PAPER – 12 : MANAGEMENT ACCOUNTING

SUGGETSED ANSWER

SECTION – A

1.

(i) (C)

(ii) (C)

(iii) (B)

(iv) (D)

(v) (C)

(vi) (D)

(vii) (A)

(viii) (D)

(ix) (D)

(x) (B)

(xi) (A)

(xii) (B)

(xiii) (C)

(xiv) (A)

(xv) (A)

SECTION – B

2. (a)

The functions of a management accountant can be categorized as below:

(i) **Planning and Accounting** - Management accountants prepare an accounting system covering costs, sales forecasts, profit planning, production planning, and allocation of resources. It should also include capital budgeting, short-term and long-term financial planning. They also prepare the procedures necessary to implement the plan effectively.

(ii) **Controlling** - Management accountants assist in the control of an organisation's performance through the use of standard costing, budget control, accounting ratios, funds flow statements, cost-cutting initiatives, and assessing capital expenditure proposals and returns on investment.

(iii) **Reporting** - Management accountants assist the top management in finding out the root cause of an unfavorable operation or event by identifying the real reasons for the adverse events as well as the responsible parties and comprehensively report them.

(iv) **Coordinating** - Management accountants improve an organisation's efficiency and profits by providing various coordination tools such as budgeting, financial reporting, financial analysis and interpretation, and so on. These tools aid management by comparing cost and financial records, preparing financial budgets and establishing standard costs, and analyzing cost deviations to enable management by exception.

(v) **Communication** - Management accountants create a wide range of reports to communicate results to the superiors. Through published financial statements and returns, they also inform the outside world about their company's success.

(vi) **Financial evaluation and Interpretation** - Management accountants analyze the data and present it to the management in a non-technical approach, together with their comments and ideas, so that the shareholders and senior management can understand it and make informed decisions.

(vii) **Tax Administration** - Management accountants are in charge of tax policies and processes. They make the reports that are required by various authorities. Further, they ensure that quarterly tax payments are made in advance, as required by the relevant Act, to prevent the payment of penal interest on late tax payments.

(viii) **Evaluation of external effects** - There may be changes in government policy and existing laws. These amendments and policy changes can affect business goals. Management accountants assess the extent of any impact of these external factors on the business and report it to the stakeholder to take necessary precautionary measures.

(ix) **Economic appraisal** - When the government makes regular announcements about the country's economic situation, management accountants is entrusted with making the economic study and determine the influence of current economic conditions on the company's operations. They compile a report containing their observations and present it to the higher management.

(x) **Asset Protection** - Management accountants prepare fixed asset registers for each type of business and provide internal checks and controls to protect the company's assets. They also create the rules and regulations for each type of fixed asset and get insurance coverage for all types of fixed assets.

2. (b)

(i) Calculation of 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 hours per 1,000 Chocolate ice cream, the overhead is 10 x ₹ 1,500 per direct labour hour = ₹ 15,000

Calculation of Operating Profit under Traditional Costing:

Particulars	Amount (₹)
Revenue (1,000x₹ 75)	75,000
Less: Direct Material (1,000x₹15)	15,000
Less: Direct Labour (1,000 x ₹ 2)	2,000
Less: Overhead	15,000
OperatingProfit	43,000

(ii)

A. Estimation of cost-driver rate

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

B. **Overhead cost for chocolate ice cream**

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

C. **Operating Profit under ABC for chocolate ice cream**

Particulars	Amount (₹)
Revenue (1,000x₹75)	75,000.00
Less: Direct Material (1,000x₹15)	15,000.00
Less: Direct Labour (1,000x₹2)	2,000.00
Less: Overhead	18,947.37
Operating Profit	39,052.63

3.

It is noted from the cost structure that all cost elements are given except fixed overhead. Therefore, fixed overhead is calculated as under:

Sl.	Particulars	(₹)
1	Present Sales Value (15,000 Litre X ₹ 100)	15,00,000
2	Direct Material (30% of sales)	4,50,000
3	Direct Labour (20% of sales)	3,00,000
4	Variable Overhead (₹2 0 per Litre)	3,00,000
5	Total variable cost (2+3+4)	10,50,000
6	Contribution (1-5)	4,50,000
7	Less: Profit @ ₹ 15 per Litre	2,25,000
8	Fixed Overhead (6-7)	2,25,000

Scenario 1:

Following proposals are available in the hands of the company:

- Alternative I: Continue Present Level (15,000 litres)
- Alternative II: Optimum Present Capacity (20,000 litres)
- Alternative III: Customer Proposal + Present Sales (10,000+15,000 = 25,000 litres)

Alternative 1: **Continue Present Level (15,000 litres)**

Particulars	Per Unit (₹)	Total (₹)
Sales	100	15,00,000
Less: Variable Costs		
Direct Materials	33	4,95,000
Direct Labour	25	3,75,000
Variable Overheads	20	3,00,000
Total Variable Costs	78	11,70,000
Contribution	22	3,30,000
Less: Fixed Costs		
Original Fixed Costs		2,25,000
Additional Fixed Costs		50,000
Total Fixed Costs		2,75,000
Net Profit		55,000

Alternative II: **Optimum Present Capacity (20,000 litres)**

Particulars	Per Unit (₹)	Total (₹)
Sales	100	20,00,000
Less: Variable Costs		
Direct Materials	33	6,60,000
Direct Labour	25	5,00,000
Variable Overheads	20	4,00,000
Total Variable Costs	78	15,60,000
Contribution	22	4,40,000
Less: Fixed Costs		
Original Fixed Costs		2,25,000
Additional Fixed Costs		50,000
Additional Selling Expenses		50,000
Total Fixed Costs		3,25,000
Net Profit		1,15,000

Alternative III:

Customer Proposal + Present Sales (25,000 litres)

Particulars	Existing Sales (15,000L)	Additional Sales (10,000L)	Total (25,000L)
Sales			
@ ₹ 100 per litre	15,00,000	-	15,00,000
@ ₹ 90 per litre	-	9,00,000	9,00,000
Total Sales	15,00,000	9,00,000	24,00,000
Less: Variable Costs @ ₹ 78	11,70,000	7,80,000	19,50,000
Contribution			
@₹ 22 @₹ 12	3,30,000	1,20,000	4,50,000
Less: Fixed Costs			
Original Fixed Costs			2,25,000
Additional Fixed Costs			50,000
Equipment Depreciation			1,00,000
Administrative Expenses			50,000
Total Fixed Costs			4,25,000
Net Profit			25,000

Recommendation:

Alternative II (Optimum Present Capacity - 20,000 litres) provides the highest net profit of ₹ 1,15,000.

ALTERNATIVE SOLUTION (1):

It is noted from the cost structure that all cost elements are given except fixed overhead. Therefore, fixed overhead is calculated as under:

Sl.	Particulars	(₹)
1	Present Sales Value (15,000 Litre X ₹ 100)	15,00,000
2	Direct Material (30% of sales)	4,50,000
3	Direct Labour (20% of sales)	3,00,000
4	Variable Overhead (₹ 20 per Litre)	3,00,000
5	Total variable cost (2+3+4)	10,50,000
6	Contribution (1-5)	4,50,000
7	Less: Profit @ ₹ 15 per Litre	2,25,000
8	Fixed Overhead (6-7)	2,25,000

Scenario 2:

Following proposals are available in the hands of the company:

- Alternative I: Continue Present Level (15,000 litres)
- Alternative II: Optimum Present Capacity (20,000 litres)
- Alternative III: Customer Proposal + Optimum Capacity (10,000+20,000 = 30,000 litres)

Alternative 1: **Continue Present Level (15,000 litres)**

Particulars	Per Unit (₹)	Total (₹)
Sales	100	15,00,000
Less: Variable Costs		
Direct Materials	33	4,95,000
Direct Labour	25	3,75,000
Variable Overheads	20	3,00,000
Total Variable Costs	78	11,70,000
Contribution	22	3,30,000
Less: Fixed Costs		
Original Fixed Costs		2,25,000
Additional Fixed Costs		50,000
Total Fixed Costs		2,75,000
Net Profit		55,000

Alternative II: **Optimum Present Capacity (20,000 litres)**

Particulars	Per Unit (₹)	Total (₹)
Sales	100	20,00,000
Less: Variable Costs		
Direct Materials	33	6,60,000
Direct Labour	25	5,00,000
Variable Overheads	20	4,00,000
Total Variable Costs	78	15,60,000
Contribution	22	4,40,000
Less: Fixed Costs		
Original Fixed Costs		2,25,000
Additional Fixed Costs		50,000
Additional Selling Expenses		50,000
Total Fixed Costs		3,25,000
Net Profit		1,15,000

Alternative III: Customer Proposal + Optimum Capacity (30,000 litres)

Particulars	Existing Sales (20,000L)	Additional Sales (10,000L)	Total (30,000L)
Sales			
@ ₹100 per litre	20,00,000	-	20,00,000
@ ₹90 per litre	-	9,00,000	9,00,000
Total Sales	20,00,000	9,00,000	29,00,000
Less: Variable Costs @ ₹78	15,60,000	7,80,000	23,40,000
Contribution			
@₹22	4,40,000		
@₹12		1,20,000	5,60,000
Less: Fixed Costs			
Original Fixed Costs			2,25,000
Additional Fixed Costs			50,000
Additional Selling Expenses			50,000
Equipment Depreciation			1,00,000
Administrative Expenses			50,000
Total Fixed Costs			4,75,000
Net Profit			85,000

Recommendation:

Alternative II (Optimum Present Capacity - 20,000 litres) provides the highest net profit of ₹ 1,15,000.

ALTERNATIVE SOLUTION (2):

It is noted from the cost structure that all cost elements are given except fixed overhead. Therefore, fixed overhead is calculated as under:

Sl.	Particulars	(₹)
1	Present Sales Value (15,000 Litre X₹ 100)	15,00,000
2	Direct Material (30% of sales)	4,50,000
3	Direct Labour (20% of sales)	3,00,000
4	Variable Overhead (₹ 20 per Litre)	3,00,000
5	Total variable cost (2+3+4)	10,50,000
6	Contribution (1-5)	4,50,000
7	Less: Profit @ ₹ 15 per Litre	2,25,000
8	Fixed Overhead (6-7)	2,25,000

Scenario 3:

Following proposals are available in the hands of the company:

- Alternative I: Continue Present Level (15,000 litres)
- Alternative II: Optimum Present Capacity (20,000 litres)
- Alternative III: Customer Proposal + Present Sales (10,000+15,000 = 25,000 litres)
- Alternative IV: Customer Proposal + Optimum Capacity (10,000+20,000 = 30,000 litres)

Alternative 1: **Continue Present Level (15,000 litres)**

Particulars	Per Unit (₹)	Total (₹)
Sales	100	15,00,000
Less: Variable Costs		
Direct Materials	33	4,95,000
Direct Labour	25	3,75,000
Variable Overheads	20	3,00,000
Total Variable Costs	78	11,70,000
Contribution	22	3,30,000
Less: Fixed Costs		
Original Fixed Costs		2,25,000
Additional Fixed Costs		50,000
Total Fixed Costs		2,75,000
Net Profit		55,000

Alternative II: **Optimum Present Capacity (20,000 litres)**

Particulars	Per Unit (₹)	Total (₹)
Sales	100	20,00,000
Less: Variable Costs		
Direct Materials	33	6,60,000
Direct Labour	25	5,00,000
Variable Overheads	20	4,00,000
Total Variable Costs	78	15,60,000
Contribution	22	4,40,000
Less: Fixed Costs		
Original Fixed Costs		2,25,000
Additional Fixed Costs		50,000
Additional Selling Expenses		50,000
Total Fixed Costs		3,25,000
Net Profit		1,15,000

Alternative III: **Customer Proposal + Present Sales (25,000 litres)**

Particulars	ExistingSales (15,000L)	AdditionalSales (10,000L)	Total (25,000L)
Sales			
@ ₹ 100 per litre	15,00,000	-	15,00,000
@ ₹ 90 per litre	-	9,00,000	9,00,000
Total Sales	15,00,000	9,00,000	24,00,000
Less: Variable Costs @ ₹78	11,70,000	7,80,000	19,50,000
Contribution			
@₹ 22	3,30,000		
@₹ 12		1,20,000	4,50,000
Less: Fixed Costs			
Original Fixed Costs			2,25,000
Additional Fixed Costs			50,000
Equipment Depreciation			1,00,000
Administrative Expenses			50,000
Total Fixed Costs			4,25,000
Net Profit			25,000

Alternative IV: Customer Proposal + Optimum Capacity (30,000 litres)

Particulars	Existing Sales (20,000L)	Additional Sales (10,000L)	Total (30,000L)
Sales			
@ ₹100 per litre	20,00,000	-	20,00,000
@ ₹90 per litre	-	9,00,000	9,00,000
Total Sales	20,00,000	9,00,000	29,00,000
Less: Variable Costs @ ₹78	15,60,000	7,80,000	23,40,000
Contribution			
@₹22	4,40,000		
@₹12		1,20,000	5,60,000
Less: Fixed Costs			
Original Fixed Costs			2,25,000
Additional Fixed Costs			50,000
Additional Selling Expenses			50,000
Equipment Depreciation			1,00,000
Administrative Expenses			50,000
Total Fixed Costs			4,75,000
Net Profit			85,000

Recommendation:
Alternative II (Optimum Present Capacity - 20,000 litres) provides the highest net profit of ₹1,15,000.

4. (a)
Given Information:

- Original Sales = ₹10,00,000
- Original P/V Ratio = 37%
- Original Margin of Safety = 25%
- Revised P/V Ratio = 30%
- Revised Margin of Safety = 40%

Setting Up Variables:
Let S_1 = Original Sales = ₹10,00,000
Let S_2 = Revised Sales (to find)
Let FC_1 = Original Fixed Cost
Let FC_2 = Revised Fixed Cost (to find)

Key Constraint Equation:
Revised Sales calculation:
Since quantity sold remains constant: Variable $Cost_1$ = Variable $Cost_2$
$S_1 \times (1 - 0.37) = S_2 \times (1 - 0.30)$
₹ 10,00,000 × 0.63 = ₹ 6,30,000 = $S_2 \times 0.70$
= $S_2 \times 0.70$ S_2 = ₹ 6,30,000
S_2 = ₹ 6,30,000 / 0.70
= ₹ 9,00,000

Break-Even Point calculation:

Break-Even Point$_2$ = S_2 × (1 - Margin of Safety%) at Break-Even Point$_2$

= ₹ 9,00,000 × (1 - 0.40) = ₹ 5,40,000

Fixed Cost Calculation:

FC_2 = Break-Even Point$_2$ × P/V Ratio$_2$

FC_2 = ₹ 5,40,000 × 0.30 = ₹ 1,62,000

(i) Revised Fixed Cost = ₹ 1,62,000
(ii) Revised Sales = ₹ 9,00,000
(iii) New Break-Even Point = ₹ 5,40,000

Alternative Presentation:

Particulars	Original	Revised	Calculation Method
Sales	₹ 10,00,000	₹ 9,00,000	VC ÷ VC Ratio = ₹ 6,30,000 ÷ 70%
P/V Ratio	37%	30%	Given
Variable Cost Ratio	63%	70%	100% - P/V Ratio
Variable Cost	₹ 6,30,000	₹ 6,30,000	Constant (same quantity)
Contribution	₹ 3,70,000	₹ 2,70,000	Sales × P/V Ratio
Margin of Safety %	25%	40%	Given
Break-Even Sales %	75%	60%	100% - Margin of Safety %
Break-Even Point	₹ 7,50,000	₹ 5,40,000	Sales × Break-Even Sales %
Fixed Cost	₹ 2,77,500	₹ 1,62,000	Break-Even Point × P/V Ratio

(i) Revised Fixed Cost = ₹ 1,62,000
(ii) Revised Sales = ₹ 9,00,000
(iii) New Break-Even Point = ₹ 5,40,000

4. (b)

Statement showing Differential Cost

Capacity	Production (units)	Unit costs (₹)	Installed total cost	Differential cost	Per unit differential cost
70	70,000	97	67,90,000	---	---
80	80,000	92	73,60,000	5,70,000	57
90	90,000	87	78,30,000	4,70,000	47
100	1,00,000	82	82,00,000	3,70,000	37

Statement Showing Gain or Loss on Accepting Various Export Orders

Particulars	Source A	Source B	Source C	Total
Export Orders (in units)	5,000	10,000	10,000	25,000
Capacity Utilisation (%)	75%	85%	95%	95%
Differential Cost (₹/unit)	57	5,000 @ 57 5,000 @ 47	5,000 @ 47 5,000 @ 37	–
Total Cost (₹)	2,85,000	5,20,000	4,20,000	12,25,000
Offer Price (₹/unit)	55	52	51	–
Sales Revenue (₹)	2,75,000	5,20,000	5,10,000	13,05,000
Gain / (Loss) (₹)	(10,000)	NIL	90,000	80,000

Analysis: From the above analysis it can be said that when all the three export orders are accepted, the company will make a profit of ₹ 80,000.

5.
SCENARIO 1:
(Assuming - Factory Overheads, Administration Overheads and Selling & Distribution overheads are fixed).

PKS Ltd.
Operating Budget for 2025-26 (50,000 Units)

Particulars	Amount (₹ lakhs)	Per Unit (₹)
SALES:		
Gross (50,000 units)	64,00,000	128.00
Less: Trade Discount (5%)	3,20,000	6.40
Net Sales	60,80,000	121.60
COST OF SALES:		
Direct Materials	20,70,000	41.40
Direct Labour	17,64,000	35.28
Factory Overheads	7,37,000	14.74
Administration Overheads	3,96,000	7.92
Selling & Distribution Overheads	5,13,000	10.26
Total Cost	54,80,000	109.60
NET PROFIT	6,00,000	12.00

Budget Calculations for 2025-26
Sales Volume: 50,000 units (25% increase)
Cost Structure - Fixed Overheads Scenario

Cost Component	Calculation	2025-26 Amount	Per Unit (₹)
Direct Materials	₹ 36.00 × 1.15 × 50,000 units	₹ 20.70 lakhs	₹ 41.40
Direct Labour	₹ 31.50 × 1.12 × 50,000 units	₹ 17.64 lakhs	₹ 35.28
Factory Overheads	₹ 6.30 × 1.15 + ₹0.125	₹ 7.37 lakhs	₹ 14.74
Administration Overheads	₹ 3.60 × 1.10	₹ 3.96 lakhs	₹ 7.92
Selling & Distribution Overheads	₹ 4.50 × 1.14	₹ 5.13 lakhs	₹ 10.26
Total Cost		₹ 54.80 lakhs	₹ 109.60

Required Financial Structure:

- Target Profit: ₹ 6.00 lakhs
- Total Cost: ₹ 54.80 lakhs
- Required Net Sales: ₹ 60.80 lakhs

Trade Discount Calculation:

- Net Sales = ₹ 60.80 lakhs
- Gross Sales = ₹ 60.80 ÷ 0.95 = ₹ 64.00 lakhs
  Unit Selling Price: ₹ 64.00 lakhs ÷ 50,000 units = ₹ 128.00 per unit

Alternatively:
Total Cost per unit = ₹ 109.60
Add: Profit per unit = ₹ 12.00
(₹ 6,00,000/50,000)
Net selling price (after 5% discount) = ₹ 121.60
Gross unit selling price = ₹ 121.60/0.95 = ₹ 128

SCENARIO 2:
OVERHEADS ARE VARIABLE:
(Assuming Factory Overheads, Administration Overheads and Selling & Distribution overheads are variable).

PKS Ltd.
Operating Budget for 2025-26 (50,000 Units)

Particulars	Amount (₹ lakhs)	Per Unit (₹)
SALES: Gross (50,000 units) Less: Trade Discount (5%)	 68,30,000 3,41,500	 136.60 6.83
Net Sales	64,88,500	129.77
COST OF SALES:		
Direct Materials	20,70,000	41.40
Direct Labour	17,64,000	35.28
Factory Overheads	9,18,125	18.36
Administration Overheads	4,95,000	9.90
Selling & Distribution Overheads	6,41,250	12.82
Total Cost	58,88,375	117.76
NET PROFIT	6,00,000	12.00

Budget Calculations for 2025-26
Sales Volume: 50,000 units (25% increase)
Cost Structure - Variable Overheads Scenario

Cost Component	Calculation	2025-26 Amount	Per Unit (₹)
Direct Materials	₹ 36.00 × 1.15 × 50,000 units	₹ 20.70 lakhs	₹ 41.40
Direct Labour	₹ 31.50 × 1.12 × 50,000 units	₹ 17.64 lakhs	₹ 35.28
Factory Overheads	(₹ 6.30 × 1.15 × 1.25) + ₹ 0.125	₹ 9.18 lakhs	₹ 18.36
Administration Overheads	₹ 3.60 × 1.10 × 1.25	₹ 4.95 lakhs	₹ 9.90
Selling & Distribution Overheads	₹ 4.50 × 1.14 × 1.25	₹ 6.41 lakhs	₹ 12.82
Total Cost		₹ 58.88 lakhs	₹ 117.76

Required Financial Structure:

- Target Profit: ₹ 6.00 lakhs
- Total Cost: ₹ 58.88 lakhs
- Required Net Sales: ₹ 64.88 lakhs

Trade Discount Calculation:

- Net Sales = ₹ 64.88 lakhs
- Gross Sales = ₹ 64.88 ÷ 0.95 = ₹ 68.29 lakhs
  Unit Selling Price: ₹ 68.29 lakhs ÷ 50,000 units = ₹ 136.60 per unit

Alternatively:
Total Cost per unit = ₹ 117.76
Add: Profit per unit = ₹ 12.00
(₹ 6,00,000/50,000)
Net selling price (after 5% discount) = ₹ 129.76
Gross unit selling price = ₹ 129.76/0.95 = ₹ 136.60

6. (a)

(i) Sales Value Variance = Actual Sales Quantity X Actual Selling Price Per Unit - Budgeted Sales Quantity X Budgeted Selling Price Per Unit

Product	Calculation	Variance (₹)
JOY	(5,000 X 5 +1500 X 4.75 - 6,000 x 5)	2,125 (F)
TOY	(7,500 X 2 +1,750 X 1.9 -10,000 X 2)	1,675 (A)
TOTAL		450 (F)

(ii) Sales Price Variance = Actual Sales Quantity (Actual Selling Price Per Unit - Budgeted Selling Price Per Unit)

Product	Calculation	Variance (₹)
JOY	(5,000 X 5 - 5,000 x 5) (1,500 X 4.75 - 1,500 x 5)	NIL 375 (A) = 375 (A)
TOY	(7,500 X 2 - 7,500 X 2) (1,750 X 1.90 – 1,750 X 2)	NIL 175 (A) = 175 (A)
TOTAL		550 (A)

(iii) Sales Volume Variance = Budgeted Selling Price Per Unit X (Actual Sales Quantity- Budgeted Sales Quantity)

Product	Calculation	Variance (₹)
JOY	5 (6,500 – 6,000)	2,500 (F)
TOY	2 (9,250 – 10,000)	1,500 (A)
TOTAL		1,000 (F)

(iv) Sales Mix Variance = Budgeted Selling Price Per Unit X (Actual Sales Quantity- Revised Standard Quantity)

Revised Standard Quantity (RSQ) is calculated as follows:

RSQ = (Total Actual Quantity ÷ Total Budgeted Quantity) X Individual Standard

RSQ for JOY = (15,750 ÷ 16,000) X 6,000 = 5906.25 units

RSQ for TOY = (15,750 ÷ 16,000) X 10,000 = 9843.75 units

Product	Calculation	Variance (₹)
JOY	5 (6,500 – 5,906.25)	2,968.75 (F)
TOY	2 (9,250 – 9,843.75)	1,187.50 (A)
TOTAL		1,781.25 (F)

(v) Sales Sub Volume Variance = Budgeted Selling Price Per Unit X (Revised Standard Quantity - Budgeted Sales Quantity)

Product	Calculation	Variance (₹)
JOY	5 (5,906.25-6,000)	468.75 (A)
TOY	2 (9,843.75-10,000)	312.50 (A)
TOTAL		781.25 (A)

ALTERNATIVE SOLUTION (1):

Product	AQAP (₹) (1)	AQSP (₹) (2)	RSQSP (₹) (3)	SQSP (₹) (4)
JOY	5,000 × 5.00	6,500 × 5	5,906.25 × 5	6,000 × 5
	1,500 × 4.75			
TOY	7,500 × 2.00			
	1,750 × 1.90	9,250 × 2	9,843.75 × 2	10,000 × 2
JOY	25,000	32,500	29,531.25	30,000
	7,125			
TOY	15,000			
	3,325	18,500	19,687.5	20,000
Total	50,450	51,000	49,219	50,000

AQAP = Actual Sales = ₹ 50,450
AQSP = Actual Quantity of Sales at Standard Price = ₹ 51,000
RSQSP = Revised Budgeted or Standard Sales = ₹ 49,219
SQSP = Standard or Budgeted Sales = ₹ 50,000

(i) Sales Value Variance = (1 – 4)
= 50,450 – 50,000
= ₹ 450 (F)

(ii) Sales Price Variance = (1 – 2)
= 50,450 – 51,000
= ₹ 550 (A)

(iii) Sales Volume Variance = (2 – 4)
= 51,000 – 50,000
= ₹ 1,000 (F)

Revised Standard Quantity:
For JOY: (6,000 / 16,000) × 15,750 = 5,906.25 units
For TOY: (10,000 / 16,000) × 15,750 = 9,843.75 units

(iv) Sales Mix Variance = (2 – 3)
= 51,000 – 49,219
= ₹ 1,781 (F)

(v) Sales Sub Volume or Quantity Variance = (3 – 4)
= 49,219 – 50,000
= ₹ 781 (A)

ALTERNATIVE SOLUTION (2):
(Contribution Margin Approach)

1. Calculate Contribution Margins
JOY: Selling Price = ₹5, Cost = ₹4
TOY: Selling Price = ₹2, Cost = ₹1.50

Standard Contribution Margins:
JOY: ₹ 5 - ₹ 4 = ₹ 1 per unit
TOY: ₹ 2 - ₹ 1.50 = ₹ 0.50 per unit

Actual Contribution Margins:

JOY:

Batch 1 (5,000 units @ ₹ 5): ₹5 - ₹ 4 = ₹ 1 per unit

Batch 2 (1,500 units @ ₹ 4.75): ₹ 4.75 - ₹ 4 = ₹ 0.75 per unit

TOY:

Batch 1 (7,500 units @ ₹ 2): ₹ 2 - ₹ 1.50 = ₹ 0.50 per unit

Batch 2 (1,750 units @ ₹ 1.90): ₹ 1.90 - ₹ 1.50 = ₹ 0.40 per unit

2. Calculate Total Contributions

Budgeted Contribution:

JOY: 6,000 units × ₹ 1 = ₹6,000

TOY: 10,000 units × ₹ 0.50 = ₹ 5,000

Total Budgeted Contribution: ₹11,000

Actual Contribution:

JOY:

Batch 1: 5,000 × ₹ 1 = ₹ 5,000

Batch 2: 1,500 × ₹ 0.75 = ₹ 1,125

Total JOY: ₹ 6,125

TOY:

Batch 1: 7,500 × ₹ 0.50 = ₹ 3,750

Batch 2: 1,750 × ₹ 0.40 = ₹ 700

Total TOY: ₹ 4,450

Total Actual Contribution: ₹ 10,575

Solution:

Variance Analysis Using Contribution Margins:

(i) Total Contribution Variance (Sales Value Variance)

Actual Total Contribution - Budgeted Total Contribution

JOY: ₹ 6,125 - ₹ 6,000 = ₹ 125 (F)

TOY: ₹ 4,450 - ₹ 5,000 = ₹ 550 (A)

Company Total: ₹ 10,575 - ₹ 11,000 = ₹ 425 (A)

(ii) Contribution Rate/Price Variance (Sales Value Price Variance)

(Actual Contribution per Unit - Standard Contribution per Unit) × Actual Quantity

JOY:

Batch 1: (₹ 1 - ₹ 1) × 5,000 = ₹ 0

Batch 2: (₹ 0.75 - ₹ 1) × 1,500 = ₹ 375 (A)

Total JOY: ₹ 375 (A)

TOY:

Batch 1: (₹ 0.50 - ₹ 0.50) × 7,500 = ₹ 0

Batch 2: (₹ 0.40 - ₹ 0.50) × 1,750 = ₹ 175 (A)

Total TOY: ₹ 175 (A)

Company Total: ₹ 550 (A)

(iii) Contribution Volume Variance (Sales Value Volume Variance)

Standard Contribution per Unit × (Actual Quantity - Budgeted Quantity)

JOY: ₹ 1 × (6,500 - 6,000) = ₹ 500 (F)

TOY: ₹ 0.50 × (9,250 - 10,000) = ₹ 375 (A)

Company Total: ₹ 125 (F)

(iv) Contribution Mix Variance (Sales Value Mix Variance)

Standard Contribution per Unit × (Actual Quantity - Revised Standard Quantity)

Revised Standard Quantities:

JOY: (15,750 ÷ 16,000) × 6,000 = 5,906.25 units

TOY: (15,750 ÷ 16,000) × 10,000 = 9,843.75 units

Mix Variance:

JOY: ₹ 1 × (6,500 - 5,906.25) = ₹ 593.75 (F)

TOY: ₹ 0.50 × (9,250 - 9,843.75) = ₹ 296.875 (A)

Company Total: ₹ 296.875 (F)

(v) Contribution Sub-Volume Variance (Sales Value Sub-Volume Variance)

Standard Contribution per Unit × (Revised Standard Quantity - Budgeted Quantity)

JOY: ₹ 1 × (5,906.25 - 6,000) = ₹ 93.75 (A)

TOY: ₹ 0.50 × (9,843.75 - 10,000) = ₹ 78.125 (A)

Company Total: ₹ 171.875 (A)

6. (b)

(i) BASIC CALCULATION:

Annual Consumption	Kg.
1st Qtr. 65 x 100 x 2	13,000
2nd Qtr.60 x 110 x 2	13,200
3rd Qtr. 55 x 120 x 2	13,200
4th Qtr. 60 x 105 x 2	12,600
	52,000

(ii) ANNUAL PURCHASE:

Annual purchases	Kg.
Consumption	52,000
Add: Budgeted closing stock	2,000
Annual requirements	54,000
Less: Opening stock	4,000
Purchases	50,000

(a) RAW MATERIALS PURCHASE BUDGET

Quarter	Quantity	Kg	Rate (₹)	Amount (₹)
1st	50,000 x 30/100	15,000	1.00	15,000
2nd	50,000 x 50/100	25,000	1.05	26,250
3rd	50,000 x 20/100	10,000	1.125	11,250
Annual purchases		50,000		52,500

(b) STATEMENT OF QUARTERLY BUDGETED CLOSING STOCK

Particular	1st Quarter			2nd Quarter			3rd Quarter			4th Quarter		
	Qty. (Kgs.)	Rate ₹	Amt. ₹	Qty. (Kgs.)	Rate ₹	Amt. ₹	Qty. (Kgs.)	Rate ₹	Amt. ₹	Qty. (Kgs.)	Rate ₹	Amt. ₹
Op. Stock	4,000	1	4,000	6,000	1	6,000	17,800	1.05	18,690	14,600		16,080
Purchases	15,000	1	15,000	25,000	1.05	26,250	10,000	1.125	11,250	-		-
TOTAL	19,000	1	19,000	31,000		32,250	27,800		29,940	14,600		16,080
Consumption	13,000	1	13,000	13,200		13,560*	13,200	1.05	13,860	12,600		13,830**
Cl. Stock	6,000	1	6,000	17,800	1.05	18,690	14,600	1.1014	16,080	2,000	1.125	2,250

* 6,000 x ₹ 1 + 7,200 x 1.05 = ₹ 13,560
** 4,600 x ₹ 1.05 + 8,000 x ₹ 1.125 = ₹ 13,830

7. (a)

To find the missing values, we use the following formulas:
Asset Turnover = Sales / Operating Assets
Margin = (Operating Income / Sales) × 100
ROI = Margin × Asset Turnover

Division X

Given: Sales = ₹ 10,00,000, Operating Income = ₹ 50,000, Operating Assets = ₹ 2,00,000

(i) Asset Turnover = ₹ 10,00,000 / ₹ 2,00,000 = 5
(ii) Margin = (₹ 50,000 / ₹ 10,00,000) × 100 = 5%
(iii) ROI = 5% × 5 = 25%

Division Y

Given: Operating Income = ₹ 60,000, Margin = 0.50%, ROI = 2.5%

Step 1: Sales (iv)

Margin = (Operating Income / Sales) × 100
0.50% = (₹ 60,000 / Sales) × 100
Sales = ₹ 60,000 / 0.005 = ₹ 1,20,00,000

Step 2: Operating Assets (v)

Asset Turnover = Sales / Operating Assets
5 = ₹ 1,20,00,000 / OA
Operating Assets = ₹ 1,20,00,000 / 5 = ₹ 24,00,000

Step 3: Asset Turnover (vi)

ROI = Margin × Asset Turnover
2.5% = 0.50% × AT
Asset Turnover = 2.5 / 0.5 = 5

Division Z

Given: Operating Assets = ₹ 5,00,000, Asset Turnover = 0.5, Margin = 4%

Sales (vii)

Asset Turnover = Sales / Operating Assets

0.5 = Sales / ₹ 5,00,000

Sales = 0.5 × ₹ 5,00,000 = ₹ 2,50,000

7. (b)

The four Perspectives of the Balanced Scorecard are as under:

1. **Financial Perspective:**
   This perspective evaluates the profitability of the strategy. Because cost reduction relative to competitors, costs and sales growth are key strategic initiatives, the financial perspectives focus on how much of operating income and return on capital results from reducing costs and selling more units.
2. **Customers Perspective:**
   This perspective identifies the targeted market segments and measures the company's success in these segments. The customer perspective monitors how the entity is providing value to its customers and determines the level of customer satisfaction with the company's products or services. Customer satisfaction is an indicator of the company's success. This involves metrics like customer satisfaction, retention, and market share.

3. **Internal business process Perspective:**
   This perspective focuses on internal operations that further the customers' perspective by creating value for customers and further the financial perspective by increasing shareholder value. This perspective determines internal business process improvement targets after benchmarking against its main competitors.

The internal business process perspective comprises three sub processes:

(i) The innovation process:
Creating products, services and processes that will meet the needs of customers, aiming at lowering costs and promote growth by improving the technology of its manufacturing.

(ii) The operations process:
Producing and delivering existing products and services that will meet the needs of customers. The strategic initiatives are (a) improving manufacturing quality, (b) reducing delivery time to customers and(c) Meeting specified delivery dates.

(iii) Post sales service:
It provides service and support to the customer after sale of a product or service. However, customers may not require much post sales service.

4. **Learning & Growth Perspectives:**
   This perspective identifies the capabilities of the organization. It must excel at to achieve superior internal processes that create value for customers and shareholders.

A Company's learning and growth perspectives emphasize three capabilities:

(i) Measured by employee education and skill levels, employee satisfaction, and percentage of manufacturing and sales employees (line employees) empowered to manage processes

(ii) Measured by percentage of manufacturing processes with real-time feedback

8. (a)

Calculation of Expected Value:

Project	Calculation	EV in ₹ 000
Q	(550 x 0.20 + 480 x 0.40 + 580 x 0.40)	534
R	(450 x 0.20 + 500 x 0.40 + 570 x 0.40)	518
S	(420 x 0.20 + 450 x 0.40 + 480 x 0.40)	456
T	(370 x 0.20 + 410 x 0.40 + 430 x 0.40)	410
U	(590 x 0.20 + 580 x 0.40 + 430 x 0.40)	522

Decision: Project Q has the highest EV of expected cash inflows and should therefore be undertaken.

Calculation of Expected Value of Perfect Information:

Market Condition	Probability	Project chosen	Net cash inflow	EV of net cash inflow ₹ 000
Poor	0.20	U	590	118
Good	0.40	U	580	232
Excellent	0.40	Q	580	232
EV of net cash inflows with perfect information				582
EV of net cash inflows without perfect information				534
Value of perfect information				48

8. (b)

Identification of Responsibility Centres:

1. The whole concept of responsibility accounting is focused around identification of responsibility centres.
2. The responsibility centres represent the sphere of authority or decision points in an organisation.
3. In a small firm, one individual or a small group of individuals, who are usually the owners may possibly manage or control the entire organisation.
4. However, for effective control, a large firm is, usually, divided into meaningful segments, departments or divisions. These sub-units or divisions of organisation are called responsibility centres.
5. A responsibility centre is under the control of an individual who is responsible for the control of activities of that sub-unit of the organisation.
6. This responsibility centre may be a very small sub-unit of the organisation, as an individual could be made responsible for one machine used in manufacturing operations, or it may be a very big division of the organisation, such as a divisional manager could be responsible for achieving a certain level of profit from the division and investment under his control.
7. However, the general guideline is that "the unit of the organisation should be separable and identifiable for operating purposes and its performance measurement possible.