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SUGGESTED SOLUTION

CA INTERMEDIATE

SUBJECT- COSTING AND F.M.

Test Code – CIM 8544

BRANCH - () (Date :)

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ANSWER – 1

Statement of Cost for the month of September

Particulars	Rs.	Rs.
Raw material Consumed:		
Opening stock of Raw material	2,42,000	
Add : Purchases of raw material (Balancing Figure)	52,37,930	
Less : Closing stock of raw material	(2,92,000)	
Raw material consumed(**Working Note 1)**		51,87,930
Add : Direct Employee cost (50% of 51,87,930)		25,93,965
Prime cost		77,81,895
Add: Factory overheads :		
Consumable stores	3,50,000	
Lease rent of Production Assets	2,00,000	5,50,000
Gross work cost		83,31,895
Add : Opening stock of WIP		2,00,000
Less : Closing stock of WIP		(5,00,000)
Net Work cost /Factory cost		80,31,895
Add : Research and development cost for Process		2,50,000
Add : Quality Control cost		2,00,000
Less : Scrap value realised **(Working Note 2)**		(2,44,000)
Cost of production		82,37,895
Add : Opening stock of finished goods		Nil
Less : Closing stock of finished goods		(4,11,895)
Cost of Goods sold (Given)		78,26,000
Add : Selling and Distribution expenses		4,13,000
Add : Packing cost (Secondary)		1,90,000
Add : Administrative Expenses (General)		2,24,000
Cost of Sales (A)		**86,53,000**
Add : Profit (B-A)		**17,97,000**
Sales (Working Note 3)(B)		**1,04,50,000**

Working Note 1: **Raw material Consumed**

Let 'x' be the amount of Raw material consumed.

Therefore, Direct Employee cost will be 0.5x

Therefore, Prime cost = 1.5x

On Solving Equation:

Prime Cost + [Factory O/H + Opening WIP – Closing WIP+ Research & Development cost..+ Quality Control Cost – Scrap]+Opening stock of Finished goods – Closing Stock of Finished goods = 78,26,000

$1.5x + [4,56,000] - \left(\frac{5000 units(1.5x+4,56,000)}{1,00,000\ units}\right) = 78,26,000$

1.5x + [4,56,000] – **0.075x – 22800** = 78,26,000

We get 'x' =51,87,930 (i.e. R/M Consumed)

Working Note 2: Scrap Value realized:

$1,00,000 \times 4\% \times 61$ = Rs. 2,44,000

Working Note 3: Sales:

Sales Qty= Opening Stock of Finished goods + Production Qty – Closing Stock of Finished goods

Sales Qty= Nil + 1,00,000 – 5,000

Sales Qty= 95,000 units

Therefore sales value will be 95,000×110 = 1,04,50,000 Rs.

(i) Value of Raw Material Purchased = Raw Material Consumed + Closing Stock of Raw Material – Opening Stock of Raw material

Raw Material Purchased= 51,87,930 + 2,92,000 – 2,42,000

=**52,37,930 Rs.**

(ii) Profit = Sale – Cost of Sales

=1,04,50,000 – 86,53,000

=**17,97,000 Rs.**

(10 MARKS)

ANSWER – 2

(i) Computation of Earnings per Share (EPS)

Plans	P	Q	R
	Rs.	Rs.	Rs.
Earnings before interest & tax (EBIT)	18,00,000	18,00,000	18,00,000
Less: Interest charges	-	2,00,000	-
Earnings before tax (EBT)	18,00,000	16,00,000	18,00,000
Less : Tax @ 50%	9,00,000	8,00,000	9,00,000
Earnings after tax (EAT)	9,00,000	8,00,000	9,00,000
Less : Preference share dividend	-	-	2,00,000
Earnings available for equity shareholders	9,00,000	8,00,000	7,00,000
No. of shares	2,00,000	1,00,000	1,00,000
E.P.S (Rs.)	4.5	8	7

(3 MARKS)

(ii) Computation of Financial Break-even Points

Proposal 'P' = 0

Proposal 'Q' = Rs. 2,00,000 (Interest charges)

Proposal 'R' = Earnings required for payment of preference share dividend i.e.

Rs. 2,00,000 , 0.5 (Tax Rate) = Rs. 4,00,000

(1 MARK)

(iii) Computation of Indifference Point between the Proposals

The indifference point = $\frac{(\text{EBIT-1}_1)(1\text{-T})}{E_1} = \frac{(\text{EBIT-1}_2)(1\text{-T})}{E_2}$

Where,

EBIT	=	Earnings before interest and tax
1_1	=	Fixed Charges (Interest) under Proposal 'P'
1_2	=	Fixed charges (Interest) under Proposal 'Q'
T	=	Tax Rate
E_1	=	Number of Equity shares in Proposal P
E_2	=	Number of Equity shares in Proposal Q

(0.5 MARK)

Combination of Proposals

(a) Indifference point where EBIT of proposal "P" and proposal 'Q' is equal

$$\frac{(ebit-0)(1-.5)}{2,00,000} = \frac{(EBIT-2,00,000)(1-0.5)}{1,00,000}$$

.5 EBIT (1,00,000) = (.5 EBIT -1,00,000) 2,00,000

.5 EBIT = EBIT – 2,00,000

EBIT = Rs. 4,00,000

(1.5 MARKS)

(b) Indifference point where EBIT of proposal 'P' and Proposal 'R' is equal:

$\frac{(\text{EBIT-1})(1\text{-T})}{E_1} = \frac{(\text{EBIT-12})(1\text{-T})}{E_2}$ - Preference share dividend

$$\frac{(EBIT-0)(1-.5)}{2,00,000} = \frac{(EBIT-0)(1-.5)-2,00,000}{1,00,000}$$

$$\frac{.5EBIT}{2,00,000} = \frac{.53BIT-2,00,000}{1,00,000}$$

.25 EBIT = 0.5 EBIT - 2,00,000

EBIT = 2,00,000 ÷ 0.25 = Rs. 8,00,000

(2 MARKS)

(c) Indifference point where EBIT of proposal 'Q' and proposal 'R' are equal

$$\frac{(EBIT-2,00,000)(1-0.5)}{1,00,000} = \frac{(EBIT-0)(1-0.5)-2,00,000}{1,00,000}$$

.5 EBIT -1,00,000 = .5 EBIT – 2,00,000

There is no indifference point between proposal 'Q' and proposal 'R'

(1.5 MARKS)

Analysis: It can be seen that Financial proposal 'Q' dominates proposal 'R', since the financial break-even-point of the former is only Rs. 2,00,000 but in case of latter, it is Rs. 4,00,000.

(0.5 MARK)

ANSWER -3

(i) Calculation of after tax cost of the followings:

(a) New 14% Debentures (K_d) = $\frac{1(1\text{-}t)}{NP} = \frac{Rs.14(1\text{-}0.5)}{Rs.98} = 0.0714 \text{ or } 7.14\%$

New 12% Preference Shares (K_p) = $\frac{PD}{NP} = \frac{Rs.1.20}{Rs.9.80} = 0.1224 \text{ or } 12.24\%$

(b) Equity Shares (Retained Earnings) (K_e) =

$$= \frac{\text{Expected Dividend } (D_1)}{\text{Current market price } (P_0)} + \text{ Growth rate (g)}$$

$$= \frac{50\% \text{ of } Rs.2.773}{Rs.27.75} + 0.12 = 0.17 \text{ or } 17\%$$

* Growth rate (on the basis of EPS) is calculated as below :

$$\frac{\text{EPS in current year - EPS in previous year}}{\text{EPS in previous year}} = \frac{Rs.2.773\text{-}Rs.2.476}{Rs.2.476} = 0.12$$

(Students may verify the growth trend by applying the above formula to last three or four years)

(3 MARKS)

(ii) Calculation of marginal cost of capital (on the basis of existing capital structure):

Source of capital	Weight (a)	After tax Cost of capital (%) (b)	WACC (%) (a) × (b)
14% Debenture	0.15	7.14	1.071
12% Preference shares	0.05	12.24	0.612
Equity shares	0.80	17.00	13.600
Marginal cost of capital			15.283

(2 MARKS)

(iii) The company can spent for capital investment before issuing new equity shares and without increasing its marginal cost of capital:

Retained earnings can be available for capital investment

= 50% of 2015 EPS × equity shares outstanding

= 50% of Rs. 2.773 × 2,00,000 shares =Rs.2,77,300

Since, marginal cost of capital is to be maintained at the current level i.e. 15.28%, the

retained earnings should be equal to 80% of total additional capital for investment.

Thus investment before issuing equity $\left(\frac{Rs.2,77,300}{80} \text{ x } 100\right) = Rs.3,46,625$

The remaining capital of Rs. 69,325 i.e. Rs. 3,46,625 –Rs. 2,77,300 shall be financed by issuing14% Debenture and 12% preference shares in the ratio of 3 : 1 respectively.

(2 MARKS)

(iv) If the company spends more than Rs. 3,46,625 as calculated in part (iii) above, it will have to issue new shares at Rs. 20 per share.

The cost of new issue of equity shares will be:

$$K_e = \frac{\text{Expected Dividend } (D_1)}{\text{Current market price } (P_0)} + \text{ Growth rate (g)} =$$

$$= \frac{50\% \text{ of Rs.2.773}}{Rs.20} + 0.12 = 0.1893 \text{ or } 18.93\%$$

Calculation of marginal cost of capital (assuming the existing capital structure will be maintained):

Source of capital	**Weight (a)**	**Cost (%) (b)**	**WACC (%) (a) × (b)**
14% Debenture	0.15	7.14	1.071
12% Preference shares	0.05	12.24	0.612
Equity shares	0.80	18.93	15.144
Marginal cost of capital			16.827

(3 MARKS)

ANSWER -4

Input – Output Relation
1 bag = 1 metre of cotton cloth
Therefore 1000 meter cotton cloth = 1000 units of bags because here opening stock and closing stock of input are zero. Therefore total input purchased = total input consumed

No. of bags manufactured = 1,000 units

Cost sheet for the month of September 2019

	Particulars	**Total Cost (Rs.)**	**Cost per unit (Rs.)**
1.	Direct materials consumed:		
	- Leather sheets	3,20,000	320.00
	- Cotton cloths	15,000	15.00
	Add: Freight paid on purchase	8,500	8.50

2.	Direct wages (Rs.80 × 2,000 hours)	1,60,000	160.00
3.	Direct expenses (Rs.10 × 2,000 hours)	20,000	20.00
4.	**Prime Cost**	**5,23,500**	523.50
5.	Factory Overheads: Depreciation on machines	16,500	16.50
	{(Rs.22,00,000×90%)÷120 months}		
	Apportion cost of factory rent	98,000	98.00
6.	Works/ Factory Cost	6,38,000	638.00
7.	Less: Realisable value of cuttings (Rs.150×35 kg.)	(5,250)	(5.25)
8.	Cost of Production	6,32,750	632.75
9.	Add: Opening stock of bags	0	
10.	Less: Closing stock of bags (100 bags × Rs.632.75)	(63,275)	
11.	Cost of Goods Sold	5,69,475	632.75
12.	Add: Administrative Overheads:		
	- Staff salary	45,000	45.00
	- Apportioned rent for administrative office	12,000	12.00
13.	Add: Selling and Distribution Overheads		
	- Staff salary	72,000	80.00
	- Apportioned rent for sales office	10,000	11.11
	- Freight paid on delivery of bags	18,000	20.00
14.	Cost of Sales (18+19+20)	7,26,475	800.86

Apportionment of Factory rent:

To factory building {(Rs.1,20,000 ÷ 2400 sq.feet) × 1,960 sq. feet} = Rs.98,000

To administrative office {(Rs.1,20,000 ÷ 2400 sq.feet) × 240 sq. feet} = Rs.12,000

To sale office {(Rs.1,20,000 ÷ 2400 sq.feet) × 200 sq. feet} = Rs.10,000

(10 MARKS)

ANSWER -5

Working Notes:

1. Capital employed before expansion plan:

	(Rs.)
Equity shares (Rs.10 × 80,000 shares)	8,00,000
Debentures {(Rs. 1,20,000/12) X 100}	10,00,000
Retained earnings	12,00,000
Total capital employed	30,00,000

2. Earnings before the payment of interest and tax (EBIT):

	(Rs.)
Profit (EBT)	3,00,000
Interest	1,20,000
EBIT	4,20,000

3. Return on Capital Employed (ROCE):

$$\text{ROCE} = \frac{\text{EBIT}}{\text{Capital employed}} \text{ x } 100 = \frac{\text{Rs.4,20,000}}{\text{Rs.30,00,000}} \text{ x } 100 = 14\%$$

4. Earnings before interest and tax (EBIT) after expansion scheme:

After expansion, capital employed = Rs. 30,00,000 + Rs.4,00,000 = Rs. 34,00,000

Desired EBIT = 14% x Rs.34,00,000 = Rs.4,76,000

(4*1 = 4 MARKS)

(i) Computation of Earnings Per Share (EPS) under the following options:

	Present situation (Rs.)	**Expansion scheme Additional funds raised as**	
		Debt Rs.	**Equity Rs.**
Earnings before interest and Tax (EBIT)	4,20,000	4,76,000	4,76,000
Less : Interest			
- Old Capital	1,20,000	1,20,000	1,20,000
- New Capital	-	48,000 (Rs.4,00,000 x 12%)	-
Earnings before Tax (EBT)	3,00,000	3,08,000	3,56,000
Less : Tax (50% of EBT)	1,50,000	1,54,000	1,78,000
PAT	1,50,000	1,54,000	1,78,000
No. of shares outstanding	80,000	80,000	1,20,000

Earnings per Share (EPS)	1.875 $\left(\frac{Rs.1,50,000}{80,000}\right)$	1.925 $\left(\frac{Rs.1,54,000}{80,000}\right)$	1.48 $\left(\frac{Rs.1,78,000}{1,20,000}\right)$

(5 MARKS)

(ii) Advise to the Company: When the expansion scheme is financed by additional debt, the EPS is higher. Hence, the company should finance the expansion scheme by raising debt.

(1 MARK)