INTER CA – MAY 2018

Sub: Financial Management

Topics – Capital Structure, Cost of Capital, Capital Budgeting, Risk Analysis in Capital Budgeting, Leasing Decision, Dividend Decision.

Test Code – M10

Branch: THANE (RT) Date: 24.12.2017

(50 Marks)

*Note: **All** questions are compulsory.*

Question 1 (6 marks)

1. Computation of NPV (2 marks)

Particulars		` Lakhs
	Annual Sales	600.00
Less:	Operating Costs per Annum	(400.00)
	Net Cash Surplus per annum	**200.00**
	Annuity Factor for 5 Years at 10%	3.791
Present Value of Cash Inflows [Annuity Factor 3.791 x Annual Cash Inflow ` 80]		**758.8**
Less:	Initial Investment	(500.00)
	Net Present Value	**258.8**

2. Sensitivity Analysis (6 marks)

Factor	Revised Value at which NPV = 0	Sensitivity=$\dfrac{Revised\ Value\ (-)\ Base\ Value}{Base\ Value}$
Initial Invt.	Since NPV should be 'Nil' the DCF should be equal to initial Invt. Hence, Revised Initial Invt = DCF itself = ` **758.8 Lakhs**	$\dfrac{758.20\ (-)500.00}{500.00}$ = 51.64%
Annual Sales	**Required:** To compute Target Annual Sales at which NPV=0 Let Required Annual Sales = 'X' [(x – 400) x 3.791] = Initial Investment 500. On solving, X –531.89 Reqd Annual Sales - `531.89 Lakhs.	$\dfrac{531.89\ (-)600.00}{600.00}$ = 11.35% **Note:** Only Absolute Change is considered.
Operating Costs	**Required:** To compute Variable Costs at which NPV = 0 Let Required Variable Costs = 'C'. [(600 – V) x 3.791] = Initial Investment 500. On solving, V = 468.11 Reqd Variable Costs = `468.11 Lakhs	$\dfrac{468.11\ (-)400.00}{400.00}$ = 17.03%

Question 2 (8 Marks)

Note : Discount Rate from Lessee's perspective = After Tax Cost of Debt =15% x (1-0.35) =9.75%

1. Computation of Net Present Cost under Lease option (1 mark)

Particulars	Rs.
Annual Lease Rental	3,34,000
Less: Taxes at 35%	(1,16,900)
	2,17,100
PV of Outflow (Leasing Option)= Rs.2,17,100 x Annuity Factor at 9.75% for 5 years = 3.814	**8,28,019**

2. Computation of Tax Savings on Depreciation (3 marks)

Year	Opg.WDV	Depreciation at 15%	Clg.WDV	Tax Savings @35%
1	10,00,000	1,50,000	8,50,000	52,500
2	8,50,000	1,27,500	7,22,500	44,625

3	7,22,500	1,08,375	6,14,125	37,931
4	6,14,125	92,119	5,22,006	32,242
5	5,22,006	78,301	4,43,705	27,405

Note : Closing WDV =**Rs. 4,43,705 =** assumed as Salvage Value.

Year	Opg. Principal	Interest at 15%	After Tax Interest	Principal	Tax Saving	Total Cash Flows	DF@ 9.75%	Discounted Cash Flow
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(4)+(5)-(6)	(8)	(9)=(7)x(8)
1	10,00,000	1,50,000	97,500	2,00,000	(52,500)	2,45,000	0.911	2,23,195
2	8,00,000	1,20,000	78,000	2,00,000	(44,625)	2,33,375	0.830	1,93,701
3	6,00,000	90,000	58,500	2,00,000	(37,931)	2,20,569	0.756	1,66,750
4	4,00,000	60,000	39,000	2,00,000	(32,242)	2,06,758	0.689	1,42,456
5	2,00,000	30,000	19,500	2,00,000	(27,405)	1,92,095	0.628	1,20,636
5	Salvage Value (assumed to be equal to Closing WDV)					(4,43,705)	0.628	(2,78,647)
	Net Present Value of Outflows							**5,68,091**

Total Cash Flows =After Tax Interest +Principal Installment –Tax Savings on Depreciation **(3 marks)**

Conclusion : Borrow and Purchase option than mode of acquiring than Leasing mode of acquiring the asset, since the Net Present Value of Outflow I slower. **(1 mark)**

Question 3 (8 Marks)

1.Rules for Optimal Dividend Policy as per Walter's Formula

Relationship	Optimal Dividend Policy
Return on Investment (R) >Cost of Equity (K_e)	Zero Payout
Return on Investment (R) <Cost of Equity (Ke)	100%Payout

2. Evaluation of company 's Present Dividend Policy(4 marks)

(a)Present Return on Investment $= \dfrac{\text{Earnings}}{\text{Equity Capital}} = \dfrac{4,00,000}{(40,000 \text{ Shares} \times 100)} = 10\%$

(b) Present $K_e = \dfrac{1}{\text{PE Ratio}} = \dfrac{1}{12.5}$ = 8%

(c)Since R > K_e , Company is a Growth Firm , and optimal Dividend Payout is Zero".

(d) Since the Company has dividend Payout ,i.e. $\dfrac{3,20,000}{4,00,000}$ =80%, it is **not** following the Optimal Policy .

3. Market Price of Share (Walter's Model)(4 marks)

Earnings Per Share(E)	Rs.4,00,000 ÷40,000=Rs.10	Cost of Equity (K_e)	8%
Dividend Per Share (D)	EPS Rs.10 x Payout 80% =Rs.8	Return on Investment (r)	10%

Value per share	When Payout =Zero	When Payout =Rs. 8
Value per Share = $\dfrac{D+(E-D)\frac{r}{K_e}}{K_e}$	$= \dfrac{\text{Rs.0}+(\text{Rs.10}-\text{Rs.0})\times\frac{0.10}{0.08}}{0.08}=\textbf{156.25}$	$= \dfrac{\text{Rs.8}+(\text{Rs.10}-\text{Rs.8})\times\frac{0.10}{0.08}}{0.08}=\textbf{131.25}$

Question 4 (8 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

Year	P.V. of Re.1 @12%	Machine – I			Machine – II		
		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

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

$= 4 + \dfrac{84,042}{1,70,951}$ 2 marks

$= 4 + 0.4916$

$= 4.49$ years or 4 years and 5.9 months

Machine - II

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

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

$$= 5 + 0.4082$$

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

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 6 (4 Marks)

Explain the major consideration in capital structure planning?

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