × ₹ 13.579)	32,590	76,786
3. Value of Closing W-I-P:		
Milk (27,000 units × ₹ 11.111)	299997	
Labour (21,600 units × ₹ 4.526)	97,762	
Overheads (21,600 units × ₹ 13.579)	2,93,306	6,91,065

(iv) Process-I A/c

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Opening W.I.P:			By Normal Loss	1,65,000	--
Milk	13,500	1,50,000	By Abnormal Loss (₹.44 difference due to approximation)	3,000	76,839
Labour	--	45,000	By Process-II A/c	1,18,500	34,62,096
Overheads	--	1,35,000	By Closing WIP	27,000	6,91,065
To Milk introduced	3,00,000	15,00,000			

To Direct Labour		6,00,000			
To Overheads		18,00,000			
	3,13,500	42,30,000		3,13,500	42,30,000