J.K. SHAH TEST SERIES

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SUGGESTED SOLUTION

IPCC NOVEMBER 2016 EXAM

FINANCIAL MANAGEMENT

Test Code - I N J 1 0 3 6

BRANCH - (MUMBAI) (Date : 03.07.2016)

Answer-1 :
Working Notes:

1. **Computation of Current Assets (CA) and Current Liabilities (CL)**

$$\frac{\text{Current Assets}}{\text{Current Liabilities}} = \text{Current Ratio}$$

$$\frac{CA}{CL} = \frac{1.5}{1}$$

$\therefore$ CA   = 1.5 CL

CA - CL   = 1,50,000

1.5 CL- CL = 1,50,000

0.5 CL   = 1,50,000

CL $= \dfrac{1,50,000}{0.5} = 3,00,000$

CA   = 1.5 x 3,00,000 = 4,50,000

2. **Computation of Bank Credit (BC) and Other Current Liabilities (OCL)**

$$\frac{\text{Bank Credit}}{\text{Other CL}} = \frac{2}{1}$$

BC   = 2 OCL

BC + OCL   = CL

2 OCL + OCL = 3,00,000

3 OCL   = 3,00,000

OCL   = 1,00,000

Bank Credit   = 2 × 1,00,000 = 2,00,000

3. **Computation of Inventory**

$$\text{Quick Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

$$= \frac{\text{Current Assets - Inventories}}{\text{Current Liabilities}}$$

$$0.8 = \frac{4,50,000 - \text{Inventories}}{3,00,000}$$

$0.8 \times 3,00,000$ = 4,50,000 – Inventories

Inventories   = 4,50,000 – 2,40,000 = 2,10,000

4. **Computation of Debtors**

Inventory Turnover = 5 times

$$\text{Average Inventory} = \frac{\text{COGS}}{\text{Inventory turnover}}$$

COGS   = 2,10,000 × 5 = 10,50,000

Average Collection Period (ACP) = 1.5 months = 45 days

$$\text{Debtors Turnover} = \frac{360}{\text{ACP}} = \frac{360}{45} = 8$$

$$\frac{\text{Sales - COGS}}{\text{Sales}} \times 100 = 25\%$$

$$\text{Sales – COGS} = \frac{25 \times \text{Sales}}{100}$$

Sales – 0.25 Sales = COGS

0.75 Sales   = 10,50,000

$$\text{Sales} = \frac{10,50,000}{0.75} = 14,00,000$$

$$\text{Debtors} = \frac{\text{Sales}}{\text{Debtors Turnover}}$$

$$= \frac{14,00,000}{8} = 1,75,000$$

5. **Computation of Bank and Cash**

Bank & Cash = CA - (Debtors + Inventory)

= 4,50,000 – (1,75,000 + 2,10,000)= 4,50,000 – 3,85,000 = 65,000

6. **Computation of Reserves & Surplus**

$$\frac{\text{Reserves \& Surplus}}{\text{Bank \& Cash}} = 4$$

Reserves & Surplus = 4 × 65,000 = 2,60,000

(0.5 x 6 = 3 Marks)

Balance Sheet of SONA Ltd. as on March 31, 2013

Liabilities	Rs.	Assets	Rs.
Share Capital	5,75,000	Fixed Assets	6,85,000
Reserves & Surplus	2,60,000	Current Assets:	
Current Liabilities:		Inventories	2,10,000
Bank Credit	2,00,000	Debtors	1,75,000
Other Current Liabilities	1,00,000	Bank & Cash	65,000
	11,35,000		**11,35,000**

(3 Marks)

Answer-2 :

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

1. Cost of Equity Capital:

$$K_e = \frac{DPS(1+g)}{MP} \times 100 + g$$

$$= \frac{25(1+0.05)}{200} \times 100 + 5$$

$$= \frac{26.25}{200} \times 100 + 5$$

$$= 13.125 + 5 = 18.125\%.$$

2. Cost of preference capital or $K_p = 9\%$.

3. Cost of Debentures: K_d (after tax) = r (1 – T)

= 11 (1 – 0.3) = 7.7%.

4. Cost of Retained Earnings: K_r = K_e (1 – T_p)

= 18.125 (1 – 0.2)

= 14.5%.

(2 Marks)

(ii) Weighted Average Cost of Capital

(On the basis of Book Value Weights)

Source	Amount (Book Value) (Rs.)	Weights Capital (after tax) (%)	Cost of	WACC (%)
(1)	(2)	(3)	(4)	(5) = (3) x (4)
Equity Capital	80,00,000	0.4	18.125	7.25
Preference Capital	20,00,000	0.1	9	0.90
Debentures	60,00,000	0.3	7.7	2.31
Retained earnings	40,00,000	0.2	14.5	2.90
	2,00,00,000	**1.00**		**13.36**

Hence, WACC on the basis of Book Value Weights = 13.36%.

(2 Marks)

(iii) Weighted Average Cost of Capital
(On the basis of Market value weights)

Source	Amount (Book Value) (Rs.)	Weights Capital (after tax) (%)	Cost of	WACC (%)
(1)	(2)	(3)	(4)	(5) = (3) x (4)
Equity Capital	1,60,00,000	0.640	18.125	11.600
Preference Capital	24,00,000	0.096	9	0.864
Debentures	66,00,000	0.264	7.7	2.033
Retained earnings	-	-	-	-
	2,50,00,000	1.000		14.497

Hence, WACC on the basis of Market Value Weights = 14.497%   **(2 Marks)**

Answer-3 :

Analysis of the receivables of Jackson Company by the bank in order to identify acceptable collateral for a short-term loan:

(i)   The Jackson Company's credit policy is 2/10 net 30.

The bank lends 80 per cent on accounts where customers are not currently overdue and where the average payment period does not exceed 10 days past the net period i.e. thirty days. From the schedule of receivables of Jackson Company Account No. 91 and Account No. 114 are currently overdue and for Account No. 123 the average payment period exceeds 40 days. Hence Account Nos. 91, 114 and 123 are eliminated. Therefore, the selected Accounts are Account Nos. 74, 107, 108 and 116.

(ii) Statement showing the calculation of the amount which the bank will lend on a pledge of receivables if the bank uses a 10 per cent allowances for cash discount and returns

(3 Marks)

Account No.	Amount (Rs.) (a)	90 per cent of amount (Rs.) (b)=90% of (a)	80% of amount (Rs.) (c)=80% of (b)
74	25,000	22,500	18,000
107	11,500	10,350	8280
108	2,300	2,070	1,656
116	29,000	26,100	20,880
		Total loan amount	**48,816**

(3 Marks)

Answer-4 :

Total Assets	= Rs. 40 crores
Total Asset Turnover Ratio	= 2.5
Hence, Total Sales	= 40 x 2.5 = Rs. 100 crores

Computation of Profits after Tax (PAT)

	(Rs. in crores)
Sales	100
Less: Variable operating cost @ 65%	65
Contribution	35
Less: Fixed cost (other than Interest)	8
EBIT	27
Less: Interest on debentures (15% x 20)	3
EBT	24

Less: Tax 40%	<u>9.6</u>
EAT	<u>14.4</u>

(2 Marks)

(i) **Earnings per share**

$$\therefore EPS = \frac{Rs.14.4\ Crores}{1\ crore\ equity\ shares} = Rs.14.40$$

(1 Mark)

(ii) **Operating Leverage**

$$Operating\ leverage = \frac{Contribution}{EBIT} = \frac{35}{27} = 1.296$$

It indicates the choice of technology and fixed cost in cost structure. It is level specific. When firm operates beyond operating break-even level, then operating leverage is low. It indicates sensitivity of earnings before interest and tax (EBIT) to change in sales at a particular level.

(1 Mark)

(iii) **Financial Leverage**

$$Financial\ Leverage = \frac{EBIT}{EBT} = \frac{27}{24} = 1.125$$

The financial leverage is very comfortable since the debt service obligation is small vis-à-vis EBIT.

(1 Mark)

(iv) **Combined Leverage**

$$Combined\ Leverage = \frac{Contribution}{EBIT} \times \frac{EBIT}{EBT} = 1.296\ x\ 1.125 = 1.458$$

The combined leverage studies the choice of fixed cost in cost structure and choice of debt in capital structure. It studies how sensitive the change in EPS is vis-à-vis change in sales.

The leverages - operating, financial and combined are measures of risk. **(1 Mark)**

Answer-5 :

Since the life span of each machine is different and time span exceeds the useful lives of each model, we shall use Equivalent Annual Cost method to decide which brand should be chosen.

(i) **If machine is used for 20 years**

Present Value (PV) of cost if machine of Brand XYZ is purchased

Period	Cash Outflow (Rs.)	PVF@12%	Present Value
0	6,00,000	1.000	6,00,000
1-5	20,000	3.605	72,100
6-10	28,000	2.045	57,260
11-15	39,000	1.161	45,279
15	(64,000)	0.183	(11,712)
			7,62,927

PVAF for 1-15 years   6.811

$$Equivalent\ Annual\ Cost = \frac{Rs.7,62,927}{6.811} = Rs.1,12,014 \qquad \textbf{(2 Marks)}$$

Present Value (PV) of cost if machine of Brand ABC is purchased

Period	Cash Outflow (Rs.)	PVF@12%	Present Value
0	4,50,000	1.000	4,50,000
1 - 5	31,000	3.605	1,11,755
6 -10	53,000	2.045	1,08,385
10	(57,000)	0.322	(18,354)
			6,51,786

PVAF for 1-10 years   5.65

Equivalent Annual Cost $= \dfrac{\text{Rs.}6,51,786}{5.65} = \text{Rs.}1,15,360$ **(1 Mark)**

Present Value (PV) of cost if machine of Brand ABC is taken on Rent

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Period	Cash Outflow (Rs.)	PVF@12%	Present Value
0	1,02,000	1.000	1,02,000
1 - 4	1,02,500	3.037	3,11,293
5-9	1,09,950	2.291	2,51,895

			6,65,188

PVAF for 1-10 years   5.65

Equivalent Annual Cost $= \dfrac{\text{Rs.}6,65,188}{5.65} = \text{Rs.}1,17,732$ **(1 Mark)**

Decision: Since Equivalent Annual Cash Outflow is least in case of purchase of Machine of brand XYZ the same should be purchased.   **(1 Mark)**

(ii)   **If machine is used for 5 years**

     (a)   Scrap Value of Machine of Brand XYZ
            = Rs. 6,00,000 – Rs. 2,00,000 – Rs. 6,00,000 × 0.04 × 4 = Rs. 3,04,000

     (b)   Scrap Value of Machine of Brand ABC
            = Rs. 4,50,000 – Rs. 1,50,000 – Rs. 4,50,000 × 0.06 × 4 = Rs. 1,92,000   **(1 Mark)**

     Present Value (PV) of cost if machine of Brand XYZ is purchased

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Period	Cash Outflow (Rs.)	PVF@12%	Present Value
0	6,00,000	1.000	6,00,000
1 - 5	20,000	3.605	72,100
5	(3,04,000)	0.567	(1,72,368)

			4,99,732

     (1 Mark)

Present Value (PV) of cost if machine of Brand ABC is purchased

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Period	Cash Outflow (Rs.)	PVF@12%	Present Value
0	4,50,000	1.000	4,50,000
1-5	31,000	3.605	1,11,755
5	(1,92,000)	0.567	(1,08,864)

			4,52,891

     (1 Mark)

Present Value (PV) of cost if machine of Brand ABC is taken on Rent

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Period	Cash Outflow (Rs.)	PVF@12%	Present Value
0	1,02,000	1.000	1,02,000
1-4	1,02,500	3.037	3,11,293
5	50,000	0.567	28,350

			4,41,643

     (1 Mark)

Decision: Since Cash Outflow is least in case of lease of Machine of brand ABC the same should be taken on rent. **(1 Mark)**

Answer-6 :

(a) Pattern of Raising Additional Finance

Equity = 10,00,000 × 60/100 = Rs. 6,00,000

Debt = 10,00,000 × 40/100 = Rs. 4,00,000

Capital structure after Raising Additional Finance

Sources of fund	Amount (Rs.)
Shareholder's funds	
Equity capital (6,00,000 – 3,00,000)	3,00,000
Retained earnings	3,00,000
Debt at 10% p.a.	1,80,000
Debt at 16% p.a. (4,00,000 F1,80,000)	2,20,000
Total funds	**10,00,000**

(2 Marks)

(b) Post-tax Average Cost of Additional Debt

$K_d = I(1 - t)$, where 'K_d' is cost of debt, 'I' is interest and 't' is tax.

On Rs. 1,80,000 = 10% (1 - 0.5) = 5% or 0.05

On Rs. 2,20,000 = 16% (1 – 0.5) = 8% or 0.08

Average Cost of Debt (Post tax) i.e.

$$K_d = \frac{(1,80,000 \times 0.05) + (2,20,000 \times 0.08)}{4,00,000} \times 100 = 6.65\% \text{ (approx)}$$

(2 Marks)

(c) Cost of Retained Earnings and Cost of Equity applying Dividend Growth Model

$$K_e = \frac{D_1}{P_0} + g \quad \text{or} \quad \frac{D_0(1+g)}{P_0} + g$$

Then, $K_e = \dfrac{2(1.1)}{44} + 0.10 \quad = \dfrac{2.2}{44} + 0.10 = 0.15 \text{ or } 15\%$

(2 Marks)

(d) Overall Weighted Average Cost of Capital (WACC) (After Tax)

Particulars	Amount (Rs.)	Weights	Cost of capital	WACC
Equity (including retained earnings)	6,00,000	0.60	15%	9.00
Debt	4,00,000	0.40	6.65%	2.66
Total	10,00,000	1.00		11.66

(2 Marks)

Answer-7 :

Working Notes:

1. Raw Material Storage Period (R)

$$= \frac{\text{Average Stock of Raw Material}}{\text{Annual Consumption of Raw Material}} \times 365$$

$$= \frac{\dfrac{\text{Rs.}45,000 + \text{Rs.}65,356}{2}}{\text{Rs.}3,79,644} \times 365$$

= 53 days.

Annual Consumption of Raw Material = Opening Stock + Purchases- Closing Stock

$\qquad$ = Rs. 45,000 + Rs. 4,00,000 – Rs. 65,356

$\qquad$ = Rs. 3,79,644

(1 Mark)

2. Work-in-Progress (WIP) Conversion Period (W)

$$\text{WIP Conversion Period} = \frac{\text{Average Stock of WIP}}{\text{Annual Cost of Production}} \times 365$$

$$= \frac{\dfrac{\text{Rs.}35{,}000 + \text{Rs.}51{,}300}{2}}{\text{Rs.}7{,}50{,}000} \times 365$$

$$= 21 \text{ days}$$

(1 Mark)

3. Finished Stock Storage Period (F)

$$= \frac{\text{Average Stock of Finished Goods}}{\text{Cost of Goods Sold}} \times 365$$

$$= \frac{\text{Rs.}65{,}178}{\text{Rs.}9{,}15{,}000} \times 365 = 26 \text{ days}$$

$$\text{Average Stock} = \frac{\text{Rs.}60{,}181 + \text{Rs.}70{,}175}{2}$$

$$= \text{Rs. } 65{,}178.$$

(1 Mark)

4. Debtors Collection Period (D)

$$= \frac{\text{Average Debtors}}{\text{Annual Credit Sales}} \times 365$$

$$= \frac{\text{Rs.}1{,}23{,}561.50}{\text{Rs.}11{,}00{,}000} \times 365$$

$$= 41 \text{ days}$$

$$\text{Average debtors} = \frac{\text{Rs.}1{,}12{,}123 + \text{Rs.}1{,}35{,}000}{2} = \text{Rs.}1{,}23{,}561.50$$

(1 Mark)

5. Creditors Payment Period (C)

$$= \frac{\text{Average Creditors}}{\text{Annual Net Credit Purchases}} \times 365$$

$$= \frac{\left(\dfrac{\text{Rs.}50{,}079 + \text{Rs.}70{,}469}{2}\right)}{Rs.4{,}00{,}000} \times 365 = 55 \text{ days}$$

(1 Mark)

(i) Operating Cycle Period

= R + W + F+ D – C = 53 + 21 + 26 + 41 – 55 = 86 days

(1 Mark)

(ii) Number of Operating Cycles in the Year

$$= \frac{365}{\text{Operating Cycle Period}} = \frac{365}{86} = 4.244$$

(1 Mark)

(iii) Amount of Working Capital Required

$$= \frac{\text{Annual Operating Cost}}{\text{Number of Operating Cycles}} = \frac{\text{Rs.}9{,}50{,}000}{4.244} = \text{Rs.}2{,}23{,}845.42$$

(1 Mark)