(50 Marks)

Note: All questions are compulsory.

Question 1 (10 marks)

(i)

	E Ltd.	H Ltd.
Market capitalisation	1000 lakhs	1500 lakhs
No. of shares	20 lakhs	15 lakhs
Market Price per share	` 50	` 100
P/E ratio	10	5
EPS	` 5	` 20
Profit	` 100 lakh	` 300 lakh
Share capital	` 200 lakh	` 150 lakh
Reserves and surplus	` 600 lakh	` 330 lakh
Total	` 800 lakh	` 480 lakh
Book Value per share	` 40	` 32

(3 marks)

(ii)   Calculation of Swap Ratio

EPS	1 : 4 i.e.	$4.0 \times 40\%$	1.6
Book value	1 : 0.8 i.e.	$0.8 \times 25\%$	0.2
Market price	1 : 2 i.e.	$2.0 \times 35\%$	0.7
		Total	2.5

Swap ratio is for every one share of H Ltd., to issue 2.5 shares of E Ltd. Hence, total no. of shares to be issued 15 lakh × 2.5 = 37.50 lakh shares (3 marks)

(iii)   Promoter's holding = 9.50 lakh shares + (10× 2.5 = 25 lakh shares) = 34.50 lakh i.e. Promoter's holding % is (34.50 lakh/57.50 lakh) × 100 = 60%. (1 mark)

(iv)   Calculation of EPS after merger (1 mark)

Total No. of shares   20 lakh + 37.50 lakh = 57.50 lakh

$$EPS \frac{Total\ profit}{No.\ of\ shares} = \frac{100\ lakh + 300\ lakh}{57.50\ lakh} = \frac{400}{57.50} = `6.956$$

(v)   Calculation of Market price and Market capitalization after merger (1 mark)

Expected market price   EPS 6.956 × P/E 10 = ` 69.56

Market capitalization   = ` 69.56 per share ×57.50 lakh shares
                             = ` 3,999.70 lakh or ` 4,000 lakh

(vi)   Free float of market capitalization = ` 69.56 per share × (57.50 lakh × 40%)
(1 mark)   = ` 1599.88 lakh

Question 2 (6 marks)

(b) Duration of Bond X (1 mark)

Year	Cash flow	P.V. @ 10%		Proportion of bond value	Proportion of bond value x time (years)
1	1070	.909	972.63	1.000	1.000

Duration of the Bond is 1 year

Duration of Bond Y X (2 marks)

Year	Cash flow	P.V. @ 10%		Proportion of bond value	Proportion of bond value x time (years)
1	80	.909	72.72	0.077	0.077
2	80	.826	66.08	0.071	0.142
3	80	.751	60.08	0.064	0.192
4	1080	.683	737.64	0.788	3.152
			936.52	1.000	3.563

Duration of the Bond is 3.563 years

Let x1 be the investment in Bond X and therefore investment in Bond Y shall be (1 - x1). Since the required duration is 2 year the proportion of investment in each of these two securities shall be computed as follows:

2 = x1 + (1 - x1) 3.563 x1 =

0.61

Accordingly, the proportion of investment shall be 61% in Bond X and 39% in Bond Y respectively. Amount of

investment

Bond X	Bond Y
PV of ` 1,00,000 for 2 years @ 10% x 61%	PV of ` 1,00,000 for 2 years @ 10% x 39%
= ` 1,00,000 (0.826) x 61%	= ` 1,00,000 (0.826) x 39%
= ` 50,386	= ` 32,214
No. of Bonds to be purchased	No. of Bonds to be purchased
= ` 50,386/` 972.73 = 51.79 i.e. approx. 52 bonds	= ` 32,214/` 936.52 = 34.40 i.e. approx. 34 bonds

Note : The investor has to keep the money invested for two years. Therefore, the investor can invest in both the bonds with the assumption that Bond X will be reinvested for another one year on same returns. (3 marks)

Question 3 (8 marks)

Calculation of Profit after tax (PAT) (1 mark)

	`
Profit before interest and tax (PBIT)	32,00,000
Less: Debenture interest (` 64,00,000 × 12/100)	7,68,000
Profit before tax (PBT)	24,32,000
Less: Tax @ 35%	8,51,200
Profit after tax (PAT)	15,80,800
Less: Preference Dividend	
(` 40,00,000 × 8/100) 3,20,000	
Equity Dividend (` 80,00,000 × 8/100) 6,40,000	9,60,000
Retained earnings (Undistributed profit)	6,20,800

Calculation of Interest and Fixed Dividend Coverage (1 mark)

$$= \frac{\text{PAT + Debenture interest}}{\text{Debenture interest + Preference dividend}}$$

$$= \frac{15,80,800 + 7,68,000}{7,68,000 + 3,20,000} = \frac{23,48,800}{10,88,000} = 2.16 \text{ times}$$

(b) Calculation of Capital Gearing Ratio (1 mark)

$$\text{Capital Gearing Ratio} = \frac{\text{Fixed interest bearing funds}}{\text{Equity shareholders' funds}}$$

$$= \frac{\text{Preference Share Capital + Debentures}}{\text{Equity Share Capital + Reserves}} = \frac{40,00,000 + 64,00,000}{80,00,000 + 32,00,000}$$

$$= \frac{1,04,00,000}{1,12,00,000} = 0.93$$

(c) Calculation of Yield on Equity Shares: (1 mark)

Yield on equity shares is calculated at 50% of profits distributed and 5% on undistributed profits:

	(`)
50% on distributed profits (` 6,40,000 × 50/100)	3,20,000
5% on undistributed profits (` 6,20,800 × 5/100)	31,040
Yield on equity shares	3,51,040

$$\text{Yield on equity shares \%} = \frac{\text{Yield on shares}}{\text{Equity share capital}} \times 100$$

$$= \frac{3,51,040}{80,00,000} \times 100 = 4.39\% \text{ or, } 4.388\%.$$

Calculation of Expected Yield on Equity shares (3 marks)

Note: There is a scope for assumptions regarding the rates (in terms of percentage for every one time of difference between Sun Ltd. and Industry Average) of risk premium involved with respect

to Interest and Fixed Dividend Coverage and Capital Gearing Ratio. The below solution has been worked out by assuming the risk premium as:

(i)   1% for every one time of difference for Interest and Fixed Dividend Coverage.

(ii) 2% for every one time of difference for Capital Gearing Ratio.

(a) Interest and fixed dividend coverage of Sun Ltd. is 2.16 times but the industry average is 3 times. Therefore, risk premium is added to Sun Ltd. Shares @ 1% for every 1 time of difference.

Risk Premium = 3.00 – 2.16 (1%) = 0.84 (1%) = 0.84%

(b) Capital Gearing ratio of Sun Ltd. is 0.93 but the industry average is 0.75 times. Therefore, risk premium is added to Sun Ltd. shares @ 2% for every 1 time of difference.

Risk Premium   = (0.75 – 0.93) (2%)

= 0.18 (2%) = 0.36%

	(%)
Normal return expected	9.60
Add: Risk premium for low interest and fixed dividend coverage	0.84
Add: Risk premium for high interest gearing ratio	0.36
	10.80

Value of Equity Share (1 mark)

$$= \frac{\text{Actual yield}}{\text{Expected yield}} \times \text{Paid-up value of share} = \frac{4.39}{10.80} \times 100 = ₹\ 40.65$$

Question 4 (8 marks)

(in lakhs)

	(4 marks) Quote A	(4 marks) Quote B
Calculation of Present Value (PV) of cash payments:		
Initial lease rent (PV)	5.00	1.00
Less: PV of tax benefit on initial payment of lease rent		
₹ 5.00 lakh x 0.30 x 0.91	(1.365)	-
₹ 1.00 lakh x 0.30 x 0.91	-	(0.273)
PV of Annual lease rents		
₹ 21.06 lakh x 0.7 x 2.49	36.71	-
₹ 19.66 lakh x 0.7 x 3.17	-	43.63
Total payments in PV	40.345	44.357
Capital Recovery Factor (reciprocal of Annuity Factor)		
1/2.49	0.402	-
1/3.17	-	0.315
Equated Annual Payment or cash outflow (₹ lakhs)	16.20	13.979

Conclusion: Since Quote B implies lesser equated annual cash outflow, it is better.

Question 5 (10 marks)

Particulars	Adjustment Value ` lakhs
Equity Shares	63.920
Cash in hand (5.000 – 2.240)	2.760
Bonds and debentures not listed	2.125
Bonds and debentures listed	7.500
Dividends accrued	1.950
Fixed income securities	9.409
Sub total assets (A) (5 marks)	87.664
Amount payable on shares	13.54
Expenditure accrued	1.76
Sub total liabilities (B)	15.30
Net Assets Value (A) – (B) (4 marks)	72.364
No. of units	2,75,000
Net Assets Value per unit (` 72.364 lakhs / 2,75,000) (1 marks)	` 26.3142

Question 6 (8 marks)

(i) The EPS of the firm is ` 10 (i.e., ` 2,00,000/20,000). The P/E Ratio is given at 12.5 and the cost of capital, ke, may be taken at the inverse of P/E ratio. Therefore, ke is 8 (i.e., 1/12.5). The firm is distributing total dividends of ` 1,50,000 among 20,000 shares, giving a dividend per share of ` 7.50. the value of the share as per Walter's model may be found as follows:

$P0 = D/Ke + (r/Ke)(E-D) / Ke = 7.50 / 0.08 + (.10/0.08)(10-7.5) / 0.08 = 132.81$ (2 marks)

The firm has a dividend payout of 75% (i.e., ` 1,50,000) out of total earnings of ` 2,00,000. since, the rate of return of the firm, r, is 10% and it is more than the ke of 8%, therefore, by distributing 75% of earnings, the firm is not following an optimal dividend policy. The optimal dividend policy for the firm would be to pay zero dividend and in such a situation, the market price would be

$P0 = D/Ke + (r/Ke)(E-D) / Ke = 0/ 0.08 + (.10 + .08) (10-0) /0.08 = 156.25$

So, theoretically the market price of the share can be increased by adopting a zero payout. (2 marks)

(ii) The P/E ratio at which the dividend policy will have no effect on the value of the share is such at which the ke would be equal to the rate of return, r, of the firm. The Ke would be 10% (=r) at the P/E ratio of 10. Therefore, at the P/E ratio of 10, the dividend policy would have no effect on the value of the share(2 marks)

(iii) If the P/E is 8 instead of 12.5, then the ke which is the inverse of P/E ratio, would be 12.5 and in such a situation ke> r and the market price, as per Walter's model would be

$P0 = D/Ke + (r/Ke)(E-D) / Ke = 7.50 / 0.125 + (0.10/0.125) (10 – 7.5) / 0.125 = 76$(2 marks)

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