

Note: All questions are compulsory.

Question 1(9 Marks)

<i>Projected Balance Sheet</i>				
	Year 1	Year 2	Year 3	Year 4
Fixed Assets (40% of Sales)	9,600	11,520	13,824	13,824
Current Assets (20% of Sales)	4,800	5,760	6,912	6,912
Total Assets	14,400	17,280	20,736	20,736
Equity	14,400	17,280	20,736	20,736

(2 marks)

Projected Cash Flows:

	Year 1	Year 2	Year 3	Year 4
Sales	24,000	28,800	34,560	34,560
PBT (10%) of sale	2,400	2,880	3,456	3,456
PAT (70%)	1,680	2,016	2,419.20	2,419.20
Depreciation	800	960	1,152	1,382
Addition to Fixed Assets	2400	2880	3456	1382
Increase in Current Assets	800	960	1,152	-
Operating cash flow	(720)	(864)	(1036.80)	(2419.20)

(2 marks)

Projected Cash Flows:

Present value of Projected Cash Flow:

<i>Cash Flows</i>	<i>PVF at 15%</i>	<i>PV</i>
-720	0.870	-626.40
-864	0.756	-653.18
-1,036.80	0.658	<u>-682.21</u>
		-1,961.79

(2 marks)

Residual Value		$2419.20/0.15 = 16,128$	
Present value of Residual value	=	$16128/(1.15)^3$	
	=	$16128/1.521 = 10603.55$	
Total shareholders' value	=	$10,603.55 - 1,961.79 =$	$8,641.76$
Pre strategy value	=	$1,400 / 0.15 = 9,333.33$	
∴ Value of strategy	=	$8,641.76 - 9,333.33 =$	$- 691.57$

(3 marks)

Conclusion: The strategy is not financially viable

Question 2 (6 marks)

The value of Cost of Equity with the help of CAPM

$$K_e = R_f + \beta(R_m - R_f)$$

With the given data the Cost of Equity using CAPM will be:

$$K_e = 0.11 + 1.5(0.15 - 0.11)$$

$$K_e = 0.11 + 1.5(0.04) = 0.17 \text{ or } 17\%$$

The value of share using the Growth Model:

$$P = \frac{D_0(1+g)}{k_e - g}$$

$$P = \frac{20(1+0.09)}{0.17 - 0.09}$$

$$P = \frac{21.80}{0.08} = \text{` } 272.50 \text{ (3 marks)}$$

However, if the decision of the Board of Directors is implemented, the beta factor is likely to increase to 1.75.

Therefore,

$$K_e = 0.11 + 1.75(0.15 - 0.11)$$

$$K_e = 0.11 + 1.75(0.04) = 0.18 \text{ or } 18\%$$

The value of share using the Growth Model:

$$P = \frac{D_0(1+g)}{k_e - g}$$

$$P = \frac{20(1+0.09)}{0.18 - 0.09}$$

$$P = \frac{21.80}{0.09} = \text{` } 242.22 \text{ (3 marks)}$$

Question 3(6 Marks) (3 marks for each project)

Project A			
Cash flow (in `)	Probability	Utility	Utility value
-15,000	0.10	-100	-10
- 10,000	0.20	-60	-12
15,000	0.40	40	16
10,000	0.20	30	6
5,000	0.10	20	<u>2</u>
			<u>2</u>

Project B			
Cash flow (in `)	Probability	Utility	Utility value
-10,000	0.10	-60	-6
-4,000	0.15	-3	-0.45
15,000	0.40	40	16
5,000	0.25	20	5
10,000	0.10	30	<u>3</u>
			<u>17.55</u>

Project B should be selected as its expected utility is more

Question 4 (6 marks)

(in lakhs)

	Quote A	Quote B
Calculation of Present Value (PV) of cash payments:		
Initial lease rent (PV) (1 mark)	5.00	1.00
Less: PV of tax benefit on initial payment of lease rent(1 mark)		
` 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(1 mark)		
` 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 mark)		
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. (2 marks)

Question 5 (6 marks)

i) 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>
Σ PV (CF) i.e. P ₀ =			<u>124.002</u>

Say

124.00

ii) Minimum Market Price of Equity Shares at which Bondholder should exercise conversion option:

$$\frac{124.00}{20.00} = 6.20 \text{ (2 marks)}$$

20.00

iii) Duration of the Bond

(2 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 6 (9 Marks)

Shares	No. of shares (lakhs) (1)	Market Price of Per Share (2)	(1)* x (2) (lakhs)	% to total (w)	β (x)	wx
A Ltd.	3.00	500.00	1500.00	0.30	1.40	0.42
B Ltd.	4.00	750.00	3000.00	0.60	1.20	0.72
C Ltd.	2.00	250.00	<u>500.00</u>	<u>0.10</u>	1.60	<u>0.16</u>
			<u>5000.00</u>	1		<u>1.30</u>

(1) Portfolio beta 1.30 **(2marks)**

(2) Required Beta 0.91 **(2marks)**

Let the proportion of risk free securities for target beta 0.91 = p

$$0.91 = 0 \times p + 1.30 (1 - p)$$

$$p = 0.30 \text{ i.e. } 30\%$$

Shares to be disposed off to reduce beta 5000 × 30%

₹ 1,500 lakh

(3) Number of shares of each company to be disposed off (2 marks)

Shares	% to total (w)	Proportionate Amount (₹ lakhs)	Market Price Per Share	No. of Shares (Lakh)
A Ltd.	0.30	450.00	500.00	0.90
B Ltd.	0.60	900.00	750.00	1.20
C Ltd.	0.10	150.00	250.00	0.60

(4) Number of Nifty Contract to be sold (1 mark)

$$(1.30 - 0.91) \times 5000 \text{ lakh} = 120 \text{ contracts}$$

$$8,125 \times 200$$

(5) 2% rises in Nifty is accompanied by 2% × 1.30 i.e. 2.6% rise for portfolio of shares

(2 marks)

	₹ Lakh
Current Value of Portfolio of Shares	5000
Value of Portfolio after rise	5130
Mark-to-Market Margin paid $(8125 \times 0.020 \times ₹ 200 \times 120)$	39
Value of the portfolio after rise of Nifty	5091
% change in value of portfolio $(5091 - 5000) / 5000$	1.82%
% rise in the value of Nifty	2%
Beta	0.91

Question 7 (8 marks)

The formula for the Dividend valuation Model is

$$P_0 = \frac{D_1}{K_e - g} \text{ (1 mark)}$$

K_e = Cost of Capital

g = Growth rate

D_1 = Dividend at the end of year 1

On the basis of the information given, the following projection can be made:

Year	EPS (Rs.) (1 mark)	DPS (Rs.) (1 mark)	PVF @15%	PV of DPS (Rs.) (1 mark)
2015	12.00 (9.60 × 125%)	4.80 (3.84 × 125%)	0.870	4.176
2016	15.00 (12.00 × 125%)	6.00 (4.80 × 125%)	0.756	4.536

2017	16.50 (15.00 x 110%)	8.25* (50% of Rs.16.50)	0.658	5.429
				<u>14.141</u>

*Payout Ratio changed to 50%.

After 2017, the perpetuity value assuming 10% constant annual growth is:

$$D_1 = \text{Rs. } 8.25 \times 110\% = \text{Rs. } 9.075 \text{ (1 mark)}$$

Therefore P_0 from the end of 2017

$$\frac{\text{Rs. } 9.075}{0.15 - 0.10} = \text{Rs. } 181.50 \text{ (1 mark)}$$

$$0.15 - 0.10$$

This must be discounted back to the present value, using the 3 year discount factor after 15%.

	Rs.
Present Value of P_0 (Rs. 181.50 × 0.658) (1 mark)	119.43
Add: PV of Dividends 2015 to 2017	<u>14.14</u>
Expected Market Price of Share (1 mark)	<u>133.57</u>
