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SUGGESTED SOLUTION

INTERMEDIATE M'19 EXAM

SUBJECT- COSTING AND F.M.

Test Code - CIM 8082

(Date :)

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ANSWER-1**Production Budget (in units) for the year ended 31st March 2016**

	Product M	Product N
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	14,000
	$\left\{ \frac{28,320}{0.96} \right\}$	$\left\{ \frac{13,160}{0.94} \right\}$

(3 MARKS)**Purchase budget (in kgs and value) for Material Z**

	Product M	Product N
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.	88,421 kg.
	$\left\{ \frac{1,47,500}{0.9} \right\}$	$\left\{ \frac{84,000}{0.95} \right\}$
Total quantity to be purchased	2,52,310 kg.	
Rate per kg. of Material Z	Rs.36	
Total purchase price	Rs.90,83,160	

(3 MARKS)

- (ii) Since, the maximum number of order per year can not 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 MARKS)

$$= 4,000 \text{ kg.} \times 40 \text{ orders} = 1,60,000 \text{ kg}$$

	Product M	Product N
Material needed for production to maintain the same production mix	1,03,929 kg. $(1,60,000 \times \frac{1,63,889}{2,52,310})$	56,071 kg. $(1,60,000 \times \frac{88421}{252310})$
Less: Process wastage	10,393 kg.	2,804 kg.
Net Material available for production	93,536 kg.	53,267 kg.
Units to be produced	18,707units $\left\{ \frac{93,536kg.}{5 kg.} \right\}$	8,878units $\left\{ \frac{53,267 kg.}{6 kg.} \right\}$

ANSWER-2

$$(i) \quad \frac{\text{Fixed Assets}}{\text{Total Current Assets}} = \frac{5}{7}$$

$$\text{Or, Total Current Assets} = \frac{\text{Rs.}40,00,000 \times 7}{5} = \text{Rs.}56,00,000$$

$$(ii) \quad \frac{\text{Fixed Assets}}{\text{Capital}} = \frac{5}{4} \quad \text{Or, Capital} = \frac{\text{Rs.}40,00,000 \times 4}{5} = \text{Rs.}32,00,000$$

$$(iii) \quad \frac{\text{Capital}}{\text{Total Liabilities}^*} = \frac{1}{2} = \text{Or, Total liabilities} = \text{Rs. } 32,00,000 \times 2 = \text{Rs. } 64,00,000$$

*It is assumed that Total liabilities does not include capital.

$$(iv) \quad \frac{\text{Net Profit}}{\text{Capital}} = \frac{1}{5} = \text{Or, Net Profit} = \text{Rs. } 32,00,000 \times 1/5 = \text{Rs. } 6,40,000$$

$$(v) \quad \frac{\text{Net Profit}}{\text{Sales}} = \frac{1}{5} = \text{Or, Sales} = \text{Rs. } 6,40,000 \times 5 = \text{Rs. } 32,00,000$$

$$(vi) \quad \text{Gross Profit} = 25\% \text{ of Rs. } 32,00,000 = \text{Rs. } 8,00,000$$

$$(vii) \quad \text{Stock Turnover} = \frac{\text{Cost of Goods Sold (i.e. Sales - Gross Profit)}}{\text{Average Stock}} = 10$$

$$= \frac{\text{Rs.}32,00,000 - \text{Rs.}8,00,000}{\text{Average Stock}} = 10$$

$$\text{Or, Average Stock} = \text{Rs. } 2,40,000 \text{ Or, } \frac{\text{Opening Stock} + \text{Rs. } 4,00,000}{2} = \text{Rs. } 2,40,000$$

Or, Opening Stock = Rs. 80,000

(7*1=7 MARKS)

Trading Account

Particulars	(Rs.)	Particulars	(Rs.)
To Opening Stock	80,000	By Sales	32,00,000
To Manufacturing exp./ Purchase (Balancing figure)	27,20,000		
To Gross Profit b/d	8,00,000	By Closing Stock	4,00,000
	36,00,000		36,00,000

(1 MARK)

Profit and Loss Account

Particulars	(Rs.)	Particulars	(Rs.)
To Operating Expenses (Balancing figure)	1,60,000	By Gross Profit c/d	8,00,000
To Net Profit	6,40,000		
	8,00,000		8,00,000

(1 MARK)

Balance Sheet

Capital and Liabilities	(Rs.)	Assets	(Rs.)
Capital	32,00,000	Fixed Assets	40,00,000
Liabilities	64,00,000	Current Assets:	
		Closing Stock	4,00,000
		Other Current Assets (Bal. figure)	52,00,000
	96,00,000		96,00,000

(1 MARK)

ANSWER-3

ANSWER-A

(5 MARKS)

$$(i) \quad \text{Degree of operating leverage} = \frac{\% \text{ Change in Operating income}}{\% \text{ Change in Revenues}}$$

$$\text{PQR Ltd.} = 25\% / 27\% = 0.9259$$

$$\text{RST Ltd.} = 0.32 / 0.25 = 1.28$$

$$\text{TUV Ltd.} = 0.36 / 0.23 = 1.5652$$

$$\text{WXY Ltd.} = 0.40 / 0.21 = 1.9048$$

It is level specific.

(ii) High operating leverage leads to high beta. So when operating leverage is lowest i.e.

0.9259, Beta is minimum (1) and when operating leverage is maximum i.e. 1.9048, beta is highest i.e. 1.40

ANSWER-B

(5 MARKS)

$$\text{Profit Volume Ratio} = \frac{\text{Contribution}}{\text{Sales}} \times 100$$

$$\text{So, } 25.55 = \frac{\text{Contribution}}{\text{Rs.42,00,000}} \times 100 \text{ Or, Contribution} = 42,00,000 \times 25.55/100$$

$$\text{Contribution} = \text{Rs.10,73,100}$$

Income Statement

Particulars	(Rs.)
Sales	42,00,000
Variable Cost (Sales - Contribution)	31,26,900
Contribution	10,73,100
Fixed Cost	3,48,000
EBIT	7,25,000
Interest	2,03,500
EBT(EBIT – Interest)	5,21,600
Tax	1,82,560
Profit after Tax (EBT – Tax)	3,39,040

$$(i) \text{ Operating Leverage} = \frac{\text{Contribution}}{\text{Earnings before interest and tax (EBIT)}}$$

$$\text{Or, } \frac{\text{Contribution}}{\text{Contribution - Fixed Cost}} = \frac{\text{Rs.10,73,100}}{\text{Rs.10,73,100-Rs.3,48,000}}$$

$$= \frac{\text{Rs.10,73,100}}{\text{Rs.7,25,100}} = 1.48$$

$$\text{Or, } \frac{\text{Contribution}}{\text{EBT}} \text{ i.e. } \frac{\text{Rs.10,73,100}}{\text{Rs.5,21,600}} = 2.06$$

(iii) Earnings per Share (EPS)

$$\text{EPS} = \frac{\text{PAT}}{\text{No. of share}} = \frac{\text{Rs.3,39,040}}{\text{Rs.2,50,000}} = 1.3561$$

$$\text{EPS} = 1.36$$

ANSWER-4

ABC Ltd.

Budget for 85% capacity level for the period 20X3-X4

(3 Marks)

Budgeted production (units)		85,000
	Per Unit (Rs.)	Amount (Rs.)
Direct Material (note 1)	21.60	18,36,000
Direct Labour (note 2)	10.50	8,92,500
Variable factory overhead (note 3)	2.10	1,78,500
Variable selling overhead (note 4)	4.32	3,67,200
Variable cost	38.52	32,74,200
Fixed factory overhead (note 3)		2,20,000
Fixed selling overhead (note 4)		1,15,000
Administrative overhead		1,76,000
Fixed cost		5,11,000
Total cost		37,85,200
Add: Profit 20% on sales or 25% on total cost		9,46,300
Sales		47,31,500
Contribution (Sales – Variable cost)		14,57,300

Working Notes:**1. Direct Materials:****(1.5 MARKS)**

75%Capacity	Rs. 15,00,000	65%Capacity	Rs.13,00,000
<u>65%Capacity</u>	Rs.13,00,000	<u>55%Capacity</u>	Rs. <u>11,00,000</u>
10% change in capacity	<u>2,00,000</u>	10% change in capacity	<u>2,00,000</u>

For 10% increase in capacity, i.e., for increase by 10,000 units, the total direct material cost regularly changes by Rs. 2,00,000

Direct material cost (variable) = Rs. 2,00,000 ÷ 10,000 = Rs. 20

After 8% increase in price, direct material cost per unit=Rs.20×1.08=Rs.21.60

Direct material cost for 85,000 budgeted units=85,000×Rs.21.60=Rs.18,36,000

2. Direct Labour :**(1.5 MARKS)**

75% Capacity	Rs. 7,50,000	65% Capacity	Rs. 6,50,000
<u>65% Capacity</u>	<u>Rs. 6,50,000</u>	<u>55% Capacity</u>	Rs. <u>5,50,000</u>
10% change in capacity	1,00,000	10% change in capacity	<u>1,00,000</u>

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

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

After 5% increase in price, direct labour cost per unit = Rs. 10 × 1.05 = Rs. 10.50

Direct labour for 85,000 units = 85,000 units × Rs. 10.50 = Rs. 8,92,500.

3. Factory overheads are semi-variable overheads:**(2MARKS)**

75% Capacity	Rs. 3,50,000	65% Capacity	Rs.3,30,000
<u>65% Capacity</u>	Rs. <u>3,30,000</u>	<u>55% Capacity</u>	Rs. <u>3,10,000</u>
10% change in capacity	<u>20,000</u>	10% change in capacity	<u>20,000</u>

Variable factory overhead = Rs. 20,000 ÷ 10,000 = Rs. 2

Variable factory overhead for 75,000 units = 75,000 × Rs. 2 = Rs. 1,50,000

Fixed factory overhead = Rs. 3,50,000 – Rs. 1,50,000 = Rs. 2,00,000.

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

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

4. Selling overhead is semi-variable overhead:

75%Capacity	Rs. 4,00,000	65%Capacity	Rs.3,60,000
<u>65%Capacity</u>	Rs.3,60,000	55%Capacity	Rs. <u>3,20,000</u>
10% change in capacity	<u>40,000</u>	10% change in capacity	<u>40,000</u>

Variable selling overhead = Rs. 40,000 ÷ 10,000 units = Rs.4

Variable selling overhead for 75,000 units = 75,000 × Rs. 4 = Rs. 3,00,000.

Fixed selling overhead = Rs. 4,00,000 – Rs. 3,00,000 = Rs. 1,00,000

Variable selling overhead after 8% increase = Rs. 4 × 1.08 = Rs. 4.32

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

5. Administrative overhead is fixed:

After 10% increase = Rs. 1,60,000 × 1.10 = Rs. 1,76,000 **(2 MARKS)**

ANSWER-5

PROFORMA BALANCE SHEET AS AT 31ST DECEMBER, 2010

(Figure in Rs. Lacs)

Liabilities	Amount	Assets	Amount
Share Capital	5.00	Fixed Assets	6.00
Reserve and Surplus	2.50	Stock	2.00
Term Loan (Balance Figure)	1.50	Debtors	2.50
Current Liabilities	2.00	Bank	0.50
	11.00		11.00

(2 MARKS)

Working Notes:

(8*1=8 MARKS)

(a) Current Assets - Current Liabilities = Working Capital

i.e. 2.5 – 1.0 Rs.3,00,000

i.e. 1.5 Rs.3,00,000

i.e. 1 Rs.2,00,000

i.e. 2. Rs.5,00,000

i.e. Current Assets Rs.5,00,000

i.e. Current Liabilities Rs.2,00,000

(b) Debtors and Bank

$$\text{Liquid Ratio} = \frac{\text{Debtors \& Bank}}{\text{Current Liabilities}} = 1.5$$

Therefore, Debtors and Bank = Rs.3,00,000

(c) Stock = Current Assets - Debtor and Bank

i.e., Rs. 5,00,000 - Rs. 3,00,000 = Rs. 2,00,000

(d) Stock Turnover ratio is 6 le., Cost of Sales = 6 X stock

$$\begin{aligned}\text{Therefore, Cost of sales} &= 6 \times \text{Rs. } 2,00,000 \\ &= \text{Rs. } 12,00,000\end{aligned}$$

(e) Gross Profit Ratio is 20%, therefore, Cost of Goods Sold (Rs. 12,00,000) is 80% of Sales. The Sales of the firm is therefore, Rs. 15,00,000 with a Net Profit is 3,00,000.

(f) The debt collection period is 2 months. So, the debtors are $\frac{1}{6}$ of sales and are therefore, Rs. 2,50,000.

(g) The Bank balance is Rs. 3,00,000-Rs. 2,50,000 (i.e.. debtors) = Rs. 50,000.

(h) The Fixed Assets turnover is 2 and the Cost of Sales is Rs. 12,00,000. Therefore, the Fixed Assets are Rs. 6,00,000.

ANSWER-6

(i) Statement showing the earnings of 3 workers on day basis and labour cost for 100 pieces .

Name of worker	Actual output (units)	Day wages @ Re. 0.75 per hour for 8 hrs.	Labour cost per 100 pieces
Achyuta	180	6.00	$(6 \times 100 \div 180) = \text{Rs. } 3.33$
Ananta	120	6.00	$(6 \times 100 \div 120) = \text{Rs. } 5.00$
Govinda	100	6.00	$(6 \times 100 \div 100) = \text{Rs. } 6.00$
	400	18.00	

Average cost of labour to produce 100 pieces

For 400 pieces, labour cost = Rs. 18

For 100 pieces, labour cost = $(18 \times 100) / 400$ or Rs. 4.50

(2 MARKS)

(ii) 10 units (standard hourly output) = Re. 0.75

100 units = Rs. 7.50

(ii) **Statement showing the earnings of 3 workers on piece rate basis and labour cost per 100 pieces**

Name of worker	Actual output (units)	Piece wages @ Re. 0.075 per unit	Labour cost per 100 pieces
Achyuta	180	13.50	7.50
	120	9.00	7.50
Govinda	100	7.50	7.50
	400	30.00	

Average cost of labour $(30 / 400) \times 100 = \text{Rs. } 7.50$ per 100 pieces.

(2 MARKS)

(iii) **Statement showing the earnings of 3 workers under Halsey scheme and labour cost per 100 pieces**

Name of worker	Actual output (Pieces)	Std. time for actual output (Hours)	Actual time taken (Hours)	Time saved (Hours)
Achyuta	180	$180 \div 10^* = 18$	8	10
Ananta	120	12	8	4
Govinda	100	10	8	2

*One Standard hour — 10 units.

Name of worker	Earnings (Rs.)	Labour cost per 100 pieces (Rs.)
Achyuta	$8 \times 0.75 + [(50 \div 100) \times 10 \times 0.75]$ $= 6.00 + 3.75 = \text{Rs. } 9.75$	$(9.75 \times 100) \div 180$ $= \text{Rs. } 5.42$
Ananta	$8 \times 0.75 + [(50 \div 100) \times 4 \times 0.75]$ $= 6.00 + 1.50 = \text{Rs. } 7.50$	$(7.50 \times 100) \div 120$ $= \text{Rs. } 6.25$
Govinda	$8 \times 0.75 + [(50 \div 100) \times 2 \times 0.75]$ $= 6.00 + 0.75 = \text{Rs. } 6.75$	$(6.75 \times 100) \div 100$ $= \text{Rs. } 6.75$

Total earnings of 3 workers = Rs. $(9.75 + 7.50 + 6.75) = \text{Rs. } 24.00$

Average cost $(24 \div 400) \times 100 = \text{Rs. } 6$ per 100 pieces.

(3 MARKS)

(iv) Statement showing the earnings of 3 workers under Rowan Scheme and labour cost per 100 pieces

$$\text{Earnings} = \text{Hours worked} \times \text{Rate per hour} + \left(\frac{\text{Time saved}}{\text{Time allowed}} \right) \times \text{Hours worked} \times \text{Rate per hour}$$

Name of worker	Earnings (Rs.)	Labour cost per 100 pieces (Rs.)
Achyuta	$8 \times 0.75 + (10/18 \times 8 \times 0.75)$ $= \text{Rs.}6.00 + 3.33 = \text{Rs.}9.33$	$100/180 \times 9.33 = 5.18$
Ananta	$8 \times 0.75 + (4/12 \times 8 \times 0.75)$ $= \text{Rs.}6.00 + 2.00 = \text{Rs.}8.00$	$100/120 \times 8.00 = 6.67$
Govinda	$8 \times 0.75 + (2/10 \times 8 \times 0.75)$ $= \text{Rs.}6.00 + 1.20 = \text{Rs.}7.20$	$100/100 \times 7.20 = 7.20$

Total earnings Rs. $(9.33 + 8.00 + 7.20) = \text{Rs.} 24.53$

Average labour cost for 100 pieces = $(24.53 \div 400) \times 100 = \text{Rs.} 6.13.$

(3 MARKS)