

May 2008

Question NO.1 is compulsory. Answer any four questions from the rest.
Figures in the margin indicate marks allotted to each question.

Working notes should form part of the answer.

1. (a) DL Services is in the business of providing home services like plumbing, sewerage line cleaning etc. There is a proposal before the company to purchase mechanized sewerage cleaning line for a sum of Rs. 20 lacs. The life of the machine is 10 years. The present system of the company is to use manual labour for the job. You are provided the following information : Marks 12

Cost of machine	Rs. 20 lacs
Depreciation	20% p.a. straight line
Operating cost	Rs. 5 lacs per annum
Present system	
Manual labour	200 persons
Cost of Manual labour	Rs. 10,000 (ten thousand) per person per annum

The company has an after tax cost of funds of 10% per annum. The applicable rate ,of tax inclusive of surcharge and cess is 35%.

Based on the above you are required to:

- (i) State whether it is advisable to purchase the machine.
- (ii) Compute the savings/additional cost as applicable, if the machine is purchased.

- (b) P Ltd. invested on 1.4.2006 in Equity shares as below: 8

Company	Number of Shares	Cost (Rs.)
M Ltd.	1,000 (Rs. 100 each)	2,00,000
N. Ltd.	500 (Rs. 10 each)	1,50,000

In September, 2006, M Ltd. paid 10% dividend and in October, 2006, N Ltd. paid 30% dividend.

On 31.3.2007, market price of shares of M Ltd. and N Ltd. were Rs. 220 and Rs. 290 respectively.

P Ltd. have been informed by their investment advisers that:

- (i) Dividends from M Ltd. and N Ltd. for the year ending 31.3.2008 are likely to be 20% and 35% respectively.
- (ii) Probabilities of market quotations on 31.3.2008 are:

Probability Factor	Price of share of M Ltd.	Price of share of N Ltd.
0.2	220	290
0.5	250	310
0.3	280	330

You are required to:

- (i) Calculate the average return from the portfolio for the year ended 31.3.2007. (ii) Calculate the expected average return from the portfolio for the year 2007-08.
- (iii) Advise P Ltd. of the comparative risk of two investments by calculating the Standard deviation in each case.

SOLUTION

a

Comparative analysis	Manual system	Machine system
Operating cost per annum	2000000	500000
Depreciation		
1 - 5 → 20L/5	Nil	400000
6 - 10	Nil	Nil

(i)		
Hypothesis: Install machine system		
	1 - 5	6 - 10
Incremental profit	1500000	1500000
Incremental depreciation	400000	0
Incremental PBT	1100000	1500000
Tax @ 35%	385000	525000
Incremental PAT	715000	975000
Incremental Cash inflow	1115000	975000
AF @ 10%	3.7908	2.3537
DISCCI	4226742	2294858

- Total DISCCI [4226742 + 2294858] is greater than the outflow of Rs.20L.
- Hence it is advisable to buy the machine.

(ii) Comparative analysis			Savings BT	Savings AT
	Manual system	Machine system		
Operating cost per annum	2000000	500000	1500000	975000
Depreciation				
1 - 5 → 20L/5	Nil	400000	400000	140000
6 - 10	Nil	Nil	Nil	Nil

b				
Working Note				
Dividend for the years 2006-07 and 2007-08				
Company	2006-07		2007-08	
	%	Rs.	%	Rs.
M	10	10	20	20
N	30	3	35	3.5

(i)						
Average return of the portfolio - 2006-07						
Company	Opg Price	Cl price	Appreci	Dividend	Return	Rate of return
M	200	220	20	10	30	15.00%
N	300	290	-10	3	-7	-2.33%

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(iii)					
M					
Price	Appreci	Deviation	Variation	Probability	Exp Vari
220	0	-30	900	0.2	180
250	30	0	0	0.5	0
280	60	30	900	0.3	270
	90		1800		450
Average	30			Exp SD	21.2132

N					
Price	Appreci	Deviation	Variation	Probability	Exp Vari
290	0	-20	400	0.2	80
310	20	0	0	0.5	0
330	40	20	400	0.3	120
	60		800		200
Average	20			Exp SD	14.14214

- 2 (a) A company has a choice of investments between several different equity oriented mutual funds. The company has an amount of Es.

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1 crore to invest. The details of the mutual funds are as follows:

Mutual Fund	Beta
A	1.6
B	1.0
C	0.9
D	2.0
E	0.6

Required:

- (i) If the company invests 20% each of its investment in the first two mutual funds and an equal amount in the mutual funds C, D and E, what is the beta of the portfolio?
- (ii) If the company invests 15% of its investment in C, 15% in A, 10% in E and the balance in equal amount in the other two mutual funds, what is the beta of the portfolio?
- (iii) If the expected return of market portfolio is 12% at a beta factor of 1.0, what will be the portfolios' expected return in both the situations given above?

2 (b) A holds the following portfolio:

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Share/Bond	Beta	Initial Price (Rs.)	Dividends (Rs.)	Market Price at end of year (Rs.)
Epsilon Ltd.	0.8	25	2	50
Sigma Ltd.	0.7	35	2	60
Omega Ltd.	0.5	45	2	135
GOI Bonds	0.99	1,000	140	1,005

- (i) The expected rate of return on his portfolio using Capital Asset Pricing Method (CAPM)
- (ii) The average return of his portfolio.

Risk-free return is 14%.

SOLUTION

(a) (i)			
Mutual Fund	Proportion	Beta	Port Beta

A	0.2	1.6	0.32
B	0.2	1	0.2
C	0.2	0.9	0.18
D	0.2	2	0.4
E	0.2	0.6	0.12
	1		1.22

(a) (ii)			
Mutual Fund	Proportion	Beta	Port Beta
A	0.15	1.6	0.24
B	0.3	1	0.3
C	0.15	0.9	0.135
D	0.3	2	0.6
E	0.1	0.6	0.06
	1		1.335

Risk free rate is assumed at 4% Return of security = $R_f + (R_m - R_f) \times \beta$

a (iii)			
Mutual Fu	Proportion	Return	Port Beta
A	0.2	16.8	3.36
B	0.2	12	2.4
C	0.2	11.2	2.24
D	0.2	20	4
E	0.2	8.8	1.76
			13.76

New Proportion

Mutual Fund	Proportion	Return	Port Beta
A	0.15	16.8	2.52
B	0.30	12.0	3.6
C	0.15	11.2	1.68
D	0.30	20.0	6
E	0.10	8.8	0.88
			14.68

2(b) (i)

Expected return of market portfolio			
Share/Bond	Investment	Dividend	Apprecia
Epsilon	25	2	25
Sigma	35	2	25
Omega	45	2	90
GOI	1000	140	5
	1105	146	145
Rate of return = $\{[\text{Dividend} + \text{Appreciation}]/\text{Initial Investment}\} \times 100$			
$= [146+145]/1105 = 26.33\%$			

(b) (ii)				
Share/Bond	Beta	Security Market Line		%
Epsilon	0.8	$=14+(26.33-14) \times 0.8$		23.86
Sigma	0.7	$=14+(26.33-14) \times 0.7$		22.63
Omega	0.5	$=14+(26.33-14) \times 0.5$		20.17
GOI	0.99	$=14+(26.33-14) \times 0.99$		26.21
	2.99			92.87
Average Beta	0.7475	Average return		23.22
Average of all		$=14+(26.33-14) \times 0.99$		23.22

3 (a) A holds the following portfolio:

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Capital and Liability	Rs.	Property and Assets		
Share capital:		Fixed Assets:		
Authorized: 8,000 Equity shares of Rs. 100 each	8,00,000	Cost	6,00,000	
10,000 11% Cumulative Preference shares of Rs. 100 each	10,00,000	Less: Depreciation	2,00,000	4,00,000
Issued, subscribed and paid up:		Current assets:		
4,000 Equity shares of Rs. 100 each fully paid up	4,00,000	Stock in trade	2,00,000	
Revenue	1,00,000	Sundry debtors	4,00,000	
15% Unsecured debentures	2,00,000	Cash and Bank	1,00,000	7,00,000
		Balance		
Trade creditors and creditors for expenses	4,00,000			
	11,00,000			11,00,000

The company finds that a very profitable market exists for its products and with a little expansion, it could generate more sales at the present selling prices. The

expansion calls for an investment of Rs. 8,00,000 in Fixed assets and Rs. 2,00,000 in Current assets. It is ascertained that the current annual profits in the region of Rs. 3,00,000 will be enhanced by 50% due to the expansion.

The debt-equity ratio applicable generally to the industry in which the company is engaged is 2 : 1.

Please advise the management on the various methods available to it to meet the cost of financing the expansion, keeping in mind the interest of the equity shareholders.

3 (b) Explain the difference between a Repo and a Revenue Repo transaction. 16

SOLUTION

3(a)

- The question did not clarify the term for the "a little expansion"
- It is also not clear regarding the risk absorption attitude of the company
- There are many sources for the finance manager to raise money for the expansion programme
- The cost of capital for various sources is not given. Hence some assumptions are made in drafting the solution

(i) Bank Finance:

Total funds to be borrowed amount to Rs.10L @10% p.a. The loan can be subdivided as term loan for Rs.8 L the component for financing fixed assets and the remaining can be taken up as working capital facility.

Additional Income anticipated	150000
Less: Interest @ 10% on 10 Lacs	100000
Incremental PBT	50000
Tax @ 35%(including all components)	17500
Incremental PAT	32500
No of equity shares	4000
Incremental EPS	8.125

(ii) Debentures: The present cost of unsecured debentures is 15% and the rate of return from the proposed expansion also brings exactly the

same amount of income. It is not an attractive proposition to have finance thru debentures.

- (iii) 11% Preference shares: Since the company has preference shares as part of authorized capital, it can take this route

Additional income anticipated	150000
Less: Tax @ 35%	52500
	97500
Less Preference dividend	110000
Retained earnings	-12500

It is not advisable to issue preference shares as it results in incremental negative retained earnings.

Though the company can pay preference dividend from the existing earnings, but will have detrimental effect on the earnings available to equity shareholders.

- (iv) Raising of additional capital: The company has some more existing shares in the authorized capital. If it collects all that it can, it will account for a sum of Rs.4L and the remaining amount shall be tried through bank finance.
- (v) Since the company is a private limited company it cannot raise public deposits for the above purpose.

Conclusion: From the above examination of the various sources of financing the most profitable alternative is to borrow from bank. It is evident from the balance sheet that it has very sound financial position.

On a capital base of Rs.5L, the existing debt is only Rs.2L. If the entire requirement is financed by bank loan, the overall debt will be Rs.12 L with equity staying initially at Rs. 5L. But the earnings of the year retained will bring the company to an ideal position of debt equity ratio of 2 : 1, which is quite satisfactory. The company will be able to secure the benefits of financial leverage to its equity shareholders for which there is ample scope without any undue risk. It is therefore, advisable that the company should finance the expansion scheme by securing loan from bank which will ensure maximum benefit to the shareholders.

4 (a) Given below is the Balance Sheet of S Ltd. as on 31-3-2008

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(Rs. In lakh)

Liabilities	Rs.	Assets	Rs.
Share capital (Shares of Rs. 10	100	Land & Buildings	40
Reserves and Surplus	40	Plant & Machinery	80
Creditors	30	Investments	10
		Stocks	20
		Debtors	15
	170	Cash & Bank	170

You are required to work out the value of the Company's shares on the basis of Net Assets method and Profit-earning capacity (capitalization) method and arrive at the fair price of the shares, by considering the following information:

- (i) Profit for the current year Rs. 64 lakhs includes Rs. 4lakhs extraordinary income and Rs. 1 lakh income from investments of surplus funds; such surplus funds are unlikely to recur.
- (ii) In subsequent years, additional advertisement expenses of Rs. 5 lakhs are expected to be incurred each year.
- (iii) Market value of Land and Building and Plant and Machinery have been ascertained at Rs. 96 lakhs and Rs. 100 lakhs respectively. This will entail additional depreciation of Rs. 6 lakhs each year.
- (iv) Effective Income-tax rate is 30%.
- (v) The capitalization rate applicable to similar businesses is 15%.

4 (b) Comment briefly on the social cost benefit analysis in relation to evaluation of an Industrial project.

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SOLUTION

(a)	
Net asset value method:	Rs. Lacs
Land and Buildin	96
Plant and Machinery	100
Investments	10
Stock	20
Debtor	15
Cash and Ban	5
Creditors	-30
	216
No of equity shares	Lacs 10

NAV/ share	Rs 21.6
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(b) Capitalisation Method		Rs. Lacs
Profit		64
Less: Advertisement	5	
Extraordinary income	4	
Income from Investments	1	
Additional depreciation	6	16
Profit before tax		48
Tax @ 30%		14.4
Post tax Profit		33.6
Rate of return		15%
Capital employed of operating assets		224
Investments		10
Total CE of the business		234
No of equity shares		10
Value per share		23.4

(c) Fair value of shares
= (NAV+Cap base)/2
= (21.60+23.40)/2 = 22.5

- 5(a) M Ltd. belongs to a risk class for which the capitalization rate is 10%. It has 25,000 outstanding shares and the current market price is Rs. 100. It expects a net profit of Rs. 2,50,000 for the year and the Board is considering dividend of Rs. 5 per share. 8

M Ltd. requires to raise Rs. 5,00,000 for an approved investment expenditure. Show, how does the MM approach affect the value of M Ltd., if dividends are paid or not paid.

- 5 (b) A company is considering hedging its foreign exchange risk. It has made a purchase on 1st January, 2008 for which it has to make a payment of US \$ 50,000 on September 30, 2008. The present exchange rate is 1 US \$ = Rs. 40. It can purchase forward 1 US \$ at Rs. 39. The company will have to make a upfront premium of 2% of the forward amount purchased. The cost of funds to the company is 10% per annum and- the rate of Corporate tax is 50%. Ignore taxation. Consider the following situations and compute the Profit/ Loss the company will make if it hedges its foreign exchange risk: 8

- (i) If the exchange rate' on September 30, 2008 is Rs. 42 per US \$.

(ii) If the exchange rate on September 30, 2008 is Rs. 38 per US \$.

- 5 (c) Briefly explain, what is 'refinancing', indicating any two institutions which offer this facility. 4

SOLUTION

5 (a) (i) When dividend is not declared.

$$P_0 = \frac{P_1 + \text{NIL}}{1 + 0.10} \quad 100 = \frac{P_1 + 0}{1.10} \quad P_1 = 100 \times 1.10 = \text{Rs. } 110$$

→ Wealth of the shareholder:

- a) Share Price = Rs. 110
- b) Dividend = NIL
- c) Value of Portfolio = Rs. 110

(ii) When dividend is declared.

$$P_0 = \frac{P_1 + 5}{1 + 0.1}$$

$$\begin{aligned} 100 \times 1.10 &= P_1 + 5 \\ 110 &= P_1 + 5 \\ P_1 &= 105 \\ D_1 &= 5 \end{aligned}$$

→ Wealth of the shareholder:

- a) Share Price = Rs. 105
- b) Dividend = Rs. 5
- c) Value of Portfolio = Rs. 110

Portfolio Value has undergone no change on account of dividend.

Regardless of dividend declaration, value of the portfolio is unmoved. Dividend is having little effect on wealth of the shareholder. This is referred to as dividend irrelevance theory.

→ **Number of New Equity shares to be issued.**

→ When Dividend is not declared.

- a) Requirement = Rs. 5,00,000
- b) Net Profit = Rs. 2,50,000
- c) Issue Price = Rs. 110.00
- d) Number of share
to be issued (C/D) = 2273 Shares

→ When Dividend is declared.

Requirement		5,00,000
Net Profit	2,50,000	
Less: Dividend (25,000 x 5)	1,25,000	1,25,000
Amount Raised by right issue		3,75,000
Issue price		105.00
Number of Equity Shares (6,00,000 / 102)		3571 Shares

Cross check:

Particulars	No Dividend	Dividend
Old shares	25,000	25,000
New Shares	2,273	3,571
Total	27,273	28,571
Price	110.00	105.00
Shareholder wealth (approx)	30,00,000	30,00,000

It is once again proved that wealth of the shareholder is least affected by the dividend decision taken.

Working notes		
Forward rate		39.0000
Premia @ 2%	0.7800	
Interest cost	0.0585	0.8385
0.78 x 10% x 9/12		
Total cost of forward		39.8385
Exposure		50000
Outflow		1991925

(i) Outflow if future spot rate is Rs.42 without hedging	2100000
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Gain on account of forward booking [2100000 - 1991925]	108075
(i) Outflow if future spot rate is Rs.38	1900000
Loss on account of forward booking	91925
\$ [1991925-1900000]	

6. Write short notes on the following:

4 x 2 = 20

- (a) Venture capital financing
- (b) Inter-Bank participation certificate
- (c) Distinction between Money Market and Capital Market
- (d) Credit cards as part of Consumer finance
- (c) Stock Lending Scheme.