

compulsory.

Note: All questions are

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 × 40%	1.6
Book value	1 : 0.8 i.e.	0.8 × 25%	0.2
Market price	1 : 2 i.e.	2.0 × 35%	<u>0.7</u>
		Total	<u>2.5</u>

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

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

(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.

1. Current Market Price of Bond

(2 marks)

Time	CF	PVIF 8% PV (CF)	PV (CF)
1	14	0.926	12.964
2	14	0.857	11.998
3	14	0.794	11.116
4	14	0.735	10.290
5	114	0.681	<u>77.634</u>
		\sum PV (CF) i.e. $P_0 =$	<u>124.002</u>

Say

₹ 124.00

2. Minimum Market Price of Equity Shares at which Bondholder should exercise conversion option:

$$124 / 40 = 6.20$$

(1 mark)

3. Duration of the bond

(3 marks)

Year	Cash flow	P.V. @ 8%		Proportion of bond value	Proportion of bond value x time (years)
1	14	0.926	12.964	0.105	0.105
2	14	0.857	11.998	0.097	0.194
3	14	0.794	11.116	0.089	0.267
4	14	0.735	10.290	0.083	0.332
5	114	0.681	<u>77.634</u>	<u>0.626</u>	<u>3.130</u>
			<u>124.002</u>	<u>1.000</u>	<u>4.028</u>

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)		<u>7,68,000</u>
Profit before tax (PBT)		24,32,000
Less: Tax @ 35%		<u>8,51,200</u>
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)	<u>6,40,000</u>	<u>9,60,000</u>
Retained earnings (Undistributed profit)		<u>6,20,800</u>

Calculation of Interest and Fixed Dividend Coverage

(1 mark)

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

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

(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:

undistributed profits:	()
	3,20,00
50% on distributed profits (` 6,40,000 × 50/100)	0
5% on undistributed profits (` 6,20,800 × 5/100)	<u>31,040</u>
	<u>3,51,04</u>
Yield on equity shares	<u>0</u>

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

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

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.

$$\text{Risk Premium} = 3.00 - 2.16 (1\%) = 0.84 (1\%) = 0.84\%$$

(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.

$$\text{Risk Premium} = (0.75 - 0.93) (2\%)$$

$$= 0.18 (2\%) = 0.36\%$$

	(%)
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	<u>0.36</u>
	<u>10.80</u>

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)

(b) Yield for 9 months = 115%

Market value of Investments as on 31.03.2013 = 1,00,000/- + (1,00,000 x 115%)

= ` 2,15,000/-

Therefore, NAV as on 31.03.2013 = (2,15,000 - 1,00,000) / 10,000 = ` 20.50

(1 marks)

(NAV would stand reduced to the extent of dividend payout, being (` 100,000 x 10%) = ` 10,000)

Since dividend was reinvested by Mr. X, additional units acquired

= $\frac{` 10,000}{` 20.50} = 487.80$ units

Therefore, units as on 31.03.2013 = 10,000 + 487.80 = 10,487.80

[Alternately, units as on 31.03.2013 = (2,15,000 / 20.50) = 10,487.80]

Dividend as on 31.03.2014 = 10,487.80 x 10 x 0.2 = ` 20,975.60

Let X be the NAV on 31.03.2014, then number of new units reinvested will be ` 20,975.60 / X. Accordingly 11296.11 units shall consist of reinvested units and 10487.80 (as on 31.03.2013). Thus, by way of equation it can be shown as follows:

$$11296.11 = \frac{20975.60}{X} + 10487.80$$

Therefore, NAV as on 31.03.2014 = $20,975.60 / (11,296.11 - 10,487.80)$
 = ` 25.95 (2 marks)

NAV as on 31.03.2015 = $1,00,000 (1 + 2.0217) / 11296.11$
 = ` 26.75 (2 marks)

b.

Sharpe Ratio $S = (R_p - R_f) / \sigma_p$

Treynor Ratio $T = (R_p - R_f) / \beta_p$

Where,

R_p = Return on Fund

R_f = Risk-free rate

σ_p = Standard deviation of Fund

β_p = Beta of Fund

Reward to Variability (Sharpe Ratio)

(2 ½ marks)

Mutual Fund	R_p	R_f	$R_p - R_f$	σ_p	Reward to Variability	Ranking
A	15	6	9	7	1.285	2
B	18	6	12	10	1.20	3
C	14	6	8	5	1.60	1
D	12	6	6	6	1.00	5
E	16	6	10	9	1.11	4

Reward to Volatility (Treynor Ratio)

(2 ½ marks)

Mutual Fund	R_p	R_f	$R_p - R_f$	β_p	Reward to Volatility	Ranking
A	15	6	9	1.25	7.2	2
B	18	6	12	0.75	16	1
C	14	6	8	1.40	5.71	5
D	12	6	6	0.98	6.12	4
E	16	6	10	1.50	6.67	3

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, k_e , may be taken at the inverse of P/E ratio. Therefore, k_e 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:

$$P_0 = D / k_e + (r / k_e)(E - D) / k_e = 7.50 / 0.08 + (.10 / 0.08)(10 - 7.5) / 0.08 = 132.81 \text{ (2 marks)}$$

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 k_e 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

$$P_0 = D/K_e + (r/K_e)(E-D) / K_e = 0 / 0.08 + (.10 + .08) (10-0) / 0.08 = 156.25$$

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 k_e would be equal to the rate of return, r , of the firm. The k_e 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 k_e which is the inverse of P/E ratio, would be 12.5 and in such a situation $k_e > r$ and the market price, as per Walter's model would be

$$P_0 = D/K_e + (r/K_e)(E-D) / K_e = 7.50 / 0.125 + (0.10/0.125) (10 - 7.5) / 0.125 = 76 \text{ **(2 marks)**}$$
