

Intermediate Course: Group – II
DATE: 01.08.2024

MAXIMUM MARKS: 100

(Mock Test Paper : 1)
TIMING: 3¼ Hours

PAPER 4 : COST AND MANAGEMENT ACCOUNTING

- The question paper comprises two parts, Part I and Part II.
- Part I comprises Case Scenario based Multiple Choice Questions (MCQs) for 30 Marks.
- Part II comprises questions which require descriptive type answers for 70 Marks.

PART I – Case Scenario based MCQs
Part I is Compulsory.

TOTAL MARKS: 30 MARKS

Write the most appropriate answer to each of the following multiple choice questions by choosing one of the four options given, All questions are compulsory.

Ans. 1 to Ans. 5 :
CASE SCENARIO

- Ans. (d)
- Ans. (a)
- Ans. (b)
- Ans. (a)
- Ans. (c)

MCQ [5 MCQ of 2 Marks Each : Total 10 Marks]

Ans. 6 to Ans. 10 :
CASE SCENARIO

- Ans. (d)
- Ans. (c)
- Ans. (a)
- Ans. (b)
- Ans. (a)

MCQ [5 MCQ of 2 Marks Each : Total 10 Marks]

- Ans. (d)
 - Ans. (b)
 - Ans. (c)
 - Ans. (b)
 - Ans. (a)
- } {2 M Each}

PART – II - DESCRIPTIVE QUESTIONS

QUESTIONS NO. 1 IS COMPULSORY
ATTEMPT ANY FOUR QUESTIONS THE REMAINING FIVE QUESTIONS

TOTAL MARKS: 70 MARKS

Answer 1:

- (a) (i) **Calculation of consumption of Raw Material (in kgs) month by month and total**

Particulars	Jan	Feb	March	April	Total
No. of working days	25	24	26	25	-
Production (Per day)	50	55	60	52	-
Production	1,250	1,320	1,560	1,300	5,430
Raw Material Consumed (in kgs)	5,000	5,280	6,240	5,200	21,720
	{1/4 M}	{1/4 M}	{1/4 M}	{1/4 M}	

Calculation of Raw Material Purchased

Purchased	(Kg)
Closing stock on 30th April	5,100
Add: Raw Material consumed	21,720
Less: Opening stock on 1st January	(6,020)
Raw Material purchased	20,800 }{1/2 M}

(ii) Calculation of month wise quantity and value of raw material purchased

	%	Purchased (Kg)	Price (Rs.)	Value (Rs.)
January	21	4,368 }{1/4 M}	10	43,680 }{1/4 M}
February	26	5,408 }{1/4 M}	12	64,896 }{1/4 M}
March	30	6,240 }{1/4 M}	13	81,120 }{1/4 M}
April	23	4,784 }{1/4 M}	11	52,624 }{1/4 M}
Total		20,800		2,42,320

(iii) Store Price Ledger by using FIFO method.

Months	Particulars	Receipts			Issue			Balance		
		Qty	Rate	Amount (Rs.)	Qty	Rate	Amount (Rs.)	Qty	Rate	Amount (Rs.)
Jan	Opening							6,020	10.5	63,210
	Purchases	4,368	10	43,680				6,020	10.5	63,210
								4,368	10	43,680
	Consumption				5,000	10.5	52,500	1,020	10.5	10,710
							4,368	10	43,680	
Feb	Purchases	5,408	12	64,896				1,020	10.5	10,710
								4,368	10	43,680
								5,408	12	64,896
	Consumption				1,020	10.5	10,710	108	10	1,080
							4,260	10	42,600	
March	Purchase	6,240	13	81,120				108	10	1,080
								5,408	12	64,896
								6,240	13	81,120
	Consumption				108	10	1,080			
							5,408	12	64,896	
							724	13	9,412	
April	Purchases	4,784	11	52,624				5,516	13	71,708
								4,784	11	52,624
								5,516	13	71,708
	Consumption				5,200	13	67,600	316	13	4,108
							4,784	11	52,624	
									56,732	

Answer:

(b) (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 }{1 M}

(ii) Calculation of cost per ton-km:

Particulars	Amount (Rs.)	Amount (Rs.)
A. Running cost:		
- Diesel Cost {Rs. 19.20 × (10,710 × 2)}	4,11,264.00	{1/2 M}
- Engine oil cost $\left(\frac{4,200}{13,000 \text{ Km}} \times 21,420 \text{ Km} \right)$	6,920.31	{1/2 M}
- Cost of loading of goods {Rs. 180 × (73 + 18)}	16,380.00	{1/2 M}
- Depreciation {(1,20,00,000 / 720,000 × 21,420 km)}	3,57,000.00 {1/2 M}	7,91,564.31
B. Repairs & Maintenance Cost (36,000 / 10,000 × 21,420)		77,112.00 }{1/2 M}
C. Standing Charges		
- Drivers' salary (Rs. 24,000 × 4 trucks)	96,000.00	{1/2 M}
- Cleaners' salary (Rs. 15,000 × 4 trucks)	60,000.00	{1/2 M}
- Supervision and other general exp.	14,000.00	1,70,000.00
Total Cost (A + B + C)	{1/2 M}	10,38,676.31 }{1/2 M}
Total ton-km		1,72,240 }{1/2 M}
Cost per ton-km		6.03 }{1 M}

Answer 2:

- (a) (i) **Material price variance (on the basis of Single plan):**
 = Actual Quantity_{purchased} (Std. Price - Actual Price)
 = 22,000 pcs $\left(\text{Rs. } 45 - \frac{\text{Rs. } 9,00,000}{22,000 \text{ pcs}} \right) = \text{Rs. } 90,000^* \text{ (Favourable)}$ }{1 M}
- OR**
- Material price variance (on the basis of Partial plan):**
 = Actual Quantity_{consumed} (Std. Price - Actual Price)
 = 21,000 pcs $\left(\text{Rs. } 45 - \frac{\text{Rs. } 9,00,000}{22,000 \text{ pcs}} \right) = \text{Rs. } 85,909^* \text{ (Favourable)}$
- (*Figure may slightly differ due to rounding off the actual price per unit)
- (ii) **Material usage variance:**
 = Std. price per piece (Std. Quantity - Actual Quantity_{consumed})
 = Rs. 45 (1,900 units × 10 - 21,000) = Rs. 90,000 (Adverse) }{1 M}
- (iii) **Labour rate variance:**
 = Actual hours paid (Std. rate - Actual rate)
 = 5,150 hours $\left(\text{Rs. } 60 - \frac{\text{Rs. } 2,57,500}{5,150 \text{ hours}} \right) = \text{Rs. } 51,500 \text{ (Favourable)}$ }{1 M}
- (iv) **Labour efficiency variance:**
 = Std. rate per hour (Std. hours - Actual hours_{worked})
 = Rs. 60 (1,900 units × 2.5 hours - 5,150 hours) = Rs. 24,000 (Adverse) }{1 M}
- (v) **Fixed overhead expenditure variance:**
 = Budgeted Overhead - Actual Overhead
 = Rs. 4,20,000 - Rs. 4,60,000 = Rs. 40,000 (Adverse) }{1 M}
- (vi) **Fixed overhead efficiency variance:**
 = Std. rate (Std. hours - Actual hours worked)
 = Rs. 80 (1,900 units × 2.5 hours - 5,150 hours) = Rs. 32,000 (Adverse) }{1 M}

Or,

Fixed overhead efficiency variance on basis of units
 = Std. rate per unit (Actual output – Standard output for actual hours)
 = Rs.200 (1,900 units - 5,150 / 2.5 hours) = Rs. 32,000 (Adverse)

(vii) **Fixed overhead capacity variance:**

= Std. rate (Actual hours worked – Budgeted hours)
 = Rs. 80 $\left(5,150 \text{ hours} - \frac{\text{Rs. } 4,20,000}{\text{Rs. } 80} \right) = \text{Rs. } 8,000 \text{ (Adverse)}$

} {1 M}

Or,

Fixed overhead capacity variances on basis of units
 = Std. rate per unit (Standard output for actual hours – Budgeted output)
 = Rs.200 (2,060 units - 4,20,000 / 200) = Rs. 8,000 (Adverse)

Answer:

(b) Statement of Cost

	First three months (Rs.)	Remaining nine months (Rs.)	Total (Rs.)
{1/2 M} 37,500 units		1,68,750 units {1/2 M}	2,06,250 units
Direct material	1,12,50,000	5,06,25,000	6,18,75,000
Direct employee cost	60,00,000	2,70,00,000	3,30,00,000
Indirect- variable expenses	18,75,000	84,37,500	1,03,12,500
Indirect – fixed expenses	8,12,500	24,37,500	32,50,000
Indirect- semi-variable expenses			
- For first three months @ Rs.20,000 p.m.	60,000	{1/2 M}	
- For remaining nine months @ Rs.25,000 p.m.		{1/2 M} 2,25,000	2,85,000
Total cost {1/2 M}	1,99,97,500	{1/2 M} 8,87,25,000	10,87,22,500
Desired profit	-	-	1,00,00,000 {1 M}
Sales value	-	-	11,87,22,500 {1 M}
Average selling price per unit			575.62 {2 M}

Answer 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. {1/2 M}
- (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. {1/2 M}
- (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. {1/2 M}
- (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. {1/2 M}

Answer:

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

Worker	Actual hours worked (Hours)	Hourly wagherate (Rs.)	Wages (Rs.)
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 (Rs.)	Worker-I		Worker-II		Worker-III	
		Units	Wages (Rs.)	Units	Wages (Rs.)	Units	Wages (Rs.)
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. Rs.24,150, Rs.7,500 and Rs.36,000 respectively.

Working Notes:

1. Piece rate per unit

Product	Standard time per unit in minute	Piece rate each minute (Rs.)	Piece rate per unit (Rs.)
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 (Rs.)	Earnings (Rs.)	Bonus (Rs.)*	Total Earning (Rs.)
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

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

$$\text{Worker-I} = \frac{380}{402.5} \times 22.5 \times 40 = 850 ;$$

$$\text{Worker-II} = \frac{100}{125} \times 25 \times 50 = 1,000$$

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

Answer:

(c) Working note:

1. Computation of revenues (at listed price), discount, cost of goods sold and customer level operating activities costs:

	Customers				
	A	B	C	D	E
Units sold: (a)	4,500	6,000	9,500	7,500	12,750
Revenues (at listed price) (Rs.): (b) {(a) × Rs.6,480}	2,91,60,000	3,88,80,000	6,15,60,000	4,86,00,000	8,26,20,000
Revenues (at listed price) (Rs.): (c) {(a) × Actual selling price}	2,91,60,000 (4,500 × 6,480)	3,82,32,000 (6,000 × 6,372)	5,64,30,000 (9,500 × 5,940)	4,69,80,000 (7,500 × 6,264)	7,43,58,000 (12,750 × 5,832)
Discount (Rs.) (d) {(b) – (c)}	0	6,48,000	51,30,000	16,20,000	82,62,000
Cost of goods sold (Rs.) : (d) {(a) × Rs.5,400}	2,43,00,000 {1/4 M}	3,24,00,000 {1/4 M}	5,13,00,000 {1/4 M}	4,05,00,000 {1/4 M}	6,88,50,000 {1/4 M}
Customer level operating activities costs					
Order taking costs (Rs.): (No. of purchase orders × Rs. 4,500)	67,500	1,12,500	1,35,000	1,12,500	1,35,000
Customer visits costs (Rs.) (No. of customer visits × Rs. 3,600)	7,200	10,800	21,600	7,200	10,800
Delivery vehicles travel costs (Rs.) (Kms travelled by delivery vehicles × Rs. 7.50 per km.)	1,500	1,350	2,250	3,000	4,500
Product handling costs (Rs.) {(a) × Rs. 22.50}	1,01,250	1,35,000	2,13,750	1,68,750	2,86,875
Cost of expediting deliveries (Rs.) {No. of expedited deliveries × Rs. 13,500}	-	-	-	-	13,500
Total cost of customer level operating activities (Rs.)	1,77,450 {1/4 M}	2,59,650 {1/4 M}	3,72,600 {1/4 M}	2,91,450 {1/4 M}	4,50,675 {1/4 M}

(i) Computation of Customer level operating income

	Customers				
	A (Rs.)	B (Rs.)	C (Rs.)	D (Rs.)	E (Rs.)
Revenues (At list price) (Refer to working note)	2,91,60,000	3,82,32,000	5,64,30,000	4,69,80,000	7,43,58,000
Less: Cost of goods sold (Refer to working note)	(2,43,00,000)	(3,24,00,000)	(5,13,00,000)	(4,05,00,000)	(6,88,50,000)
Gross margin	48,60,000	58,32,000	51,30,000	64,80,000	55,08,000
Less: Customer level operating activities costs (Refer to working note)	(1,77,450)	(2,59,650)	(3,72,600)	(2,91,450)	(4,50,675)
Customer level operating income	46,82,550 {1/2 M}	55,72,350 {1/2 M}	47,57,400 {1/2 M}	61,88,550 {1/2 M}	50,57,325 {1/2 M}

(ii) Factors to be considered for dropping a customer:

Dropping customers should be the last resort to be taken by an entity. Factors to be considered should include: } {2 M}

- What is the expected future profitability of each customer?
- Are the currently least profitable or low profitable customers are likely to be highly profitable in the future?
- What costs are avoidable if one or more customers are dropped?
- Can the relationship with the "problem" customers be restructured so that there is at "win- win" situation

Answer 4:**(a) Workings:****1. Maximum number of bottles that can be processed in a batch:**

$$= \frac{5,000 \text{ ltrs}}{\text{Bottle volume}}$$

Large		Medium		Small	
Qty (ltr)	Max bottles	Qty (ltr)	Max bottles	Qty (ltr)	Max bottles
3	1,666 }{1/4 M}	1.5	3,333 }{1/4 M}	0.6	8,333 }{1/4 M}

*For simplicity of calculation small fractions has been ignored.

2. Number of batches to be run:

		Large	Medium	Small	Total
A	Demand	3,00,000	7,50,000	20,00,000	
B	Bottles per batch (Refer WN-1)	1,666	3,333	8,333	
C	No. of batches [A÷B]	{1/4 M} 180	{1/4 M} 225	{1/4 M} 240	645

*For simplicity of calculation small fractions has been ignored.

Quantity of Material-W and Material C required to meet demand:

	Particulars	Large	Medium	Small	Total
A	Demand (bottle)	3,00,000	7,50,000	20,00,000	
B	Qty per bottle (Litre)	3	1.5	0.6	
C	Output (Litre) [A×B]	9,00,000	11,25,000	12,00,000	32,25,000
D	Material-W per litre of output (Litre)	14	14	14	
E	Material-W required (Litre) [C×D]	1,26,00,000	1,57,50,000	1,68,00,000	4,51,50,000 }{1/4 M}
F	Material-C required per litre of output (ml)	25	25	25	
G	Material-C required (Litre) [(C×F)÷1000]	22,500	28,125	30,000	80,625 }{1/4 M}

3. No. of Man-shift required:

		Large	Medium	Small	Total
A	No. of batches	180	225	240	645
B	Hours required per batch (Hours)	2	2	2	
C	Total hours required (Hours) [A×B]	360	450	480	1,290
D	No. of shifts required [C÷8]	45	57	60	162
E	Total man shift [D×20 workers]	900 }{1/4 M}	1,140 }{1/4 M}	1,200 }{1/4 M}	3,240

4. Power consumption in Kwh

		Large	Medium	Small	Total
For processing					

A	No. of batches	180	225	240	645
B	Hours required per batch (Hours)	1.75	1.75	1.75	1.75
C	Total hours required (Hours) [A×B]	315	393.75	420	1,128.75
D	Power consumption per hour	90	90	90	90
E	Power consumption in Kwh [C×D]	28,350	35,437.5	37,800	1,01,587.5
F	Per batch consumption (Kwh) [E÷A]	157.5	157.5	157.5	157.5
		{1/4 M}	{1/4 M}	{1/4 M}	
For set-up					
G	Hours required per batch (Hours)	0.25	0.25	0.25	0.25
H	Total hours required (Hours) [A×G]	45	56.25	60	161.25
I	Power consumption per hour [20%×90]	18	18	18	18
J	Power consumption in Kwh [H×I]	810	1,012.5	1,080	2,902.5
K	Per batch consumption (Kwh) [J÷A]	4.5	4.5	4.5	4.5
		{1/4 M}	{1/4 M}	{1/4 M}	

Calculation of Profit/ loss per batch:

	Particulars	Large	Medium	Small	Total
A	Demand (bottle)	3,00,000	7,50,000	20,00,000	30,50,000
B	Price per bottle (Rs.)	150	90	50	
C	Sales value (Rs.) [A×B]	4,50,00,000	6,75,00,000	10,00,00,000	21,25,00,000
	Direct Material cost:				
E	Material-W (Rs.) [Qty in WN-3 × Rs. 0.50]	63,00,000	78,75,000	84,00,000	2,25,75,000
F	Material-C (Rs.) [Qty in WN-3 × Rs. 1,000]	2,25,00,000	2,81,25,000	3,00,00,000	8,06,25,000
G	[E+F]	2,88,00,000	3,60,00,000	3,84,00,000	10,32,00,000
H	Direct Wages (Rs.) [Man-shift in WN- 4 × Rs. 880]	7,92,000	10,03,200	10,56,000	28,51,200
I	Packing cost (Rs.) [A×Rs.3]	9,00,000	22,50,000	60,00,000	91,50,000
	Power cost (Rs.)				
J	For processing (Rs.) [WN-5 × Rs.7]	1,98,450	2,48,062.5	2,64,600	7,11,112.5
K	For set-up time (Rs.) [WN-5 × Rs.7]	5,670	7,087.5	7,560	20,317.5
L	[J+K]	2,04,120	2,55,150	2,72,160	7,31,430
M	Other variable cost (Rs.) [No. of batch in WN-2 × Rs. 30,000]	54,00,000	67,50,000	72,00,000	1,93,50,000
N	Total Variable cost per batch [G+H+I+L+M]	3,60,96,120	4,62,58,350	5,29,28,160	13,52,82,630
O	Profit/loss before fixed cost [C-N]	89,03,880	2,12,41,650	4,70,71,840	7,72,17,370
		{1/4 M}	{1/4 M}	{1/4 M}	
P	Fixed Cost				4,90,00,000
Q	Total Cost [O-P]				2,82,17,370
					{1/4 M}

Computation of Economic Batch Quantity (EBQ):

$$EBQ = \sqrt{\frac{2 \times D \times S}{C}} \quad \left. \vphantom{\sqrt{\frac{2 \times D \times S}{C}}} \right\} \{1/4 M\}$$

D = Annual Demand for the Product = Refer A below

S = Set-up cost per batch = Refer D below

C = Carrying cost per unit per annum = Refer E below

	Particulars	Large	Medium	Small
A	Annual Demand (bottle)	3,00,000	7,50,000	20,00,000
Set-up Cost:				
B	Power cost for set-up time (Rs.) [Consumption per batch in WN-5 × Rs.7]	31.50	31.50	31.50
C	Other variable cost (Rs.) *	30,000	30,000	30,000
D	Total Set-up cost [B+C]	30,031.50	30,031.50	30,031.50
E	Holding cost:	1.00	1.00	1.00
F	EBQ (Bottle) {1/2 M}	1,34,234	2,12,243	3,46,592 {1/2 M}

* Other variable cost is assumed to be part of set-up cost. {1/2 M}

Answer:

(b) Workings:

Calculation of Cost of Goods Sold (COGS):

$$\text{COGS} = \{(DM - 0.3 \text{ COGS}) + (DL - 0.15 \text{ COGS}) + (\text{FOH} - 0.10 \text{ COGS} + \text{Rs. } 2,30,000) + (\text{G\&AOH} - 0.02 \text{ COGS} + \text{Rs. } 71,000)\}$$

$$\text{Or COGS} = 0.57 \text{ COGS} + \text{Rs. } 3,01,000$$

$$\text{Or COGS} = \frac{\text{Rs. } 3,01,000}{0.43} = \text{Rs. } 7,00,000 \quad \{1/4 \text{ M}\}$$

Calculation of Cost of Sales (COS):

$$\text{COS} = \text{COGS} + (\text{S\&DOH} - 0.04 \text{ COS} + \text{Rs. } 68,000)$$

$$\text{Or COS} = \text{Rs. } 7,00,000 + (0.04 \text{ COS} + \text{Rs. } 68,000)$$

$$\text{Or COS} = \frac{\text{Rs. } 7,68,000}{0.96} = \text{Rs. } 8,00,000 \quad \{1/4 \text{ M}\}$$

Calculation of total Fixed Costs:

Factory Overhead	Rs. 2,30,000
General & Administration OH	Rs. 71,000
Selling & Distribution OH	Rs. 68,000
	Rs. 3,69,000 {1/4 M}

Calculation of Variable Costs:

Direct Material	(0.3 × Rs. 7,00,000)	Rs. 2,10,000
Direct Labour	(0.15 × Rs. 7,00,000)	Rs. 1,05,000
Factory Overhead	(0.10 × Rs. 7,00,000)	Rs. 70,000
General & Administration OH	(0.02 × Rs. 7,00,000)	Rs. 14,000
Selling & Distribution OH	(0.04 × Rs. 8,00,000)	Rs. 32,000
		Rs. 4,31,000 {1/4 M}

Calculation of P/V Ratio:

$$\begin{aligned} \text{P/V Ratio} &= \frac{\text{Contribution}}{\text{Sales}} \times 100 = \frac{\text{Sales} - \text{Variable Costs}}{\text{Sales}} \times 100 \\ &= \frac{(\text{Rs. } 185 \times 5,000 \text{ units}) - \text{Rs. } 4,31,000}{\text{Rs. } 185 \times 5,000 \text{ units}} \times 100 = 53.41\% \end{aligned}$$

$$(i) \text{ Break-Even Sales} = \frac{\text{Fixed Costs}}{\text{P/V Ratio}} = \frac{\text{Rs. } 3,69,000}{53.41\%} = \text{Rs. } 6,90,882 \quad \{1^{1/2} \text{ M}\}$$

$$\begin{aligned} (ii) \text{ Profit earned during the last year} &= (\text{Sales} - \text{Total Variable Costs}) - \text{Total Fixed Costs} \\ &= (\text{Rs. } 9,25,000 - \text{Rs. } 4,31,000) - \text{Rs. } 3,69,000 \\ &= \text{Rs. } 1,25,000 \quad \{1^{1/2} \text{ M}\} \end{aligned}$$

$$(iii) \text{ Margin of Safety (\%)} = \frac{\text{Sales} - \text{Break Even Sales}}{\text{Sales}} \times 100$$

$$= \frac{\text{Rs. } 9,25,000 - \text{Rs. } 6,90,882}{\text{Rs. } 9,25,000} \times 100 = 25.31\% \quad \{1^{1/2} M\}$$

- (iv) Profit if the sales were 10% less than the actual sales:
 Profit = 90% (Rs. 9,25,000 - Rs. 4,31,000) - Rs. 3,69,000
 = Rs. 4,44,600 - Rs. 3,69,000 = Rs. 75,600 $\{1^{1/2} M\}$

Answer 5:**(a) Working Notes:****1. Calculation of Input of Raw Material**

Let assume total raw material in Process R be	100%
∴ Output of Process T will be equal to:	
Input R	100%
- 10% Normal Loss	Rs. 10
Input S	Rs. 90%
- 10% Normal loss	Rs. 9
Input T	81%
- 10% Normal loss	Rs. 8.1
Output of T	72.9
Actual output of X	14,580 units
Which is 80% of the total output	

$$\begin{aligned} \therefore \text{Output of Process T} \\ = \frac{14580}{80\%} = 18,225 \quad \{1/2 M\} \end{aligned}$$

$$\therefore \text{Input of Process R} = \frac{18225}{72.9\%} = 25,000 \text{ kgs} \quad \{1/2 M\}$$

Alternative presentation for Calculation of Input in Process R, S and T**Working notes:**

Process T (Kg.)			
To Input (Transfer from process S)	20,250	By Normal loss	2,025
	$\{1/2 M\}$	By Output Product X	14,580
		By output of by-product Z	3,645
	20,250		20,250

Process S (kg.)			
To Input (Transfer from process S)	22,500	By Normal loss (10%)	2,250
	$\{1/2 M\}$	By Transfer to process T	20,250
	22,500		22,500

Process R (kg.)			
To Input	25,000	By Normal loss (10%)	2,500
	$\{1/2 M\}$	By Transfer to process S	22,500
	25,000		25,000

2. Calculation of Joint Cost

Process	Inputs	Variable cost per kg	Variable cost	Fixed Cost	Total Cost
		Rs.	Rs.	Rs.	Rs.
R	25,000	5	1,25,000	42,000	1,67,000 $\{1/2 M\}$
S	22,500	4.5	1,01,250	5,000	1,06,250 $\{1/2 M\}$
T	20,250	3.4	68,850	4,800	73,650 $\{1/2 M\}$
					3,46,900

Raw material J	10000 x 15	Rs. 1,50,000
K	10000 x 9	Rs. 90,000
L	5000 x 7	Rs. 35,000
		2,75,000
Add: Processing cost (as above)		Rs. 3,46,900
Total Joint Cost		<u>6,21,900</u> {1/2 M}

(i) **Statement showing apportionment of Joint Cost**

Particulars	Product X	By-Product Z	Total
Units	<u>14,580</u>	<u>3,645</u>	
Selling price (Rs.)	60	30	
Sales Value (Rs.)	8,74,800	1,09,350	9,84,150
(Rs. 6,21,900 to apportioned in ratio of sales value at split off point)	5,52,800 {1/2 M}	69,100 {1/2 M}	6,21,900 {1/4 M}

(ii) **Statement of Profitability**

Particulars	Product X	By-Product Z	Total
Sales Value	8,74,800	1,09,350	9,84,150
Joint Cost	(5,52,800)	(69,100)	(6,21,900)
(As apportioned above)			
Profit	{1/2 M} 3,22,000	{1/2 M} 40,250	3,62,250 {1/4 M}

Answer:(b) (i) **Budget showing current position of total product wise contribution and profitability**

	Particulars	Product X (Rs.)	Product Y (Rs.)	Product Z (Rs.)	Total (Rs.)
A	Direct material cost (per unit)	20	20	20	
B	Direct wages cost (per unit)	16	24	16	
C	Variable overhead per unit (Refer WN-1)	4	6	4	
D	Total variable cost/ Marginal cost per unit [A+B+C]	40	50	40	
E	Add: Profit [20% of D]	-	-	8	{1/2 M}
F	Selling price unit [D+E]	-	-	48	
G	Price weight	1.25	2	1	
H	Selling price per unit [Selling price of Product Z x G]	60 {1/2 M}	96 {1/2 M}	48 {1/2 M}	{1/2 M}
I	Contribution per unit [H-D]	20	46	8	
J	Quantity to be sold	2,50,000	2,80,000	3,20,000	
K	Total Contribution [J x I]	50,00,000	1,28,80,000	25,60,000	2,04,40,000
L	Fixed Overheads [Refer WN-1]				13,20,000
M	Profit				1,91,20,000 {1 M}

Working Notes:**1. Segregation of Overheads into variable and fixed in current year**

	Particulars	Product X (Rs.)	Product Y (Rs.)	Product Z (Rs.)	Total (Rs.)
A	Total overhead cost	-	-	-	52,80,000
B	Labour hour per unit [Direct wages Cost ÷ Rs. 4] x 1	4	6	4	
C	Quantity produced	2,50,000	2,80,000	3,20,000	
D	Total variable overhead cost [B x C]	10,00,000	16,80,000	12,80,000	39,60,000 {1 M}
E	Fixed overhead cost [A-D]				13,20,000

(ii) **Budget showing next year's position of total product wise contribution and profitability**

	Particulars	Product X (Rs.)	Product Y (Rs.)	Product Z (Rs.)	Total (Rs.)
A	Selling price per unit	60	96	48	
B	Contribution per unit	20	46	8	
C	Quantity to be sold	{1/2 M} 2,80,000 [112% of 2,50,000]	{1/2 M} 2,66,000 [95% of 2,80,000]	3,68,000 [115% of 3,20,000]	{1/2 M}
D	Total Contribution [B×C]	56,00,000	1,22,36,000	29,44,000	2,07,80,000
	Fixed Overheads [Refer WN-2]				13,20,000
	Profit				1,94,60,000 {1 M}

Working Notes:

2. Segregation of Overheads into variable and fixed in next year

	Particulars	Product X (Rs.)	Product Y (Rs.)	Product Z (Rs.)	Total (Rs.)
A	Total overhead cost	-	-	-	55,08,000
B	Labour hour per unit [Direct wages Cost ÷ Re.1]	4	6	4	
C	Quantity produced	2,80,000	2,66,000	3,68,000	
D	Total variable overhead cost [B×C]	11,20,000	15,96,000	14,72,000	41,88,000
E	Fixed overhead cost [A-D]				13,20,000 {1/2 M}

Answer 6:

(a) The essential features, which a good cost and management accounting system should possess, are as follows:

- Informative and simple:** Cost and management 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. {1 M}
- Accurate and authentic:** The data to be used by the cost and management accounting system should be accurate and authenticated; otherwise it may distort the output of the system and a wrong decision may be taken. {1 M}
- Uniformity and consistency:** There should be uniformity and consistency in classification, treatment and reporting of cost data and related information. This is required for benchmarking and comparability of the results of the system for both horizontal and vertical analysis. {1 M}
- Integrated and inclusive:** The cost and management accounting system should be integrated with other systems like financial accounting, taxation, statistics and operational research etc. to have a complete overview and clarity in results. {1 M}
- Flexible and adaptive:** The cost and management accounting system should be flexible enough to make necessary amendments and modification in the system to incorporate changes in technological, reporting, regulatory and other requirements. {1 M}
- Trust on the system:** Management should have trust on the system and its output. For this, an active role of management is required for the development of such a system that reflect a strong conviction in using information for decision making.

Answer:

- (b) Expenses other than direct material cost and direct employee cost, which are incurred to manufacture a product or for provision of service and can be directly traced in an economically feasible manner to a cost object. The following costs are examples for direct expenses: {2 1/2 M}
- Royalty paid/ payable for production or provision of service; }

Mittal Commerce Classes

- (b) Hire charges paid for hiring specific equipment;
 - (c) Cost for product/ service specific design or drawing;
 - (d) Cost of product/ service specific software;
 - (e) Other expenses which are directly related with the production of goods or provision of service.
- } {1/2 M
Each}

Answer:

- (c) Product costs are those costs that are identified with the goods purchased or produced for resale. In a manufacturing organisation they are attached to the product and that are included in the inventory valuation for finished goods, or for incomplete goods. Product cost is also known as inventoriable cost. Under absorption costing method it includes direct material, direct labour, direct expenses, directly attributable costs (variable and non-variable) and other production (manufacturing) overheads. Under marginal costing method Product Costs includes all variable production costs and the all fixed costs are deducted from the contribution. } {3 M}
- Periods costs are the costs, which are not assigned to the products but are charged as expense against revenue of the period in which they are incurred. General Administration, marketing, sales and distributor overheads are recognized as period costs. } {1 M}

__ ** __