

Solutions

Q. 1. (b) (i) $EOQ = \sqrt{\frac{2AO}{I}}$

where, A = Annual usage (1,00,000 ÷ 2.5 = 40,000 kg)

O = Buying cost (₹360 + ₹390 = ₹750)

I = Carrying cost per unit per year [(₹0.5 × 12) + ₹9 = ₹15]

$$EOQ = \sqrt{\frac{2 \times 40,000 \times 750}{15}} = 2,000 \text{ kg}$$

(ii) **If orders are placed on quarterly basis**

Usage per quarter = 40,000 ÷ 4 = 10,000 kg

No. of orders = 4

When order size is 10,000 kg, total cost of buying and carrying will be

$$= (\text{₹}750 \times 4) + \left(\frac{10,000}{2} \times \text{₹}15 \right) = \text{₹}78,000$$

When order size is EOQ, i.e., 2,000 kg, total cost of buying and carrying will be for 20 (40,000 ÷ 2,000) orders:

$$= (\text{₹}750 \times 20) + \left(\frac{2,000}{2} \times \text{₹}15 \right) = \text{₹}30,000$$

Amount of discount required = ₹78,000 – ₹30,000 = ₹48,000

In terms of percentage, discount will be $\frac{\text{₹}48,000}{\text{₹}40,000 \times \text{₹}60} \times 100 = 2\%$.

Hence, 2% of discount in the price of raw materials should be negotiated.

Or

(b) (i) **Re-order Quantity (EOQ)** = $\sqrt{\frac{2AO}{I}}$

where, A = Annual usage (50 × 52 weeks = 2,600)

O = Buying cost (₹100)

I = Carrying cost per unit (₹15)

$$EOQ = \sqrt{\frac{2 \times 2,600 \times 100}{15}}$$

= 186 units (approx).

(ii) **Re-order Level** = Maximum usage × Maximum re-order period = 75 × 6 = 450 units.

(iii) **Minimum Level** = Re-order level – (Normal usage × Normal re-order period)
= 450 – (50 × 5) = 200 units.

(iv) **Maximum Level** = Re-order level + Re-order quantity – (Minimum usage × Minimum re-order period)
= 450 + 186 – (25 × 4) = 536 units.

(v) **Average Stock Level** = $\frac{1}{2}$ (Minimum level + Maximum level)
= $\frac{1}{2}$ (200 + 536) = 368 units.

Q. 2. (b)

Computation of Machine Hour Rate

Particulars	Per annum (₹)	Per hour (₹)
Standing Charges:		
Insurance $\left(\frac{5,00,000 \times ₹4,500}{75,00,000} \right)$	300	
Rent $\left(₹800 \times 12 \times \frac{100}{1,600} \right)$	600	
Lighting Charges $\left(₹120 \times 12 \times \frac{3}{20} \right)$	216	
Total Standing Charges	1,116	
Hourly Standing Charges $\left(\frac{₹1,116}{4,000 \text{ hrs}} \right)$		0.279
Machine Expenses:		
Depreciation $\left(\frac{5,00,000 - 5,000}{4,000 \times 10} \right)$		12.375
Electricity $(25 \times ₹0.75)$		18.750
Repairs and Maintenance $\left(\frac{2,000}{4,000} \right)$		0.50
Machine Hour Rate		31.904

Or

(b) (i)	₹	₹
Actual overheads incurred		6,00,000
Less: Abnormal overheads due to:		
(i) Obsolete stores	45,000	
(ii) Strike period wages	30,000	75,000
Net actual overheads		5,25,000
Less: Overheads absorbed (48,000 hrs. @ ₹10)		4,80,000
Under-absorbed overheads		45,000

(ii)	₹
Transfer to Costing Profit and Loss A/c due to lack of planning (₹45,000 × 1/3)	15,000
Charge to work-in-progress (Balance 2/3)	30,000

Equivalent units = 2,000 + 18,000 + (50% × 8,000) = 24,000

Supplementary rate for absorption of under-absorbed overheads = $\left(\frac{₹30,000}{24,000 \text{ units}} \right) = ₹1.25 \text{ per unit}$

	₹
Charged to work-in-progress = 4,000 × ₹1.25	5,000
Charged to cost of sales = 18,000 × ₹1.25	22,500
Charged to finished goods = 2,000 × ₹1.25	2,500
Total	30,000

Q. 3. (a)

Statement of Equivalent Production

Input in Units	Particulars	Output in Units	Materials		Labour		Overheads	
			%	Units	%	Units	%	Units
1,500	Opening Work-in-Progress:							
	Units Introduced	1,500	—	—	66⅔	1,000	66⅔	1,000
18,500	Units Completed	13,500	100	13,500	100	13,500	100	13,500
	Normal Loss	2,000	—	—	—	—	—	—
	Closing Work-in-Progress	5,000	90	4,500	30	1,500	30	1,500
		22,000	—	18,000	—	16,000	—	16,000
	Less: Abnormal gain	2,000	100	2,000	100	2,000	100	2,000
20,000	Equivalent Production	20,000	—	16,000	—	14,000	—	14,000

(b)

Statement of Cost per unit

Elements	Cost (₹)	Equivalent Units	Cost per unit (₹)
Materials <i>less</i> Scrap (₹52,000 – ₹4,000)	48,000	16,000	3
Labour	14,000	14,000	1
Overheads	28,000	14,000	2
Total			6

(c)

Statement of Evaluation

Particulars	Eq. Units	Cost per unit (₹)	Cost (₹)	Total Cost (₹)
Opening Work-in-Progress:				
Materials	—	—	—	
Labour	1,000	1	1,000	
Overheads	1,000	2	2,000	3,000
Units Completed	13,500	6		81,000
Abnormal Gain	2,000	6		12,000
Closing Work-in-Progress:				
Materials	4,500	3	13,500	
Labour	1,500	1	1,500	
Overheads	1,500	2	3,000	18,000

(d)

Dr.		Process I Account		Cr.	
Particulars	Units	₹	Particulars	Units	₹
To Opening Work-in-Progress	1,500	15,000	By Normal Loss A/c	2,000	4,000
To Units introduced	18,500	52,000	By Transfer to Process II	15,000	99,000
To Labour	—	14,000	By Closing Work-in-Progress	5,000	18,000
To Overheads	—	28,000			
To Abnormal Gain	2,000	12,000			
	22,000	1,21,000		22,000	1,21,000

Working Note: Amount to be transferred to Process II = ₹3,000 + ₹81,000 + ₹15,000 = ₹99,000

Or

(b) Contract Account for the year ending 31st March, 2015			
Dr.			Cr.
Particulars	₹	Particulars	₹
To Materials	3,00,000	By Materials at site	40,000
To Wages	6,00,000	By Work-in-Progress:	
To Overheads	1,20,000	Work Certified	16,00,000
To Depreciation (₹2,00,000 × 10/100)	20,000	Work Uncertified	58,200
To Notional Profit c/d	6,58,200		
	16,98,200		16,98,200
To Profit and Loss A/c (₹6,58,200 × 2/3 × 80%)	3,51,040	By Notional Profit b/d	6,58,200
To Reserve	3,07,160		
	6,58,200		6,58,200

Working Note:

Work uncertified:	₹
Materials (₹ 3,00,000 × 5%)	15,000
Wages (₹ 6,00,000 × 6%)	36,000
Overheads (₹ 36,000 × 20%)	7,200
	<u>58,200</u>

Q. 4. (b)

Cost Sheet for the year 2015

Particulars	₹
Materials	6,00,000
Wages	5,00,000
	Prime Cost
Add: Factory Overheads	3,00,000
	Factory Cost
Add: Administration Overheads	14,00,000
	Cost of Production
Add: Selling Overheads	3,36,000
Distribution Overheads	17,36,000
	Total Cost
Add: Profit	2,24,000
	4,20,000
	Sales
	25,20,000

Calculation of rates:

1. Factory overheads as a % of wages = $\frac{\text{₹ } 3,00,000}{\text{₹ } 5,00,000} \times 100 = 60\%$.
2. Administration overheads as a % of factory cost = $\frac{\text{₹ } 3,36,000}{\text{₹ } 14,00,000} \times 100 = 24\%$.
3. Selling overheads as a % of factory cost = $\frac{\text{₹ } 2,24,000}{\text{₹ } 14,00,000} \times 100 = 16\%$
4. Distribution overheads as a % factory cost = $\frac{\text{₹ } 1,40,000}{\text{₹ } 14,00,000} \times 100 = 10\%$
5. Profit as a % of total cost = $\frac{\text{₹ } 4,20,000}{\text{₹ } 21,00,000} \times 100 = 20\%$.

Statement of Price to be Quoted for job in 2016

Particulars	₹
Materials	8,000
Wages	5,000
Prime Cost	13,000
Add: Factory Overheads (60% + 20% of 60 = 72% of wages)	3,600
Factory Cost	16,600
Add: Administration Overheads (24% + 15% of 24 = 27.6% of factory cost)	4,582
Cost of Production	21,182
Add: Selling Overheads (16% + 15% of 16 = 18.4% of factory cost)	3,054
Distribution Overheads (10% – 1% of 10 = 9% of factory cost)	1,494
Total Cost	25,730
Add: Profit 20% of total cost	5,146
Price Quotation	30,876

Or

(b) Operating Cost Sheet

Particulars	For 5 buses (₹)	Per passenger km (₹)
Standing Charges:		
Garage rent (@ ₹4,000 for 12 months)	48,000	
Manager's salary (@ ₹7,500 for 12 months)	90,000	
Driver's salary (₹3,000 × 12 months × 5)	1,80,000	
Conductor's wages (₹1,200 × 12 months × 5)	72,000	
Office expenses (₹2,000 × 12 months)	24,000	
Road tax (₹1,000 × 4 quarters × 5)	20,000	
Insurance (₹6,50,000 × 5 buses × 3%)	97,500	
Total Standing Charges	5,31,500	0.046
Running and Maintenance Charges:		
Depreciation (₹6,50,000 × 5 buses × 15%)	4,87,500	
Repairs and maintenance (₹22,500 × 5 buses)	1,12,500	
Diesel (₹3,60,000 × 33/6)	19,80,000	
	25,80,000	0.224
Total		0.270
Add: Profit (50% of cost, i.e., $33\frac{1}{3}$ of takings)		0.135
Fare per passenger km		0.405

Working Note:

Total km = 40 km × 5 buses × 3 trips × 2(return journey) × 25 days × 12 months = 3,60,000 km

Passenger km = 3,60,000 × (80% of 40 passengers) = 1,15,20,000.

Q. 5. (a)

Profit and Loss Account <i>for the year ending 31st March, 2016</i>			
Dr.		Cr.	
Particulars	₹	Particulars	₹
To Opening Stock of Finished goods	74,375	By Sales	20,80,000
To Work-in-Progress	32,000	By Rent received	18,000
To Raw Materials	7,80,000	By Interest received	45,000
To Direct Labour	4,50,000	By Closing Stock:	
To Factory Overheads	3,00,000	Finished Goods	41,250
To Administration Overheads	2,95,000	Work-in-Progress	38,667
To Selling and Distribution Overheads	61,000		
To Goodwill Written off	1,00,000		
To Dividend paid	85,000		
To Bad Debts	12,000		
To Net Profit	33,542		
	22,22,917		22,22,917

(b)

Statement of Cost and Profit
for the year ending 31st March, 2016

Particulars	₹
Materials	7,80,000
Wages	4,50,000
Prime Cost	12,30,000
Add: Factory Overheads (@ 60% of Direct wages)	2,70,000
	15,00,000
Add: Opening Work-in-Progress	32,000
Less: Closing Work-in-Progress	(38,667)
Factory Cost	14,93,333
Add: Administration Overheads	2,98,667
Cost of Production	17,92,000
Add: Opening Finished Stock (875 units × ₹104)	91,000
Less: Closing Finished Stock $\left(\frac{₹17,92,000}{14,000 \text{ units}} \times 375 \text{ units} \right)$	(48,000)
Cost of Goods Sold	18,35,000
Add: Selling and Distribution Overheads (14,500 units × ₹4)	58,000
Total Cost	18,93,000
Add: Profit	1,87,000
Sales	20,80,000

Working Note:

Units produced = 14,500 (Sales) + 375 (Closing stock) – 875 (Opening stock) = 14,000 units.

(c)

Reconciliation Statement

Particulars	₹	₹
Profit as per Cost Accounts		1,87,000
<i>Add:</i> Interest income	45,000	
Rent income	18,000	
Administration Overheads over charged (₹2,98,667 – ₹2,95,000)	3,667	
Opening Stock overvaluation (₹91,000 – ₹74,375)	16,625	83,292
		2,70,292
<i>Less:</i> Goodwill written off	1,00,000	
Dividend paid	85,000	
Bad Debts	12,000	
Factory Overheads under charged (₹3,00,000 – ₹2,70,000)	30,000	
Selling and Distribution Overheads under charged (₹61,000 – ₹58,000)	3,000	
Closing Stock overvaluation (₹48,000 – ₹41,250)	6,750	(2,36,750)
Profit as per Financial Accounts		33,542