INTER CA – MAY 2018

Sub: Financial Management

Topics – Capital Structure, Cost of Capital, Capital Budgeting, estimation of working capital, receivables management, cash flow statement, cash budget, time value of money

Test Code – M39

Branch: MULTIPLE Date: 28.01.2018

(50 Marks)

Note: All questions are compulsory.

Question 1 (6 marks)

(a) To get ₹25,00,000 after 15 years from now, Mr. X needs to deposit an amount at the end of each year, which gets accumulated @9% p.a. for 15 years to become an amount to ₹25,00,000. This can be calculated as follows:

Future Value = Annual Payment × $(FVIFA_{n,i})$ or Annual Payment × $\left(\frac{(1+i)^n-1}{i}\right)$

Future Value = ₹25,00,000

Interest (i) = 9% p.a.

Period (n) = 15 years

₹ 25,00,000 = A $(FVIFA_{15,0.09})$

Or, A = $\frac{₹25,00,000}{29.361}$ = ₹85,146.96 p.a.

(b) To get ₹25,00,000 after 15 years from now, Mr. X needs to deposit a lump sum payment to the fund which gets accumulated @9% p.a. for 15 years to become an amount to ₹25,00,000. This can be calculated as follows:

Future Value = Amount × $(FVIF_{15,0.09})$ or Amount × $(1+0.09)^{15}$

Or, Amount = $\frac{₹25,00,000}{3.642}$ = ₹ 6,86,436.02

(c) To get ₹ 25,00,000 after 15 years from now, Mr. X needs to deposit an amount at the beginning of each year which gets accumulated @9% p.a. for 15 years to become an amount to ₹25,00,000. This can be calculated as follows:

Future Value = Annual Payment × $(FVIFA_{n,i})$ × (1+i)

₹ 25,00,000 = A $(FVIFA_{15,0.09})$ × 1.09

₹ 25,00,000 = A (29.361 × 1.09)

Or, A = $\frac{₹25,00,000}{32.003}$ = ₹ 78,117.68 p.a.

Question 2 (8 Marks)

Particulars	Lakhs
1. Present Capital Employed = Equity + Debt = (200 + 140) + (360 + 200) [or] = Fixed Assets + NWC= 500 + (300 + 240 + 60 – 120 – 80) Note: Bank Borrowings are also included in the computation of capital Employed (1 mark)	900,00
2. Additional Capital reqd to meet extra sales = Capital Employed x % of sales Increase = ` 900 Lakhs x 20% (1 mark)	180
3. Internal Cash Accruals = Sales x Net Profit Ratio x After Dividend, i.e. Retention Rate = (` 600 Lakhs x 12%) x 4% NP Ratio x 50% post – dividend (1 mark)	14.40
4. External Funds required = Total Additional Funds required (Less) Internal Cash Accruals = (2 – 3) (1 mark)	165.60
5. Constrains for raising External Funds of ` 165.60 Lakhs (2 marks)	

(a) Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{\text{(Inventories + Receivables + Cash) x 120\%}}{\text{(Payables+Provision) x 120\% + Short Term Bank Borrowings}}$ = 1.33 On Substitution, $\frac{(300 + 240 + 60) \text{ x } 120\%}{(120 + 80) \text{ x } 120\% + \text{Short Term Bank Borrowings}} = 1.33$ So, Short Term Bank Borrowings = $\frac{720-319.20}{1.33}$ = 301.35 Lakhs. Since existing Short Term Bank Borrowings = 200.00 Additional Borrowings = 301.35 – 200.00	101.35
(b) $\frac{\text{Fixed Assets}}{\text{Long TErm Loans}} = \frac{500 \text{ x } 120\%}{\text{Long Term Loans}}$ = 1.5 times. So, Long Term Loans = $\frac{600}{1.5}$ = 400.00 Lakhs Since existing Long Term Loans = 360.00, Additional Long – Term Loans = 400.00 – 360.00	40.00
6. Manner of raising additional capital: (Required = ` 180,000 Lakhs) (a) Internal Cash Accruals (WN 3) (b) Short Term Bank Borrowings (WN 5a) (c) Long Term Loans (WN 5b) (d) Equity Capital (balancing figure, on comparing with ` 180 Lakhs) (1 mark)	 14.40 101.35 40.00 24.25
Total Additional Funds Employed	180.00
7. Confirmation of Long Term Debt to Equity Ratio: Long Term Debt to Equity Ratio = $\frac{400}{(200.00 + 24.25 + 140.00 + 14.40)}$ = 1.05 times. (1 mark)	

Question 3 (6 Marks)

1. Computation if Interest Cost on delayed collections (5 marks)

Amt Due (1)	Pymt Recd (2)	Balance Due (1-2)	Period of Due	Interest Cost per quarter
` 5,00,000 (` 20,00,000 ÷ 4 quarters)	Initial = Nil	` 5,00,000	20 days	` 5,00,000 x $\frac{20}{365}$ x 25%=`6,849
` 5,00,000	15% = ` 75,000	` 4,25,000	(45 – 20) = 25 days	` 4,25,000 x $\frac{25}{365}$ x 25%=`7,277

Amt Due (1)	Pymt Recd (2)	Balance Due (1-2)	Period of Due	Interest Cost per quarter
` 4,25,000	30% = ` 1,50,000	` 2,75,000	(90 – 45) = 45 days	` 2,75,000 x $\frac{45}{365}$ x 25%= ` 8,476
` 2,75,000	25% = ` 1,25,000	` 1,50,000	(100 – 90) = 10 days	` 1,50,000 x $\frac{10}{365}$ x 25%=` 1,027
` 1,50,000	28% = ` 1,40,000	` 10,000	Bad Debt	Fully lost, so ignored here.
			Total	` 23,629

So, Interest Cost per annum = ` 23,629 x 4 quarters = ` 94,516.

2. Cost Benefits Analysis (3 marks)

Particulars	Computation	`
Profit from Sales	` 20,00,000 x $\frac{` 30}{` 200}$	3,00,000
Less: Costs thereon: Annual Fixed Costs	Given	35,000
Bad Debts	` 20,00,000 x 2%	40,000
Interest on Average Debtors	As per computation above	94,516
Net Benefit		1,30,484

Note: Since there is a Net Benefit, the proposal is worthwhile.

Question 4 (6 Marks)

(b) Computation of Discounted Payback Period, Net Present Value (NPV) and Internal Rate of Return (IRR) for Two Machines

Calculation of Cash Inflows (1 mark)

	Machine – I (`)	Machine – II (`)
Annual Income before Tax and Depreciation	3,45,000	4,55,000
Less : Depreciation		
Machine – I: 10,00,000 /5	2,00,000	-
Machine – II: 15,00,000 / 6	-	2,50,000
Income before Tax	1,45,000	2,05,000
Less: Tax @ 30 %	43,500	61,500
Income after Tax	1,01,500	1,43,500
Add: Depreciation	2,00,000	2,50,000
Annual Cash Inflows	3,01,500	3,93,500

		Machine – I			Machine – II		
Year	P.V. of Re.1 @12%	Cash flow	P.V.	Cumulative P.V	Cash flow	P.V.	Cumulative P.V.
1	0.893	3,01,500	2,69,240	2,69,240	3,93,500	3,51,396	3,51,396
2	0.797	3,01,500	2,40,296	5,09,536	3,93,500	3,13,620	6,65,016
3	0.712	3,01,500	2,14,668	7,24,204	3,93,500	2,80,172	9,45,188
4	0.636	3,01,500	1,91,754	9,15,958	3,93,500	2,50,266	11,95,454
5	0.567	3,01,500	1,70,951	10,86,909	3,93,500	2,23,115	14,18,569
6	0.507	-	-	-	3,93,500	1,99,505	16,18,074

Discounted Payback Period for:

Machine - I

$$\text{Discounted Payback Period} = 4 + \frac{(10,00,000 - 9,15,958)}{1,70,951}$$

$$= 4 + \frac{84,042}{1,70,951}$$

2 marks

$$= 4 + 0.4916$$

$$= 4.49 \text{ years or } 4 \text{ years and } 5.9 \text{ months}$$

Machine - II

$$\text{Discounted Payback Period} = 5 + \frac{(15,00,000 - 14,18,969)}{1,99,505}$$

$$= 5 + \frac{81,431}{1,99,505}$$

$$= 5 + 0.4082$$

$$= 5.41 \text{ years or } 5 \text{ years and } 4.9 \text{ months}$$

Net Present Value for:

Machine – I

NPV = ₹ 10,86,909 – 10,00,000 = ₹ 86,909 2 marks

Machine – II

NPV = ₹ 16,18,074 – 15,00,000 = ₹ 1,18,074

Internal Rate of Return (IRR) for:

Machine – I

$$\text{P.V. Factor} = \frac{\text{Initial Investment}}{\text{Annual Cash Inflow}} = \frac{10,00,000}{3,01,500} = 3.3167$$

PV factor falls between 15% and 16% 2 marks

Present Value of Cash inflow at 15% and 16% will be:

Present Value at 15% = 3.353 x 3,01,500 = 10,10,930

Present Value at 16% = 3.274 x 3,01,500 = 9,87,111

$$\text{IRR} = 15 + \frac{10,10,930 - 10,00,0000}{10,10,930 - 9,87,111} \times (16 - 15)$$

$$= 15 + \frac{10,930}{23,819} \times 1 = 15.4588\% = 15.46\%$$

Machine - II

$$\text{P.V. Factor} = \frac{15,00,000}{3,93,500} = 3.8119$$

Present Value of Cash inflow at 14% and 15% will be:

Present Value at 14% = 3.888 x 3,93,500 = 15,29,928

Present Value at 15% = 3.785 x 3,93,500 = 14,89,398

$$\text{IRR} = 14 + \frac{15,29,928 - 15,00,000}{15,29,928 - 14,89,398} \times (15 - 14)$$

$$= 14 + \frac{29,928}{40,530} \times 1 = 14.7384\ \% = 14.74\%$$

(ii) **Advise to the Management**

Ranking of Machines in terms of the Three Methods

	Machine - I	Machine - II
Discounted Payback Period	I	II
Net Present Value	II	I
Internal Rate of Return	I	II

1 mark

Advise: *Since Machine - I has better ranking than Machine – II, therefore, Machine – I should be selected*

Question 5 (8 marks)

	(Rs.in lakhs)
Equipment Cost	150
Working Capital	25
	175

Calculation of Cash Inflows: (3 Marks)

Years	1	2	3-5	6-8
Sales in units	80,000	1,20,00	3,00,000	2,00,000
	(Rs.)	(Rs.)	(Rs.)	(Rs.)
Contribution@Rs.60 p.u	48,00,000	72,00,000	1,80,00,000	1,20,00,00
Fixed cost	16,00,000	16,00,000	16,00,000	16,00,000
Advertisement	30,00,000	15,00,000	10,00,000	4,00,000
Depreciation	15,00,000	15,00,000	16,50,000	16,50,000
Profit/(loss)	13,00,000	26,00,000	1,37,50,000	83,50,000
Tax @50%	NIL	13,00,000	68,75,000	41,75,000
Profit/(loss)after tax	(13,00,000)	13,00,000	68,75,000	41,75,000
Add: Depreciation	15,00,000	15,00,000	16,50,000	16,50,000
Cash inflow	2,00,000	28,00,000	85,25,000	58,25,000

Computation of PV of Cash Inflow(4 Marks)

Year	Cash inflow(Rs.)	PV Factor@12%	(Rs.)
1	2,00,000	0.893	1,78,600
2	28,00,000	0.797	22,31,600
3	85,25,000	0.712	60,69,800
4	85,25,000	0.636	54,21,900
5	85,25,000	0.567	48,33,675
6	58,25,000	0.507	29,53,275
7	58,25,000	0.452	26,32,900
8	58,25,000	0.404	23,53,300
Working Capital	15,00,000	0.404	40,400
(A)			2,73,21,450
Cash Outflow:			
Initial Cash Outlay	1,75,00,000	1.000	1,75,00,000
Additional Investment	10,00,000	0.797	7,97,000
(B)			1,82,97,000
Net Present Value(NPV) (A-B)			90,24,450

Recommendation :Accept the project in view of positive NPV.(1 mark)

Question 6 (8 Marks)

Working Notes:

1. Capital employed before expansion plan:

	(Rs.)
Equity shares (Rs.10 x80,000 shares)	8,00,000
Debenture {(Rs.1,20,000/12) x100}	10,00,000
Retained earnings	18,00,000
Total capital employed	36,00,000

(1/2 mark)

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

	(Rs.)
Profit(EBT)	6,00,000
Add: Interest	1,20,000
EBIT	7,20,00

(1/2 mark)

3.Return on Capital Employed (ROCE):

$$\text{Roce} = \frac{\text{EBIT}}{\text{Capital employed}} \times 100 = \frac{\text{Rs. } 7{,}20{,}000}{\text{Rs. } 36{,}00{,}000} \times 100 = 20\%$$

(1 mark)

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

After expansion, capital employed =Rs.36,00,000+Rs.8,00,000
=Rs.44,00,000
Desired EBIT =20% x Rs.44,00,000=Rs.8,80,000

(i) Computation or Earnings per Share (EPS) under the following options: (4 Marks)

	Present	Expansion scheme Additional funds raised as	
		Debt	Equity
	(Rs.)	(Rs.)	(Rs.)
Earnings before Interest and Tax(EBIT)	7,20,000	8,80,000	8,80,000
Less: Interest –Old capital	1,20,000	1,20,000	1,20,000
-New capital	-	96,000 (Rs.8,00,000 x12%)	-
Earnings before Tax(EBT)	6,00,000	6,64,000	7,60,000
Less: Tax(50%of EBT)	3,00,000	3,32,000	3,80,000
PAT	3,00,000	3,32,000	3,80,000
No. of shares outstanding	80,000	80,000	1,60,000
Earnings per share(EPS)	3.75 $\left(\frac{\text{Rs. } 3{,}00{,}000}{80{,}000}\right)$	4.15 $\left(\frac{\text{Rs. } 3{,}32{,}000}{80{,}000}\right)$	2.38 $\left(\frac{\text{Rs. } 3{,}80{,}000}{160{,}000}\right)$

(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.(1 Mark)

Question 7 (8 Marks)

Projected Statement of Cash Flow for the year ended 31st March 20X8

	(Rs.)
Cash flow from Operating Activities	
Profit before taxation	1,04,500
Adjustments:	
Less: Profit on sale of machine {Rs. 38,000 – (Rs. 95,000 – Rs.66,500)}	(9,500)
Add: Depreciation	1,14,000
Operating profit before working capital changes	2,09,000
Increase in Inventories & Trade receivable (Rs.5,60,500 – Rs.4,75,000)	(85,500)
Increase in Trade payables (Rs.1,48,200 – Rs.1,14,000)	34,200
Increase in Bills payable (Rs. 98,800 – Rs. 76,000)	22,800
Cash generated from operations	1,80,500
Less: Income tax paid*	Nil
Net Cash from Operating activities (A)	1,80,500
Cash flow from Investing Activities	
Purchase of plant	(1,90,000)
Sale of machine	38,000
Net cash from Investing activities (B)	(1,52,000)
Cash Flow from Financing Activities	
Dividend paid	(57,000)
Dividend distribution tax (Working note)	(19,000)
Net cash from Financing activities (C)	(76,000)
Net Increase/(Decrease) in cash and cash equivalents (A+B+C)	(47,500)
Cash and cash equivalent at the beginning of the year	66,500
Cash and cash equivalent at the end of the year	**19,000**

(2 marks)

(2 marks)

(2 marks)

* No information is given on corporate tax.

Working note:

Dividend distribution tax is paid on the gross amount of dividend paid. The gross dividend is calculated as : $\frac{\text{Dividend Payable}}{(1-\text{tax rate})}$

Gross Amount of Dividend = $\frac{\text{Rs. } 57,000}{(1-0.25)}$ = Rs.76,000

Dividend Distribution Tax = Rs.76,000 × 25% = Rs.19,000

(2 marks)

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