MOCK TEST PAPER – 1

INTERMEDIATE (NEW) COURSE: GROUP – I

PAPER – 3: COST AND MANAGEMENT ACCOUNTING

SUGGESTED ANSWERS/HINTS

1. (a) Labour Turnover Rate (Replacement method) = $\frac{\text{No. of workers replaced}}{\text{Average No. of workers}}$

Or, $\frac{8}{100} = \frac{36}{\text{Average No. of workers}}$

Or, Average No. of workers = 450

Labour Turnover Rate (Separation method) = $\frac{\text{No. of workers separated}}{\text{Average No. of workers}}$

Or, $\frac{6}{100} = \frac{\text{No. of workers separated}}{450}$

Or, No. of workers separated = 27

Labour Turnover Rate (Flux Method)= $\frac{\text{No. of Separations} + \text{No. of accession (Joinings)}}{\text{Average No. of workers}}$

Or, $\frac{14}{100} = \frac{27 + \text{No. of accessions (Joinings)}}{450}$

Or, 100 (27 + No. of Accessions) = 6,300

Or, No. of Accessions = 36

(i) The No. of workers recruited and Joined = 36

(ii) The No. of workers left and discharged = 27

(b) **Statement of Reconciliation**

Particulars	Amount (Rs.)	Amount (Rs.)
Net profit as per Cost accounts		10,20,000
Add:		
Administration Overheads over-absorbed	1,20,000	
Interest on investments	1,92,000	
Transfer fees	48,000	
Stores adjustment	28,000	
Dividend received	64,000	4,52,000
Less:		
Factory Overheads under-absorbed	80,000	
Depreciation under charged	1,00,000	
Income-tax provided	1,08,000	
Interest on loan funds	4,90,000	(7,78,000)
Net profit as per Financial accounts		6,94,000

(c) **(i)** **Reorder Quantity(ROQ)** = 1,691 kg. *(Refer to working note)*

(ii) **Reorder level (ROL)** = Maximum usage × Maximum re-order period

= 900 kg. × 8 weeks = 7,200 kg.

(iii) **Maximum level** = ROL + ROQ – (Min. usage × Min. re-order period)

= 7,200 kg. + 1,691 kg. – (200 kg.× 4 weeks)

= 8,091 kg.

(iv) **Minimum level** = ROL – (Normal usage × Normal re-order period)

= 7,200 kg. – (550 kg. × 6 weeks)

= 3,900 kg.

(v) **Average stock level** = $\frac{1}{2}$ (Maximum level + Minimum level)

= $\frac{1}{2}$(8,091 kg. + 3,900 kg.) = 5,995.5 kg.

OR

= Minimum level + $\frac{1}{2}$ ROQ

= 3,900 kg. + $\frac{1}{2}$ × 1,691 kg. = 4,745.5 kg.

Working Note:

Annual consumption of raw material (A) = (550 kg. × 52 weeks) = 28,600 kg.

Cost of placing an order (O) = Rs. 200

Carrying cost per kg. per annum (C) = Rs. 20 × 20% = Rs. 4

Economic order quantity (EOQ) = $\sqrt{\frac{2AO}{C}}$

$= \sqrt{\frac{2 \times 28{,}600 \text{ kgs.} \times \text{Rs.}200}{\text{Rs.}4}}$ = 1,691 Kg. (Approx)

(d) Budgeted Production 30,000 hours ÷ 6 hours per unit = 5,000 units

Budgeted Fixed Overhead Rate = Rs. 45,00,000 ÷ 5,000 units = Rs. 900 per unit Or

= Rs. 45,00,000 ÷ 30,000 hours = Rs. 150 per hour.

(i) Material Cost Variance = (Std. Qty. × Std. Price) – (Actual Qty. × Actual Price)

= (4,800 units × 10 kg. × Rs.100) - Rs. 52,50,000

= Rs. 48,00,000 – Rs. 52,50,000

= Rs. 4,50,000 (A)

(ii) Labour Cost Variance = (Std. Hours × Std. Rate) – (Actual Hours × Actual rate)

= (4,800 units × 6 hours × Rs. 55) – Rs. 15,50,000

= Rs. 15,84,000 – Rs. 15,50,000

= Rs. 34,000 (F)

(iii) Fixed Overhead Cost Variance = (Budgeted Rate × Actual Qty) – Actual Overhead
= (Rs. 900 × 4,800 units) – Rs.47,00,000
= Rs. 3,80,000 (A)
OR
= (Budgeted Rate × Std. Hours) – Actual Overhead
= (Rs. 150 × 4,800 units × 6 hours) – Rs. 47,00,000
= Rs. 3,80,000 (A)

(iv) Variable Overhead Cost Variance = (Std. Rate × Std. Hours) – Actual Overhead
= (4,800 units × 6 hours × Rs. 100) - Rs. 29,30,000
= Rs. 28,80,000 - Rs. 29,30,000
= Rs. 50,000 (A)

2. (a) Total direct wages

= Rs. 42,000 + Rs. 54,000 + Rs. 48,000 = Rs. 1,44,000

Percentage absorption of production overhead on the basis of direct wages

$= \frac{2,88,000}{1,44,000} \times 100 = 200\%$

(i) Process-I A/c

Particulars	Units	Amt. (Rs.)	Particulars	Units	Amt. (Rs.)
To Materials	7,000	1,40,000	By Normal loss (5% of 7,000 units)	350	3,500
To Other materials	-	62,000	By Process-II*	6,600	3,35,955
To Direct wages	-	42,000	By Abnormal loss*	50	2,545
To Direct expenses	-	14,000			
To Production OH (200% of Rs.42,000)	-	84,000			
	7,000	3,42,000		7,000	3,42,000

* Cost per unit = $\frac{Rs.(3,42,000 - 3,500)}{(7,000 - 350)\,units}$ = Rs. 50.9022

Process-II A/c

Particulars	Units	Amt.(Rs.)	Particulars	Units	Amt.(Rs.)
To Process-I A/c	6,600	3,35,955	By Normal loss (10% of 6,600 units)	660	6,600
To Other materials	-	1,36,000	By Process-III**	5,200	5,63,206
To Direct wages	-	54,000	By Abnormal loss**	740	80,149
To Direct expenses	-	16,000			
To Production OH (200% of Rs.54,000)	-	1,08,000			
	6,600	6,49,955		6,600	6,49,955

** Cost per unit = $\frac{\text{Rs.}(6,49,955 - 6,600)}{(6,600 - 660)\text{ units}}$ = Rs. 108.3089

Process-III A/c

Particulars	Units	Amt. (Rs.)	Particulars	Units	Amt. (Rs.)
To Process-I A/c	5,200	5,63,206	By Normal loss (5% of 5,200 units)	260	2,600
To Other materials	-	84,200	By Product-X***	4,800	8,64,670
To Direct wages	-	48,000			
To Direct expenses	-	14,000	By Product-Z# (Rs.35 × 600 units)	600	21,000
To Production OH (200% of Rs.48,000)	-	96,000			
To Abnormal gain***	460	82,864			
	5,660	8,88,270		5,660	8,88,270

*** Cost per unit = $\frac{\text{Rs.}(8,05,406 - 2,600 - 21,000)}{(5,200 - 260 - 600)\text{ units}}$ = Rs. 180.1396

Realisable value = Rs. 135 – (85+15) = Rs. 35

(ii) By-Product Process A/c

Particulars	Units	Amt. (Rs.)	Particulars	Units	Amt. (Rs.)
To Process-III A/c	600	21,000	By Product-Z	600	81,000
To Processing cost	-	51,000			
To Selling expenses	-	9,000			
	600	81,000		600	81,000

(b) Primary Distribution of Overheads

Item	Basis	Total Amount (Rs.)	Production Departments			Service Departments	
			X (Rs.)	Y (Rs.)	Z (Rs.)	A (Rs.)	B (Rs.)
Indirect Material	Actual	2,50,000	40,000	60,000	90,000	50,000	10,000
Indirect Labour	Actual	5,20,000	90,000	1,00,000	1,40,000	1,20,000	70,000
Supervisor's Salary	Actual	1,92,000	-	-	1,92,000	-	-
Fuel & Heat	Radiator Sections {2:4:6:5:3}	30,000	3,000	6,000	9,000	7,500	4,500
Power	Kilowatt Hours {7:8:6:3:-}	3,60,000	1,05,000	1,20,000	90,000	45,000	-

Rent & Rates	Area (Sq. ft.) {22:20:15:12:6}	3,00,000	88,000	80,000	60,000	48,000	24,000
Insurance	Capital Value of Assets {4:6:5:1:2}	36,000	8,000	12,000	10,000	2,000	4,000
Canteen Charges	No. of Employees {6:7:12:3:2}	1,20,000	24,000	28,000	48,000	12,000	8,000
Depreciation	Capital Value of Assets {4:6:5:1:2}	5,40,000	1,20,000	1,80,000	1,50,000	30,000	60,000
Total overheads		23,48,000	4,78,000	5,86,000	7,89,000	3,14,500	1,80,500

Re-distribution of Overheads of Service Department A and B

Total overheads of Service Departments may be distributed by simultaneous equation.

Let, the total overheads of A = a and the total overheads of B = b

a = 3,14,500 + 0.10 b (i)

or, 10a - b = 31,45,000 [(i) x10]

b = 1,80,500 + 0.20 a (ii)

or, -0.20a + b = 1,80,500

Solving equation (i) & (ii)

10a - b = 31,45,000

-0.20a + b = 1,80,500

9.8a = 33,25,500

a = Rs. 3,39,337

Putting the value of 'a' in equation (ii), we get

b = 1,80,500 + 0.20 × 3,39,337

b = Rs. 2,48,367

Secondary Distribution of Overheads

	Production Departments		
	X (Rs.)	Y (Rs.)	Z (Rs.)
Total overhead as per primary distribution	4,78,000	5,86,000	7,89,000
Service Department A (80% of Rs.3,39,337)	1,01,801	1,01,801	67,867
Service Department B (90% of Rs.2,48,367)	62,092	99,347	62,092
Total	6,41,893	7,87,148	9,18,959

3. (a) (i) Product-wise Profitability Statement for the FY 2020-21:

Particulars	Product-X (Rs.)	Product-Y (Rs.)	Total (Rs.)
Output (units)	8,000	4,000	
Selling price per unit	600	550	
Sales value	48,00,000	22,00,000	70,00,000

Direct material	11,20,000 (Rs.140 × 8,000 units)	6,30,000 (Rs.157.50 × 4,000 units)	17,50,000
Direct wages	7,20,000 (Rs.90 × 8,000 units)	5,30,000 (Rs.132.5 × 4,000 units)	12,50,000
Variable factory overheads*	5,47,200 (76% of Rs. 7,20,000)	4,02,800 (76% of Rs. 5,30,000)	9,50,000
Other variable costs	3,20,000 (Rs.40 × 8,000 units)	2,80,000 (Rs.70 × 4,000 units)	6,00,000
Contribution	20,92,800	3,57,200	24,50,000
Fixed factory overheads	-	-	12,00,000
Other fixed costs	-	-	4,00,000
Profit			**8,50,000**

* Percentage absorption of variable factory overhead on the basis of direct wages = $\frac{9,50,000}{12,50,000}$ x 100 = 76%

(ii) Preparation of Budget for the FY 2021-22:

Particulars	Product-X (Rs.)	Product-Y (Rs.)	Total (Rs.)
Output (units)	6,400 (8,000 units × 80%)	3,600 (4,000 units × 90%)	
Selling price per unit	480 (Rs.600 × 80%)	440 (Rs.550 × 80%)	
Sales value	30,72,000	15,84,000	46,56,000
Direct material	8,96,000 (Rs.140 × 6,400 units)	5,67,000 (Rs.157.50 × 3,600 units)	14,63,000
Direct wages per unit	6,91,200 (Rs.108 × 6,400 units)	5,72,400 (Rs.159 × 3,600 units)	12,63,600
Variable factory overheads	5,25,312 (76% of Rs.6,91,200)	4,35,024 (76% of Rs.5,72,400)	9,60,336
Other variable costs	2,56,000 (Rs.40 × 6,400 units)	2,52,000 (Rs.70 × 3,600 units)	5,08,000
Contribution	7,03,488	(2,42,424)	4,61,064
Fixed factory overheads	-	-	12,00,000
Other fixed costs (110% of Rs.4,00,000)	-	-	4,40,000
Profit/ (Loss)			**(11,78,936)**

(b) (i) Calculation of Operating Cost per month for each vehicle

	Ramgarh (Rs.)	Pratapgarh (Rs.)	Devgarh (Rs.)	Total (Rs.)
A. Running Costs:				
- Cost of diesel (Working Note- 2)	1,68,480	95,472	2,49,600	5,13,552
- Servicing cost (Working Note- 3)	45,000	-	45,000	90,000
	2,13,480	95,472	2,94,600	6,03,552
B. Fixed Costs:				
- Salary to drivers	96,000 (4 drivers × Rs. 24,000)	72,000 (3 drivers × Rs. 24,000)	1,20,000 (5 drivers × Rs. 24,000)	2,88,000
- Salary to cleaners	48,000 (4 cleaners × Rs. 12,000)	36,000 (3 cleaners × Rs. 12,000)	60,000 (5 cleaners × Rs. 12,000)	1,44,000
- Allocated garage parking fee	16,800 (4 vehicles × Rs.4,200)	12,600 (3 vehicles × Rs.4,200)	21,000 (5 vehicles × Rs.4,200)	50,400
- Depreciation (Working Note- 4)	36,733	32,800	38,542	1,08,075
- Fess & taxes	5,600	6,400	---	12,000
	2,03,133	1,59,800	2,39,542	6,02,475
Total [A + B]	4,16,613	2,55,272	5,34,142	12,06,027
Operating Cost per vehicle	1,04,153 (Rs.4,16,613 ÷ 4 vehicles)	85,091 (Rs.2,55,272 ÷ 3 vehicles)	1,06,828 (Rs.5,34,142 ÷ 5 vehicles)	1,00,502 (Rs.12,06,027 ÷ 12 vehicles)

(ii) Vehicle operating cost per litre of milk

$$\frac{\text{Total Operating Cost per month}}{\text{Total milk carried a month}} = \frac{\text{Rs.12,06,027}}{\text{79,80,000 Litres (Working Note - 5)}} = \text{Rs. 0.15}$$

Working Notes:

1. Distance covered by the vehicles in a month

Route		Total Distance (in K.M.)
Ramgarh	(4 vehicles × 3 trips × 2 × 24 km. × 30 days)	17,280
Pratapgarh	(3 vehicles × 2 trips × 2 × 34 km. × 30 days)	12,240
Devgarh	(5 vehicles × 4 trips × 2 × 16 km. × 30 days)	19,200

2. Cost of diesel consumption

	Ramgarh	Pratapgarh	Devgarh
Total distance travelled (K.M.)	17,280	12,240	19,200
Mileage per litre of diesel	8 kmpl	10 kmpl	6 kmpl
Diesel consumption (Litre)	2,160	1,224	3,200

	(17,280 ÷ 8)	(12,240 ÷ 10)	(19,200 ÷ 6)
Cost of diesel consumption @ Rs. 78 per litre (Rs.)	1,68,480	95,472	2,49,600

3. Servicing Cost

	Ramgarh	Pratapgarh	Devgarh
Total distance travelled (K.M.)	17,280	12,240	19,200
Covered under free service warranty	No	Yes	No
No. of services required	3 (17,280 k.m. ÷ 5,000 k.m.)	2 (12,240 k.m. ÷ 5,000 k.m.)	3 (19,200 k.m. ÷ 5,000 k.m.)
Total Service Cost (Rs.)	45,000 (Rs. 15,000 × 3)	---	45,000 (Rs. 15,000 × 3)

4. Calculation of Depreciation

	Ramgarh	Pratapgarh	Devgarh
No. of vehicles	4	3	5
Cost of a vehicle (Rs.)	11,02,000	13,12,000	9,25,000
Total Cost of vehicles (Rs.)	44,08,000	39,36,000	46,25,000
Depreciation per month (Rs.)	36,733 $\left(\frac{\text{Rs. } 44,08,000 \times 10\%}{12 \text{ months}}\right)$	32,800 $\left(\frac{\text{Rs. } 39,36,000 \times 10\%}{12 \text{ months}}\right)$	38,542 $\left(\frac{\text{Rs. } 46,25,000 \times 10\%}{12 \text{ months}}\right)$

5. Total volume of Milk Carried

Route		Milk Qty. (Litre)
Ramgarh	(10,000 ltr. × 0.7 × 4 vehicles × 3 trips × 30 days)	25,20,000
Pratapgarh	(10,000 ltr. × 0.7 × 3 vehicles × 2 trips × 30 days)	12,60,000
Devgarh	(10,000 ltr. × 0.7 × 5 vehicles × 4 trips × 30 days)	42,00,000
		79,80,000

4. (a) Statement of Cost of A Ltd. for the year ended 31st March, 2021:

Sl. No.	Particulars	Amount (Rs.)	Amount (Rs.)
(i)	Material Consumed:		
	- Raw materials purchased	10,00,00,000	
	- Freight inward	11,20,600	
	Add: Opening stock of raw materials	18,00,000	
	Less: Closing stock of raw materials	(9,60,000)	10,19,60,600
(ii)	Direct employee (labour) cost:		
	- Wages paid to factory workers		29,20,000
(iii)	Direct expenses:		
	- Royalty paid for production	1,72,600	
	- Amount paid for power & fuel	4,62,000	

	- Job charges paid to job workers	8,12,000	14,46,600
	Prime Cost		10,63,27,200
(iv)	Works/ Factory overheads:		
	- Stores and spares consumed	1,12,000	
	- Repairs & Maintenance paid for plant & machinery	48,000	
	- Insurance premium paid for plant & machinery	31,200	
	- Insurance premium paid for factory building	18,100	
	- Expenses paid for pollution control and engineering & maintenance	26,600	2,35,900
	Gross factory cost		10,65,63,100
	Add: Opening value of W-I-P		9,20,000
	Less: Closing value of W-I-P		(8,70,000)
	Factory Cost		10,66,13,100
(v)	Quality control cost:		
	- Expenses paid for quality control check activities		19,600
(vi)	Research & development cost paid for improvement in production process		18,200
(vii)	Less: Realisable value on sale of scrap and waste		(86,000)
(viii)	Add: Primary packing cost		96,000
	Cost of Production		10,66,60,900
	Add: Opening stock of finished goods		11,00,000
	Less: Closing stock of finished goods		(18,20,000)
	Cost of Goods Sold		10,59,40,900
(ix)	Administrative overheads:		
	- Depreciation on office building	56,000	
	- Salary paid to General Manager	12,56,000	
	- Fee paid to independent directors	2,20,000	15,32,000
(x)	Selling overheads:		
	- Repairs & Maintenance paid for sales office building	18,000	
	- Salary paid to Manager- Sales & Marketing	10,12,000	
	- Performance bonus paid to sales staffs	1,80,000	12,10,000
(xi)	Distribution overheads:		
	- Packing cost paid for re-distribution of finished goods		1,12,000
	Cost of Sales		10,87,94,900

(b) (i) Total Overhead = Rs. (2,52,000 + 80,000 + 60,000 + 40,000 + 10,368) = Rs. 4,42,368

Total machine hours = 1,440 × 4 + 1,200 × 3 + 960 × 2 + 1,008 × 1
= 5,760 + 3,600 + 1,920 + 1,008 = 12,288 M. Hrs.

$\therefore$ Overhead recovery rate / M.H. = $\frac{\text{Rs. } 4,42,368}{12,288 \text{ M.Hrs.}}$ = Rs. 36

Cost Statement when overheads are absorbed on machine hours rate basis

Product	**A**	**B**	**C**	**D**
Output in units	1,440	1,200	960	1,008
	(Rs.)	**(Rs.)**	**(Rs.)**	**(Rs.)**
Cost per unit:				
Direct material	84	90	80	96
Direct labour	20	18	14	16
Overhead (@ Rs. 36)	144 (4 × Rs.36)	108 (3 × Rs.36)	72 (2 × Rs.36)	36 (1× Rs.36)
Total cost per unit	248	216	166	148
Total cost	3,57,120	2,59,200	1,59,360	1,49,184

(ii) (1) Machine department costs of Rs. 2,52,000 to be apportioned to set-up cost, store receiving and inspection in 4 : 3 : 2 i.e. Rs. 1,12,000, Rs. 84,000 and Rs. 56,000 respectively.

(2) One production run = 48 units. Hence, the number of production runs of different products:

A = $\frac{1,440}{48} = 30$, B = $\frac{1,200}{48} = 25$, C = $\frac{960}{48} = 20$, D = $\frac{1,008}{48} = 21$ or total 96 runs.

(3) One batch order is of 24 units. So the number of batches of different products:

A = $\frac{1,440}{24} = 60$, B = $\frac{1,200}{24} = 50$, C = $\frac{960}{24} = 40$, D = $\frac{1,008}{24} = 42$ or total 192 batches.

(4) Computation of Cost driver rates

Activity	**Activity Cost (Rs.)**	**Cost driver**	**Quantity**	**Cost driver rate**
Set-up	80,000 + 1,12,000 = 1,92,000	No. of production run	96	Rs. 2,000 per production run
Store-receiving	60,000 + 84,000 = 1,44,000	Requisition raised	50 × 4 = 200	Rs. 720 per requisition
Inspection	40,000 + 56,000 = 96,000	No. of production run	96	Rs. 1,000 per production run
Material handling	10,368	Orders executed (No. of batches)	192	Rs. 54 per batch

(5) **Cost statement under Activity Based Costing:**

Product	**A**	**B**	**C**	**D**
Output in units	1,440	1,200	960	1,008

	(Rs.)	(Rs.)	(Rs.)	(Rs.)
Material	1,440 × 84 = 1,20,960	1,200 × 90 = 1,08,000	960 × 80 = 76,800	1,008 × 96 = 96,768
Labour	1,440 × 20 = 28,800	1,200 × 18 = 21,600	960 × 14 = 13,440	1,008 × 16 = 16,128
	1,49,760	1,29,600	90,240	1,12,896
Overhead cost:				
Set up	2,000 × 30 = 60,000	2,000 × 25 = 50,000	2,000 × 20 = 40,000	2,000 × 21 = 42,000
Store receiving	720 × 50 = 36,000	720 × 50 = 36,000	720 × 50 = 36,000	720 × 50 = 36,000
Inspection	1,000 × 30 = 30,000	1,000 × 25 = 25,000	1,000 × 20 = 20,000	1,000 × 21 = 21,000
Material handling	54 × 60 = 3,240	54 × 50 = 2,700	54 × 40 = 2,160	54 × 42 = 2,268
Total overhead cost	1,29,240	1,13,700	98,160	1,01,268
Total cost	2,79,000	2,43,300	1,88,400	2,14,164
Total cost per unit (Total cost / Output)	193.75	202.75	196.25	212.46

5. (a) Workings:

(1) Contribution per unit = Selling price per unit – Variable cost per unit

= Rs. 50 – {Rs. (16,00,000 + 4,00,000 + 8,00,000) ÷ 80,000 units}

= Rs. 50 – Rs. 35 = Rs. 15

(2) Profit-Volume (P/V) Ratio = $\frac{\text{Contribution per unit}}{\text{Selling price per unit}} \times 100 = \frac{\text{Rs.15}}{\text{Rs.50}} \times 100 = 30\%$

Calculations:

(i) The number of units to be sold for neither loss nor gain i.e. Break-even units:

$= \frac{\text{Fixed Overheads}}{\text{Contribution per unit}} = \frac{\text{Rs.7,20,000}}{\text{Rs.15}} = 48{,}000 \text{ units}$

(ii) The sales needed to earn a profit of 20% on sales:

As we know

S = V + F + P

(S = Sales; V = Variable Cost; F = Fixed Cost; P = Profit)

Suppose Sales units are *x* then

Rs. 50*x* = Rs. 35 *x* + Rs. 7,20,000 + Rs. 10*x*

Rs. 50*x* – Rs. 45*x* = Rs. 7,20,000

Or, $x = \frac{\text{Rs.7,20,000}}{\text{Rs.5}}$ = 1,44,000 units

Therefore, Sales needed = 1,44,000 units × Rs. 50 = Rs. 72,00,000 to earn a profit of 20% on sales.

(iii) Calculation of extra units to be sold to earn present profit of Rs.4,80,000 under the following proposed selling price:

		When selling price is reduced by	
		20% (Rs.)	25% (Rs.)
	Selling price per unit	40.00 (Rs. 50 × 80%)	37.50 (Rs. 50 × 75%)
	Less: Variable Cost per unit	35.00	35.00
	Contribution per unit	5.00	2.50
	Desired Contribution:		
	Fixed Overheads	7,20,000	7,20,000
	Desired Profit	4,80,000	4,80,000
		12,00,000	12,00,000
(a)	Sales unit for desired contribution $\left\lfloor \frac{\text{Desired Contribution}}{\text{Contribution per unit}} \right\rfloor$	2,40,000 units $\left\lfloor \frac{Rs.\,12,00,000}{Rs.\,5} \right\rfloor$	4,80,000 units $\left\lfloor \frac{Rs.\,12,00,000}{Rs.\,2.5} \right\rfloor$
(b)	Units presently sold	80,000 units	80,000 units
(c)	Extra units to be sold {(a) – (b)}	1,60,000 units	4,00,000 units

(iv) Sales price to bring down BEP to 10,000 units:

B.E.P (Units) $= \frac{\text{Fixed Cost}}{\text{Contribution per unit}}$

Or, Contribution per unit $= \frac{Rs.\,7,20,000}{10,000\,\text{units}} = Rs.\,72$

So, Sales Price (per unit) = Variable Cost + Contribution

= Rs. 35 + Rs. 72 = Rs. 107

(b) (i) Calculation of Direct expenses

Particulars	Job A (Rs.)	Job B (Rs.)	Job C (Rs.)
Product blueprint cost	2,80,000	--	--
Hire charges paid for machinery	--	80,000	--
License fee paid for software	--	--	1,00,000
Total Direct expenses	2,80,000	80,000	1,00,000

(ii)

Particulars	Jan. (Rs.)	Feb. (Rs.)	March (Rs.)	April (Rs.)	May (Rs.)	June (Rs.)	Total (Rs.)
Batch output (in pieces)	210	200	220	180	200	220	1,230
Sale value @ Rs.80	16,800	16,000	17,600	14,400	16,000	17,600	98,400
Material cost	6,500	6,400	6,800	6,300	7,000	7,200	40,200
Direct wages	1,200	1,400	1,500	1,400	1,500	1,600	8,600
Chargeable expenses*	6,000	6,720	6,720	6,210	7,800	8,000	41,450
Total cost	13,700	14,520	15,020	13,910	16,300	16,800	90,250
Profit per batch	3,100	1,480	2,580	490	(300)	800	8,150
Total cost per piece	65.2	72.6	68.3	77.3	81.5	76.4	73.4
Profit per piece	14.8	7.4	11.7	2.7	(1.5)	3.6	6.6

Overall position of the order for 1,200 pieces

Sales value of 1,200 pieces @ Rs. 80 per piece	Rs. 96,000
Total cost of 1,200 pieces @ Rs. 73.4 per piece	Rs. 88,080
Profit	Rs. 7,920

$$* \frac{\text{Chargeable expenses}}{\text{Direct labour hour for the month}} \times \text{Direct labour hours for batch}$$

6. (a) Net Realisable Value method: The realisation on the disposal of the by-product may be deducted from the total cost of production so as to arrive at the cost of the main product. For example, the amount realised by the sale of molasses in a sugar factory goes to reduce the cost of sugar produced in the factory.

When the by-product requires some additional processing and expenses are incurred in making it saleable to the best advantage of the concern, the expenses so incurred should be deducted from the total value realised from the sale of the by-product and only the net realisations should be deducted from the total cost of production to arrive at the cost of production of the main product. Separate accounts should be maintained for collecting additional expenses incurred on:

(i) further processing of the by-product, and

(ii) selling, distribution and administration expenses attributable to the by-product.

(b) Service costing differs from product costing (such as job or process costing) in the following ways due to some basic and peculiar nature.

(i) Unlike products, services are intangible and cannot be stored, hence, there is no inventory for the services.

(ii) Use of Composite cost units for cost measurement and to express the volume of outputs.

(iii) Unlike a product manufacturing, employee (labour) cost constitutes a major cost element than material cost.

(iv) Indirect costs like administration overheads are generally have a significant proportion in total cost of a service as unlike manufacturing sector, service sector heavily depends on support services and traceability of costs to a service may not economically feasible.

(c) Controllable and un-controllable variances: The purpose of the standard costing reports is to investigate the reasons for significant variances so as to identify the problems and take corrective action.

Variances are broadly of two types, namely, controllable and uncontrollable. Controllable variances are those which can be controlled by the departmental heads whereas uncontrollable variances are those which are beyond their control. Responsibility centres are answerable for all adverse variances which are controllable and are appreciated for favourable variances. Controllability is a subjective matter and varies from situation to situation. If the uncontrollable variances are of significant nature and are persistent, the standard may need revision.

(d) (i) Standards Cost Centre: Cost Centre where output is measurable and input required for the output can be specified. Based on a well-established study, an estimate of standard units of input to produce a unit of output is set. The actual cost for inputs is compared with the standard cost. Any deviation (variance) in cost is measured and analysed into controllable and uncontrollable cost. The manager of the cost centre is supposed to comply with the standard and held responsible for adverse cost variances. The input-output ratio for a standard cost centre is clearly identifiable.

(ii) Discretionary Cost Centre: The cost centre whose output cannot be measured in financial terms, thus input-output ratio cannot be defined. The cost of input is compared with allocated budget for the activity. Example of discretionary cost centres are Research & Development department, Advertisement department where output of these department cannot be measured with certainty and co-related with cost incurred on inputs.