Mock Test Paper - Series I: March, 2024

Date of Paper: 12 March, 2024

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Test Series: March 2024

INTERMEDIATE: GROUP – II

PAPER – 4: COST AND MANAGEMENT ACCOUNTING

Suggested Answers/ Solution

PART I – Case Scenario based MCQs

1. i. D

Inflow into process	Litres	Outflow from process	Litres
Opening WIP	500	Transferred to finished goods	3,400
Quantity introduced (Balancing figure)	3,800	Total loss	800
		Closing WIP	100
	4,300		4,300

ii. A

Total loss	800 litres
Normal loss (10% of fresh input i.e. 3,800)	380 litres
Abnormal loss	420 litres

iii. B

Calculation of Equivalent production units

Input Details	Units	Output Particulars	Units	Equivalent Production					
				Material		Labour		Overheads	
				%	Units	%	Units	%	Units
Opening WIP	500	From Opening WIP	500	-	-	20	100	40	200
Fresh inputs	3,800	From fresh units	2900	100	2900	100	2900	100	2900
		Normal loss	380	-		-		-	
		Closing WIP	100	100	100	20	20	10	10
		Abnormal loss	420	100	420	100	420	100	420
	4,300		4,300		3,420		3,440		3,530

Value of raw materials introduced during the month

	Equivalent units	Cost per EU (₹)	Total cost (₹)
Total value of raw material	3420	300	10,26,000
Add: Scrap value of normal loss	380	20	7,600
Value of raw material introduced			**10,33,600**

iv. A

Value of labour and overhead in closing Work in process

Cost elements	Equivalent units	Cost per EU (₹)	Total cost (₹)
Labour	20	200	**4,000**
Overheads	10	160	**1,600**

v. C

Value of output transferred to finished goods

Output transferred (Units) × Equivalent cost per unit

3,400 Litres × ₹660 = ₹22,44,000

2. i. D

ii. C Please refer cost sheet below for cost of production

Cost of production per manshift =

Cost of production ÷ Total manshift

₹ 7,87,28,000 ÷ 46,800 = ₹1,682.22

iii. A Car hire charges including GST @5%, please refer the cost sheet

iv. B Selling and distribution cost includes the following:

Maintenance cost for weighing bridge	12,000
AMC cost of CCTV installed at weigh bridge	8,000
TA/ DA & hotel bill of sales manager	36,000
	56,000

For Cost of Sale please refer the cost sheet

v. A Manshift = 1,800 employees × 26 days = 46,800 manshifts

Computation of earnings per manshift (EMS):

$$\text{EMS} = \frac{\text{Total employee benefits paid}}{\text{Manshift}}$$

$$= \frac{₹\ 7,04,20,000}{46,800} = ₹\ 1504.70$$

Computation of Output per manshift (OMS):

$$\text{OMS} = \frac{\text{Total Output/ Production}}{\text{Manshift}}$$

$$= \frac{2,34,000\ \text{Tonne}}{46,800} = 5\ \text{tonnes}$$

Workings

Cost Sheet of M Ltd. for the last month

Particulars	**Amount (₹)**	**Amount (₹)**
Materials consumed		50,00,000
Wages & Salary	6,40,00,000	
Gratuity & leave encashment	64,20,000	7,04,20,000
Power cost (13,000 kwh × ₹8)	1,04,000	
Diesel cost (2,000 ltr × ₹93)	1,86,000	2,90,000
HEMM hiring charges		30,00,000
Prime Cost		**7,87,10,000**
AMC cost of CCTV installed at factory premises		18,000
Cost of Production/ Cost of Goods Sold		**7,87,28,000**
Hiring charges of cars	66,000	
Reimbursement of diesel cost	22,000	
	88,000	
Add: GST @5% on RCM basis	4,400	92,400
Maintenance cost for weighing bridge	12,000	
AMC cost of CCTV installed at weigh bridge	8,000	20,000
TA/ DA & hotel bill of sales manager		36,000
Cost of Sales		**7,88,76,400**

3. D Labour rate variance = Standard time for actual production (SR- AR)

7,500 (A) = (30,000 × 30 minutes/60 minutes) × (50-AR)

AR = (7,50,000 + 7,500)/15,000 = ₹50.50 per hour

Actual wages per unit = 50.50/2 = ₹25.25

4. B Variable overhead for each % of level of activity

$=\frac{40,00,000-30,00,000}{75-50}$ = 40,000

Fixed cost = 30,00,000 – (40,000 × 50) = 10,00,000

Total overheads for 60% level of activity

= 10,00,000 + (40,000 × 60) = 34,00,000

5. C

6. B Actual Overhead – (Actual machine hours × machine hour rate)

5,20,000 – (17040 × 30) = 8,800 under absorbed

7. A Optimum batch size or Economic Batch Quantity (EBQ):

EBQ $= \sqrt{\frac{2DS}{C}} = \sqrt{\frac{2\times 80,000\times 3,500}{12}}$ = 6,832 units.

Number of Optimum runs = 80,000 ÷ 6,832 = 11.70 or 12 run

PART-II

1. (a) (i) Production Budget (in units) for the year ended 31st March 2025

	Product X	Product Y
Budgeted sales (units)	28,000	13,000
Add: Increase in closing stock	320	160
No. good units to be produced	28,320	13,160
Post production rejection rate	4%	6%
No. of units to be produced	29,500 $\left(\frac{28,320}{0.96}\right)$	14,000 $\left(\frac{13,160}{0.94}\right)$

(ii) Calculation of Economic Order Quantity for Material Z

EOQ $= \sqrt{\frac{2\times 2,52,310\times 15,600}{72\times 11\%}} = \sqrt{\frac{5,04,620\times 15,600}{72\times 11\%}}$ = 31,526.95 kg.

(b) Purchase budget (in kgs and value) for Material Z

	Product X	Product Y
No. of units to be produced	29,500	14,000
Usage of Material Z per unit of production	5 kg.	6 kg.
Material needed for production	1,47,500 kg.	84,000 kg.

Materials to be purchased	1,63,889 kg. $\left(\frac{1,47,500}{0.90}\right)$	88,421 kg. $\left(\frac{84,000}{0.95}\right)$
Total quantity to be purchased	2,52,310 kg.	
Rate per kg. of Material Z	₹72	
Total purchase price	₹1,81,66,320	

(c) Since, the maximum number of orders per year cannot be more than 40 orders and the maximum quantity per order that can be purchased is 4,000 kg. Hence, the total quantity of Material Z that can be available for production:

= 4,000 kg. × 40 orders =1,60,000 kg.

	Product X	**Product Y**
Material needed for production to maintain the same production mix	1,03,929 kg. $\left(1,60,000 \times \frac{1,63,889}{2,52,310}\right)$	56,071 kg. $\left(1,60,000 \times \frac{88,421}{2,52,310}\right)$
Less: Process wastage	10,393 kg.	2,804 kg.
Net Material available for production	93,536 kg.	53,267 kg.
Units to be produced	18,707 units $\left(\frac{93,536\,kg.}{5\,kg.}\right)$	8,878 units $\left(\frac{53,267\,kg.}{6\,kg.}\right)$

2. (a) (i) Calculation of Absolute Ton-km for the next month:

Journey	**Distance in km**	**Weight-Up (in MT)**	**Ton-km**	**Weight-Down (in MT)**	**Ton-km**	**Total**
	(a)	**(b)**	**(c)=(a)×(b)**	**(d)**	**(e)=(a)×(d)**	**(c)+(e)**
Delhi to Kochi	2,700	14	37,800	6	16,200	54,000
Delhi to Guwahati	1,890	12	22,680	0	0	22,680
Delhi to Vijayawada	1,840	15	27,600	0	0	27,600
Delhi to Varanasi	815	10	8,150	0	0	8,150
Delhi to Asansol	1,280	12	15,360	4	5,120	20,480
Delhi to Chennai	2,185	10	21,850	8	17,480	39,330
Total	10,710	73	1,33,440	18	38,800	1,72,240

Total Ton-Km = 1,72,240 ton-km

(ii) Calculation of cost per ton-km:

Particulars	Amount (₹)	Amount (₹)
A. Running cost:		
- Diesel Cost {₹19.20 × (10,710 × 2)}	4,11,264.00	
- Engine oil cost $\left(\frac{₹4,200}{13,000\,km} \times 21,420\,km\right)$	6,920.31	
- Cost of loading of goods {₹180 × (73+18)}	16,380.00	
- Depreciation {(30,00,000/720,000×21,420 km)×4}	3,57,000.00	7,91,564.31
B. Repairs & Maintenance Cost (36,000/10,000×21,420)		77,112.00
C. Standing Charges		
- Drivers' salary (₹24,000 × 4 trucks)	96,000.00	
- Cleaners' salary (₹15,000 × 4 trucks)	60,000.00	
- Supervision and other general exp.	14,000.00	1,70,000.00
Total Cost (A + B + C)		10,38,676.31
Total ton-km		1,72,240
Cost per ton-km		6.03

(b) Calculation of cost per unit:

Particulars	Units	(₹)
Listed Price of Materials	5,000	5,00,000
Less: Trade discount @ 10% on invoice price		(50,000)
		4,50,000
Add: GST @18% of ₹ 4,50,000		81,000
		5,31,000
Add: Toll Tax		1,800
Freight and Insurance		36,000
Commission and Brokerage Paid		10,000

Add: Cost of returnable containers:		
Amount deposited ₹ 30,000		
Less: Amount refunded ₹ 26,000		4,000
		5,82,800
Add: Other Expenses @ 2% of Total Cost $\left(\frac{₹\ 5,82,800}{98} \times 2\right)$		11,894
Total cost of material		5,94,694
Less: Shortage material due to normal reasons @ 5%	250	-
Total cost of material of good units	4,750	5,94,694
Cost per unit (₹ 5,94,694/4,750 units)		**125.20**

Note:

1. GST is payable on net price i.e., listed price less discount.
2. GST paid on purchase is added with cost as ITC on GST cannot be claimed
3. Cash discount is treated as interest and finance item; hence it is ignored.
4. Demurrage is penalty imposed by the transporter for delay in uploading or off-loading of materials. It is an abnormal cost and not included.
5. Shortage due to normal reasons should not be deducted from cost to ascertain total cost of good units.

3. (a) The important ledgers to be maintained under non-integrated accounting system in the Cost Accounting are the followings:

(a) **Cost Ledger** - This is the principle ledger of the cost department in which impersonal accounts are recorded. This ledger is made self-balancing by maintaining therein a Control Account for each subsidiary ledger.

(b) **Stores Ledger** - It contains an account for each item of stores. The entries in each account maintained in this ledger are made from the invoice, goods received note, material requisitions, material received note etc. Accounts in respect of each item of stores show receipt, issue and balance in physical as well as in monetary terms.

(c) **Work-in-Process Ledger** - This ledger is also known as job ledger, it contains accounts of unfinished jobs and processes. All material costs, wages and overheads for each job in process are posted to the respective job accounts in this ledger. The balance in a job account represents total balance of job/work-in-process, as shown by the job account.

(d) **Finished Goods Ledger** - It contains an account for each item of finished product manufactured or the completed job. If the finished product is transferred to stock, a credit entry is made in the work-in-process ledger and a corresponding debit entry is made in this ledger.

(b) (i) Computation of wages of each worker under guaranteed hourly rate basis

Worker	Actual hours worked (Hours)	Hourly wage rate (₹)	Wages (₹)
I	380	40	15,200
II	100	50	5,000
III	540	60	32,400

(ii) Computation of Wages of each worker under piece work earning basis

Product	Piece rate per unit (₹)	Worker-I		Worker-II		Worker-III	
		Units	Wages (₹)	Units	Wages (₹)	Units	Wages (₹)
X	15	210	3,150	-	-	600	9,000
Y	20	360	7,200	-	-	1,350	27,000
Z	30	460	13,800	250	7,500	-	-
Total			24,150		7,500		36,000

Since each worker's earnings are more than 50% of basic pay. Therefore, worker-I, II and III will be paid the wages as computed i.e. ₹24,150, ₹7,500 and ₹36,000 respectively.

Working Notes:

1. Piece rate per unit

Product	Standard time per unit in minute	Piece rate each minute (₹)	Piece rate per unit (₹)
X	15	1	15
Y	20	1	20
Z	30	1	30

2. Time allowed to each worker

Worker	Product-X	Product-Y	Product-Z	Total Time (Hours)
I	210 units × 15 = 3,150	360 units × 20 = 7,200	460 units × 30 = 13,800	24,150/60 = 402.50

II	-	-	250 units × 30 = 7,500	7,500/60 = 125
III	600 units × 15 = 9,000	1, 350 units × 20 = 27,000	-	36,000/60 = 600

(iii) Computation of wages of each worker under Premium bonus basis (where each worker receives bonus based on Rowan Scheme)

Worker	Time Allowed (Hr.)	Time Taken (Hr.)	Time saved (Hr.)	Wage Rate per hour (₹)	Earnings (₹)	Bonus (₹)*	Total Earning (₹)
I	402.5	380	22.5	40	15,200	850	16,050
II	125	100	25	50	5,000	1,000	6,000
III	600	540	60	60	32,400	3,240	35,640

* $\frac{\text{Time Taken}}{\text{Time Allowed}} \times \text{Time Saved} \times \text{Wage Rate}$

Worker-I = $\frac{380}{402.5} \times 22.5 \times 40 = 850$; Worker-II = $\frac{100}{125} \times 25 \times 50 = 1,000$

Worker-III = $\frac{540}{600} \times 60 \times 60 = 3,240$

4. (a) (i) Statement of Profit under Absorption Costing

Particulars	April (₹)	May (₹)	June (₹)
Sales (units)	4,200	4,500	5,200
Selling price per unit	2,050	2,050	2,050
Sales value (A)	86,10,000	92,25,000	1,06,60,000
Cost of Goods Sold:			
Opening Stock @ ₹1,480	0	5,92,000	4,44,000
Production cost @ ₹1,480	68,08,000	65,12,000	81,40,000
Closing Stock @ ₹1,480	(5,92,000)	(4,44,000)	(8,88,000)
Under/ (Over) absorption	40,000	60,000	(50,000)
Add: Fixed Selling Overheads	95,000	95,000	95,000
Cost of Sales (B)	63,51,000	68,15,000	77,41,000
Profit (A – B)	22,59,000	24,10,000	29,19,000

Workings:

1. Calculation of full production cost

	(₹)
Direct Materials (4 kg. × ₹ 120)	480
Direct labour (6 hours × ₹ 60)	360
Variable production Overhead (150% of ₹ 360)	540
Total Variable cost	1,380
Fixed production overhead $\left(\frac{₹60,00,000}{60,000\ units}\right)$	100
	1,480

2. Calculation of Opening and Closing stock

	April	May	June
Opening Stock	0	400	300
Add: Production	4,600	4,400	5,500
Less: Sales	4,200	4,500	5,200
Closing Stock	400	300	600

3. Calculation of Under/Over absorption of fixed production overhead

	April (₹)	May (₹)	June (₹)
Actual Overhead	5,00,000	5,00,000	5,00,000
Overhead absorbed	4,60,000 (4,600 units × ₹100)	4,40,000 (4,400 units × ₹100)	5,50,000 (5,500 units × ₹100)
Under/(Over) absorption	40,000	60,000	(50,000)

(ii) Statement of Profit under Marginal Costing

Particulars	April (₹)	May (₹)	June (₹)
Sales (units)	4,200	4,500	5,200
Selling price per unit	2,050	2,050	2,050
Sales value	86,10,000	92,25,000	1,06,60,000
Less: Variable production cost @ ₹1,380	57,96,000	62,10,000	71,76,000
Contribution	28,14,000	30,15,000	34,84,000
Less: Fixed Production Overheads	5,00,000	5,00,000	5,00,000

Less: Fixed Selling Overheads	95,000	95,000	95,000
Profit	22,19,000	24,20,000	28,89,000

(iii) Reconciliation of profit under Absorption costing to Marginal Costing

Particulars	April (₹)	May (₹)	June (₹)
Profit under Absorption Costing	22,59,000	24,10,000	29,19,000
Add: Opening Stock	0	40,000 (400 × ₹100)	30,000 (300 × ₹100)
Less: Closing Stock	40,000 (400 × ₹100)	30,000 (300 × ₹100)	60,000 (600 × ₹100)
Profit under Marginal Costing	22,19,000	24,20,000	28,89,000

(b) Total Fixed Cost = ₹ 6,00,000 + ₹20,00,000 + ₹8,00,000 + ₹ 2,00,000

= ₹ 36,00,000

Contribution per unit = ₹600 - ₹470 = ₹130

P/V Ratio $= \frac{\text{Contribution per unit}}{\text{Selling Price}} \times 100 = \frac{₹130}{₹600} \times 100 = 21.67\%$

Break-even Point $= \frac{\text{Total Fixed Cost}}{\text{Contribution per unit}}$

$= \frac{₹36,00,000}{₹130} = 27,692.31$ or 27,693 units

Break-even Sales $= \frac{\text{Total Fixed Cost}}{\text{P/V Ratio}} = \frac{₹36,00,000}{21.67\%} = ₹1,66,12,829$

Calculation of Profit/ (loss):

Total Contribution (₹130 × 35,000 units) = ₹45,50,000

Less: Fixed Cost = ₹36,00,000

Profit = ₹ 9,50,000

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

Budgeted Fixed Overhead Rate = ₹ 4,50,000 ÷ 5,000 units = ₹ 90 per unit Or

= ₹ 4,50,000 ÷ 30,000 hours = ₹ 15 per hour.

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

= (4,800 units × 15 kg. × ₹15) - ₹ 9,85,000

= ₹ 10,80,000 – ₹ 9,85,000

= ₹ 95,000 (F)

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

= (4,800 units × 6 hours × ₹ 5) – ₹1,40,000

= ₹ 1,44,000 – ₹ 1,40,000

= ₹ 4,000 (F)

(iii) Fixed Overhead Cost Variance = (Budgeted Rate × Actual Qty) – Actual Overhead

= (₹ 90 x 4,800 units) – ₹ 4,70,000

= ₹ 38,000 (A)

OR

= (Budgeted Rate × Std. Hours) – Actual Overhead

= (₹ 15 x 4,800 units × 6 hours) – ₹ 4,70,000

= ₹ 38,000 (A)

(iv) Variable Overhead Cost Variance = (Std. Rate × Std. Hours) – Actual Overhead

= (4,800 units × 6 hours × ₹ 12) - ₹ 3,60,200

= ₹ 3,45,600 - ₹ 3,60,200

= ₹ 14,600 (A)

(b) Profit Statement using Activity based costing (ABC) method:

	Particulars	Product			Total
		A	B	C	
A.	Sales Quantity	1,00,000	80,000	60,000	
B.	Selling price per unit (₹)	90	180	140	
C.	Sales Value (₹) [A×B]	90,00,000	1,44,00,000	84,00,000	3,18,00,000
D.	Direct cost per unit (₹)	50	90	95	
E.	Direct Cost (₹) [A×D]	50,00,000	72,00,000	57,00,000	1,79,00,000
F.	Overheads: (Refer working note-3)				

(i)	Machining services (₹)	21,00,000	22,40,000	21,00,000	64,40,000
(ii)	Assembly services (₹)	24,00,000	12,80,000	7,20,000	44,00,000
(iii)	Set-up costs (₹)	4,50,000	3,00,000	1,50,000	9,00,000
(iv)	Order processing (₹)	2,20,000	2,40,000	2,60,000	7,20,000
(v)	Purchasing (₹)	1,50,000	1,75,000	75,000	4,00,000
G.	Total Cost (₹) [E+F]	1,03,20,000	1,14,35,000	90,05,000	3,07,60,000
H.	Profit (₹) (C-G)	(13,20,000)	29,65,000	(6,05,000)	10,40,000

Working Notes:

1.

		Products			
		A	**B**	**C**	**Total**
A.	Production (units)	1,00,000	80,000	60,000	
B.	Machine hours per unit	3	4	5	
C.	Total Machine hours [A×B]	3,00,000	3,20,000	3,00,000	9,20,000
D.	Rate per hour (₹)	8	8	8	
E.	**Machine Dept. cost [C×D]**	**24,00,000**	**25,60,000**	**24,00,000**	**73,60,000**
F.	Labour hours per unit	6	4	3	
G.	Total labour hours [A×F]	6,00,000	3,20,000	1,80,000	11,00,000
H.	Rate per hour (₹)	5	5	5	
I.	**Assembly Dept. cost [G×H]**	**30,00,000**	**16,00,000**	**9,00,000**	**55,00,000**

$$\text{Machine hour rate} = \frac{₹73,60,000}{9,20,000\,\text{hours}} = ₹8$$

$$\text{Labour hour rate} = \frac{₹55,00,000}{11,00,000\,\text{hours}} = ₹5$$

2. Calculation of cost driver rate

Cost Pool	Amount (₹)	Cost Driver	Quantity	Driver rate (₹)
Machining services	64,40,000	Machine hours	9,20,000 hours	7.00
Assembly services	44,00,000	Direct labour hours	11,00,000 hours	4.00
Set-up costs	9,00,000	Machine set-ups	9,000 set-ups	100.00
Order processing	7,20,000	Customer orders	7,200 orders	100.00
Purchasing	4,00,000	Purchase orders	800 orders	500.00

3. Calculation of activity-wise cost

		Products			
		A	B	C	Total
A.	Machining hours (Refer Working note-1)	3,00,000	3,20,000	3,00,000	9,20,000
B.	Machine hour rate (₹) (Refer Working note-2)	7	7	7	
C.	**Machining services cost (₹) [A×B]**	**21,00,000**	**22,40,000**	**21,00,000**	**64,40,000**
D.	Labour hours (Refer Working note-1)	6,00,000	3,20,000	1,80,000	11,00,000
E.	Labour hour rate (₹) (Refer Working note-2)	4	4	4	
F.	**Assembly services cost (₹) [D×E]**	**24,00,000**	**12,80,000**	**7,20,000**	**44,00,000**
G.	Machine set-ups	4,500	3,000	1,500	9,000
H.	Rate per set-up (₹) (Refer Working note-2)	100	100	100	
I.	**Set-up cost (₹) [G×H]**	**4,50,000**	**3,00,000**	**1,50,000**	**9,00,000**
J.	Customer orders	2,200	2,400	2,600	7,200

K.	Rate per order (₹) (Refer Working note-2)	100	100	100	
L.	**Order processing cost (₹) [J×K]**	**2,20,000**	**2,40,000**	**2,60,000**	**7,20,000**
M.	Purchase orders	300	350	150	800
N.	Rate per order (₹) (Refer Working note-2)	500	500	500	
O.	**Purchasing cost (₹) [M×N]**	**1,50,000**	**1,75,000**	**75,000**	**4,00,000**

6. (a) Treatment of over and under absorption of overheads are:-

(i) Writing off to costing P&L A/c:– Small difference between the actual and absorbed amount should simply be transferred to costing P&L A/c, if difference is large then investigate the causes and after that abnormal loss/ gain shall be transferred to costing P&L A/c.

(ii) Use of supplementary Rate: Under this method the balance of under and over absorbed overheads may be charged to cost of W.I.P., finished stock and cost of sales proportionately with the help of supplementary rate of overhead.

(iii) Carry Forward to Subsequent Year: Difference should be carried forward in the expectation that next year the position will be automatically corrected.

(b) The impact of IT in cost accounting may include the followings:

(i) After the introduction of ERPs, different functional activities get integrated and as a consequence a single entry into the accounting system provides custom made reports for every purpose and saves an organisation from preparing different sets of documents. Reconciliation process of results of both cost and financial accounting systems become simpler and less sophisticated.

(ii) A move towards paperless environment can be seen where documents like Bill of Material, Material Requisition Note, Goods Received Note, labour utilisation report etc. are no longer required to be prepared in multiple copies, the related department can get e-copy from the system.

(iii) Information Technology with the help of internet (including intranet and extranet) helps in resource procurement and mobilisation. For example, production department can get materials from the stores without issuing material requisition note physically. Similarly, purchase orders can be initiated to the suppliers with the help of extranet. This enables an entity to shift towards Just-in-Time (JIT) approach of inventory management and production.

(iv) Cost information for a cost centre or cost object is ascertained with accuracy in timely manner. Each cost centre and cost object is codified and all related costs are assigned to the cost object or cost centre. This process automates the cost accumulation and ascertainment process. The cost information can be customised as per the requirement. For example, when an entity manufactures or provide services, it can know information job-wise, batch-wise, process-wise, cost centre wise etc.

(v) Uniformity in preparation of report, budgets and standards can be achieved with the help of IT. ERP software plays an important role in bringing uniformity irrespective of location, currency, language and regulations.

(vi) Cost and revenue variance reports are generated in real time basis which enables the management to take control measures immediately.

(vii) IT enables an entity to monitor and analyse each process of manufacturing or service activity closely to eliminate non-value-added activities.

The above are examples of few areas where Cost Accounting is done with the help of IT.

(c) Controllable costs and Uncontrollable costs*:* Cost that can be controlled, typically by a cost, profit or investment centre manager is called controllable cost. Controllable costs incurred in a particular responsibility centre can be influenced by the action of the executive heading that responsibility centre.

Costs which cannot be influenced by the action of a specified member of an undertaking are known as uncontrollable costs.

(d) Apportionment of Joint Cost amongst Joint Products using:

Market value at the point of separation: This method is used for apportionment of joint costs to joint products upto the split off point. It is difficult to apply if the market value of the product at the point of separation is not available. It is useful method where further processing costs are incurred disproportionately.

Net realizable value Method: From the sales value of joint products (at finished stage) the followings are deducted:

– Estimated profit margins

– Selling & distribution expenses, if any

– Post split off costs.

The resultant figure so obtained is known as net realizable value of joint products. Joint costs are apportioned in the ratio of net realizable value.

Mock Test Paper - Series II: April, 2024

Date of Paper: 16 April, 2024

Time of Paper: 10 A.M. to 1 P.M.

INTERMEDIATE: GROUP – II

PAPER – 4: COST AND MANAGEMENT ACCOUNTING

Suggested Answers/ Solution

PART I – Case Scenario based MCQs

1. i. A Revised Sale $= \frac{\text{Revised Fixed Cost + Expected Profit}}{\text{P / V Ratio}}$

= {₹115 + (20+10)} ÷ 45% **= ₹ 322.22 crores**

ii. D Revised Break – even Point = $\frac{\text{Fixed Cost}}{\text{P / V Ratio}}$

= ₹115 Crore ÷ 45% = ₹255.56 Crore (Refer working notes)

iii. D Revised Margin of Safety = Revised Sales – Revised Break–even Sales

= ₹ 322.22Crores – ₹ 255.56Crores = **₹ 66.66 Crores.**

iv. C ₹ 20 Crore & ₹30 Crore respectively (Refer working note)

v. A Total cost in last year = ₹230 Crore

Total cost in coming year = Variable Cost + Fixed Cost

Revised sales × 55% + 115 Crore

= ₹ 322.22 Crore × 55% + ₹ 115 Crore = ₹ 292.22 Crore

Working Note

Present Sales and Profit

Total Sales	=	Break – even Sales + Margin of Safety
	=	₹ 200 Crores + ₹ 50 Crores
	=	₹ 250 Crores
P/V Ratio	=	40%
Variable Cost	=	60% of Sales
	=	₹ 250 Crores × 60%
	=	₹ 150 Crores
Fixed Cost	=	Break – even Sales × P/V Ratio
	=	₹ 200 Crores × 40%
	=	₹ 80 Crores

Total Cost = ₹ 150 Crores + ₹ 80 Crores

= ₹ 230 Crores

Profit = Total Sales – Total Cost

= ₹ 250 Crores – ₹ 230 Crores

= ₹ 20 Cores

Revised Sales (₹ in Crores)

Present Fixed Cost	80.00
Increase in Fixed Cost	20.00
Interest at 15 *per cent* on Additional Capital (₹100Crores × 15%)	15.00
Total Revised Fixed Cost (in crore)	115.00
Assuming that the Present Selling Price is ₹100	
Revised Selling Price will be (8% Less)	92.00
New Variable Cost (Reduced from 60% to 55%) of Sales (₹ 92 × 55%)	50.60
Contribution (₹92.00 – ₹ 50.60)	41.40

New P / V Ratio $= \frac{₹\ 41.40}{₹\ 92.00} \times 100$

= 45%

2. i. D Variable Overhead Cost = Standard Variable Overheads for Production – Actual Variable Overheads

Variance

= ₹ 44,800 – ₹ 55,680

= ₹ 10,880 (A)

ii. C Fixed Overhead Volume = Absorbed Fixed Overheads – Budgeted Fixed Overheads

Variance

= ₹ 87,200 – ₹ 1,09,000

=₹ 21,800 (A)

iii. A Fixed Overhead Expenditure = Budgeted Fixed Overheads – Actual Fixed Overheads

Variance

= ₹ 10.9 × 10,000 units – ₹ 1,30,520

= **₹ 21,520 (A)**

iv. B Calendar Variance = Possible Fixed Overheads – Budgeted Fixed Overheads

= ₹ 1,03,550 – ₹ 1,09,000

= ₹ 5,450 (A)

v. A Fixed Overhead Cost Variance = Absorbed Fixed Overheads – Actual Fixed Overheads

= ₹ 87,200 – ₹ 1,30,520

= ₹ 43,320 (A)

WORKING NOTE

Fixed Overheads = $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Output}}$ = 12,00,000÷1,20,000	₹ 10.00
Fixed Overheads element in *Semi-Variable* Overheads i.e. 60% of ₹ 1,80,000	₹ 1,08,000
Fixed Overheads = $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Output}}$ ₹ 1,08,000/120,000	₹ 0.90
Standard Rate of Absorption of Fixed Overheads *per unit* (₹ 10.00 + ₹ 0.90)	₹ 10.90
Fixed Overheads Absorbed on 8,000 units @ ₹10.90	₹ 87,200
Budgeted Variable Overheads	₹ 6,00,000
Add: Variable element in Semi-Variable Overheads 40% of ₹ 1,80,000	₹ 72,000
Total Budgeted Variable Overheads	₹ 6,72,000
Standard Variable Cost *per unit* = $\frac{\text{Budgeted Variable Overheads}}{\text{Budgeted Output}}$	₹5.60
Standard Variable Overheads for 8,000 units @ ₹5.60	₹ 44,800
Budgeted Annual Fixed Overheads (₹ 12,00,000 + 60% of ₹ 1,80,000)	₹ 13,08,000
Possible Fixed Overheads = $\frac{\text{Budgeted Fixed Overheads}}{\text{Budgeted Days}} \times \text{Actual Days}$ = 1,09,000/20 days ×19 days	₹ 1,03,550
Actual Fixed Overheads (₹ 1,19,000 + 60% of ₹ 19,200)	₹ 1,30,520
Actual Variable Overheads (₹ 48,000 + 40% of ₹ 19,200)	₹ 55,680

3. A (TT x 60) + [0.50 x (8-TT) x 60] = 420 TT* = 6 hours

Time saved = 8-6 = 2

* TT=Total Time Taken

4. C Ordering Cost = 4,00,000/320 = 1,250

Delivery Cost = 1,35,000/270 = 500

A = 1,250 x 100 + 500 x 70 = 1,60,000

B = 1,250 x 220 + 500 x 200 = 3,75,000

5. **B**

Direct labour	:	₹ 45,000
Direct expenses	:	₹ 15,000
Direct materials consumed	:	₹ 67,500
Prime Cost		₹ 1,27,500

6. **A** Abnormal gain units = 7600 - [8000 - 800] = 400 Abnormal gain = [40,000 - (800 x 5)]/ 7200 units x 400 units = 2,000

7. **B**

Total cost	= ₹ 5,25,000
Tonnes Km carried	= 6,55,000
Unit Cost	= ₹ 525000/655000 Km = ₹ 0.801

PART-II– Descriptive Questions

1. **(a)** **Process A Account**

Dr Cr.

	₹		₹
To Materials	40,000	By Transfer to Process B A/c	1,20,000
To Labour	40,000		
To Overheads	16,000		
	96,000		
To Profit (20% of transfer price, i.e., 25% of cost)	24,000		
	1,20,000		1,20,000

Process B Account

Dr Cr.

	₹		₹
To Transferred from Process A A/c	1,20,000	By Transfer to Finished Stock A/c	2,88,000
To Labour	56,000		
To Overhead	40,000		
	2,16,000		
To Profit (25% of transfer price i.e., 33.33% of cost)	72,000		
	2,88,000		2,88,000

Statement of Total Profit

	₹
Profit from Process A	24,000
Profit from Process B	72,000
Profit on Sales (₹ 4,00,000 – ₹ 2,88,000)	1,12,000
Total Profit	2,08,000

(b) (i) Calculation of Economic Order Quantity

$$EOQ = \sqrt{\frac{2 \times \text{Annual Demand} \times \text{Ordering Cost}}{\text{Carrying cost per unit per annum}}}$$

$$= \sqrt{\frac{2 \times 12,000 \text{ units} \times ₹1,200}{₹1,740 \times 0.12}} = 371 \text{ units (Approx)}$$

(ii) Evaluation of Profitability of Different Options of Order Quantity

(a) When EOQ is ordered

		(₹)
Purchase Cost	(12,000 units × ₹ 1,740)	2,08,80,000.00
Ordering Cost*	[(12,000 units ÷ 371 units) i.e. 33 × ₹ 1,200]	39,600.00
Carrying Cost**	(371 units × ₹ 1,740 × ½ × 12/100)	38,732.40
Total Cost		2,09,58,332.40

(b) When Quantity Discount of 5% is offered.

		(₹)
Purchase Cost	(12,000 units × ₹ 1,740 × 0.95)	1,98,36,000.00
Ordering Cost*	[(12,000 units ÷ 6,000 units) × ₹1,200]	2,400.00
Carrying Cost**	(6,000 units × ₹1,653 × ½ × 12/100)	5,95,080.00
Total Cost		2,04,33,480.00

Advise – The total cost of inventory is lower if quantity discount offer is accepted. Hence, the company is advised to accept the quantity discount.

$$* \text{ Ordering Cost} = \frac{\text{Annual Demand}}{\text{Order Quantity}} \times \text{Cost of placing an order}$$

$$** \text{ Carrying Cost} = \frac{\text{Cost per unit} \times \text{Quantity ordered} \times \text{Carrying Cost}}{2}$$

(c) Let T hours be the total time worked in hours by the skilled worker (machine-man Sam); ₹ 30/- is the rate per hour; standard time is 4 hours per unit and effective hourly earning rate is ₹ 37.50 then

Earning = Hours worked × Rate per hour

$$+\frac{\text{Time saved}}{\text{Time allowed}} \times \text{Time taken} \times \text{Rate per hour}$$

(Under Rowan incentive plan)

$$₹\ 37.5\ T = (T \times ₹\ 30) + \frac{(4 - T)}{4} \times T \times ₹\ 30$$

₹ 37.5 = ₹ 30 + (4 – T) × ₹ 7.5

Or ₹ 7.5 T = ₹ 22.5

Or T= 3 hours

Total earnings and effective hourly rate of skilled worker (machine man Sam) under Halsey Incentive Scheme (50%)

Total earnings = (Hours worked × Rate per hour) + (½ Time saved × Rate per hour)

(under 50% Halsey Incentive Scheme)

= (3 hours × ₹ 30) + (½ × 1 hour × ₹ 30)

$$\text{Effective hourly rate} = \frac{\text{Total earnings}}{\text{Hours taken}} = \frac{₹\ 105}{3\ \text{hours}} = ₹\ 35$$

2. (a) Computation of Machine Hour Rate

		Basis of apportionment	Total	Machines		
				P	Q	R
			(₹)	(₹)	(₹)	(₹)
(A)	**Standing Charges**					
	Insurance	Depreciation Basis	8,000	3,000	3,000	2,000
	Indirect Labour	Direct Labour	24,000	6,000	9,000	9,000
	Building Maintenance expenses	Floor Space	20,000	8,000	8,000	4,000
	Rent and Rates	Floor Space	1,20,000	48,000	48,000	24,000
	Salary of foreman	Equal	2,40,000	80,000	80,000	80,000
	Salary of attendant	Equal	60,000	20,000	20,000	20,000

	Total standing charges		4,72,000	1,65,000	1,68,000	1,39,000
	Hourly rate for standing charges			90.36	92.00	76.12
(B)	**Machine Expenses:**					
	Depreciation	Direct	20,000	7,500	7,500	5,000
	Spare parts	Final estimates	13,225	4,600	5,750	2,875
	Power	K.W. rating	40,000	15,000	10,000	15,000
	Consumable Stores	Direct	9,000	3,600	2,700	2,700
	Total Machine expenses		82,225	30,700	25,950	25,575
	Hourly Rate for Machine expenses			16.81	14.21	14.01
	Total (A + B)		5,54,225	1,95,700	1,93,950	1,64,575
	Machine Hour rate			107.17	106.22	90.13

Working Notes:

(i) Calculation of effective working hours:

No. of holidays 52 (Sundays) + 14 (other holidays) = 66

Saturday (52 – 2) = 50

No. of days (Work full time) = 365 – 66 – 50 = 249

	Hours
Full days work 249 × 8	= 1,992
Half days work 50 × 4	= 200
	2,192

	Hours
Effective capacity 85% of 2,192	1,863 (Rounded off)
Less: Normal loss of time (Breakdown) 2%	37 (Rounded off)
Effective running hour	1,826

(ii) Amount of spare parts is calculated as under:

	P	Q	R
	₹	₹	₹
Preliminary estimates	4,000	4,000	2,000

Add: Increase in price @ 15%	600	600	300
	4,600	4,600	2,300
Add: Increase in consumption @ 25%	–	1,150	575
Estimated cost	4,600	5,750	2,875

(iii) Amount of Indirect Labour is calculated as under:

	₹
Preliminary estimates	20,000
Add: Increase in wages @ 20%	4,000
	24,000

(iv) Amount of Consumables Stores is calculated as under:

	₹
Preliminary estimates	10,000
Less: Decrease in consumption @ 10%	1,000
	9,000

(v) Interest on capital outlay is a financial matter and, therefore it has been excluded from the cost accounts.

(b) Economic batch quantity in Batch Costing*:* In batch costing the most important problem is the determination of 'Economic Batch Quantity'. The determination of economic batch quantity involves two types of costs viz, (i) set up cost and (ii) carrying cost. With the increase in the batch size, there is an increase in the carrying cost but the set up cost per unit of product is reduced. This situation is reversed when the batch size is reduced. Thus there is one particular batch size for which both set up and carrying costs are minimum. This size of a batch is known as economic or optimum batch quantity.

Economic batch quantity can be determined with the help of table, graph or mathematical formula. The mathematical formula usually used for its determination is as follows:

$$E.B.Q = \sqrt{\frac{2DS}{C}}$$

Where, D= Annual demand for the product

S = Setting up cost per batch

C = Carrying cost per unit of production per annum

3. (a) (a) **Flexible Budget for different levels**

	₹	₹	₹	₹	₹
No. of Students	60	90	120	150	180
VARIABLE COST					

Breakfast	3000	4500	6000	7500	9000
Lunch	6000	9000	12000	15000	18000
Tea	600	900	1200	1500	1800
Entrance fee	1200	1800	2400	3000	3600
Sub-total (A)	10800	16200	21600	27000	32400
Variable cost/unit	180	180	180	180	180
SEMI-VARIABLE COST					
Bus rent	13000	13000	19500	19500	26000
Special permit fee	1000	1000	1500	1500	2000
Allowance for teachers	2000	2000	3000	3000	4000
Sub-total (B)	16000	16000	24000	24000	32000
FIXED COST					
Block entrance fee	2500	2500	2500	2500	2500
Prize to students	500	500	500	500	500
Sub total (C)	3000	3000	3000	3000	3000
Total cost (A + B + C)	29,800	35,200	48,600	54,000	67,400

(b)	Cost per student	496.67	391.11	405.00	360.00	374.44

(c) Break-even level

	₹
Collection per students	400
Less Variable Cost	180
Contribution	220

Since semi-fixed costs relate to a block of 50 students, the fixed and semi-variable cost for three level will be:

Level of Student	51–100	101–150	151-200
Fixed + Semi–variable cost (₹)	19,000	27,000	35,000
Contribution per unit (₹)	220	220	220
Break Even level of students	86	123	159

(b) (i) Statement of cost allocation to each product from each activity

	Product			
	A (₹)	**B (₹)**	**C (₹)**	**Total (₹)**
Power (Refer to working note)	10,00,000	20,00,000	15,00,000	45,00,000

	(10,000 kWh × ₹ 100)	(20,000 kWh × ₹ 100)	(15,000 kWh × ₹ 100)	
Quality Inspections (Refer to working note)	31,50,000 (3,500 inspections × ₹ 900)	22,50,000 (2,500 inspections × ₹ 900)	27,00,000 (3,000 inspections × ₹ 900)	81,00,000

Working Note:

Rate per unit of cost driver:

Power : (₹ 60,00,000 ÷ 60,000 kWh) = ₹100/kWh

Quality Inspection: (₹ 90,00,000 ÷ 10,000 inspections) = ₹900 per inspection

(ii) Calculation of cost of unused capacity for each activity:

	(₹)
Power (₹60,00,000 – ₹45,00,000)	15,00,000
Quality Inspections (₹90,00,000 – ₹81,00,000)	9,00,000
Total cost of unused capacity	24,00,000

4. (a) Job Cost Sheet for the period…..

			₹
Direct materials			2,13,000
Direct wages:			
Machine shop		63,000	
Assembly shop		48,000	1,11,000
	Prime Cost		3,24,000
Works overhead:			
Machine shop		88,200	
Assembly shop		51,800	1,40,000
	Work Cost		4,64,000
Administration overhead			92,800
	Cost of Production		5,56,800
Selling overhead			81,000
Distribution overhead			62,100
	Total Cost		6,99,900

Schedule of Overhead Rate

(i) Works Overhead: Hourly rate = (Overhead amount ÷ Hours)

Machine shop = (88,200 ÷ 12,000) = ₹ 7.35 per hour

Assembly shop = (51,800 ÷ 10,000) = ₹ 5.18 per hour

(ii) Administrative Overhead as a % of works cost

$$= \frac{92,800}{4,64,000} \times 100 = 20\%$$

(iii) Selling and distribution overhead as % of works cost

$$= \frac{81,000 + 62,100}{4,64,000} \times 100 = 30.84\%$$

Labour hour rates are calculated as under:

Machine shop = ₹ 63,000 ÷ 12,000 hrs. = ₹ 5.25

Assembly shop = ₹ 48,000÷10,000 hrs. = ₹ 4.80

(b) Cost Estimate for Job

Direct Materials	₹	₹
(i) 25 kg @ ₹ 17.20 per kg	430	
(ii) 15 kg @ ₹ 21 per kg	315	745.00
Direct Labour		
Machine shop (30 hrs. @ ₹ 5.25)	157.50	
Assembly shop (42 hrs. @ ₹ 4.80)	201.60	359.10
Prime Cost		1104.10
Works Overhead		
Machine shop (30 hours @ ₹ 7.35)	220.50	
Assembly shop (42 hours @ ₹ 5.18)	217.56	438.06
Works Cost		1542.16
Administration overhead (20% of works cost)		308.43
Cost of Production		1850.59
Selling and distribution cost (30.84% of works cost)		475.60
Total Estimated Cost		2326.19

(b) Detection of slow moving and non-moving item of stores:

The existence of slow moving and non-moving item of stores can be detected in the following ways.

(i) By preparing and *perusing periodic reports* showing the status of different items or stores.

(ii) By calculating the *inventory turnover period* of various items in terms of number of days/ months of consumption.

(iii) By computing *inventory turnover ratio* periodically, relating to the issues as a percentage of average stock held.

(iv) By implementing the use of a well designed information system.

Necessary steps to reduce stock of slow moving and non-moving item of stores:

(i) Proper procedure and guidelines should be laid down for the disposal of non-moving items, before they further deteriorates in value.

(ii) Diversify production to use up such materials.

(iii) Use these materials as substitute, in place of other materials.

(c) When the Cost and Financial Accounts are integrated - there is no need to have a separate reconciliation statement between the two sets of accounts. Integration means that the same set of accounts fulfil the requirement of both i.e., Cost and Financial Accounts.

5. (a) Cost sheet for the year ended 31st March, 2023.

Units produced - 14,000 units

Units sold - 14,153 units

Particulars	**Amount (₹)**
Raw materials purchased	43,50,000
Add: Freight Inward	1,20,000
Add: Opening value of raw materials	2,28,000
Less: Closing value of raw materials	(3,05,000)
	43,93,000
Less: Sale of scrap of material	(7,000)
Materials consumed	43,86,000
Direct Wages (12,56,000 + 1,50,000)	14,06,000
Prime Cost	57,92,000
Factory overheads (20% of Prime Cost)	11,58,400
Add: Opening value of W-I-P	1,92,500
Less: Closing value of W-I-P	(1,40,700)
Factory Cost	70,02,200
Add: Administrative overheads	1,73,000
Cost of Production	71,75,200
Add: Value of opening finished stock	6,08,500
Less: Value of closing finished stock [₹ 500(71,75,200/14,350) × 767] (1,320 + 14,350 – 14,903 = 767 units)	(3,83,500)
Cost of Goods Sold	74,00,200
Distribution expenses (₹16 × 14,903 units)	2,38,448

Cost of Sales	76,38,648
Profit (Balancing figure)	9,90,189
Sales (₹ 579 × 14,903 units)	86,28,837

(b) Workings:

Total occupancy = Occupancy in normal season + Occupancy in off-season

= (20 rooms × 80% × 8 months × 30 days) + (20 rooms × 50% × 4 months × 30 days)

= 3,840 + 1,200 = 5,040 room-days

Total Cost = Variable cost + Fixed cost

= (₹ 500 × 5,040 room-days) + ₹ 53,25,000

= ₹ 25,20,000 + ₹ 53,25,000

= 78,45,000

(a) Calculation of tariff rate per room

Tariff per room per day = (Total cost + 25% Margin on total cost) ÷ Total occupancy

= (₹ 78,45,000 + 19,61,250) ÷ 5,040 = ₹ 1,945.68

(b) Calculation of break-even occupancy

Contribution per day = Tariff – Variable cost

= ₹ 1,945.68 – 500 = ₹ 1445.68

Break-even occupancy = ₹ 53,25,000 ÷ 1445.68

= 3683

Occupancy in normal season = Break-even occupancy – Occupancy in off-season

= 3683 – (20 rooms × 50% × 4 months × 30 days)

= 3683 – 1200 = 2483 room-days

In Percentage = 2483 ÷ 4800 = 51.73%

6. (a) When the cost and financial accounts are kept separately, It is imperative that these should be reconciled, otherwise the cost accounts would not be reliable. The reconciliation of two set of accounts can be made, if both the sets contain sufficient detail as would enable the causes of differences to be located. It is therefore, important that in the financial accounts, the expenses should be analysed in the same way as in cost accounts. It is important to know the causes which generally give rise to differences in the costs & financial accounts. These are:

(i) Items included in financial accounts but not in cost accounts

- Income-tax
- Transfer to reserve

- Dividends paid
- Goodwill / preliminary expenses written off
- Pure financial items
- Interest, dividends
- Losses on sale of investments
- Expenses of Co's share transfer office
- Damages & penalties

(ii) Items included in cost accounts but not in financial accounts

- Opportunity cost of capital
- Notional rent

(iii) Under / Over absorption of expenses in cost accounts

(iv) Different bases of inventory valuation

Motivation for reconciliation is:

- To ensure reliability of cost data
- To ensure ascertainment of correct product cost
- To ensure correct decision making by the management based on Cost & Financial data
- To report fruitful financial / cost data.

(b) The essential features, which a good Cost Accounting System should possess, are as follows:

(a) **Informative and Simple:** Cost Accounting System should be tailor-made, practical, simple and capable of meeting the requirements of a business concern. The system of costing should not sacrifice the utility by introducing meticulous and unnecessary details.

(b) **Accuracy:** The data to be used by the Cost Accounting System should be accurate; otherwise it may distort the output of the system and a wrong decision may be taken.

(c) **Support from Management and subordinates:** Necessary cooperation and participation of executives from various departments of the concern is essential for developing a good system of Cost Accounting.

(d) **Cost-Benefit:** The Cost of installing and operating the system should justify the results.

(e) **Procedure:** A carefully phased programme should be prepared by using network analysis for the introduction of the system.

(f) **Trust:** Management should have faith in the Costing System and should also provide a helping hand for its development and success.

(c) The following steps are useful for minimizing labour turnover:

(a) *Exit interview*: An interview to be arranged with each outgoing employee to ascertain the reasons of his leaving the organization.

(b) *Job analysis and evaluation*: to ascertain the requirement of each job.

(c) Organization should make use of a scientific system of recruitment, placement and promotion for employees.

(d) Organization should create healthy atmosphere, providing education, medical and housing facilities for workers.

(e) Committee for settling workers grievances.

OR

(c) CVP Analysis:-Assumptions

(i) Changes in the levels of revenues and costs arise only because of changes in the number of products (or service) units produced and sold.

(ii) Total cost can be separated into two components: Fixed and variable

(iii) Graphically, the behaviour of total revenues and total cost are linear in relation to output level within a relevant range.

(iv) Selling price, variable cost per unit and total fixed costs are known and constant.

(v) All revenues and costs can be added, sub traded and compared without taking into account the time value of money.

Mock Test Paper - Series I: July, 2024

Date of Paper: 1st August, 2024

Time of Paper: 2 P.M. to 5 P.M.

INTERMEDIATE: GROUP – II

PAPER – 4: COST AND MANAGEMENT ACCOUNTING

Suggested Answers/ Solution

PART I – Case Scenario based MCQs

1. c. 40,000 units.

Projected Sales of Product P – 24,000 units

Less: Opening stock of Product P- (4,000 units)

Product P to be produced- 20,000 units

Raw Material required- 50,000 units (20,000 x 2/80% yield)

Opening stock of Material R available- 10,000 units

Material to be procured- 40,000 units.

2. a. Order Quantity as per the current inventory policy – 10,000 units and EOQ – 1,000 units

Annual requirement - Procurement- 40,000 units

Order Quantity as per the current inventory policy (Quarterly) - 10,000 units

Ordering Cost- ₹125 per order

Carrying Cost- ₹ 10 per unit p.a.

EOQ - 1,000 units.

3. b. Savings from EOQ as Compared to current discount policy – ₹ 20,500

Associated Costs under EOQ:

Ordering Costs = No. of orders x Ordering cost per order

No of orders = Annual Requirement/ EOQ (or) current order quantity

Hence No of orders = 40

Therefore Ordering Cost = 40 x 125 = ₹ 5,000.

Carrying cost = Average Inventory x Carrying cost per unit per annum

Average Inventory = (EOQ/ current order quantity)/2

= 1,000/2 = 500

Carrying cost = 500 x 10 = ₹ 5,000

Associated Costs under EOQ = Ordering cost + Carrying Cost

= ₹ 10,000 ---------- A

Associated Costs under current inventory policy:

No of orders = 4 (Quarterly)

Ordering cost = 4 x 125 = ₹ 500

Average inventory = 10,000/2 = 5,000

Carrying cost = 5,000x10 = 50,000

Associated Costs = 50,000+500 = 50,500

Less: Discount = 20,000

Net cost = 30,500. ---------- B

Incremental Cost = B – A = 20,500

4. b. ₹ 6,400

Time taken under the Overtime regime 180 Hours + 20 Hours overtime = 200 Hours

Time to be taken under the Incentive regime

Units to be produced = 20,000 units

Units produced per hour under incentive scheme = 125 units

Time taken = 160 Hours

Time saved = 200 – 160 = 40 hours.

Incentive under Rowan scheme = (Time saved/Time allowed) x time taken x Rate

= (40/200) x 160x200 = ₹ 6,400.

5. b. ₹ 5,600

Cost under the Overtime scheme:

Base wage = 200 x 200 = 40,000

OT Premium = 20 x 200 = 4,000

Total Wages under Overtime scheme = 44,000

Cost under Incentive scheme:

Base Wage = 160 hours x 200 = 32,000

Incentive = 6,400

Total wages paid = 38,400

Savings in Incentive scheme over Overtime scheme = ₹ 5,600.

6. a ₹ 550

Contribution Margin per Unit = Selling Price per Unit - Variable Cost per Unit

= Variable Cost per unit = ₹ 500*+ ₹ 300**+ ₹ 100+ ₹ 50

Contribution Margin per Unit = ₹ 1,500 - ₹ 950 = ₹ 550

*Raw Material Cost Calculation

Let the cost of Plastic be x

1. The cost of Copper is ₹ 80 more than the cost of Plastic: Cost of Copper = x + 80
2. The cost of Other Materials is twice that of Plastic: Cost of Other Materials = 2x
3. The total Raw Material Cost per unit is ₹ 210 more than the combined cost of Copper & Plastic: x + (x+80) + 2x = (x + (x+80)) + 210

Solving for X = 105

Now, calculate the total cost of Raw Materials:

105 + (105+80) +210 = 500

So, the total cost of Raw Materials is ₹ 500.

** Labour Cost Calculation

1. The Labour Hour Rate is ₹ 100 per hour.
2. The total labour hours used in the last month were 36,000 hours.
3. The production units last month were 12,000 units (10000 normal units plus 2000 special order).

   Total Labour Cost = Labour Hour Rate × Total Labour Hours

   Total Labour Cost= ₹ 100 /hour × 36,000 hours = ₹ 3,600,000

   Per Unit Labour Cost = Total Labour Cost/Production Units

   Per Unit Labour Cost = ₹ 3,600,000/12000

   Per Unit Labour Cost = ₹ 300

   So, the per unit labour cost is ₹ 300.

7. c ₹ 27,27,025

- Break-even Point (Sales Revenue) = Total Fixed Costs / Contribution Margin Ratio
- Contribution Margin Ratio = Contribution Margin per Unit / Selling Price per Unit
- = ₹ 550 / ₹ 1,500 = 0.3667

- Break-even Point = ₹ 10,00,000 / 0.3667 ≈ ₹ 27,27,025

8. b 2,727 units

- Required Sales Volume (Units) = (Total Fixed Costs + Target Profit) / Contribution Margin per Unit
- = (₹ 10,00,000 + ₹ 5,00,000) / ₹ 550 ≈ 2,727.27 units ≈ 2,727 units (rounded up)

9. b 2,198 units

- New Variable Cost per Unit = ₹ 950 + 10% of ₹ 950 = ₹ 950 + ₹ 95 = ₹ 1,045
- New Contribution Margin per Unit = ₹ 1,500 - ₹ 1,045 = ₹ 455
- New Break-even Point (Units) = Total Fixed Costs / New Contribution Margin per Unit
- = ₹ 10,00,000 / ₹ 455 ≈ 2198 units

10. c 45.05%

- Margin of Safety (Units) = Actual Sales - Break-even Sales
- = 4,000 - 2198 = 1,802 units
- Margin of Safety (%) = (Margin of Safety in Units / Actual Sales in Units) * 100
- = (1,802 / 4,000) * 100 ≈ 45.05%

11. d 9,129 units

Annual demand (D) = 50,000 units

Setup cost per batch (S) = ₹ 10,000

Carrying cost per unit per month (C) = ₹ 1

$$\text{EBQ} = \sqrt{\frac{2 \times \text{D} \times \text{S}}{\text{C}}}$$

= 9,129 units

12. a ₹ 3000(A)

Standard quantity = Standard quantity per sofa × Actual production

= 5 sq. ft x 1000 = 5,000 sq. ft.

Standard material cost = Standard quantity× Standard price per sq. ft.

= 5,000 sq. ft.×₹ 10/sq. ft.= ₹ 50,000

Actual material cost = Actual quantity used × Actual purchase price per sq. ft.

= 5,300 sq. ft.×₹ 10/sq. ft.= ₹ 53,000

Material cost variance = Standard material cost−Actual Material cost

= ₹ 50,000−₹ 53,000 = −₹ 3,000

13. b ₹ 100 per part type

Activity rate = budgeted overhead/budgeted activity level

= 4,00,000/4,000

= ₹ 100 per part type

14. a 52,000

Ton-kilometers = 10 tons x 200 kilometers x 26 days

= 52,000

15. b 83.33%

$$\text{Activity Ratio} = \frac{\text{Standard Hours}}{\text{Budgeted Hours}} \times 100$$

= 83.33%

PART-II Descriptive Questions

1. (a) Calculation of Cost of Production of Meta Ltd for the period…..

Particulars	**Amount (₹)**
Raw materials purchased	64,00,000
Add: Opening stock	2,88,000
Less: Closing stock	(4,46,000)
Material consumed	62,42,000
Wages paid	23,20,000
Prime cost	85,62,000
Repair and maintenance cost of plant & machinery	9,80,500
Insurance premium paid for inventories	26,000
Insurance premium paid for plant & machinery	96,000
Quality control cost	86,000
Research & development cost	92,600
Administrative overheads related with factory and production	9,00,000
	1,07,43,100
Add: Opening value of W-I-P	4,06,000
Less: Closing value of W-I-P	(6,02,100)
	1,05,47,000
Less: Amount realised by selling scrap	(9,200)

Add: Primary packing cost	10,200
Add: Expenses paid for pollution control and engineering & maintenance	22,000
Cost of Production	1,05,70,000

Notes:

(i) Other administrative overhead does not form part of cost of production.

(ii) Salary paid to Director (Technical) is an administrative cost.

(b) Memorandum Reconciliation Accounts

Dr. Cr.

Particulars	**Amount (₹)**	**Particulars**	**Amount (₹)**
To Net Loss as per Cost Accounts	48,700	By Administration overheads over recovered in Cost Accounts	65,000
To Factory overheads under absorbed in Cost Accounts	30,500	By Depreciation overcharged in Cost Accounts (₹ 2,70,000 –₹ 2,25,000)	45,000
To Provision for Income tax	52,400	By Transfer fees in Financial Accounts	10,200
To Obsolescence loss	20,700	By Notional Rent of own premises	49,000
To Overvaluation of closing stock in Cost Accounts**	9,500	By Overvaluation of Opening stock in Cost Accounts*	23,000
To Net Profit (as per Financial Accounts)	30,400		
	1,92,200		1,92,200

* Overvaluation of Opening Stock as per Cost Accounts

= Value in Cost Accounts – Value in Financial Accounts

= ₹ 1,38,000 – ₹ 1,15,000 = ₹ 23,000.

** Overvaluation of Closing Stock as per Cost Accounts

= Value in Cost Accounts – Value in Financial Accounts

= ₹ 1,22,000 – ₹ 1,12,500 = ₹ 9,500.

(c) Calculation of:

(i) Time saved and wages:

Workmen	**A**	**B**
Standard time (hrs.)	40	40
Actual time taken (hrs.)	32	30
Time saved (hrs.)	08	10
Wages paid @ ₹ x per hr. (₹)	32x	30x

(ii) Bonus Plan:

	Halsey	**Rowan**
Time saved (hrs.)	8	10
Bonus (₹)	4x	7.5x
	$\left[\frac{8 \text{ hrs} \times ₹ \text{ x}}{2}\right]$	$\left[\frac{10 \text{ hrs}}{40 \text{ hrs}} \times 30\text{hrs} \times ₹ \text{ x}\right]$

(iii) Total wages:

Workman A: 32x + 4x = ₹ 36x

Workman B: 30x + 7.5x = ₹ 37.5x

Statement of factory cost of the job

Workmen	**A**	**B**
	₹	₹
Material cost (assumed)	y	y
Wages (shown above)	36x	37.5x
Works overhead	240	225
Factory cost (given)	2,200	2,200

The above relations can be written as follows:

36x + y + 240 = 2,200 (i)

37.5x+ y+ 225 = 2,200 (ii)

Subtracting (i) from (ii) we get

1.5x – 15 = 0

or 1.5 x = 15

or x = ₹ 10 per hour

On substituting the value of x in (i) we get y = ₹ 1,600

Hence the wage rate per hour is ₹ 10 and the cost of raw material is ₹ 1,600 on the job.

2. (a) Statement of Equivalent Production

Input Details	Units	Output Particulars	Units	Equivalent Production					
				Material		Labour		Overhead	
				%	Units	%	Units	%	Units
Unit Introduced	45,000	Finished output	42,000	100	42,000	100	42,000	100	42,000
		Normal loss (2% of 45,000)	900	-	-	-	-	-	-
		Abnormal loss	300	100	300	80	240	60	180
		Closing W-I-P	1,800	100	1,800	50	900	40	720
	45,000		45,000		44,100		43,140		42,900

Statement of Cost

Particulars	Units	Rate (₹)	Amount (₹)	Amount (₹)
(i) Finished goods	42,000	17.9042		7,51,976.40
(ii) Abnormal Loss				
Material	300	11.5873	3,476.19	
Labour	240	2.1048	505.15	
Overhead	180	4.2121	758.18	4,739.52
(iii) Closing W-I-P:				
Material	1,800	11.5873	20,857.14	
Labour	900	2.1048	1,894.32	
Overhead	720	4.2121	3,032.71	25,784.17

Cost per Unit

Particulars	Amount (₹)	Units	Per Unit (₹)
(i) Direct Material :			
Unit Introduced	4,50,000		
Add: Material	65,500		
	5,15,500		
Less: Value of normal loss (900 units × ₹ 5)	(4,500)		
	5,11,000	44,100	11.5873
(ii) Labour	90,800	43,140	2.1048
(iii) Overhead	1,80,700	42,900	4.2121
			17.9042

Process – P A/c

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Input	45,000	4,50,000	By Normal loss	900	4,500
To Direct Material	-	65,500	By Abnormal loss	300	4,740
To Labour	-	90,800	By Finished goods	42,000	7,51,976
To Overhead		1,80,700	By Closing W-I-P	1,800	25,784
	45,000	7,87,000		45,000	7,87,000

Abnormal Loss A/c

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Process-B A/c	300	4,740	By Cost ledger control A/c or Bank A/c	300	600
			By Costing Profit & loss A/c	-	4,140
	300	4,740		300	4,740

(b) Treatment is as follows:

(i) **Credit for Recoveries:** The realised or realisable value of scrap or waste is deducted as it reduces the cost of production.

(ii) **Packing Cost (primary):** Packing material which is essential to hold and preserve the product for its use by the customer is added in the factory cost.

(iii) **Joint Products and By-Products:** Joint costs are allocated between/among the products on a rational and consistent basis. In case of by-products, the net realisable value of by-products is deducted from the cost of production.

(iv) **Quality Control Cost:** It is added in the factory cost as this is the cost of resources consumed towards quality control procedures.

3. (a) (i) Statement showing allocation of Joint Cost

Particulars	AB	PQ
No. of units Produced	1,800	3,000
Selling Price Per unit (₹)	40	30
Sales Value (₹)	72,000	90,000

Less:	Estimated Profit (AB -20% & PQ -30%)	(14,400)	(27,000)
	Cost of Sales	57,600	63,000
Less:	Estimated Selling Expenses (AB -15% & PQ -15%)	(10,800)	(13,500)
	Cost of Production	46,800	49,500
Less:	Cost after separation	(35,000)	(24,000)
	Joint Cost allocated	11,800	25,500

(ii) Statement of Profitability

Particulars	**MA (₹)**	**AB (₹)**	**PQ (₹)**
Sales Value (A)	4,00,000 (4,000x ₹ 100)	72,000	90,000
Less:- Joint Cost	1,75,100 (2,12,400 -11,800 - 25,500)	11,800	25,500
Cost after separation	-	35,000	24,000
Selling Expenses (MA- 30%, AB-15% & PQ-15%)	1,20,000	10,800	13,500
(B)	2,95,100	57,600	63,000
Profit (A –B)	1,04,900	14,400	27,000
Overall Profit = 1,04,900 + 14,400 + 27,000 = ₹ 1,46,300			

(b) Operating Cost Statement

	Particulars	**Total Cost Per annum (₹)**
A.	Fixed Charges:	
	Insurance	15,600
	Garage rent (₹ 2,400 × 4 quarters)	9,600
	Road Tax	5,000
	Salary of operating staff (₹ 7,200 × 12 months)	86,400
	Depreciation	68,000
	Total (A)	1,84,600
B.	Variable Charges:	
	Repairs (₹ 4,800 × 4 quarters)	19,200
	Tyres and Tubes (₹ 3,600 × 4 quarters)	14,400
	Diesel {(1,80,000 km. ÷ 5 km.) × ₹ 13}	4,68,000
	Oil and Sundries {(1,80,000 km. ÷ 100 km.) × ₹ 22}	39,600

	Total (B)	5,41,200
	Total Operating Cost (A+B)	7,25,800
	Add: Passenger tax (Refer to WN-1)	3,01,275
	Add: Profit (Refer to WN-1)	3,42,359
	Total takings	13,69,434

Calculation of Cost per passenger kilometre and one way fare per passenger:

$$\text{Cost per Passenger-Km.} = \frac{\text{Total Operating Cost}}{\text{Total Passenger - Km.}}$$

$$= \frac{₹\ 7,25,800}{40,32,000\ \text{Passenger} - \text{Km.}} = ₹\ 0.18$$

$$\text{One way fare per passenger} = \frac{\text{Total Takings}}{\text{Total Passenger} - \text{Km.}} \times 30\text{Km.}$$

$$= \frac{₹\,13,69,434}{40,32,000\ \text{Passenger - Km.}} \times 30\text{km} = ₹\ 10.20$$

Working Notes:

1. Let total taking be X then Passenger tax and profit will be as follows:

   X = ₹ 7,25,800 + 0.22 X + 0.25X

   X – 0.47 X = ₹ 7,25,800

   $X = \frac{₹7,25,800}{0.53}$ = ₹ 13,69,434

   Passenger tax = ₹ 13,69,434 × 0.22 = ₹ 3,01,275

   Profit = ₹ 13,69,434 × 0.25 = ₹ 3,42,359

2. Total Kilometres to be run during the year

   = 30 km.× 2 sides × 10 trips × 25 days × 12 months = 1,80,000 Kilometres

3. Total passenger Kilometres

   = 1,80,000 km. × 32 passengers × 70% = 40,32,000 Passenger-km.

4. (a) Working Notes:

(i) Total Productive hours = Estimated Working hours – Machine Maintenance hours

= 2,200 hours – 200 hours = 2,000 hours

(ii) $\text{Depreciation per annum} = \frac{₹\,10,000 - ₹\,1,000}{10\,\text{years}}$ = ₹ 900

(iii) Chemical solution cost per annum = ₹ 20 × 50 weeks = ₹ 1,000

(iv) Wages of attendants (per annum) = $\frac{₹\,120 \times 50\,\text{weeks}}{6\ \text{machines}}$ = ₹ 1,000

Calculation of Machine hour rate

Particulars	Amount (per annum)	Amount (per hour)
A. Standing Charge		
(i) Wages of attendants	1,000	
(ii) Departmental and general works overheads	3,000	
Total Standing Charge	4,000	
Standing Charges per hour $\left(\frac{4,000}{2,000}\right)$		2.0
B. Machine Expense		
(iii) Depreciation	900	0.45
(iv) Electricity $\left(\frac{₹\,0.09 \times 16\,\text{units} \times 1,900\,\text{hours}}{2,000\,\text{hours}}\right)$	-	1.37
(v) Chemical solution	1,000	0.50
(vi) Maintenance cost	1,800	0.90
Machine operating cost per hour (A + B)		5.22

(b) (i) Material Usage Variance = Std. Price (Std. Quantity – Actual Quantity)

= ₹ 45 (9,000 kgs. – 8,900 kgs.)

= ₹ 4,500 (Favourable)

(ii) Material Price Variance = Actual Quantity (Std. Price – Actual Price)

= 8,900 kgs. (₹ 45 – ₹ 46)

= ₹ 8,900 (Adverse)

(iii) Material Cost Variance = Std. Material Cost – Actual Material Cost

= (SQ × SP) – (AQ × AP)

= (9,000 kgs. × ₹ 45) – (8,900 kgs. × ₹ 46)

= ₹ 4,05,000 – ₹ 4,09,400

= ₹ 4,400 (Adverse)

(iv) Labour Efficiency Variance = Std. Rate (Std. Hours – Actual Hours)

= ₹ 50 ($\frac{9,000}{10} \times 8 \text{hours}$ – 7,000 hrs.)

= ₹ 50 (7,200 hrs. – 7,000 hrs.)

= ₹ 10,000 (Favourable)

(v) Labour Rate Variance = Actual Hours (Std. Rate – Actual Rate)

= 7,000 hrs. (₹ 50 – ₹ 52)

= ₹ 14,000 (Adverse)

(vi) Labour Cost Variance = Std. Labour Cost – Actual Labour Cost

= (SH × SR) – (AH × AR)

= (7,200 hrs. × ₹ 50) – (7,000 hrs. × ₹ 52)

= ₹ 3,60,000 – ₹ 3,64,000

= ₹ 4,000 (Adverse)

(vii) Variable Overhead Cost Variance = Std. Overhead for Actual Production – Actual Variable Overhead Cost

= (7,200 hrs. × ₹ 10) – ₹ 72,500

= ₹ 500 (Adverse)

(viii) Fixed Overhead Cost Variance = Absorbed Fixed Overhead – Actual Fixed Overhead

$= \frac{₹ 200}{10 \text{ kgs.}} \times 9,000 \text{kgs.} - ₹ 1,92,000$

= ₹ 1,80,000 – ₹ 1,92,000

= ₹ 12,000 (Adverse)

5. (a) Number of days in budget period = 4 weeks × 5 days = 20 days

Number of units to be produced

	Product-A (units)	**Product-B (units)**
Budgeted Sales	2,400	3,600
Add: Closing stock $\left(\frac{2,400 \text{units}}{20 \text{days}} \times 4 \text{days}\right)$ $\left(\frac{3,600 \text{units}}{20 \text{days}} \times 5 \text{days}\right)$	480	900
Less: Opening stock	400	200
Production (units)	2,480	4,300

(i) Material Purchase Budget

	Material-X (Kg.)	Material-Y (Kg.)
Material required:		
Product-A	12,400 (2,480 units × 5 kg.)	9,920 (2,480 units × 4 kg.)
Product-B	12,900 (4,300 units × 3 kg.)	25,800 (4,300 units × 6 kg.)
	25,300	35,720
Add: Closing stock $\left(\frac{25,300\text{kgs.}}{20\text{days}} \times 10\text{days}\right)$ $\left(\frac{35,720\text{kgs.}}{20\text{days}} \times 6\text{days}\right)$	12,650	10,716
Less: Opening stock	1,000	500
Quantity to be purchased	36,950	45,936
Rate per kg. of Material	₹ 4	₹ 6
Total Cost	₹ 1,47,800	₹ 2,75,616

(ii) Wages Budget

	Product-A (Hours)	Product-B (Hours)
Units to be produced	2,480 units	4,300 units
Standard hours allowed per unit	3	5
Total Standard Hours allowed	7,440	21,500
Productive hours required for production	$\frac{7,440\text{hours}}{80\%}=9,300$	$\frac{21,500\text{hours}}{80\%}=26,875$
Add: Non-Productive down time	1,860 hours. (20% of 9,300 hours)	5,375 hours. (20% of 26,875 hours)
Hours to be paid	11,160	32,250

Total Hours to be paid	= 43,410 hours (11,160 + 32,250)
Hours to be paid at normal rate	= 4 weeks × 40 hours × 180 workers = 28,800 hours
Hours to be paid at premium rate	= 43,410 hours – 28,800 hours = 14,610 hours
Total wages to be paid	= 28,800 hours × ₹ 25 + 14,610 hours × ₹ 37.5 = ₹ 7,20,000 + ₹ 5,47,875 = ₹ 12,67,875

(b) a.

1. Estimation of cost-driver rate

Activity	**Overhead cost (₹)**	**Cost driver**	**Cost driver rate (₹)**
Packaging	1,50,00,000	950 Packaging hours	15,789.47
Fridge	2,10,00,000	1,900 Fridge hours	11,052.63

2. Overhead cost for chocolate ice cream

Activity	**Overhead for a 1,000 ice cream batch**	**Amount (₹)**
Packaging	1 x ₹ 11,052.63	11,052.63
Fridge	0.5 x ₹ 15,789.47	7,894.74
Total		18,947.37

3. Operating profit for chocolate ice cream

Particulars	**Amount (₹)**
Revenue (1,000 x ₹ 75)	75,000.00
Less: Direct Material (1,000 x ₹ 15)	15,000.00
Less: Direct Labour (10,000 x ₹ 2)	20,000.00
Less: Overhead	18,947.37
Operating Profit	21,052.63

b. Overhead per direct hour

= Total Overhead / Total Direct Labour Hours

= ₹ 3,60,00,000 / 24,000 hours

= ₹ 1,500 per direct labour hour

Since it takes 10 direct labour hour per 1,000 Chocolate ice cream, the overhead is ₹ 15,000

Particulars	**Amount (₹)**
Revenue (1,000 x ₹ 75)	75,000.00
Less: Direct Material (1,000 x ₹ 15)	15,000.00
Less: Direct Labour (10,000 x ₹ 2)	20,000.00
Less: Overhead	15,000
Operating Profit	25,000

6. (a) The various types of responsibility centres are as follows:

(i) Cost Centres: The responsibility centre which is held accountable for *incurrence of costs* which are under its control. The performance of this responsibility centre is measured against pre-determined standards or budgets. The cost centres are of two types:

(a) Standard Cost Centre and (b) Discretionary Cost Centre

(a) Standard 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 expected to comply with the standard and held responsible for adverse cost variances. The input-output ratio for a standard cost centre is clearly identifiable.

(b) 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. Examples 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.

(ii) Revenue Centres: The responsibility centres which are accountable for *generation of revenue for the entity*. Sales Department for example, is responsible for achievement of sales target and revenue generation. Though, revenue centres do not have control on expenditures it incurs but sometimes expenditures related with selling activities like commission to sales person etc. are incurred by revenue centres.

(iii) Profit Centres: These are the responsibility centres which have *both responsibility of generation of revenue and incurrence of expenditures*. Since, managers of profit centres are accountable for both costs as well as revenue, profitability is the basis for measurement of performance of these responsibility centres. Examples of profit centres are decentralised branches of an organisation.

(iv) Investment Centres: These are the responsibility centres which are *not only responsible for profitability but also have the authority to make capital investment decisions*. The performance of these responsibility centres are measured on the basis of Return on Investment (ROI) besides profit. Examples of investment centres are Maharatna, Navratna and Miniratna companies of Public Sector Undertakings of Central Government.

(b) Efficiency is usually related with performance and may be computed by comparing the time taken with the standard time allotted to perform the given job/task.

If the time taken by a worker on a job equals or less than the standard time, then he is rated efficient.

In case he takes more time than the standard time he is rated as inefficient.

$$\text{Efficiency in \%} = \frac{\text{Time allowed as per standard}}{\text{Time Taken}} \times 100$$

For efficiency rating of employees the following procedures may be followed:

1. **Determining standard time/performance standards:** The first step is to determine the standard time taken by a worker for performing a particular job/task. *The standard time can be determined by using Time & Motion study or Work study techniques*. While determining the standard time for a job/task a heterogeneous group of workers is taken and contingency allowances are added for determining standard time.
2. **Measuring Actual Performance of workers:** For computing efficiency rating it is necessary to develop a procedure for recording the actual performance of workers. The system developed should record the output of each worker along with the time taken by him.
3. **Computation of efficiency rating:** The efficiency rating of each worker can be computed by using the above mentioned Formula.

(c) The essential pre-requisites for integrated accounts include the following steps:

1. The management's decision about the extent of integration of the two sets of books. Some concerns find it useful to integrate up to the stage of prime cost or factory cost while other prefers full integration of the entire accounting records.
2. A suitable coding system must be made available so as to serve the accounting purposes of financial and cost accounts.

3. An agreed routine, with regard to the treatment of provision for accruals, prepaid expenses, other adjustment necessary for preparation of interim accounts.

4. Perfect coordination should exist between the staff responsible for the financial and cost aspects of the accounts and an efficient processing of accounting documents should be ensured.

   Under this system there is no need for a separate cost ledger. Of course, there will be a number of subsidiary ledgers; in addition to the useful Customers' Ledger and the Purchase Ledger, there will be: (a) Stores Ledger; (b) Stock Ledger and (c) Job Ledger.

(d) After identification of the costs and benefits, it is now required to be quantified i.e., the cost and benefit should be measured and estimated. The estimation is done by following the two principles as discusses below:

(i) **Variability:** Variability means by how much a cost or benefit increased or decreased due to the choice of the option. Variable costs are the cost which differs under the different volume or activities. On the other hand, fixed costs remain same irrespective of volume and activities.

(ii) **Traceability:** Traceability of cost means degree of relationship between the cost and the choice of the option. Direct costs are directly assigned to the option on the other hand indirect costs needs to be apportioned to the option on some reasonable basis.

Mock Test Paper - Series II: August, 2024

Date of Paper: 21st August, 2024

Time of Paper: 2 P.M. to 5 P.M.

INTERMEDIATE: GROUP – II

PAPER – 4: COST AND MANAGEMENT ACCOUNTING

Suggested Answers/ Solution

PART I – Case Scenario based MCQs

1. (a) Working notes:

Factory cost (33,00,000 x 0.25)	INR 8,25,000
Add: Freight (50,000 x 0.25)	INR 12,500
F.O.B. (Free On Board)	INR 8,37,500
Containers (2,00,000 x 0.25)	INR 50,000
Insurance (1,500 x 75)	INR 1,12,500
Ocean freight (2,000 x 75)	INR 1,50,000
CIF (Cost, Insurance and Freight)	= 8,37,500 + 1,12,500 + 1,50,000
	= INR 11,00,000
Custom duty	= 20% x 11,00,000 = INR 2,20,000
IGST	= 18% x (11,00,000 + 2,20,000)
	= INR 2,37,600
Penalty	= INR 15,000
Commission	
Indian	= 6% x 8,25,000 = INR 49,500
Srilankan	= 12% x 8,25,000 = INR 99,000

Particulars	Amount (INR)
Factory cost	8,25,000
Containers (50,000-38,000)	12,000
Insurance	1,12,500
Ocean freight	1,50,000
Freight inwards	12,500
Commission (49,500+99,000)	1,48,500
Custom duty non-refundable 20%* 2,20,000	44,000
TOTAL	**13,04,500**

2. (a) Good units = 8,000* (1-5%) = 7,600 UNITS

Normal loss to be absorbed in good units. No abnormal loss.

Particulars	**Product Zenga (INR)**
Factory cost	4,50,000
Other cost except commission, insurance and custom duty to be absorbed on the basis of quantity i.e. 12:8 or 3:2 (12,000+1,50,000+12,500)*2/5	69,800
Commission, insurance and custom duty to be absorbed on value basis 15:18 or 5:6 (1,48,500+1,12,500+44,000)*6/11	1,66,363.63
Total Cost	6,86,163.63
Number of good units	7,600 units
Per unit Cost	**90.28**

3. (b) Good units = 12000 * (1-5%) = 11400 units

Particulars	**Product Xendga (INR)**
Factory cost	3,75,000
Other cost (12,000+1,50,000+12,500)*3/5	1,04,700
Commission, insurance and custom duty (1,48,500+1,12,500+44,000)*5/11	1,38,636.36
Total Cost	618,336.36
Number of good units	11,400 units
Per unit Cost	**54.24**

4 (a) Custom duty 80% x 2,20,000 = 1,76,000

Add: IGST = 2,37,600

4,13,600

5. (c) Normal loss upto 8%

Abnormal loss 1%

Total cost of xendga INR 6,18,336.36

Total cost of zenga INR 6,86,163.63

Particulars	**XENGDA (INR)**	**ZENGA (INR)**	**(INR)**
Normal loss of 8%	960 units	640 units	
Good units after normal loss	11,040 units	7,360 units	
Per unit cost to be absorbed in	56 (6,18,336.36/11,040)	93.23 (6,86,163.63/7,360)	

good units (total costs/no of good units after normal loss)			
Abnormal loss in units 1%	120 units	80 units	
Loss in Profit & Loss	56 x 120 = 6,720	93.23 x 80= 7,458.4	14,178.4

6. (a) Material Mix Variance (Cotton + Polyester) = {(RSQ × SP) – (AQ × SP)}
= {7,08,570- 7,10,000}
= 1,430 (A)

Material Yield Variance (Cotton + Polyester) = {(SQ × SP) – (RSQ × SP)}
= {7,51,770 – 7,08,570}
= 43,200 (F)

7. (d) Material Price Variance (Cotton + Polyester) = {(AQ × SP) – (AQ × AP)
= {7,10,000 – 6,72,500}
= 37,500 (F)

8. (c) Material Cost Variance (Cotton + Polyester) = {(SQ × SP) – (AQ × AP)}
= {7,51,770 – 6,72,500}
= 79,270 (F)

Working Note

Material Variances:

Material	SQ (WN-1)	SP (₹)	SQ × SP (₹)	RSQ (WN-2)	RSQ × SP (₹)	AQ	AQ × SP (₹)	AP (₹)	AQ × AP (₹)
Cotton	9,397 m	50	4,69,850	8,857 m	4,42,850	9,000 m	4,50,000	48	4,32,000
Polyester	7,048 m	40	2,81,920	6,643 m	2,65,720	6,500 m	2,60,000	37	2,40,500
	16,445 m		**7,51,770**	**15,500 m**	**7,08,570**	**15,500 m**	**7,10,000**		**6,72,500**

WN-1: Standard Quantity (SQ):

Cotton - $\left(\frac{8,000m}{0.9\times14,000m}\times14,800m\right)$ = 9,396.8 or 9,397 m

Polyester- $\left(\frac{6,000m}{0.9\times14,000m}\times14,800m\right)$ = 7,047.6 or 7048 m

WN- 2: Revised Standard Quantity (RSQ):

Cotton - $\left(\frac{8,000m}{14,000m}\times15,500m\right)$ = 8,857.1 or 8857 m

Polyester - $\left(\frac{6,000m}{14,000m}\times 15,500m\right)$ = 6,642.8 or 6643 m

9. (b) Labour Efficiency Variance (Skilled + Unskilled) = {(SH × SR) – (AH × SR)}

= {61,496 – 63,920}

= 2,424 (A)

Labour Yield Variance (Skilled + Unskilled) = {(SH × SR) – (RSH × SR)}

= {61,496 – 63,052}

= 1,556 (A)

10. (a) Labour Cost Variance (Skilled + Unskilled) = {(SH × SR) – (AH × AR)}

= {61,496 – 62,380}

= 884 (A)

Working Note

Labour Variances:

Labour	SH (WN-3)	SR (₹)	SH × SR (₹)	RSH (WN-4)	RSH × SR (₹)	AH	AH × SR (₹)	AR (₹)	AH × AR (₹)
Skilled	1,116 hrs	37.50	41,850	1144	42,900	1,200	45,000	35.50	42,600
Unskilled	893 hrs	22.00	19,646	916	20,152	860	18,920	23.00	19,780
	2,009 hrs		61,496	2,060	63,052	2,060	63,920		62,380

WN- 3: Standard Hours (SH):

Skilled labour- $\left(\frac{0.95\times 1,000hr.}{0.90\times 14,000m.}\times 14,800m.\right)$ =1,115.87 or 1,116 hrs.

Unskilled labour- $\left(\frac{0.95\times 800hr.}{0.90\times 14,000m.}\times 14,800m.\right)$ = 892.69 or 893 hrs.

WN- 4: Revised Standard Hours (RSH):

Skilled labour- $\left(\frac{1,000hr.}{1,800hr.}\times 2,060hr.\right)$ = 1,144.44 or 1,144 hrs.

Unskilled labour- $\left(\frac{800hr.}{1,800hr.}\times 2,060hr.\right)$ = 915.56 or 916 hrs.

11. (d) Break-even point $= \frac{\text{Fixed Costs} + \text{Targeted Profit}}{(\text{Selling Price per Unit} - \text{Variable Cost per Unit})}$

= (5,00,000 + 2,00,000)/100 = 7,000 units

12. (d) Expected Output = Input Material−Normal Loss

Expected Output = 1,200 Kg−96 Kg=1,104 kg

Abnormal loss = 1,104 kg – 1,100 kg = 4 kg

13. (b) Overhead Rate = Total Estimated Machine Hours/Total Estimated Overhead Cost

= ₹ 6,00,000/30,000 = ₹ 20

Allocated Overhead = Overhead Rate x Machine Hours Used by the Job

= ₹ 20 x 300 hrs = ₹ 6,000

14. (c) Efficiency Ratio = Activity Ratio/Capacity Utilization Ratio

= 0.95/0.85 = 1.117 or 112%

15. (b) Total cost ₹ 20,000 + (300 units × (₹ 20 + ₹10)) = ₹ 29,000

PART-II– Descriptive Questions

1. (a) Increase in hourly rate of wages under Rowan Plan is ₹ 30 i.e. (₹180 – ₹ 150)

$$\frac{\text{Time Saved}}{\text{Time Allowed}} \times ₹150 = ₹30$$ (Please refer Working Note)

Or, $$\frac{\text{Time Saved}}{50 \text{ hours}} \times ₹150 = ₹30$$

Or, Time saved = $\frac{1,500}{150}$ = 10 hours

Therefore, Time Taken is 40 hours i.e. (50 hours – 10 hours)

Effective Hourly Rate under Halsey System:

Time saved	= 10 hours	
Bonus @ 50%	= 10 hours × 50% × ₹ 150	= Rs 750
Total Wages	= (₹150 × 40 hours + ₹ 750)	= Rs 6,750
Effective Hourly Rate = ₹ 6,750 ÷ 40 hours		= ₹ 168.75

Working Note:

Effective hourly rate

$$= \frac{(\text{Time Taken} \times \text{Rate per hour}) + \frac{\text{Time Taken}}{\text{Time Allowed}} \times \text{Time Saved} \times \text{Rate per hour}}{\text{Time Taken}}$$

Or, $$₹180 = \frac{\text{Time Taken} \times \text{Rate per hour}}{\text{Time Taken}} + \frac{\frac{\text{Time Taken}}{\text{Time Allowed}} \times \text{Time Saved} \times \text{Rate per hour}}{\text{Time Taken}}$$

Or, $$₹180 - \frac{\text{Time Taken} \times \text{Rate per hour}}{\text{Time Taken}} = \frac{\text{Time Taken}}{\text{Time Allowed}} \times \text{Time Saved} \times \text{Rate per hour} \times \frac{1}{\text{Time Taken}}$$

Or, ₹ 180 – ₹ 150 = $\frac{\text{Time Saved}}{\text{Time Allowed}} \times ₹ 150$

(b)

	Particulars	**Amount in ₹**
A	**Operating costs:**	
	Petrol	400
	Oil	170
	Grease	90
	Wages to Driver	550
	Wages to Worker	350
	(A)	1,560
B	**Maintenance Costs:**	
	Repairs	170
	Overhead	60
	Tyres	150
	Garage Charges	100
	(B)	480
C	**Fixed Cost:**	
	Insurance	50
	License, Tax etc	80
	Interest	40
	Other Overheads	190
	Depreciation $\frac{(54,000 - 36,000)}{5 \times 12}$	300
	(C)	660
	Total Cost (A + B + C)	2,700

(i) Cost per days maintained = ₹ 2700/30 days = ₹ 90

(ii) Cost per days operated = ₹ 2700/25 days = ₹ 108

(iii) Cost per hours operated = ₹ 2700/300 hours = ₹ 9

(iv) Cost per kilometres covered = ₹ 2700/2500 kms = ₹ 1.08

(v) Cost per commercial tonne kms= ₹ 2700/5000 tonne kms = ₹ 0.54

*Commercial tonne kms = Total distance travelled x Average load

$= \frac{(4 \text{ tonnes} + 0 \text{ tonnes})}{2}$ x 2500 kms

= 5000 tonne kms

(c) (i) Calculation of most Economical Production Run

$$= \sqrt{\frac{2 \times 60,000 \times ₹\ 4,800}{12 \times 12}} = 2,000 \text{ Vaccine}$$

(ii) Calculation of Extra Cost due to processing of 15,000 vaccines in a batch

	When run size is 2,000 vaccines	When run size is 15,000 vaccines
Total set up cost	$= \frac{60,000}{2,000} \times ₹\ 4,800$ = ₹ 1,44,000	$= \frac{60,000}{15,000} \times ₹\ 4,800$ = ₹ 19,200
Total Carrying cost	½ × 2,000 × ₹ 144 = ₹ 1,44,000	½ × 15,000 × ₹ 144 = ₹ 10,80,000
Total Cost	₹ 2,88,000	₹ 10,99,200

Thus, extra cost = ₹ 10,99,200 – ₹ 2,88,000 = ₹ 8,11,200

2. (a) (i) Statement of Equivalent Production

Particulars	Input Units	Particulars	Output Units	Equivalent Production			
				Material		Labour & O.H.	
				%	Units	%	Units
Opening WIP	31,000	Completed and transferred to Process (Soldering)	5,42,500	100	5,42,500	100	5,42,500
Units introduced	5,89,000	Normal Loss (5% of 6,20,000)	31,000	--	--	--	--
		Abnormal loss (Balancing figure)	15,500	100	15,500	80	12,400
		Closing WIP	31,000	100	31,000	80	24,800
	6,20,000		6,20,000		5,89,000		5,79,700

Statement showing cost for each element

Particulars	Materials (₹)	Labour (₹)	Overhead (₹)	Total (₹)
Cost of opening work-in-process	12,40,000	2,32,500	6,97,500	21,70,000
Cost incurred during the month	2,29,40,000	55,64,500	1,66,93,500	4,51,98,000
Less: Realisable Value of normal scrap (₹ 20 × 31,000 units)	(6,20,000)	--	--	(6,20,000)
Total cost: (A)	2,35,60,000	57,97,000	1,73,91,000	4,67,48,000
Equivalent units: (B)	5,89,000	5,79,700	5,79,700	
Cost per equivalent unit: (C) = (A ÷ B)	**40.00**	**10.00**	**30.00**	**80.00**

(ii) Statement of Distribution of cost

	Amount (₹)	Amount (₹)
1. Value of units completed and transferred (5,42,500 units × ₹ 80)		4,34,00,000
2. Value of Abnormal Loss:		
- Materials (15,500 units × ₹ 40)	6,20,000	
- Labour (12,400 units × ₹ 10)	1,24,000	
- Overheads (12,400 units × ₹ 30)	3,72,000	11,16,000
3. Value of Closing W-I-P:		
- Materials (31,000 units × ₹ 40)	12,40,000	
- Labour (24,800 units × ₹ 10)	2,48,000	
- Overheads (24,800 units × ₹ 30)	7,44,000	22,32,000
Total		**4,67,48,000**

(iii) Process Account (Mounting)

Particulars	Units	(₹)	Particulars	Units	(₹)
To Opening W.I.P:			By Normal Loss (₹ 20 × 31,000 units)	31,000	6,20,000
- Materials	31,000	12,40,000	By Abnormal loss	15,500	11,16,000
- Labour	--	2,32,500	By Process A/c (Soldering)	5,42,500	4,34,00,000
- Overheads	--	6,97,500	By Closing WIP	31,000	22,32,000
To Materials introduced	5,89,000	2,29,40,000			
To Direct Labour		55,64,500			
To Overheads		1,66,93,500			
	6,20,000	4,73,68,000		6,20,000	4,73,68,000

(iv) Normal Loss A/c

Particulars	Units	(₹)	Particulars	Units	(₹)
To Process Account (Mounting)	31,000	6,20,000	By Cost Ledger Control A/c	31,000	6,20,000
	31,000	6,20,000		31,000	6,20,000

Abnormal Loss A/c

Particulars	Units	(₹)	Particulars	Units	(₹)
To Process Account (Mounting)	15,500	11,16,000	By Cost Ledger Control A/c	15,500	3,10,000

			By Costing Profit & Loss A/c		8,06,000
	15,500	11,16,000		15,500	11,16,000

(b) ABC is particularly needed by organisations for product costing in the following situations:

1. **High amount of overhead**: When production overheads are high and form significant costs, ABC is more useful than traditional costing system.
2. **Wide range of products**: ABC is most suitable, when, there is diversity in the product range or there are multiple products.
3. **Presence of non-volume related activities**: When non-volume related activities e.g. material handling, inspection set-up, are present significantly and traditional system cannot be applied, ABC is a superior and better option. ABC will identify non-value-adding activities in the production process that might be a suitable focus for attention or elimination.
4. **Stiff competition**: When the organisation is facing stiff competition and there is an urgent requirement to compute cost accurately and to fix the selling price according to the market situation, ABC is very useful. ABC can also facilitate in reducing cost by identifying non-value-adding activities in the production process that might be a suitable focus for attention or elimination.

3. (a)

Contribution *per tonne*	**(₹)**
Sales Price	185.00
Variable Cost:	
Material (W.N.-1)	90.00
Labour (W.N.-2)	13.00
Variable Overhead (W.N.-3)	40.00
Contribution	42.00
Profit Required (₹7,56,000 /1,26,000 tonnes)	6.00
Balance Contribution *per tonn*e for meeting Fixed Costs	36.00
Fixed Costs (W.N.-4)	54,72,000
Quantity Required (₹54,72,000 ÷ ₹36)	1,52,000 tonnes

Working Notes

1. Materials Cost per tonne in Year II ₹90

$$\left(\frac{₹1,29,60,000}{1,44,000 \text{tonnes}}\right)$$

2. Labour Cost per tonne in Year II ₹13

$\left(\frac{₹18,72,000}{1,44,000 tonnes}\right)$

3. Variable portion of Factory, Administration and Sell. Expenditure, etc

	₹
Total in Year II	1,12,32,000
Less: Increase otherwise than on account of increased turnover	8,10,000
	1,04,22,000
Less: Amount Spent in Year I	97,02,000
Increase	7,20,000
Increase in Quantity Sold	18,000 tonnes
Variable Expenses per tonne	₹40

$\left(\frac{₹7,20,000}{18,000 tonnes}\right)$

4. Fixed portion of Factory, Administration and Selling Expenses (Yr. 2) ₹1,12,32,000

Variable Expenses @ ₹ 40 per tonne ₹57,60,000

Fixed Portion ₹54,72,000

(b) Cost Sheet

Particulars	Units	Amount (₹)
Material		
Opening stock	10,000	5,00,00,000
Add: Purchases	4,90,000	25,20,00,000
Less: Closing stock	(17,500)	(85,00,000)
	4,82,500	**29,35,00,000**
Less: Normal wastage of materials realized @ ₹ 350 per unit	(2,000)	(7,00,000)
Material consumed		29,28,00,000
Direct employee's wages and allowances		5,50,50,000
Direct expenses- Royalty paid for production		3,10,50,000
Prime cost	4,80,500	**37,89,00,000**
Factory overheads - Consumable stores, depreciation etc.		3,42,00,000
Rearrangement design of factory machine		75,00,000
Gross Works Cost	4,80,500	**38,64,00,000**
Add: Opening WIP	20,000	1,20,00,000
Less: Closing WIP	(10,000)	(60,50,000)

Factory/Works Cost	4,90,500	**39,23,50,000**
Administration Overheads related to production		3,45,00,000
R&D expenses and Quality control cost		1,90,00,000
AMC cost of CCTV installed at factory premises		6,00,000
Guard Salaries for factory premises		14,00,000
Product Inspection		22,00,000
Add: Primary packaging cost @ ₹ 140 per unit		6,86,70,000
Cost of production	4,90,500	**51,87,20,000**
Administration Overheads		
Guard salaries for office		4,00,000
Audit and legal fees		29,00,000
Director's Salaries		60,00,000
EPF Director's Salaries @12%		7,20,000
AMC cost for CCTV installed at office.		2,00,000
Selling and Distribution Overheads		
Cost of maintaining website for online sale		60,75,000
Secondary packaging cost @ ₹ 20 per unit	4,90,500	98,10,000
Gift and snacks		30,50,000
Guard salaries for selling department		2,00,000
AMC cost for CCTV installed at selling department		2,00,000
Hiring charges of cars		25,00,000
Add: GST @5% on RCM basis		1,25,000
Television programme sponsorship cost		20,00,000
Customers' prize cost*		2,00,000
Selling expenses		3,94,50,000
Cost of sales		**58,64,75,000**
Add: Profit @ 25% on sales or 33.333% of cost		19,54,89,712
Sales value		**78,19,64,712**

***Customers' prize cost:**

	Amount (₹)
1st Prize	1,00,000
2nd Prize	50,000
3rd Prize	20,000

Consolation Prizes (3 × ₹10,000)	30,000
Total	**2,00,000**

***Customers' prize cost:**

	Amount (₹)
1st Prize	1,00,000
2nd Prize	50,000
3rd Prize	20,000
Consolation Prizes (3 × ₹10,000)	30,000
Total	**2,00,000**

4. Computation of overhead absorption rate

(as per the blanket rate)

Department	**Budgeted factory Overheads (₹)**	**Budgeted direct wages (₹)**
Operating	35,64,000	7,92,000
Assembly	9,66,000	24,15,000
Quality Control	4,20,000	10,50,000
Packing	12,37,500	6,93,000
Total	**61,87,500**	**49,50,000**

$$\text{Overhead absorption rate} = \frac{\text{Budgeted factory Overheads}}{\text{Budgeted direct wages}} \times 100$$

$$= \frac{61,87,500}{49,50,000} \times 100$$

= 125% of Direct wages

Selling Price of the Job No. 157

Particulars	**Operating (₹)**	**Assembly (₹)**	**Quality Control (₹)**	**Packing (₹)**	**Total (₹)**
Direct Materials	11,880	4,140	1,800	2,970	20,790
Direct Wages	2,376	2,484	1,080	594	6,534
Rectification cost of normal defectives			495		495
Overheads [(125% x (6,534 + 495)]					8,786.25
Total Factory Cost					**36,605.25**
Add: Mark-up (25% x ₹ 36,605.25)					9,151.31
Selling Price					**45,756.56**

(b) As the machinery is used to a varying degree in different departments, the use of **departmental rates** is to be preferred. The overhead recovery rates in different departments would be as follows:

(i) Operating Department: The use of machine hours is the predominant factor of production in Operating Department. Hence, machine hour rate should be used to recover overheads.

The overhead recovery rate based on machine hours would be calculated as follows:

$$\textbf{Machine hour rate} = \frac{\text{Budgeted factory Overheads}}{\text{Budgeted machine hours}}$$

$$= \frac{₹\ 35,64,000}{7,92,000} = ₹\ 4.50 \text{ per hour}$$

(ii) Assembly Department: Direct labour hours is the main factor of production in Assembly Department. Hence, direct labour hour rate should be used to recover overheads.

The overhead recovery rate based on direct labour hours would be calculated as follows:

$$\textbf{Direct labour hour rate} = \frac{\text{Budgeted factory Overheads}}{\text{Budgeted direct labour hours}}$$

$$= \frac{₹\ 9,66,000}{6,90,000} = ₹\ 1.40 \text{ per hour}$$

(iii) Quality Control Department: Direct labour hours is the main factor of production in Quality Control Department. Hence, direct labour hour rate should be used to recover overheads.

The overhead recovery rate based on direct labour hours would be calculated as follows:

$$\textbf{Direct labour hour rate} = \frac{\text{Budgeted factory Overheads}}{\text{Budgeted direct labour hours}}$$

$$= \frac{₹\ 4,20,000}{3,00,000} = ₹\ 1.40 \text{ per hour}$$

(iv) Packing Department: Direct labour hours is the main factor of production in Packing Department. Hence, direct labour hour rate should be used to recover overheads.

The overhead recovery rate based on direct labour hours would be calculated as follows:

$$\textbf{Direct labour hour rate} = \frac{\text{Budgeted factory Overheads}}{\text{Budgeted direct labour hours}}$$

$$= \frac{₹\ 12,37,500}{4,95,000} = ₹\ 2.50 \text{ per hour}$$

(c) Selling Price of Job No. 157

[based on the overhead rates calculated in (b) above]

Particulars	Operating (₹)	Assembly (₹)	Quality Control (₹)	Packing (₹)	Total (₹)
Direct Materials	11,880	4,140	1,800	2,970	20,790
Direct Wages	2,376	2,484	1,080	594	6,534
Rectification cost of normal defectives			495		495
Overheads (refer working note)					10,672
Total Factory Cost					**38,491**
Add: Mark-up (25% x ₹ 38,491)					9,622.75
Selling Price					**48,113.75**

Working note:

Overhead Statement

Department	Basis	Hours	Rate (₹)	Overheads (₹)
Operating	Machine hour	1,782	4.50	8,019
Assembly	Direct labour hour	828	1.40	1,159
Quality Control	Direct labour hour	360	1.40	504
Packing	Direct labour hour	396	2.50	990
			Total	**10,672**

(d) Department-wise statement of under or over recovery of overheads

(i) As per the current policy

Particulars	Operating (₹)	Assembly (₹)	Quality Control (₹)	Packing (₹)	Total (₹)
Direct wages (Actual)	9,50,400	18,63,000	8,10,000	8,91,000	45,14,400
Overheads recovered @ 125% of Direct wages: (A)	11,88,000	23,28,750	10,12,500	11,13,750	56,43,000
Actual overheads: (B)	38,61,000	5,79,600	2,52,000	13,36,500	60,29,100
(Under)/Over recovery of overheads: (A–B)	**(26,73,000)**	**17,49,150**	**7,60,500**	**(2,22,750)**	**(3,86,100)**

(ii) As per the method suggested

	Machine hours (Operating)	Direct labour hours (Assembly)	Direct labour hours (Quality Control)	Direct labour hours (Packing)	Total (₹)
Hours worked	9,50,400	6,21,000	2,70,000	5,94,000	
Rate/hour (₹)	4.50	1.40	1.40	2.50	
Overhead recovered (₹): (A)	42,76,800	8,69,400	3,78,000	14,85,000	70,09,200
Actual overheads (₹): (B)	38,61,000	5,79,600	2,52,000	13,36,500	60,29,100
(Under)/Over recovery: (A–B)	**4,15,800**	**2,89,800**	**1,26,000**	**1,48,500**	**9,80,100**

5. (a) (i) Statement of Profit as per financial records

(for the year ended March 31, 2024)

	(₹)		(₹)
To Opening stock of Finished Goods	48,250	By Sales	13,96,500
To Work-in-process	38,000	By Closing stock of finished Goods	44,500
To Raw materials consumed	5,00,000	By Work-in-Process	36,200
To Direct labour	4,20,000	By Interest received	42,000
To Factory overheads	3,56,000	By Loss	3,35,050
To Administration overheads	2,10,000		
To Selling & distribution overheads	84,000		
To Dividend paid	98,000		
To Bad debts	16,000		
To Stores adjustment	50,000		
To Income tax	34,000		
	18,54,250		**18,54,250**

Statement of Profit as per costing records

(for the year ended March 31,2024)

	(₹)
Sales revenue (A) *(14,250 units)*	13,96,500
Cost of sales:	
Opening stock *(545 units x ₹ 90)*	49,050
Add: Cost of production of 14,165 units *(Refer to working note 2)*	14,08,560

Less: Closing stock (₹ 99.44 x 460 units)	45,742
Production cost of goods sold (14,250 units)	14,11,868
Selling & distribution overheads	
(14,250 units x ₹ 6)	85,500
Cost of sales: (B)	14,97,368
Profit/Loss: {(A) – (B)}	(1,00,868)

(ii) Statement of Reconciliation

(Reconciling the profit as per costing records with the profit as per financial records)

	(₹)	*(₹)*
Loss as per Cost Accounts		(1,00,868)
Add: Administration overheads over absorbed (₹ 2,34,760 – ₹ 2,10,000)	24,760	
Opening stock overvalued (₹ 49,050 – ₹ 48,250)	800	
Interest received	42,000	
Selling & distribution overheads over recovered (₹ 85,500 – ₹ 84,000)	1,500	69,060
		(31,808)
Less: Factory overheads over recovered (₹ 3,56,000 - ₹2,52,000)	1,04,000	
Closing stock overvalued (₹ 45,742 – ₹ 44,500)	1,242	
Stores adjustment	50,000	
Income tax	34,000	
Dividend	98,000	
Bad debts	16,000	(3,03,242)
Loss as per financial accounts		(3,35,050)

Working notes:

1. Number of units produced	
	Units
Sales	14,250
Add: Closing stock	460
Total	14,710
Less: Opening stock	545
Number of units produced	14,165

2. Cost Sheet	
	(₹)
Raw materials consumed	5,00,000
Direct labour	4,20,000
Prime cost	9,20,000
Factory overheads	2,52,000
(60% of direct wages)	
Factory cost	11,72,000
Add: Opening work-in-process	38,000
Less: Closing work-in-process	36,200
Factory cost of goods produced	11,73,800
Administration overheads	2,34,760
(20% of factory cost)	
Cost of production of 14,165 units (Refer to working note 1)	14,08,560
Cost of production per unit: ₹ 14,08,560 / 14,165	99.44

(b) **PPP Ltd.**

Budget for 90% capacity level for the next year

Budgeted production (units)		**90,000**
	Per Unit (₹)	**Amount (₹)**
Direct Material (note 2)	22	19,80,000
Direct Labour (note 3)	12	10,80,000
Variable factory overhead (note 4)	2.10	1,89,000
Variable selling overhead (note 5)	4.40	3,96,000
Variable cost	**40.50**	**36,45,000**
Fixed factory overhead (note 4)		2,20,000
Fixed selling overhead (note 5)		1,15,000
Administrative overhead (note 6)		1,84,000
Fixed cost		**5,19,000**
Total cost		**41,64,000**
Add: Profit 25% on total cost		10,41,000
Sales		**52,05,000**
Contribution (Sales – Variable cost)		**15,60,000**

Working Notes:

1. At 80% level of capacity (current year), the production is 80,000 units.

   Thus, total level of capacity is 1,00,000 units.

   Therefore, Year 2 is at 70% capacity and Year 3 is at 60% capacity as the production is increasing by 10% of its capacity consistently.

2. Direct Material

	(₹)		(₹)
80% Capacity	16,00,000	70% Capacity	14,00,000
70% Capacity	14,00,000	60% Capacity	12,00,000
10% change in capacity	**2,00,000**	10% change in capacity	**2,00,000**

   For 10% increase in capacity, the total direct material cost regularly changes by ₹ 2,00,000

   Thus, Direct material cost (variable) = ₹ 2,00,000 ÷ 10,000 = ₹ 20

   After 10% increase in price, direct material cost per unit = ₹ 20 × 1.10 = ₹ 22

   Direct material cost at 90,000 budgeted units = 90,000 × ₹ 22 = ₹ 19,80,000

3. Direct labour:

	(₹)		(₹)
80% Capacity	8,00,000	70% Capacity	7,00,000
70% Capacity	7,00,000	60% Capacity	6,00,000
10% change in capacity	**1,00,000**	10% change in capacity	**1,00,000**

   For 10% increase in capacity, direct labour cost regularly changes by ₹ 1,00,000.

   Direct labour cost per unit = ₹ 1,00,000 ÷ 10,000 = ₹ 10

   After 20% increase in price, direct labour cost per unit = ₹ 10 × 1.20 = ₹ 12

   Direct labour for 90,000 units = 90,000 units × ₹ 12 = ₹ 10,80,000.

4. Factory overheads are semi-variable overheads:

	(₹)		(₹)
80% Capacity	3,60,000	70% Capacity	3,40,000
70% Capacity	3,40,000	60% Capacity	3,20,000
10% change in capacity	**20,000**	10% change in capacity	**20,000**

Variable factory overhead = ₹ 20,000 ÷ 10,000 units = ₹ 2

Variable factory overhead for 80,000 units = 80,000 × ₹ 2 = ₹ 1,60,000

Fixed factory overhead = ₹ 3,60,000 – ₹ 1,60,000 = ₹ 2,00,000.

Variable factory overhead after 5% increase = ₹ 2 × 1.05 = ₹ 2.10

Fixed factory overhead after 10% increase = ₹ 2,00,000 × 1.10 = ₹ 2,20,000.

5. Selling overhead is semi-variable overhead:

	(₹)		**(₹)**
80% Capacity	4,20,000	70% Capacity	3,80,000
70% Capacity	3,80,000	60% Capacity	3,40,000
10% change in capacity	**40,000**	10% change in capacity	**40,000**

Variable selling overhead = ₹ 40,000 ÷ 10,000 units = ₹ 4

Variable selling overhead for 80,000 units = 80,000 × ₹ 4 = ₹ 3,20,000.

Fixed selling overhead = ₹ 4,20,000 – ₹ 3,20,000 = ₹ 1,00,000

Variable selling overhead after 10% increase = ₹ 4 × 1.10 = ₹ 4.40

Fixed selling overhead after 15% increase = ₹ 1,00,000 × 1.15 = ₹ 1,15,000

6. Administrative overhead is fixed:

After 15% increase = ₹ 1,60,000 × 1.15 = ₹ 1,84,000

6. (a) The Practical difficulties with which a Cost Accountant is usually confronted with while installing a costing system in a manufacturing company are as follows:

(i) *Lack of top management support:* Installation of a costing system does not receive the support of top management. They consider it as interference in their work. They believe that such, a system will involve additional paperwork. They also have a misconception in their minds that the system is meant for keeping a check on their activities.

(ii) *Resistance from cost accounting departmental staff*: The staff resist because of fear of loosing their jobs and importance after the implementation of the new system.

(iii) *Non co-operation from user departments:* The foremen, supervisor and other staff members may not cooperate in providing requisite data, as this would not only add to their responsibilities but will also increase paper work of the entire team as well.

(iv) *Shortage of trained staff:* Since cost accounting system's installation involves specialised work, there may be a shortage of trained staff.

To overcome these practical difficulties, necessary steps required are:

- Sell the idea to top management and convince them of the utility of the system.
- Resistance and non co-operation can be overcome by behavioural approach. To deal with the staff concerned effectively.
- Proper training should be given to the staff at each level
- Regular meetings should be held with the cost accounting staff, user departments, staff and top management to clarify their doubts/ misgivings.

(b) Buttermilk is a by-product of butter and treatment of by-product in cost accounting is as follows.

(i) When they are of small total value, the amount realized from their sale may be dealt as follows:

- Sales value of the by-product may be credited to Profit and Loss Account and no credit be given in Cost Accounting. The credit to Profit and Loss Account here is treated either as a miscellaneous income or as additional sales revenue.
- The sale proceeds of the by-product may be treated as deduction from the total costs. The sales proceeds should be deducted either from production cost or cost of sales.

(ii) When the by-products are of considerable total value: Where by-products are of considerable total value, they may be regarded as joint products rather than as by- products. To determine exact cost of by-products the costs incurred upto the point of separation, should be apportioned over by-products and joint products by using a logical basis.

(iii) When they require further processing: In this case, the net realisable value of the by-product at the split-off point may be arrived at by subtracting the further processing cost from realisable value of by-product. If the value is small, it may be treated as discussed in (i) above.

(c)

Demerits of Fixed Budget
1. It does not suite a dynamic organization and may give misleading results. A poor or good performance may remain un-noticed.
2. It is not suitable for long period.

3.	It is also found unsuitable particularly when the business conditions are changing constantly.
4.	Accurate estimates are not possible.

Demerits of Flexible Budget	
1.	The formulation of flexible budget is possible only when there is proper accounting system maintained, perfect knowledge about the factors of production and various business circumstances is available.
2.	Flexible Budget also requires the system of standard costing in business.
3.	It is very expensive and labour oriented.

OR

(c) Objectives of time keeping and time booking: Time keeping has the following two objectives:

(i) *Preparation of Payroll:* Wage bills are prepared by the payroll department on the basis of information provided by the time keeping department.

(ii) *Computation of Cost:* Labour cost of different jobs, departments or cost centers are computed by costing department on the basis of information provided by the time keeping department.

The objectives of time booking are as follows:

(i) To ascertain the labour time spent on a job and the idle labour hours.

(ii) To ascertain labour cost of various jobs and products.

(iii) To calculate the amount of wages and bonus payable under the wage incentive scheme.

(iv) To compute and determine overhead rates and absorption of overheads under the labour and machine hour method.

(v) To evaluate the performance of labour by comparing actual time booked with standard or budgeted time.