Paper 14 - Advanced Financial Management

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Full Marks: 100 **Time allowed: 3 Hours**

Answer Question No. 1 which is compulsory and carries 20 marks and any five from Question No. 2 to 8.

Section A **[20 marks]**

1. (a) Answer all questions, each question carries 2 marks **[marks7*2=14]**

(i) X Ltd. issued ₹ 100, 12% Debentures 5 years ago. Interest rates have risen since then, so that debentures of the company are now selling at 15% yield basis. What is the current expected market price of the debentures?

(ii)

Given:	Last year	Current year
Sales unit	2,000	2,800
Selling price per unit	₹ 10	₹ 10
EPS	₹ 9.60	₹ 38.40

What is the Degree of Combined Leverage?

(iii) MI Ltd. has annual sales of ₹ 365 lacs. The company has investment opportunities in the money market to earn a return of 15% per annum. If the company could reduce its float by 3 days, what would be the increase in company's total return? (Assume 1 year = 365 days)

(iv) In the inter-bank market, the DM is quoting ₹ 21.50. If the bank charges 0.125% commission for TT selling, what is the TT selling rate?

(v) The required rate of return on equity is 24% and cost of debt is 12%. The company has a capital structure mix of 80% of equity and 20% debt. What is the overall rate of return, the company should earn? Assume no tax.

(vi) Consider the following quotes:

Spot (Euro/Pound) = 1.6543/1.6557

Spot (Pound/NZ's) = 0.2786/0.2800

Calculate the % spread on the Euro/Pound Rate.

(vii) Initial Investment ₹ 20 lakh. Expected annual cash flows ₹ 6 lakh for 10 years. Cost of capital @ 15%. What is the Profitability Index? The cumulative discounting factor @ 15% for 10 years = 5.019.

(b) State if each of the following sentences is T (= True) or F (= False), Each Question carries 1 mark. **[mark: 6*1=6]**

(i) External Commercial Borrowing (ECB) is the amount borrowed by the Government through designated agents from All India Financial Institutions (AIFIs).

(ii) European Option can be exercised any time during option period.

(iii) FPA policy is a minimum liability insurance and gives only a partial cover for losses.

(iv) Forward Exchange Rate contract is for the purchase or sale of a specified quantity of a specified currency price as agreed today.

(v) Risk Adjusted Discount Rate (RADR) = Risk Free Return X Premium for facing the risk.

(vi) Price of contract changes every day in Futures.

Answer: 1 (a)

(i) Market value of Debentures = $\frac{\text{Interest on Debenture}}{\text{Current Yield Rate}} = \frac{12}{0.15} =$ ₹80

(ii) Degree of Combined leverage =

$$\frac{\Delta \text{ EPS} / \text{EPS}}{\Delta \text{ Sales} / \text{Sales}} = \frac{(38.40 - 9.60)/9.60}{(28,000 - 20,000)/20,000} = \frac{3}{40} = 7.5$$

(iii) Average sales per day = ₹3.65 lakhs/365 days

Increase in Total Returns = ₹1 lakhs @ 3days × 15% = ₹45,000.

(iv) TT selling rate = 21.50 (1 – 0.00125) = ₹21.47/DM

(v) Rate of return on equity fund = 24% × 0.80 = 19.2

Cost of debt is = 12% × 0.20 = 2.4

Overall rate of return Co. should earn 21.6

(vi) % spread on Euro/Pound rate = $\frac{1.6557 - 1.6543}{1.6543} \times 100$

(vii) P.V. of inflows = 6.00 × 5.019 = ₹30.114 lakhs

Profitability Index = $\frac{\text{P.V. of inflows}}{\text{P.V. of outflows}} = \frac{30.114}{20} = 1.51$

(b)

(i) True.

(ii) False.

(iii) True.

(iv) True

(v) False

(vi) False

Section-B

Answer any 5 Questions from the following. Each Question carries 16 Marks.

2. (a) A company is considering two mutually exclusive projects X and Y. Project X costs ₹3,00,000 and Project Y ₹3,60,000. You have been given below the net present value, probability distribution for each project:

Project X		Project Y	
NPV Estimate	**Probability**	**NPV Estimate**	**Probability**
₹		₹	
30,000	**0.1**	**30,000**	**0.2**
60,000	**0.4**	**60,000**	**0.3**
1,20,000	**0.4**	**1,20,000**	**0.3**
1,50,000	**0.1**	**1,50,000**	**0.2**

(i) Compute the expected net present value of Projects X and Y.

(ii) Compute the risk attached to each project i.e., Standard Deviation of each probability distribution.

(iii) Which project do you consider more risky and why?

(iv) Compute the profitability index of each project. [marks 12]]

2. (b) The risk free return is 8 per cent and the return on market portfolio is 14 per cent. If the last dividend on Share 'A' was ₹2.00 and assuming that its dividend and earnings are expected to grow at the constant rate of 5 per cent. The beta of share 'A' is 2.50. Compute the intrinsic value of share A. [marks 4]

Answer: 2 (a)

Project X

NPV Estimate	Probability	NPV Estimate x Probability	Deviation from Expected NPV i.e. ₹ 90,000	Square of the deviation	Square of the deviation x Probability
₹		₹		₹	₹
30,000	0.1	3,000	-60,000	36,00,000,000	3,60,000,000
60,000	0.4	24,000	-30,000	9,00,000,000	3,60,000,000
1,20,000	0.4	48,000	30,000	9,00,000,000	3,60,000,000
1,50,000	0.1	15,000	60,000	36,00,000,000	3,60,000,000
Expected NPV		90,000			14,40,000,000

Project Y

NPV Estimate	Probability	NPV Estimate x Probability	Deviation from Expected NPV i.e. ₹ 90,000	Square of the deviation	Square of the deviation x Probability
₹		₹		₹	₹
30,000	0.2	6,000	-60,000	36,00,000,000	7,20,000,000
60,000	0.3	18,000	-30,000	9,00,000,000	2,70,000,000
1,20,000	0.3	36,000	30,000	9,00,000,000	2,70,000,000
1,50,000	0.2	30,000	60,000	36,00,000,000	7,20,000,000
Expected NPV		90,000			19,80,000,000

(i) The expected net present value of Projects X and Y is ₹ 90,000 each.

(ii) Standard Deviation = $\sqrt{\text{Square of the deviation} \times \text{Probability}}$

In case of Project X: Standard Deviation = $\sqrt{₹14,40,000,000}$

= ₹ 37,947

In case of Project Y: Standard Deviation = $\sqrt{₹19,80,000,000}$

= ₹ 44,497

(iii) Coefficient of variation = $\frac{\text{Standard deviation}}{\text{Expected net present value}}$

In case of Project X: Coefficient of variation = $\frac{37,947}{90,000} = 0.42$

In case of Project Y : Coefficient of variation = $\frac{44,497}{90,000}$ = 0.4944 or 0.50

Project Y is riskier since it has a higher coefficient of variation.

(iv) Profitability index = $\frac{\text{Discounted cash inflow}}{\text{Discounted cash outflow}}$

In case of Project X : Profitability Index = $\frac{90,000+3,00,000}{3,00,000}$ = 1.30

In case of Project Y : Profitability Index = $\frac{90,000+3,60,000}{3,60,000} = \frac{4,50,000}{3,60,000}$ = 1.25

Answer: 2 (b)

Notation	Particulars	Value
β_A	Beta of share	2.5
R_M	market return	14%
R_F	risk free rate of return	8%
R	growth rate of Dividends	5%
D_0	last Year's dividend	2

1. Computation of Expected Return

   Expected return $[E(R_A)] = R_F + [\beta_A * (R_M - R_F)]$

   = 0.08 + [2.5 * (0.14 - 0.08)]

   = 0.08 + 2.5 (0.14 - 0.08) = 0.08 + 0.15 = 0.23

   i.e., K_e = 23%

2. Intrinsic Value of Share=$D1/(K_e-g)=D_0*(1+g)/(K_e-g)$

   =2*(1+0.05)/(0.23-.05)= ₹11.67

   The intrinsic value of share A is ₹11.67.

3. (a) A mutual fund made an issue of 800000 units of ₹10 each on 01.04.2016. No entry load was charged. It made the following investments after meeting its issue expenses.

	₹
40,000 Equity Shares of ₹100 @ ₹160	**64,00,000**
At par:	
8% Government Securities	**6,40,000**
9% Debentures (unlisted)	**4,00,000**
10% Debentures (listed)	**4,00,000**
	78,40,000

During the year, dividend of ₹9,60,000 was received on equity shares. Interest on all types of debt securities was received as and when due. At the end of the year on 31.03.2017, equity shares and 10% debentures were quoted at 175% and 90% of the respective par value. Other investments were at par. The operating expenses during the year amounted to ₹4,00,000.

(i) Find out the Net Assets Value (NAV) per unit at the end of the year.
(ii) Find out the NAV if the Mutual Fund had distributed a dividend of ₹0.90 per unit during the year to the unit holders. [marks 9]

3. (b) The data pertaining to 5 mutual funds is given below:

Fund	Return	Standard deviation (σ)	Beta (β)
J	**13**	**6**	**1.50**

K	**9**	**2**	**0.90**
L	**11**	**3**	**1.20**
M	**15**	**5**	**0.80**
N	**12**	**4**	**1.10**

Compute the reward- to- variability/volatility ratios and rank the funds, if the risk-free rate is 6%. [marks 7]

Answer: 3 (a)

Computation of closing net asset value

Given the total initial investment ₹ 78,40,000 out of issue proceeds of ₹ 80,00,000 therefore balance of ₹ 1,60,000 is considered as issue expenses.

Particulars	Opening value of investment	Capital Appreciation	Closing value of investment	Income
40000 Equity of ₹100 each at ₹ 160	64,00,000	6,00,000	70,00,000	9,60,000
8% Government securities	6,40,000	Nil	6,40,000	51,200
9% Debentures (Unlisted)	4,00,000	Nil	4,00,000	36,000
10% Debentures (Listed)	4,00,000	- 40,000	3,60,000	40,000
Total	78,40,000	5,60,000	84,00,000	10,87,200

Total Income	=	₹ 10,87,200
Less: Opening Expenses during the period	=	₹ 4,00,000
Net Income		₹ 6,87,200
Net Fund Balance 84,00,000 + 6,87,200	=	₹90,87,200
Less: Dividend = 7,20,000 (8,00,000 × 0.90)	=	₹ 7,20,000
Net Fund balance (after dividend)	=	₹ 83,67,200
Net Asset Value (before considering dividend)	=	₹ 90,87,200
Net Asset Value(before considering dividend) [₹90,87,200 ÷ 800000]	=	₹ 11.36
Net Asset Value (After dividend) [₹ 83,67,200 ÷ 800000]	=	₹ 10.46

Note: Closing market price of the investment have been quoted at a percentage of the face value (Assumption)

3 (b) For computing reward to variability/volatility ratio is

- Sharpe's Ratio = $\left[\left(R_P - R_F\right) \div \sigma_P\right]$
- Treynor's Ratio = $\left[\left(R_P - R_F\right) \div \beta_P\right]$

Ranking based on Sharpe's Ratio and Treynor Ratio method.

Fund	Under sharpe's mothod $\left[\left(R_P - R_F\right) \div \sigma_P\right]$	Ranking	Under Treynor method $\left[\left(R_P - R_F\right) \div \beta_P\right]$	
J	[(13 – 6) ÷ 6] = 1.17	4	[(13 – 6) ÷ 1.50] = 4.67	3
K	[(9 – 6) ÷ 2] = 1.50	3	[(9 – 6) ÷ 0.90] = 3.33	5
L	[(11 – 6) ÷ 3] = 1.67	2	[(11 – 6) ÷ 1.20] = 4.17	4
M	[(15 – 6) ÷ 5] = 1.80	1	[(15 – 6) ÷ 0.80] = 11.25	1
N	[(12 – 6) ÷ 4] = 1.50	3	[(12 – 6) ÷ 1.10] = 5.45	2

4. (a) A Ltd has an expected return of 22% and standard deviation of 40%. B Ltd. has an expected return of 24% and standard deviation of 38%. A Ltd. has a beta of 0.86 and B Ltd. has a beta of 1.24. The correlation coefficient between the return of A Ltd. and B Ltd. is 0.72. The standard deviation of the market return is 20%. Suggest:

(i) Is investing in B Ltd. better than investing in A Ltd.?

(ii) If you invest 30% in B Ltd. and 70% in A Ltd., what is your expected rate of return and portfolio standard deviation?

(iii) What is the market portfolios expected rate of return and how much is the risk-free rate?

(iv) What is the beta of portfolio if A Ltd.'s weight is 70% and B Ltd.'s weight is 30%?

[marks 8]

(b) Compute Return under CAPM and the Average Return of the Portfolio from the following information:

Investment	Initial Price	Dividends	Market Price at the end of the year	Beta Risk Factor
A. Cement Ltd	25	2	50	0.80
Steel Ltd	35	2	60	0.70
Liquor Ltd	45	2	135	0.50
B. Govt. of India Bonds	1,000	140	1005	0.99

Risk Free Return = 14% **[marks 8]**

Answer: 4 (a)

(i) Expected return of B Ltd. is 24% as compared to 22% of A Ltd.

Standard deviation of B Ltd. is 38% as compared to 40% of A Ltd.

In view of the above, A Ltd. has lower return and carried higher risk as compared to B Ltd. Hence, investing in B Ltd. is better than investing in A Ltd. but investing in both A Ltd. and B Ltd. will cause to yield the advantage due to diversification of portfolio.

(ii) $R_{AB} = (0.22 \times 0.7) + (0.24 \times 0.3) = 22.6\%$

$\sigma_{AB} = (0.40^2 \times 0.7^2) + (0.38^2 + 0.3^2) + (2 \times 0.7 \times 0.3 \times 0.72 \times 0.40 \times 0.38)$

$= (0.16 \times 0.49) + (0.1444 \times 0.09) + 0.0459648 = 0.078 + 0.0112996 + 0.0459648$

$= 0.1374$

$\sigma_{AB} = \sqrt{\sigma_{AB}^2} = \sqrt{0.1374} = 0.37$ or 37%

(iii) The risk-free rate will be the same for A and B Ltd. Their rates of return are given as follows:

$R_A = 22 = R_t + (R_m - R_t)\ 0.86$

$R_B = 24 = R_t + (R_m - R_t)\ 1.24$

$R_A - R_B = -2 = (R_m - R_t)\ (-0.38) \quad \therefore R_m - R_t = -2/-0.38 = 5.26\%$

$R_A = 22 = R_t + (5.6)\ 0.86 \quad \therefore R_t = 17.5\%$

$R_B = 24 = R_t + (5.26)\ 1.24 \quad \therefore R_t = 17.5\%$

$R_m - 17.5 = 5.26$ $\therefore R_m = 22.76\%$

(iv) $\beta_{AB} = (\beta_A \times W_A) + (\beta_B \times W_B) = (0.86 \times 0.7) + (1.24 \times 0.3) = 0.974$

4. (b) Computation of Expected Return and Average Return

Securities	Cost	Dividend	Capital Gain	Expected Return=$R_f+\beta(R_m - R_f)$
Cement Limited	25	2	(50-25)=25	[14+0.80×(26.33-14)]=23.86%
Steel Limited	35	2	(60-35)=25	[14+0.70×(26.33-14)]=22.63%
Liquor Limited	45	2	(135-45)=90	[14+0.50×(26.33-14)]=20.17%
GOI Bonds	1,000	140	(1,005-1,000)=5	[14+0.90×(26.33-14)]=26.21%
Total	1,105	146	145	

Notes:

Return on Market Portfolio: Expected Return on Market Portfolio (Rm)

$$= \frac{\text{Dividends} + \text{Capital Gains}}{\text{Cost of the total Investment}} = \frac{146+145}{1{,}105 \times 100} = 26.33\%$$

Note: in the absence of return of a market Portfolio, it is assumed that portfolio containing one unit of the four securities listed above would result in a completely diversified portfolio, and therefore represent the Market Portfolio.

Portfolio's Expected Return based on CAPM:

(i) If the portfolio contains the above securities in equal proportion in terms of value-

Expected Return = (23.86% + 22.63% + 20.17% + 26.21%) ÷ 4 = 23.22%

(ii) If the Portfolio contains one unit of the above securities, then-

Securities	Cost	Expected Return	Product
Cement Limited	25	23.86%	25×23.86 = 596.25
Steel Limited	35	22.63%	35×22.63 = 792.05
Liquor Limited	45	20.17%	45×20.17 = 907.65
GOI Bonds	1,000	26.21%	1,000×26.21 = 26,210
Total	1,105		28,505.95
		Weighted Return	$\frac{28{,}505.95}{1{,}105}$ = 25.79%

Therefore, Expected Return from Portfolio (based on CAPM) = 25.79%

5. (a) State the term "Contango" and "Backwardation" as used with respect to Future Contracts.[4 marks]

(b) Draw a relationship between call option and put option in put-call parity theory.[4 marks]

(c) Compute the theoretical price of the following securities for 6 months:

Securities of	A Ltd	B Ltd.	C Ltd.
Spot Price	**₹5,450**	**₹450**	**₹1,050**
Dividend Expected	**₹60**	**₹25**	**₹60**
Dividend Receivable in	**2 months**	**3 months**	**4 months**
6 month's futures contract rate	**₹5,510**	**₹490**	**₹1,070**

You may assume a risk-free interest rate of 9% p. a.
What action do you recommend to benefit from futures contract? [8 marks]

Answer: 5 (a)

Although the spot price and futures price generally move in line with each other, the basis is not constant. Usually basis decreases with time, until on the date of expiry the basis is zero and futures price equals spot price.

Contango: If the futures price is greater than the spot price it is called contango.
Under normal market conditions futures contracts are priced above spot price. This is known as contango market. In this case, the futures price tends price tends to fall over time towards the spot price, equaling spot on the day of delivery.
Backwardation: If the spot price is greater than the futures price it is called backwardation. In this case futures price tends to rise over time to equal the spot price on the day of delivery.

(b) Options are the most important group of derivative securities. A call option gives the holder the right to buy an asset at a specified date for a specified price whereas in put option, the holder gets the right to sell an asset at the specified price and time.
'Put-Call Parity theory' is the relationship between the price of the European Call Option and Put Option, when they have the same strike price and maturity date, namely that a Portfolio of long a call option and short a put option is equivalent to a single forward contract at the strike price and expiry. This is because if the price at expiry is above the strike price, the call will be exercised, while it is below, the put will be exercised. Thus, in either case, one unit of the asset will be purchased for the strike price, exactly as in a forward contract.
Theory:
C+ PV of EP = SP + P, Where, C = Call option premium; EP = Exercise price; SP = Current stock price; and P = Put option premium.

(c)

Securities of	A Ltd.	BLtd.	CLtd.
Spot Price (S_x)	₹ 5450	₹ 450	₹ 1050
Dividend Expected (D_F)	₹60	₹ 25	₹ 60
Dividend Receivable in (t)	2 months or 0.1667	3 months or 0.25	4 months or 0.333
Risk free interest rate (r)	9% or 0.09	9% or 0.09	9% or 0.09
Present value of Dividend (D_P)	DF×e^{rt} or DF ÷ e^{rt} ₹ 60 ÷ $e^{0.09\times0.1667}$ = ₹ 60 + $e^{0.015}$ = 60 ÷ 1.01511 = ₹ 59.107	DF×e^{rt} or DF ÷ e^{rt} ₹ 25 ÷ $e^{0.09\times0.25}$ = ₹ 25 + $e^{0.0225}$ = 25 ÷ 1.022755 = ₹ 24.444	DF×e^{rt} or DF ÷ e^{rt} ₹60 ÷ $e^{0.09\times0.333}$ = ₹ 60 + $e^{0.03}$ = 60 ÷ 1.030455 = ₹ 58.227
Adjusted Spot price = S_x - D_P	5450 – 59.107 = ₹ 5390.893	₹ 450 – ₹ 24.444 = ₹ 425.556	₹ 1050 – ₹ 58.227 = ₹ 991.773
Theoretical Forward Price (TFP_X)	5390.893 ×$e^{0.09\times0.50}$ 5390.893 ×$e^{0.045}$ 5390.893 ×1.04603 = ₹ 5639.0.36	425.556×$e^{0.09\times0.50}$ 425.556×$e^{0.045}$ 425.556 ×1.04603 = ₹445.144	991.773 ×$e^{0.09\times0.50}$ 991.773 ×$e^{0.045}$ 991.773 ×1.04603 = ₹ 1037.424
6 months futures contract Rate (AFP_X)	₹ 5510	₹ 490	₹ 1070
TFP_x Vs. AFP_x	AFP_x is lower	AFP_x is higher	AFP_x is higher
Valuation in futures market	Under valued	Overvalued	Overvalued
Recommended Action	Sale Spot, buy future	Buy spot, sell future	Buy spot, sell future

6. (a) On 1st April, 3 months interest rate in the US and Germany are 6.5 percent and 4.5 percent per annum respectively. The $/DM spot rate is 0.6560. What would be the forward rate for DM for delivery on 30th June? [8 marks]

(b) Describe the role of hedging as foreign exchange risk management. [8 marks]

Answer: 6 (a)

Interest Rate parity Theorem – The theorem states that in equilibrium the difference in interest rates between two countries is equal to the difference between the forward and

spot rates of exchanges. The mathematical formula representing the theorem is given below:

$$\frac{i_A - i_B}{1+i_B} = \frac{F_0 - S_0}{S_0}$$

Where,

i_A = Interest rate of US 6.5% or 0.065

i_B = Interest rate of Germany 4.5% or 0.045

F_0 = Forward rate at the end of one year

S_0 = Spot rate 1 $ = 0.6560 DM

$$\frac{0.065-0.045}{1+0.045} = \frac{F_0 - 0.6560}{0.6560}$$

$$\frac{0.02}{1.045} = \frac{F_0 - 0.6560}{0.6560}$$

$0.02 \times 0.6560 = (1.045 \times F_0) - (1.045 \times 0.6560)$

$0.01312 = 1.045\ F_0 - 0.68552$

$1.045\ F_0 = 0.68552 + 0.01312$

$1.045\ F_0 = 0.69864$

$F_0 = 0.69864/1.045 = 0.66855$

Forward rate after 12 months = 0.66855

Forward premium p.a.

= Forward rate – Spot rate	= 0.66855 – 0.6560	= 0.01255
Forward premium for 3 months = 0.01255/4		= 0.003137
Forward rate for 3 months for delivery on 30th June		
= Spot rate + 3 months forward premium = 0.6560 + 0.003137		= 0.6591

(b) In international finance, hedging means a transaction undertaken to offset some exposure arising from a firm's usual operation. In order to reduce or eliminate currency exposer, internal strategies such as currency invoicing, netting and offsetting, leading and lagging, indexation clause in contract, switching the base of manufacture are resorted to.

A money market hedge involves taking a money market position to cover future foreign currency payable and receivables position.

Hedging is a risk management technique, primarily done to protect the foreign exchange exposures against the volatility of exchange rates, by using derivatives like Currency Options, Currency Futures, Forward Contracts, Currency Swaps, and Money Markets etc. by taking off-setting positions against the underlying asset. Hedging refers to process, whereby one can protect the price of financial instrument at a date in the future by taking an opposite position in the present by using derivatives like Currency Options, Currency Futures, Forward Contracts, Currency Swaps, Money Markets, etc. It refers to technique of protecting the financial exposures in the underlying asset or liability due to volatility in the exchange rates by taking offsetting positions through derivatives to offset the losses in the cash market by a corresponding gain in the derivatives market.

Hedging involves

1. Foreign exchange exposure identification
2. Value of exposure

3. Creation of offsetting positions through derivatives.

4. Measurement of Hedge ratio.

In order to reduce or eliminate currency exposure, internal strategies such as currency invoicing, netting and offsetting, leading and lagging, indexation clause in contract, switching the base of manufacturer etc are resorted to.

7. (a) A company wish to acquire an asset costing ₹1,00,000. The company has an offer from a bank to lend @ 18%. The principal amount is repayable in 5 years end installments. A leasing Company has also submitted a proposal to the Company to acquire the asset on lease at yearly rentals of ₹ 280 per ₹ 1,000 of the assets value for 5 years payable at year end. The rate of depreciation of the asset allowable for tax purposes is 20% on W.D.V with no extra shift allowance. The salvage value of the asset at the end of 5 years period is estimated to be ₹1,000. Whether the Company should accept the proposal of Bank or leasing company, if the effective tax rate of the company is 50%? The Company discounts all its cash flows at 18%.

P.V factor at 18%

Year-end	1	2	3	4	5
PV factor @ 18%	0.847	0.718	0.609	0.516	0.437

[marks 12]

7. (b) An investor is seeking the price to pay for a security, whose standard deviation is 4.00 per cent. The correlation coefficient for the security with the market is 0.8 and the market standard deviation is 2.2 per cent. The return from government securities is 5.2 per cent and from the market portfolio is 9.8 percent. The investor knows that, by calculating the required return, he can then determine the price to pay for the security. What is the required return on the security? [marks 4]

Answer: 7(a)

Borrowing Option:

(Amount in ₹)

Year	Principal	Interest @ 18% p.a.	Depreciation @ 20% on W.D.V.	Tax shield (3)+(4)×50%	Net cash flow (2)+(3)−(5)	P. V. Factor @18%	Discounted Cash Flows (6)x(7)
1 (₹)	2 (₹)	3 (₹)	4 (₹)	5 (₹)	6 (₹)	7 (₹)	8 (₹)
1	20,000	18,000	20,000	19,000	19,000	0.847	16,093
2	20,000	14,400	16,000	15,200	19,200	0.718	13,786
3	20,000	10,800	12,800	11,800	19,000	0.609	11,571
4	20,000	7,200	10,240	8,720	18,480	0.516	9,536
5	20,000	3,600	8,192	5,896	17,704	0.437	7,736
5	(1,000)	---	31,768*	15,884	(16,884)	0.437	(7,378)
Present value of Total Cash out flow							**51,350**

*WDV at the end of 5 years shall be ₹ 32,768. Deducting there from the salvage value of ₹ 1,000 the capital loss claim will be ₹ 31,768.

Leasing Option:

(Amount in ₹)

Year	Lease Rentals (₹)	Tax shield (₹)	Net Cash Flows (₹)	P.V. Factor @ 18%	Discounted Cash Flows (₹)
1	28,000	14,000	14,000	0.847	11,858
2	28,000	14,000	14,000	0.718	10,052
3	28,000	14,000	14,000	0.609	8,526
4	28,000	14,000	14,000	0.516	7,224

5	28,000	14,000	14,000	0.437	6,118
Discounted after tax cost					**43,778**

Advise: By making analysis of both the alternatives, it is observed that the Present value of the Cash Outflow is lower in alternative II by ₹ 7,572 (i.e. 51,350 – 43,778). Hence it is suggested to acquire the asset on lease basis.

7. (b) Beta Coefficient

$$= \frac{\text{Correlation coefficient between the security and the market} \times \text{Std.deviation of the security return}}{\text{Std.deviation of the market return}}$$

$$= \frac{(0.8)\times(0.04)}{(0.022)} = 1.454$$

Now, required return on the security : Rate of return on risk free security + beta coefficient (required return on market portfolio- rate of return on risk free security)

R = Rf + β (Rm - Rf) = 5.2+ 1.454 (9.8-5.2) =11.89%

8. (a) Trie market received rumor about XYZ Corporation's tie - up with a multinational company. This has induced the market price to move up. If the rumor is false, the XYZ Corporation's stock price will probably fall dramatically. To protect from this an investor has bought the call and put options. He purchased one 3 months call with a strike price of ₹42 for ₹2 premium, and paid ₹1 per share premium for a 3 months put with a strike price of ₹40.

(i) Determine the Investor's position if the tie up offer bids the price of XYZ Corporation's stock up to ₹44 in 3 months.

(ii) Determine the Investor's ending position, if the tie up programme fails and the price of the stocks falls to ₹35 in 3 months. [marks 8]

(b) Write short notes on Green Shoe Option. [marks 4]

(c) Features of Global Depository Receipt (GDR). [marks 4]

Answer: 8

(a) 1. Cost of call and put options

Cost of Call and put options =(₹2 per share call)+(₹1 per share put)

= ₹2 + ₹1 = ₹3

2. Position of price increases to ₹43

Particulars	Time	₹
(i)Cost of Options	T_0	3
(ii)If price increases to ₹44, investor will not exercise the put option. Gain on call [Spot price on Expiry Date-Exercise price=₹44 (-) ₹42	T_1	2
(iii) Net Loss due to options[(i)-(ii)]	**T_1**	**1**

3. Position if price falls to ₹36

Particulars	Time	₹
(i)Cost of Options	T_0	3
(ii)If price falls to ₹35, investor will not exercise the call option. Gain on put [Exercise price -Spot price on expiry date =₹40 (-) ₹35	T_1	5
(iii)Net Gain due to options[(ii)-(i)]	**T_1**	**2**

(b) Green Shoe Option:

It is an option that allows the under writing of an IPO to sell additional shares if the demand is high. It can be understood as an option that allows the underwriter for a new issue to buy and resell additional shares up to certain pre-determined quantity.

Looking to the exceptional interest of investors in terms of over subscription of the issue certain provisions are made to issues additional shares or bonds to underwriters for distribution. The issuer authorizes for additional shares or bonds. In common Parlance, it is retention of oversubscription to a certain extent, it is a Special feature of EURO-issues.

In the Indian context, green shoe option has a limited connotation. SEBI guidelines governing public issues certain appropriate provisions for accepting over-subscriptions subject to a ceiling say, 15% of the offer made to public.

(c) Features of GDRs are:

- Underlying shares: Each GDR may represent one or more underlying shares, which are physically held by the custodians appointed by the Depository Bank.
- Entry in Company's books: In the company's books, the Depository Bank's name appears as the holders of the shares.
- Returns: Depository gets the dividends from the company (in local currency) and distributes them to the holders of the Depository Receipts after converting into dollars at the going rate of the exchange.
- Negotiable: GDRs are exchangeable with the underlying share either at any time, or after the lapse of a particular period of time, generally 45 days.
- Globally marketed: GDRs are marketed globally without being confined to borders of any market or country as it can be traded in more than one country.
- Settlement: GDRs are settled through CEDEL & Euro-Clear International Book Entry Systems.