INTER CA – MAY 2018

Sub: Financial Management

Topics –Cash Budget, Time Value of Money, Risk Analysis in Capital Budgeting, Leasing Decision, Dividend Decision.

Test Code – M26

Branch: MULTIPLE Date: 14.01.2018

(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=** $\frac{Revised\ Value\ (-)\ Base\ Value}{Base\ Value}$
Initial Invt.	Since NPV should be 'Nil' the DCF should be equal to initial Invt. Hence, Revised Initial Invt = DCF itself = ` **758.8 Lakhs**	$\frac{758.20\ (-)500.00}{500.00}$ = 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.	$\frac{531.89\ (-)600.00}{600.00}$ = 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	$\frac{468.11\ (-)400.00}{400.00}$ = 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 $= \frac{\text{Earnings}}{\text{Equity Capital}} = \frac{4,00,000}{(40,000\ \text{Shares} \times 100)} = 10\%$

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

(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. $\frac{3,20,000}{4,00,000} = 80\%$, 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 = $\frac{D+(E-D)\frac{r}{K_e}}{K_e}$	$=\frac{Rs.0+(Rs.10-Rs.0)\times\frac{0.10}{0.08}}{0.08}$ **=156.25**	$=\frac{Rs.8+(Rs.10-Rs.8)\times\frac{0.10}{0.08}}{0.08}$ **=131.25**

Question 4 (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 5 (4 marks)

Advise to the Management

Option I: Cash Down Payment (1 ½ marks)

Cash down payment= Rs 7,50,000

Option II: Annual Installment Basis(1 ½ marks)

Annual installment = 9,00,000 × 1/6= Rs 1,50,000

Present Value of 1 to 6 instalments @12%

= 1,50,000 × 4.111

= Rs 6,16,650

Advise: Mr. Patel should buy Xerox machine on installment basis because the present value of cash out flows is lower than cash down payment. This means Option II is better than Option I. (1 mark)

Question 6 (10 Marks)

Computation of Collection from Debtors (1 mark)

Particulars	Nov	Dec	Jan	Feb	Mar
Sales	` 18, 00,000	` 25,80,000	` 9,00,000	` 12,60,000	` 18,00,000
Receipt Pattern: 50%	50% x 18,00,000 = ` 9,00,000	50% x 25,80,000 = ` 12,90,000	50%x 9,00,000 = ` 4,50,000	50%x12,60,000 = ` 6,30,000	50%x18,00,00 = ` 9,00,000
40%		40% x 18,00,000 = ` 7,20,000	40% x25,80,000 = ` 10,32,000	40% x9,00,000 = ` 3,60,000	40%x12,60,00 0 = ` 5,04,000
9%			9%x18,00,000 = ` 1,62,000	9%x25,80,000 = ` 2,32,200	9%x9,00,000 = ` 81,000
Total Receipts			**` 16,44,000**	**` 12,22,200**	**` 14,85,000**

2. Computation of Closing Stock of RM required for Jan, Feb and Mar (1 mark)

Month	Closing Stock of RM = Next 3 months Sales x 50%	`
January	50% of (Feb+Mar+Apr) Sales = 50% of (` 12,60,000 + ` 18,00,000 + ` 16,20,000)	23,40,000
February	50% of (Mar+Apr+May) Sales = 50% of (` 18,00,000 + ` 16,20,000 + ` 14,40,000)	24,30,000
March	50% of (Apr+May+Jun) Sales = 50% of (` 16,20,000 + ` 14,40,000 + ` 12,00,000)	21,30,000

3. Computation of Purchases and Payment to Creditors (1 mark)

Particulars	Jan	Feb	Mar
Opening Stock of Raw Materials(` 25,20,000 - ` 90,000)	` 24,30,000	` 24,30,000	` 24,30,000
Add: Purchases(balancing figure) (by reverse working)	**` 3,60,000**	**` 7,20,000**	**` 6,00,000**
Sub – Total (derived by reverse working)	` 27,90,000	` 30,60,000	` 30,30,000
Less: Closing Stock of RM **(WN 2)** Next 3 months Sales x 50%	` 23,40,000	` 24,30,000	` 21,30,000
Raw Material Cost of Goods Sold = 50% of Sales	` 4,50,000	` 6,30,000	` 9,00,000
Payment to Creditors Previous month purchases	` 6,95,000	` 3,60,000	` 7,20,000

4. Cash Budget for the months of January, February and March (amount in `)(5 marks)

Particulars	Jan	Feb	Mar
A. Opening Balance	3,00,000	6,78,140	10,24,940
B. Receipts / Inflows			
Debtors (WN 1)	16,44,000	12,22,200	14,85,000
Sales of Obsolete Stock $\frac{`90,000}{50\%}$ x 75%	-	-	1,35,000
Sale of Machinery (given)	-	1,00,000	-
Total Receipts	**16,44,000**	**13,22,200**	**16,20,000**
C. Payments / Outflows			
Creditors (WN 3)	6,95,000	3,60,000	7,20,000
Fixed and Variable Expenses (given)	4,81,860	3,56,400	4,75,200
Equipment Repair Expenses (given)	9,000	9,000	9,000
Ex-gratia (given)	30,000	-	45,000
Dividends (given)	-	-	1,20,000
Income Tax and Pf (given)	50,000	50,000	1,00,000
Capital Expenditure (given)	-	2,00,000	-
Loan Interest & Principle 8,40,000 + (8,40,000 x15% x $\frac{3}{12}$)	-	-	8,71,500
Total Payments	**12,65,860**	**9,75,400**	**23,40,700**
D. Closing Balance / (Overdraft) (A + B – C)	**6,78,140**	**10,24,940**	**3,04,240**

Question 6 (8 Marks) (2 marks each)

1. Computation of Base Case NPV

Particulars	` Lakhs
Present Value of Perpetual Savings = $\frac{Annual\ Savings}{Rate\ of\ Return} = \frac{2.95}{15\%}$	19.67
Less: Investment Cost	8.00
Net Present Value	**(0.33)**

Observation: The Base Case NPV is negative and therefore, the project cannot be accepted as it is.

2. Computation of Adjusted NPV

Particulars	` Lakhs
Total Investment	8.00
Debt Component [30% of Investment Cost of ` 8.00 Lakhs]	6.00
Interest on Debt @ 12% [` 6 Lakhs x 12%]	0.72
Tax Savings on Interest on Debt [` 0.72 Lakhs x 30%]	0.216
Present Value of Tax Saving on Perpetuity = $\frac{Annual\ Savings}{Interest\ Rate} = \frac{0.216}{12\%}$	1.80
Base Case NPV	(0.33)
Adjusted NPV [Base Case NPV + PV of Tax Savings due to Interest on Debt]	**1.47**

3. Minimum Base Case NPV without Tax Shield

At Minimum Base Case NPV, Adjusted NPV = 0

- 0 = Base Case NPV + Tax Shield on Interest
- 0 = Base Case NPV + ` 1.80 Lakhs
- Minimum Base Case NPV = **(` 1.80 Lakhs)**

4. Internal Rate of Return at Minimum Base Case NPV

- 0 = PV of Perpetual Inflow – Investment + Tax Shield
- 0 = $\frac{Perpetual\ Inflow}{0.15}$ – 8.00 + 1.80
- 0 = $\frac{Perpetual\ Inflow}{0.15}$ – 18.8
- 18.2 = $\frac{Perpetual\ Inflow}{0.15}$
- Perpetual Inflow = ` 18.8 Lakhs x 0.15 = ` 2.73 Lakhs $\frac{`\ 2.73\ Lakhs}{`\ 20.00\ Lakhs} \Rightarrow$ **13.65%**

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