



**J.K. SHAH**<sup>®</sup>  
**TEST SERIES**  
Evaluate Learn Succeed

**SUGGESTED SOLUTION**

**INTERMEDIATE M' 19 EXAM**

**SUBJECT- COSTING AND F.M.**

**Test Code – CIM 8096**

**(Date :)**

**Head Office : Shraddha, 3<sup>rd</sup> Floor, Near Chinai College, Andheri (E), Mumbai – 69.**

**Tel : (022) 26836666**

## ANSWER-1

### (a) Statement of Equivalent Production

Input		Output		Equivalent Production			
Details	Units	Details	Units	Materials		Labour & overheads	
				units	%	units	%
Opening WIP	1,000	Units completed	17,500	17,500	100	17,500	100
Introduced	19,000	Normal Loss (5%)	1,000	-	-	-	-
		Abnormal Loss	500	500	100	400	80
		Closing WIP	1,000	1,000	100	800	80
	<b>20,000</b>		<b>20,000</b>	<b>19,000</b>		<b>18,700</b>	

(2 MARKS)

### (b) Statement of cost for each element

Cost Elements	Cost of Opening WIP Rs.	Cost in process Rs.	Total cost RS.	Equivalent Production units	Cost per Unit (Rs.)
Material (-) Value of normal scrap	40,000	7,40,000	7,80,000 20,000	19,000	40
			7,60,000		
Labour	7,500	1,79,500	1,87,000	18,700	10
Overheads	22,500	5,38,500	5,61,000	18,700	30
					80

(2 MARKS)

### (c) Statement of apportionment of cost

Details	Element	Equivalent production (units)	Cost per unit Rs.	Cost Rs.	Total Cost Rs.
Units completed	Material	17,500	40	7,00,000	14,00,000
	Labour	17,500	10	1,75,000	
	Overheads	17,500	30	5,25,000	
Abnormal loss	Material	500	40	20,000	36,000
	Labour	400	10	4,000	
	Overheads	400	30	12,000	
Closing WIP	Materials'	1,000	40	40,000	72,000
	Labour	800	10	8,000	
	Overheads	800	30	24,000	

(2 MARKS)

**(d) Process A Account**

Particulars	Units	Amount (Rs.)	Particulars	Units	Amount (Rs.)
To Balance (O/WIP)	1,000	70,000	By Normal loss @ Rs. 20 p.u.	1,000	20,000
“ New units introduced	19,000		“ Abnormal loss	500	36,000
Material		7,40,000	“ Process B A/c	17,500	14,00,000
Labour Overheads		1,79,500	“ Balance c/d (clo-ing WIP)	1,000	72,000
		5,38,500			
	<b>20,000</b>	<b>15,28,000</b>		<b>20,000</b>	<b>15,28,000</b>

**(2 MARKS)**

Dr.

**Normal Loss Account**

Cr.

Particulars	Units	Amount (Rs.)	Particulars	Units	Amount (Rs.)
To Process A A/c	1,000	20,000	By Cost Ledger Control A/c	1,000	20,000

**(1 MARK)**

Dr.

**Abnormal Loss Account**

Cr.

Particulars	Units	Amount (Rs.)	Particulars	Units	Amount (Rs.)
To Process A A/c	500	36,000	By Cost Ledger Control A/c	500	10,000
			“ Costing' P & L A/c		26,000
	<b>500</b>	<b>36,000</b>		<b>500</b>	<b>36,000</b>

**(1 MARK)****ANSWER-2****(i) Net income when joint costs are apportioned on sales value basis**

Product (1)	Sales Value (2)	Separate costs (3)	S.V. at split-off Point(2)-(3)—(4)	Apportioned Joint cost (5)	Net income (4)-(5)=(6)
A	Rs. 1,15,000	Rs. 30,000	Rs. 85,000	Rs. 68,000*	Rs. 17,000
B	10,000	6,000	4,000	3,200	800
C	4,000	—	4,000	3,200	800
D	30,000	1,000	29,000	23,200	5,800
	<b>1,59,000</b>	<b>37,000</b>	<b>1,22,000</b>	<b>97,600</b>	<b>24,400</b>

\* Rs. 97,600 x 85,000/1,22,000 = Rs. 68,000. Other cost have been calculated similarly.

**(3 MARKS)**

(ii) Net income of each product if sold at split-off point

Product	Output	S.P. per unit	Sales value at split-off point	Allocated J.C.	Net income
A	5,00,000	Re. 0.15	Rs. 75,000	Rs. 65,946#	Rs. 9,054
B	10,000	0.50	5,000	4,397	603
C	5,000	0.80	4,000	3,517	483
D	9,000	3.00	27,000	23,740	3,260
			1,11,000	97,600	13,400

# Rs. 97,600 x 75,000/1,11,000 = Rs. 65,946. Other costs have been calculated similarly.

(3 MARKS)

(iii) Determination of additional net income by altering the processing decisions

Product	Sales value after further processing	Sales value at ^ Split-off point	Incremental sales value	Separate costs	Incremental gain/loss
A	Rs. 1,15,000	Rs. 75,000	Rs. 40,000	Rs. 30,000	Rs. 10,000
B	10,000	5,000	5,000	6,000	(1,000)
C	4,000	4,000	—	—	—
D	30,000	27,000	3,000	1,000	2,000
	1,59,000	1,11,000	48,000	37,000	11,000

**Note :** Products A and D should be sold after further processing. However, products B and C should be sold at split-off point.

(4 MARKS)

**ANSWER-3**

Particulars	Rs.
Total Sales	Rs. 200 lakhs
Credit Sales (80%)	Rs. 160 lakhs
Receivables for 40 days	Rs. 80 lakhs
Receivables for 120 days	Rs. 80 lakhs
Average collection period [(40 x 0.5) + (120 x 0.5)]	80 days
Average level of Receivables (Rs. 1,60,00,000 x 80/360)	Rs.35,55,556
Factoring Commission (Rs. 35,55,556 x 2/100)	Rs.71,111
Factoring Reserve (Rs. 35,55,556 x 10/100)	Rs. 3,55,556
Amount available for advance {Rs. 35,55,556 - (3,55,556 + 71,111)}	Rs.31,28,889
Factor will deduct his interest 18% :	Rs. 1,25,156

Interest = $\frac{\text{Rs.}31,28,889 \times 18 \times 80}{100 \times 360}$	
Advance to be paid (Rs. 31,28,889 - Rs. 1,25,156)	Rs.30,03,733

(5 MARKS)

(i) **Statement Showing Evaluation of Factoring Proposal**

	Rs.
<b>A. Annual Cost of Factoring to the Firm:</b>	
Factoring commission (Rs. 71,111 x 360/80)	3,20,000
Interest charges (Rs. 1,25,156 x 360/80)	5,63,200
Total	8,83,200
<b>B. Firm's Savings on taking Factoring Service:</b>	Rs.
Cost of credit administration saved	2,40,000
Bad Debts (Rs. 160,00,000 x 1/100) avoided	1,60,000
Total	4,00,000
<b>C. Net Cost to the firm (A - B) (Rs. 8,83,200 - Rs. 4,00,000)</b>	4,83,200

$$\text{Effective cost of factoring} = \frac{\text{Rs.}4,83,200}{\text{Rs.}30,03,733} \times 100 = 16.09\% \text{ *}$$

\* If cost of factoring is calculated on the basis of total amount available for advance, then, it will be

$$= \frac{\text{Rs.}4,83,200}{\text{Rs.}31,28,889} \times 100 = 15.44\%$$

- (ii) If Bank finance for working capital is available at 14%, firm will not avail factoring service as 14 % is less than 16.08% (or 15.44%) (5 MARKS)

**ANSWER-4**

(i) **Calculation of Cost of Capital for each source of capital:**

- (a) Cost of Equity share capital:

$$K_{e} = \frac{D_0 (1 + g)}{\text{Market Price per share } (P_0)} + g = \frac{4(1 + 0.08)}{\text{Rs.}40} + 0.08$$

$$= \frac{\text{Rs.}4.32}{\text{Rs.}40} + 0.08 = 0.188 \text{ or } 18.8\%$$

- (b) Cost of Preference share capital ( $K_p$ ) = 11%
- (c) Cost of Debentures ( $K_d$ ) =  $r(1-t) = 14\%(1-0.4) = 8.4\%$

(d) Cost of Retained Earnings ( $K_s$ ) =  $K_e (1 - t_p) = 18.8 (1 - 0.2) = 15.04\%$

(3 MARKS)

(ii) Weighted Average Cost of Capital (WACC) on the basis of book value weights

Source	Amount (Rs.)	Weights (a)	After tax Cost of Capital (%) (b)	WACC (%) (c) = (a) × (b)
Equity share	50,00,000	0.50	18.80	9.40
Retained earnings	13,00,000	0.13	15.04	1.96
11% Preference share	7,00,000	0.07	11.00	0.77
14% Debentures	30,00,000	0.30	8.40	2.52
	1,00,00,000	1.00		14.65

(3 MARKS)

(iii) Weighted Average Cost of Capital (WACC) on the basis of market value weights

Source	Amount (Rs.)	Weights (a)	After tax Cost of Capital (%) (b)	WACC (%) (c) = (a) × (b)
Equity share	1,05,00,000	0.70	18.80	13.16
11% Preference share	9,00,000	0.06	11.00	0.66
14% Debentures	36,00,000	0.24	8.40	2.016
	1,50,00,000	1.000		15.836

**Note:** The cost of equity can be calculated without taking the effect of growth on dividend.

Accordingly WACC can be calculated.

(4 MARKS)

### ANSWER-5

1. Capital employed before expansion plan:

(2 MARKS)

	(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):

(1 MARK)

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

**3. Return on Capital Employed (ROCE): (1 MARK)**

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

**4. Earnings before interest and tax (EBIT) after expansion scheme: (1 MARK)**

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

**(i) Computation of Earnings Per Share (EPS) under the following options: (4.5 MARKS)**

	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 $\left( \frac{\text{Rs.1,50,000}}{80,000} \right)$	1.925 $\left( \frac{\text{Rs.1,54,000}}{80,000} \right)$	1.48 $\left( \frac{\text{Rs.1,78,000}}{1,20,000} \right)$

**(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.

**(0.5 MARKS)**

**ANSWER-6**

(i) Determination of EPS at EBIT of Rs. 5,50,000

Particulars	Alt-1 : Equity share	Alt 2: Bonds	Alt 3: Preference shares
EBIT	5,50,000	5,50,000	5,50,000
Less: Interest	<u>4,000</u>	<u>18,000</u>	<u>4,000</u>
Taxable income	5,46,000	5,32,000	5,46,000
Less: taxes @ 50%	<u>2,73,000</u>	<u>2,66,000</u>	<u>2,73,000</u>
Income after taxes	2,73,000	2,66,000	2,73,000
Less: dividend on preference shares	10,000	10,000	24,875
Earnings available for equity	2,63,000	2,56,000	2,48,125

shareholders			
No. of equity shares	45,000	40,000	40,000
EPS	Rs. 5.84	Rs. 6.40	Rs. 6.20

(5 MARKS)

(ii) Equivalency level of Earnings between Common stock and Debt plan:

$$\frac{(x - I_1)(1 - t) - P_1}{N_1} = \frac{(x - I_1 - I_2)(1 - t) - P_1}{N_2}$$

Where X = EBIT

I = Interest rate

t = tax rate

P = Dividend to preference shareholders

N = no. of equity shares

$$\text{or, } \frac{(X - \text{Rs.}4,000)(0.5) - \text{Rs.}10,000}{45,000} = \frac{(X - \text{Rs.}4,000 - \text{Rs.}14,000)(0.5) - \text{Rs.}10,000}{40,000}$$

$$\text{Or, } \frac{0.5X - \text{Rs.}12,000}{45,000} = \frac{0.5X - \text{Rs.}19,000}{40,000}$$

$$\text{or, } 20,000X - \text{Rs. } 48,00,00,000 = 22,500X - \text{Rs. } 85,50,00,000$$

$$X (\text{EBIT}) = \text{Rs. } 1,50,000$$

(3 MARKS)

(iii) Equivalency level of Earnings between preferred stock and common stock plan:

$$\frac{(X - I_1)(1 - t) - P_1 - P_2}{N_2} = \frac{(X - I_1)(1 - t) - P_1}{N_1}$$

$$\text{Or, } \frac{(X - \text{Rs.}4,000)(0.5) - \text{Rs.}24,875}{40,000} = \frac{(X - \text{Rs.}4,000)(0.5) - \text{Rs.}10,000}{45,000}$$

$$\text{or, } 22,500X - \text{Rs. } 12,09,37,500 = 20,000X - \text{Rs. } 4,80,00,000$$

$$X (\text{EBIT}) = \text{Rs. } 2,91,750$$

(2 MARKS)