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SUGGESTED SOLUTION

CA INTERMEDIATE

SUBJECT- COSTING

Test Code – CIM 8637

BRANCH - () (Date :)

Head Office : Shraddha, 3rd Floor, Near Chinai College, Andheri (E), Mumbai – 69.

Tel : (022) 26836666

ANSWER -1

ANSWER-A

Break- even point (in units) is 50% of sales i.e. 12,000 units.

Hence, Break- even point (in sales value) is 12,000 units x Rs. 200 = Rs. 24,00,000

$$(i) \quad \text{We know that Break even sales} = \frac{\text{Fixed Cost}}{P/V \text{ ratio}}$$

$$\text{Or, Rs. 24,00,000} = \frac{\text{Fixed Cost}}{25\%}$$

$$\text{Or, Fixed Cost} = \text{Rs. 24,00,000} \times 25\%$$

$$= \text{Rs. 6,00,000}$$

So Fixed Cost for the year is Rs. 6,00,000

$$(ii) \quad \text{Contribution for the year} = (24,000 \text{ units} \times \text{Rs. 200}) \times 25\% \\ = \text{Rs. 12,00,000}$$

$$\text{Profit for the year} = \text{Contribution} - \text{Fixed Cost} \\ = \text{Rs. 12,00,000} - \text{Rs. 6,00,000} \\ = \text{Rs. 6,00,000}$$

$$(iii) \quad \text{Target net profit is Rs.11,00,000}$$

$$\text{Hence, Target contribution} = \text{Target Profit} + \text{Fixed Cost} \\ = \text{Rs.11,00,000} + \text{Rs. 6,00,000} \\ = \text{Rs. 17,00,000}$$

Contribution per unit = 25% of Rs. 200 = Rs. 50 per unit

$$\text{No. of units} = \frac{\text{Rs.17,00,000}}{\text{Rs.50 per unit}} = 34,000 \text{ unit}$$

So, 34,000 units to be sold to earn a target net profit of Rs. 11,00,000 for a year.

$$(iv) \quad \text{Net desired total Sales (Number of unit} \times \text{Selling price) be } x \text{ then desired profit is 25\% on Cost or 20\% on Sales i.e. } 0.2x$$

$$\text{Desired Sales} = \frac{\text{Fixed Cost} + \text{Desired Profit}}{P/V \text{ Ratio}}$$

$$x = \frac{6,00,000 + 0.2x}{25\%}$$

$$\text{or, } 0.25x = 6,00,000 + 0.2x$$

$$\text{or, } 0.05x = 6,00,000$$

$$\text{or, } x = \text{Rs. 1,20,00,000}$$

$$\text{No. of units to be sold} = \frac{\text{Rs.1,20,00,000}}{\text{Rs.200}} = 60,000 \text{ units}$$

$$(v) \quad \text{If Break- even point is to be brought down by 4,000 units then Break-even point will be}$$

$$12,000 \text{ units} - 4,000 \text{ units} = 8,000 \text{ units}$$

Let Selling price be Rs. x and fixed cost and variable cost per unit remain unchanged i.e. Rs. 6,00,000 and Rs. 150 respectively.

Break even point: Sales revenue = Total cost

$$8,000x = 8,000 \times \text{Rs. } 150 + \text{Rs. } 6,00,000$$

$$\text{Or, } 8,000x = \text{Rs. } 12,00,000 + \text{Rs. } 6,00,000$$

$$\text{Or, } x = \frac{\text{Rs. } 18,00,000}{8,000} = \text{Rs. } 225$$

∴ Selling Price should be Rs. 225

Hence, selling price per unit shall be Rs. 225 if Break-even point is to be brought down by 4,000 units.

(5*1 = 5 MARKS)

ANSWER-B

$$\begin{aligned} \text{(i) Contribution per unit} &= \text{Selling price} - \text{Variable cost} \\ &= \text{Rs. } 100 - \text{Rs. } 60 \\ &= \text{Rs. } 40 \end{aligned}$$

$$\begin{aligned} \text{Break-even Point} &= \frac{\text{Rs. } 24,00,000}{\text{Rs. } 40} \\ &= 60,000 \text{ units} \end{aligned}$$

$$\text{Percentage Margin of Safety} = \frac{\text{Actual Sales} - \text{Break-even Sales}}{\text{Actual Sales}}$$

$$\text{Or, } 60\% = \frac{\text{Actual Sales} - 60,000 \text{ units}}{\text{Actual Sales}}$$

$$\therefore \text{Actual Sales} = 1,50,000 \text{ units}$$

	(Rs.)
Sales Value (1,50,000 units × Rs.100)	1,50,00,000
Less: Variable Cost (1,50,000 units ×Rs.60)	90,00,000
Contribution	60,00,000
Less: Fixed Cost	24,00,000
Profit	36,00,000
Less: Income Tax @ 40%	14,40,000
Net Return	21,60,000

$$\text{Rate of Net Return on Sales} = 14.40\% \left(\frac{\text{Rs.}21,60,000}{\text{Rs.}1,50,00,000} \times 100 \right)$$

(2.5 MARKS)

(ii) **Product**

	X (Rs.)	Y (Rs.)
Selling Price per unit	100	150
Variable Cost per unit	60	100
Contribution per unit	40	50

Composite contribution will be as follows :

$$\text{Contribution per unit} = \left(\frac{40}{8} \times 5 \right) + \left(\frac{50}{8} \times 3 \right)$$

$$= 25 + 18.75 = \text{Rs. } 43.75$$

$$\text{Break –even Sale} = 64,000 \text{ units} \left(\frac{\text{Rs.}28,00,000}{\text{Rs.}43.75} \right)$$

Break – even Sales Mix :

$$X (64,000 \text{ units} \times 5/8) = 40,000 \text{ units}$$

$$Y (64,000 \text{ units} \times 3/8) = 24,000 \text{ units}$$

(2.5 MARKS)

ANSWER -2

(i) **Preparation of Production Budget (in units)**

	October	November	December	January
Demand for the month (Nos.)	40,000	35,000	45,000	60,000
Add : 20% of next month's demand	7,000	9,000	12,000	13,000
Less : Opening stock	(9,500)	(7,000)	(9,000)	(12,000)
Vehicles to be produced	37,500	37,000	48,000	61,000

(2.5 MARKS)

(ii) **Preparation of Purchase Budget for Part – X**

	October	November	December
Production for the month (Nos.)	37,500	37,000	48,000
Add : 40% of next	14,800	19,200	24,400

month's production	(40% of 37,000)	(40% of 48,000)	(40% of 61,000)
	52,300	56,200	72,400
No. of units required for production	2,09,200 (52300 × 4 units)	2,24,800 (56200 × 4 units)	2,89,600 (72,400 × 4 units)
Less : Opening stock	(48,000)	(59,200)	(76,800)
		(14800 × 4 units)	(19200 × 4 units)
No. of units to be purchased	1,61,200	1,65,600	2,12,800

(3.5 MARKS)

(iii) Budgeted Gross Profit for the Quarter October to December

	October	November	December	Total
Sales in nos.	40,000	35,000	45,000	1,20,000
Net Selling price per unit*	7,28,535	7,28,535	7,28,535	
Sales Revenue (Rs. in lakh)	2,91,414	2,54,987.25	3,27,840.75	8,74,242
Less : Cost of Sales (Rs. in lakh)	2,28,560	1,99,990.00	2,57,130.00	6,85,680
(Sales unit × Cost per unit)				
Gross Profit (Rs. in lakh)	62,854	54,997.25	70,710.75	1,88,562

* Net Selling Price unit = Rs. 8,57,100 – 15% commission on Rs. 8,57,100 = Rs. 7,28,535.

(4 MARKS)

ANSWER -3

ANSWER-A

(a) Flexible Budget before marketing efforts :

	Product A(Rs.) 6,000 units		Product B(Rs.) 9,000 units	
	Per unit	Total	Per unit	Total
Sales	120.00	7,20,000	78.00	7,02,000
Raw Material cost	60.00	3,60,000	42.00	3,78,000
Direct Labour cost per unit	30.00	1,80,000	18.00	1,62,000
Variable overhead per unit	12.00	72,000	6.00	54,000
Fixed overhead per unit	8.00	48,000	4.00	36,000
Total Cost	110.00	6,60,000	70.00	6,30,000
Profit	10.00	60,000	8.00	72,000

(b) Flexible Budget after marketing efforts :

	Product A(Rs.) 7,500 units		Product B(Rs.) 9,500 units	
	Per unit	Total	Per unit	Total
Sales	120.00	9,00,000	78.00	7,41,000
Raw material cost	60.00	4,50,000	42.00	3,99,000
Direct labour cost per unit	30.00	2.25,000	18.00	1,71,000
Variable overhead per unit	13.20	99,000	6.60	62,700
Fixed overhead per unit	6.72	50,400	3.98	37,800
Total Cost	109.92	8,24,400	70.58	6,70,500
Profit	10.08	75,600	7.42	70,500

(2.5 MARKS)

ANSWER-B

We know that $S - V = F + P$ (S – Sales, V – Variable cost, F – Fixed cost and P – Profit /loss)

∴ Suppose variable cost = x per unit

Fixed Cost = y

When sales is 8,000 units, then

$$15 \times 8,000 - 8,000x = y - 40,000 \dots\dots\dots (1)$$

When sales volume raised to 20,000 units, then

$$15 \times 20,000 - 20,000x = y + 80,000 \dots\dots\dots (2)$$

$$\text{Or, } 1,20,000 - 80,000x = y - 40,000 \dots\dots\dots (3)$$

$$\text{And } 3,00,000 - 20,000x = y + 80,000 \dots\dots\dots (4)$$

From (3) & (4) we get $x = \text{Rs. } 5$

Variable cost per unit = Rs. 5

Putting this value in 3rd equation :

$$1,20,000 - (8,000 \times 5) = y - 40,000$$

or $y = \text{Rs. } 1,20,000$

Fixed Cost = Rs. 1,20,000

$$P/V \text{ ratio} = \frac{S-V}{S} = \frac{15-5}{15} \times 100 = \frac{200}{3} = 66\frac{2}{3}\%$$

Suppose break – even sales = x

$$15x - 5x = 1,20,000 \text{ (at BEP, contribution will be equal to fixed cost)}$$

$x = 12,000$ units.

Or Break – even sales in units = 12,000

Break – even sales in rupees = 12,000 × Rs. 15 = Rs. 1,80,000

(5 MARKS)

ANSWER -4

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
	2,480	4,300

(1 MARK)

(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	Rs.4	Rs.6
Total Cost	Rs.1,47,800	Rs. 2,75,616

(4 MARKS)

(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.	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 × Rs. 25 + 14,610 hours × Rs. 37.5
= Rs. 7,20,000 + Rs. 5,47,875
= Rs. 12,67,875

(5 MARKS)

ANSWER -5

ANSWER -A

$$P/V \text{ Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100 = \left(\frac{\text{Rs.1,50,000}}{\text{Rs.3,00,000}} \times 100 \right) = 50\%$$

(i) If in the next period company suffered a loss of Rs. 30,000, then

Contribution = Fixed Cost ± Profit

= Rs. 90,000 – Rs. 30,000 (as it is a loss) = Rs. 60,000.

Then Sales = $\frac{\text{Contribution}}{P/V \text{ Ratio}}$ or $\frac{60,000}{50\%} = \text{Rs.1,20,000}$

So, there will be loss of Rs. 30,000 at sales of Rs. 1,20,000.

(2.5 MARKS)

(ii) Margin of Safety = $\frac{\text{Profit}}{P/V \text{ Ratio}}$ Or, $\frac{\text{Rs.90,000}}{50\%} = \text{Rs.1,80,000}$

Alternative solution of this part:

Break-even Sales = $\frac{\text{Fixed Cost}}{PV \text{ Ratio}} = \frac{\text{Rs.90,000}}{50\%} = \text{Rs.1,80,000}$

Sales at profit of Rs. 90,000 = $\frac{\text{Fixed Cost} + \text{Profit}}{PV \text{ Ratio}}$
= $\frac{\text{Rs.90,000} + \text{Rs.90,000}}{50\%} = \frac{\text{Rs.1,80,000}}{50\%} = \text{Rs.3,60,000}$.

Margin of Safety = Sales – Break-even Sales

$$= 3,60,000 - 1,80,000 = \text{Rs. } 1,80,000$$

(2.5 MARKS)

ANSWER –B

	Sales (Rs.)	Profit (Rs.)
Year 2016	4,00,000	15,000 (loss)
Year 2017	5,00,000	15,000 (Profit)
Difference	1,00,000	30,000

(i) $P/V \text{ Ratio} = \frac{\text{Difference in profit}}{\text{Difference in Sales}} \times 100 = \frac{30,000}{1,00,000} \times 100 = 30\%$

(ii)

	Rs.
Contribution in 2015 (4,00,000 × 30%)	1,20,000
Add : Loss	<u>15,000</u>
Fixed Cost*	<u>1,35,000</u>
*Contribution	= Fixed Cost + Profit
∴ Fixed cost	= Contribution – Profit

(iii) Break – even point $= \frac{\text{Fixed Cost}}{P/V \text{ ratio}} = \frac{1,35,000}{30\%} = \text{Rs. } 4,50,000$

(iv) Sales to earn a profit of Rs. 45,000

$$\frac{\text{Fixed cost} + \text{Desired Profit}}{P/V \text{ ratio}} = \frac{1,35,000 + 45,000}{30\%} = \text{Rs. } 6,00,000$$

(v) Margin of safety in 2017 – 18

$$\begin{aligned} \text{Margin of safety} &= \text{Actual sales} - \text{Break – even sales} \\ &= 5,00,000 - 4,50,000 = \text{Rs. } 50,000. \end{aligned}$$

(5*1 = 5 MARKS)