PAPER – 2: ADVANCED FINANCIAL MANAGEMENT

Part I – Multiple Choice Questions

Case Scenario - I

P Ltd. is considering a new project with the following details:

Initial project cost	*₹ 4,80,000*
Annual projected sales	*₹ 4,00,000*
Annual projected variable cost	*₹ 1,60,000*
Annual projected fixed cost	*₹ 60,000*
Project life	*4 years*
Cost of capital	*10% p.a.*

Consider Cumm. PVF for 4 years @ 10% = 3.169 and @ 11% = 3.103

Note: *(a) Ignore depreciation on initial project cost and taxation.*

(b) Calculation up to 2 decimal places.

From the information given above, choose the correct answer to the following question No. ***1 to 3:***

1. *If initial project cost is varied adversely by 10%, what is the percentage change in NPV?*

   (A) 42.42%

   (B) 52.80%

   (C) 53.09%

   (D) 63.09% ***(2 Marks)***

2. *If annual cash inflow is varied adversely by 10%, what is the percentage change in NPV?*

   (A) 33.38%

   (B) 53.09%

(C) 63.09%

(D) 52.80% **(2 Marks)**

3. *If cost of capital is varied adversely by 10%, what is the percentage change in NPV?*

(A) 11.00%

(B) 12.10%

(C) 13.14%

(D) 14.45% **(2 Marks)**

Case Scenario - II

Fair Return Mutual Fund made an issue of 5,00,000 units @ ₹ 10 each on 1st April 2024. No entry load was charged. The fund made the following investments:

Particulars	***(₹)***
25,000 Equity Shares of ₹ 100 each @ ₹ 160	*40,00,000*
7% Government Securities (At Par)	*4,00,000*
9% Debentures (Unlisted) (At Par)	*2,50,000*
10% Debentures (Listed) (At Par)	*2,50,000*
	49,00,000

During the year dividend of ₹ 6,00,000 were received on equity shares. Interest on all types of debt securities was received as and when due. Operating expenses paid during the year amounted to ₹ 2,50,000.

At the end of the year equity shares and 10% debentures are quoted at 175% and 90% respectively of the face value. Other investments are valued at par.

From the information given above, choose the correct answer to the following question No. ***4 to 6:***

4. *What is net cash balance of the Mutual Fund at the end of the year?*

(A) ₹ 1,00,000

(B) ₹ 7,00,000

(C) ₹ 7,75,500

(D) ₹ 5,25,500 **(2 Marks)**

5. *What is Total Net Assets Value (NAV) of the Mutual Fund at the end of the year?*

   (A) ₹ 52,50,000

   (B) ₹ 50,25,000

   (C) ₹ 57,75,500

   (D) ₹ 49,00,500 **(2 Marks)**

6. *If the Mutual Fund distributes a dividend of ₹ 0.60 per unit during the year to the unit holders, the NAV per unit at the end of the year will be*

   (A) ₹ 11.551

   (B) ₹ 10.951

   (C) ₹ 10.051

   (D) ₹ 12.751 **(2 Marks)**

Case Scenario - III

HHM & Co., is a famous consultant. It has established the following strategy on the stock of PLS Ltd:

(a) *Purchased one 3-month call option with a premium of ₹ 25 and an exercise price of ₹ 750.*

(b) *Purchased one 3-month put option with a premium of ₹ 8 and an exercise price of ₹ 600.*

The stock of PLS Ltd is currently selling at ₹ 680. The option size is 100 shares of PLS Ltd.

From the information given above, choose the correct answer to the following question No. ***7 to 9:***

7. *What is the Net gain or loss, if the price of the stock remains at ₹ 680 after 3 months?*

   (A) Net loss of ₹ 3,300

   (B) Net gain of ₹ 3,300

   (C) Net gain of ₹ 6,700

   (D) Net loss of ₹ 6,700 **(2 Marks)**

8. *What is the Net gain or loss, if the price of the stock falls to ₹ 500 after 3 months?*

   (A) Net loss of ₹ 3,300

   (B) Net gain of ₹ 3,300

   (C) Net gain of ₹ 6,700

   (D) Net loss of ₹ 6,700 ***(2 Marks)***

9. *What is the Net gain or loss, if the price of the stock rises to ₹ 820?*

   (A) Net loss of ₹ 3,700

   (B) Net gain of ₹ 3,700

   (C) Net gain of ₹ 10,300

   (D) Net loss of ₹ 10,300 ***(2 Marks)***

Case Scenario-IV

On 3rd April, 2025, Royal Bank quotes the following:

	Bid	***Ask***
Spot Exchange Rate (US$ 1)	*₹ 84.2525*	*₹ 85.5945*
2 months' swap points	*60*	*80*
3 months' swap points	*150*	*178*

In a spot transaction, delivery is made after two days.

Assume spot date as 5th April, 2025 and 1 swap point = 0.0001.

Calculation up to 4 decimal places.

From the information given above, choose the correct answer to the following question No. ***10 to 12:***

10. *The swap points for 2 months & 15 days (i.e., for 20th June, 2025) will be*

    (A) Bid – 90 and Ask – 98

    (B) Bid – 105 and Ask – 129

    (C) Bid – 98 and Ask – 90

    (D) Bid – 129 and Ask – 105 ***(2 Marks)***

11. *Foreign exchange rate for 20th June, 2025 will be*

    (A) Bid – ₹ 85.2525 and Ask – ₹ 84.5945

    (B) Bid – ₹ 84.5945 and Ask – ₹ 85.2525

    (C) Bid – ₹ 84.2630 and Ask – ₹ 85.6074

    (D) Bid – ₹ 85.6074 and Ask – ₹ 84.2630 ***(2 Marks)***

12. *On an average rate, the annual rate of premium/discount of US $ on Indian ₹ will be*

    (A) Bid – 0.0498% and Ask – 0.0524% (Premium)

    (B) Bid – 0.0598% and Ask – 0.0723% (Discount)

    (C) Bid – 0.0723% and Ask – 0.0598 % (Premium)

    (D) Bid – 0.0598% and Ask – 0.0723% (Premium) ***(2 Marks)***

Case Scenario - V

ABC Ltd. is planning to acquire XYZ Ltd. The following information is available in this respect:

Company	***No. of Shars***	***Market Price Per Share (₹)***	***P/E Ratio***
ABC Ltd.	*12,00,000*	*16*	*20 times*
XYZ Ltd.	*4,00,000*	*20*	*10 times*

ABC Ltd. plans to acquire the whole of XYZ Ltd. by issuing shares at its market price of ₹ 16. It is expected that the price of ABC Ltd. share will remain constant after this acquisition. Purchase Consideration is ₹ 80,00,000.

Calculation up to 2 decimal places.

From the information given above, choose the correct answer to the following question No. ***13 to 15:***

13. *EPS of ABC Ltd. & XYZ Ltd. before acquisition are respectively*

    (A) ₹ 0.8 & ₹ 2.0

    (B) ₹ 2.0 & ₹ 0.8

    (C) ₹ 0.8 & ₹ 1.04

    (D) ₹ 1.04 & ₹ 0.8 ***(2 Marks)***

14. *EPS of ABC Ltd. after acquisition is*

(A) ₹ 0.84

(B) ₹ 0.96

(C) ₹ 1.04

(D) ₹ 1.14 ***(2 Marks)***

15. *P/E Ratio of ABC Ltd. after acquisition is*

(A) 20 times

(B) 15.38 times

(C) 10 times

(D) 14.55 times ***(2 Marks)***

ANSWER TO PART – I CASE SCENARIO BASED MCQS

MCQ No.	Correct Option
1.	Option C
2.	Option C
3.	Option C
4.	Option D
5.	Option C
6.	Option B
7.	Option A
8.	Option C
9.	Option B
10.	Option B
11.	Option C
12.	Option D
13.	Option A
14.	Option C
15.	Option B

Part II – Descriptive Questions

*Question No.**1** is compulsory.*

*Candidates are also required to answer any **four** from the remaining **five** questions.*

Working notes should form part of the respective answer.

Question 1

(a) PN Limited submits the following details for the financial year ended on 31st March 2025:

Number of Equity Shares	*1,50,000*
Current market price per share	*₹ 12*
10% Debts	*₹ 2,00,000*
Cash and Cash Equivalents	*₹ 5,00,000*
Gross Profit	*₹ 12,00,000*
Indirect Expenses (Excluding Depreciation & Interest)	*₹ 5,00,000*
Depreciation	*₹ 30,000*
Risk-free rate of return	*7%*
Market rate of return	*16%*
Beta of the Company	*0.8*
Applicable Tax Rate	*20%*

On the basis of above details, you are required to calculate the following:

(i) Cost of Equity of the company using CAPM.

(ii) Earnings Per Share (EPS) of the company.

(iii) Equity Value of the company if applicable EBIDTA multiple is 4.

(iv) Enterprise Value of the company.

Calculation up to 2 decimal points. ***(6 Marks)***

(b) KK Ltd. operating in Japan has today affected sales to an Indian company LM Limited, the payment being due in 3 months from the date of invoice. The invoice amount is 855 lakh yen which at today's spot rate is equivalent to ₹ 500 lakh. Looking to the present market conditions, it is anticipated that

the exchange rate will decline by 10% over the 3 months period. In order to protect the yen payments, the importer proposes to take appropriate action in the foreign exchange market. The 3 months forward rate is presently quoted as 1.68 yen per rupee.

You are required to

(i) Calculate the Expected Gain/(Loss) under present situation.

(ii) Calculate the Expected Gain/(Loss) if hedged by forward contract.

(iii) Recommend which option from above (i) and (ii) will best for the company.

Calculation up to 3 decimal points. ***(4 Marks)***

(c) List the steps involved in Business Succession Strategy. ***(4 Marks)***

Answer

(a) (i) Cost of Equity using CAPM

7% + 0.8(16% - 7%) = 14.20%

(ii) Earning Per Share (EPS) (₹)

Gross Profit	12,00,000
Less: Indirect Expenses	5,00,000
EBIDTA	7,00,000
Less: Depreciation	30,000
	6,70,000
Less: Interest on Debt (10% on ₹ 2,00,000)	20,000
	6,50,000
Less: Tax @ 20%	1,30,000
Profit After Tax (PAT)	5,20,000
Number of Equity Shares	1,50,000
Earnings Per Share (EPS)	3.47

(iii) Equity Value of the Company

EBITDA	₹ 7,00,000
EBITDA multiple	4

Capitalized Value	₹ 28,00,000
Less: Outstanding Debts	₹ 2,00,000
Equity Value	₹ 26,00,000

(iv) Enterprise Value of company

Number of Equity Shares	1,50,000
Current Market Price (CMP)	₹ 12
Market Capitalization	₹ 18,00,000
Add: Outstanding Debts	₹ 2,00,000
Less: Cash and Cash Equivalent	₹ 5,00,000
Enterprise Value	₹ 15,00,000

(b) Spot rate of ₹ 1 against yen = 855 lakhs yen/₹ 500 lakhs = 1.71 yen

3 months forward rate of ₹ 1 against yen = 1.68 yen

Anticipated decline in Exchange rate = 10%.

Expected spot rate after 3 months = 1.71 yen – 10% of 1.71

= 1.71 yen – 0.171 yen

= 1.539 yen per rupee

	₹ (in lakhs)
Present cost of 855 lakhs yen	500.000
Cost after 3 months: 855 lakhs yen/ 1.539 yen	555.556
Expected exchange loss	55.556
If the expected exchange rate risk is hedged by a Forward contract:	
Present cost	500.000
Cost after 3 months if forward contract is taken	
855 lakhs yen/ 1.68 yen	508.929
Expected loss	8.929

Suggestion: If the exchange rate risk is not covered with forward contract, the expected exchange loss is ₹ 55.556 lakhs. This could be reduced to ₹ 8.929 lakhs if it is covered with Forward contract. Hence, taking forward contract is suggested.

(c) Following steps are involved in Business Succession Strategy:

Step 1 – ***Evaluate key leadership positions****:* - To evaluate which roles are critical, risk or impact assessment can be performed. Generally, these are such positions which would bring transformation to the entire business or create strategic direction for the organization.

Step 2 – ***Map competencies required for above positions:*** - In this step, one needs to identify qualifications, behavioral and technical competencies required to perform the role successfully.

Step 3 – ***Identify competencies of current workforce****:* - Identifying what are possible internal options that can deliver results as expected in Step-2, and also if there is a need for training and development of certain skills required. The organization should also place weight on whether is there a need to search outside the organization.

Step 4 – ***Bridge Leader****:* - In family owned business appointment of an outsider as 'bridge leaders' will help to develop the business and prepare young family members for leadership role.

Question 2

(a) Mr. X is holding 2,000 shares of PQR Ltd. Presently, dividend being paid by the company is ₹2.50 per share and the share is being sold at ₹45 per share in the market. Mr. X is concerned about several factors which are likely to be changed during the course of the year as indicated below:

Particulars	***Existing***	***Revised***
Risk-free rate of return	*10%*	*8%*
Market risk premium	*6%*	*4%*
Beta value	*1.30*	*1.20*
Expected growth rate	*4%*	*6%*

In view of the above changing factors, ***ADVISE*** *whether Mr. X should buy, hold or sell the shares.*

Calculation up to 2 decimal points. ***(6 Marks)***

(b) BM & Co. is considering to borrow an amount of ₹80 crore for a period of 3 months in the coming 6 months time from now. The current rate of interest is 7% per annum but it may go up in 6 months time. The company wants to hedge itself against the likely increase in interest rate.

The company's Bankers quoted an FRA (Forward Rate Agreement) at 7.30% per annum.

You are required to-

Compute the final settlement amount if the actual rate of interest during consideration period happens to be (i) 7.60% p.a. and (ii) 6.80% p.a.

(Show your workings on the basis of months)

Calculation up to 4 decimal place. ***(4 Marks)***

(c) Identify the key points that make an organization financially sustainable.

(4 Marks)

Answer

(a) On the basis of existing and revised factors, rate of return and price of share is to be calculated.

Existing rate of return

$= R_f + \text{Beta} (R_m - R_f)$

$= 10\% + 1.3 (6\%) = 17.80\%$

Revised rate of return

$= 8\% + 1.2 (4\%) = 12.80\%$

Price of share (original)

$$P_o = \frac{D (1 + g)}{K_e - g} = \frac{2.50 (1.04)}{0.178 - 0.04} = \frac{2.60}{0.138} = ₹ 18.84$$

Price of share (Revised)

$$P_o = \frac{2.50 (1.06)}{0.128 - 0.06} = \frac{2.65}{0.068} = ₹ 38.97$$

Advise:

1. Market price of share of ₹ 45 is higher in comparison to current equilibrium price of ₹ 18.84 and revised equity price of ₹ 38.97.
2. Under this situation investor should sell the share.

Alternatively, *if Dividend is considered as expected dividend then the solution will be as follows*:

On the basis of existing and revised factors, rate of return and price of share is to be calculated.

Existing rate of return

$= R_f + \text{Beta } (R_m - R_f)$

$= 10\% + 1.3\ (6\%) = 17.80\%$

Revised rate of return

$= 8\% + 1.2\ (4\%) = 12.80\%$

Price of share (original)

$$P_o = \frac{D\ (1 + g)}{K_e - g} = \frac{2.50}{0.178 - 0.04} = \frac{2.50}{0.138} = ₹\ 18.12$$

Price of share (Revised)

$$P_o = \frac{2.50}{0.128 - 0.06} = \frac{2.50}{0.068} = ₹\ 36.76$$

Advise:

1. Market price of share of ₹ 45 is higher in comparison to current equilibrium price of ₹ 18.12 and revised equity price of ₹ 36.76.
2. Under this situation investor should sell the share.

(b) Final settlement amount shall be computed by using formula:

$$= \frac{(N)(RR - FR)(dtm/DY)}{[1 + RR(dtm/DY)]}$$

Where,

N = the notional principal amount of the agreement;

RR = Reference Rate for the maturity specified by the contract prevailing on the contract settlement date;

FR = Agreed-upon Forward Rate; and

Dtm = maturity of the forward rate, specified in days (FRA Days)

DY = Day count basis applicable to money market transactions which could be 360 or 365 days.

Accordingly,

If actual rate of interest after 6 months happens to be 7.60%

$$= \frac{(₹\ 80\ \text{crore})(0.076-0.073)(3/12)}{[1 + 0.076(3/12)]}$$

$$= \frac{(₹\ 80\ \text{crore})(0.00075)}{1.019} = ₹\ 0.0589\ \text{crore or } ₹\ 5,88,812.56 \text{ or } ₹\ 5,88,812.5613$$

Thus, banker will pay BM & Co. a sum of ₹ 0.0589 crore or ₹ 5,88,812.56 or ₹ 5,88,812.5613.

If actual rate of interest after 6 months happens to be 6.80%

$$= \frac{(₹\ 80\ \text{crore})(0.068-0.073)(3/12)}{[1 + 0.068(3/12)]}$$

$$= \frac{(₹\ 80\ \text{crore})(-0.00125)}{1.017} = -₹\ 0.0932\ \text{crore or } -₹\ 9,83,284.17 \text{ or } -₹\ 9,83,284.1691$$

Thus BM & Co. will pay banker a sum of ₹ 0.0932 crore or ₹ 9,83,284.17 or ₹ 9,83,284.1691.

(c) The key point that make an organization financially sustainable are as follows:

(i) have more than one source of income;

(ii) have more than one way of generating income;

(iii) do strategic, action and financial planning regularly;

(iv) have adequate financial systems;

(v) have a good public image;

(vi) be clear about its values (value clarity); and

(vii) have financial autonomy.

Question 3

(a) TK Ltd. has ₹ 600 Lakh 12% Debenture outstanding with 5 years remaining to redemption. Since interest rates are decreasing, company is planning to redeem these debentures with a ₹ 600 Lakh issue of 5 years 10% Debenture at par. Issue cost of 10% Debenture will be ₹ 10 Lakh. Premium paid on redemption of 12% Debenture is 5%. Tax rate applicable to company is 20%.

You are required to advise on the 12% Debenture Redemption Decision.

PVF @ 10% & 8% are as under –

Rate	*1*	*2*	*3*	*4*	*5*
8%	*0.93*	*0.86*	*0.79*	*0.74*	*0.68*
10%	*0.91*	*0.83*	*0.75*	*0.68*	*0.62*

Calculation up to 2 decimal points. ***(6 Marks)***

(b) Mr. DK has 1,000 units of AM Mutual Fund. NAV of it is ₹ 17.50 per unit and ₹ 18.90 per unit at the beginning and at the end of the year respectively. The Mutual Fund has given two options:

Option I: *Pay ₹ 1.50 per unit as dividend and ₹ 1.20 per unit as a capital gain, or*

Option II: *Reinvest these distributions at an average NAV of ₹ 17.30 per unit.*

You are required to compute the holding period return percentage for both the options and select which option is preferable.

Calculation up to 2 decimal points. ***(4 Marks)***

(c) State the risks associated with the use of Blockchain Technology. ***(4 Marks)***

Answer

(a) (i) Calculation of initial outlay:-

		₹ (Lakh)
a.	Face value	600
	Add: Call premium	30
	Less: Tax on Premium of Redemption	6
	Cost of calling old bonds	624
b.	Gross proceed of new issue	600
	Less: Issue costs	10
	Net proceeds of new issue	590

∴ Initial outlay = ₹ 624 Lakh – ₹ 590 Lakh = ₹ 34 Lakh

(ii) Calculation of net present value of refunding the bond:

Saving in annual interest expenses	₹ (Lakh)
[600 x (0.12 – 0.10)]	12.00
Less: Tax saving on interest (0.20 x 12)	2.40

Add: Tax Saving on Issue Exp. (10/5) x 0.20	0.40
Annual net cash saving	10.00
PVIFA (8%, 5 years)	4.0
∴Present value of net annual cash saving	₹ 40.00 Lakh
Less: Initial outlay	₹ 34.00 Lakh
Net present value of refunding the bond	₹ 6.00 Lakh

Decision: 12% Debentures should be redeemed and new 10% Debentures should be issued because NPV of Bond Refunding decision is positive.

Alternative Solution: Since in the Question specifically nothing has been mentioned about the writing off Issue Expenses for 10% Debentures, if students have assumed it to be written off at the time of issue in one go then solution will be as follows:

(i) Calculation of initial outlay:-		**₹ (Lakh)**
a.	Face value	600
	Add: Call premium	30
	Less: Tax on Premium of Redemption	6
	Cost of calling old bonds	624
b.	Gross proceed of new issue	600
	Less: Issue costs	10
	Add: Tax Saving on Issue Expenses	2
	Net proceeds of new issue	592

∴ Initial outlay = ₹ 624 Lakh – ₹ 592 Lakh = ₹ 32 Lakh

(ii) Calculation of net present value of refunding the bond:-

Saving in annual interest expenses	₹ (Lakh)
[600 x (0.12 – 0.10)]	12.00
Less: Tax saving on interest (0.20 x 12)	2.40
Annual net cash saving	9.60

PVIFA (8%, 5 years)	4.0
∴Present value of net annual cash saving	₹ 38.40 Lakh
Less: Initial outlay	₹ 32.00 Lakh
Net present value of refunding the bond	₹ 6.40 Lakh

Decision: 12% Debentures should be redeemed and new 10% Debentures should be issued because NPV of Bond Refunding decision is positive.

(b) (i) Returns for the year

(All changes on a Per -Unit Basis)		(₹)
Change in Price	₹ 18.90 – ₹ 17.50 =	1.40
Dividends received		1.50
Capital gains distribution		1.20
Total reward		4.10

Holding period reward: $\frac{4.10}{17.50} \times 100 = 23.43\%$

Alternative Solution **(₹)**

Opening Asset Value:		
Price paid at the year beginning (1000 x ₹ 17.50)		17,500
Closing Fund Assets:		
NAV on Closing date	1000 unit x ₹ 18.90	18,900
Dividend Payable	1000 units x ₹ 1.50	1,500
Capital Gain Distribution	1000 units x ₹ 1.20	1,200
Total		21,600

Return = (Closing Fund Assets – Opening Asset Value)/Opening Asset Value

= [(₹ 21,600 – ₹ 17,500)/ ₹ 17,500] x 100 = 23.43%

(ii) Distribution Reinvested at an average NAV of ₹ 17.30

Distribution reinvested = Dividend ₹ 1,500 + Capital Gain ₹ 1,200 = ₹ 2,700

Additional Units (Distribution/ Average NAV) ₹ 2,700/ ₹ 17.30 = 156.07 units

Total no. of units = 1,000 + 156.07 = 1,156.07 units

Total NAV on closing date = (1,156.07 units x ₹ 18.90) = ₹ 21,849.72

Price paid at the year beginning (1000 x ₹ 17.50) = ₹ 17,500

Return = (₹ 21,849.72 - ₹ 17,500)/ ₹ 17,500 = 0.2486 or 24.86%

Note: Alternatively above computation can also be done based on per unit basis.

Conclusion: Since the holding period reward is more in terms of percentage in option-two i.e., reinvestment of distributions at an average NAV of ₹ 17.30 per unit, this option is preferable.

(c) Some of the risk associated with the use blockchain technology are as follows:

(i) With the use of blockchain, organizations need to consider risks with a wider perspective as different members of a particular blockchain may have different risk appetite/risk tolerances that may further lead to conflict when monitoring controls are designed for a blockchain. There may be questions about who is responsible for managing risks if no one party is in-charge, and how proper accountability is to be achieved in a blockchain.

(ii) The reliability of financial transactions is dependent on the underlying technology and if this underlying consensus mechanism has been tampered with, it could render the financial information stored in the ledger to be inaccurate and unreliable.

(iii) In the absence of any central authority to administer and enforce protocol amendments, there could be a challenge in the development and maintenance of process control activities and in such case, users of public blockchains find difficult to obtain an understanding of the general IT controls implemented and the effectiveness of these controls.

(iv) As blockchain involves humongous data getting updated frequently, risk related to information overload could potentially challenge the level of monitoring required. Furthermore, to find competent people to design and perform effective monitoring controls may again prove to be difficult.

Question 4

(a) The following details are given for TC Limited and PC Limited stocks and Nifty Index for a period of one year:

	TC Limited	***PC Limited***	***Nifty Index***
Average return	*0.12*	*0.18*	*0.6*
Variance of return	*5.8*	*4.8*	*2.10*
Beta (β)	*0.8*	*0.7*	
Proportion of allocated fund	*50%*	*50%*	

You are required to

(i) Calculate the systematic and unsystematic risk for the companies' stocks.

(ii) Calculate portfolio risk.

(iii) If the proportion of fund allocation is changed to 60:40 for TC Limited and PC Limited respectively. Advise whether it is preferable or not.

Calculation up to 3 decimal points. ***(6 Marks)***

(b) Mr. SK buys 5,000 shares of P Ltd. @ ₹ 50 per share whose beta value is 1.5 and sells 2,500 shares of Q Ltd. @ ₹ 80 per share having a beta value of 2. He obtains a complete hedge by Nifty Futures at ₹ 1,000 each.

He closes out his position at the closing price of the next day when the share of P Ltd. has fallen by 2%, share of Q Ltd. appreciated by 5% and Nifty Futures has dropped by 2.50%.

You are required to compute the overall profit or loss to Mr. SK from these set of transactions. ***(4 Marks)***

(c) 'Technical Analysis has several supporters as well several critics.' In this context state the favourable and unfavourable arguments of Technical Analysis.

OR

(c) List the parameters to identify the currency risk. ***(4 Marks)***

Answer

(a) (i) Calculation of Systematic Risk and Unsystematic Risk of

TC Ltd.

Systematic Risk = $\beta^2\sigma_M^2$ = $(0.8)^2(2.10)$ = 1.344

Unsystematic Risk = Total Risk – Systematic Risk

= 5.80 – 1.344 = 4.456

PC Ltd.

Systematic Risk = $\beta^2\sigma_M^2$ = $(0.7)^2(2.10)$ = 1.029

Unsystematic Risk = Total Risk – Systematic Risk

= 4.80 – 1.029 = 3.771

(ii) Portfolio Risk

Covariance of returns between any two stocks = $\beta_1\beta_2\sigma_m^2$

Accordingly, Covariance of returns between TC Ltd. and PC Ltd. shall be:

= 0.8 x 0.7 x 2.10 = 1.176

and the Portfolio Risk shall be:

σ_P^2 = $(0.50)^2(5.80)$ + $(0.50)^2(4.80)$ + 2 x 1.176 x 0.50 x 0.50

σ_P^2 = 1.45 + 1.20 + 0.588 = 3.238

σ_P = $\sqrt{3.238}$ = 1.80

(iii) If Fund allocation is changed to 60% and 40% then Portfolio Risk shall be

σ_P^2 = $(0.60)^2(5.80)$ + $(0.40)^2(4.80)$ + 2 x 1.176 x 0.60 x 0.40

σ_P^2 = 2.088 + 0.768 + 0.565 = 3.421

σ_P = $\sqrt{3.421}$ = 1.85

Exiting Return (50:50) = 0.50 X 0.12 +0.50 X 0.18 = 0.06 + 0.09 = 0.15 or 15%

New Proportion Return (60:40) = 0.60 X 0.12 +0.40 X 0.18 = 0.072 + 0.072 = 0.144 or 14.40%

It is not advisable to change the allocated fund ratio as return is decreased from 15% to 14.40% and portfolio risk is increased from 3.238 (or 1.80) to 3.421 or 3.420 (or 1.85).

Alternatively, it can also be advised based on Coefficient of Variation as follows:

Exiting = (Standard Deviation/ Mean) x 100 = (1.80/ 15) x 100 = 12%

Proposed = (Standard Deviation/ Mean) x 100 = (1.85/ 14.40) x 100 = 12.85%

Since volatility for per unit of return is higher in case of proposed allocation it is not advised.

(b) No. of the Future Contract to be obtained to get a complete hedge

$$\frac{5000 \times 50 \times 1.50 - 2500 \times 80 \times 2}{1000}$$

$$= \frac{3,75,000\text{-}4,00,000}{1,000} = -25 \text{ contracts or } 25 \text{ contracts}$$

Thus, by purchasing 25 Nifty Futures contracts Mr. SK can obtain a complete hedge.

Cash Outlay

= 5000 x ₹ 50 – 2500 x ₹ 80 + 25 x ₹ 1,000

= ₹ 2,50,000 – ₹ 2,00,000 + ₹ 25,000 = ₹ 75,000

Cash Inflow at Close Out

= 5000 x ₹ 50 x 0.98 – 2500 x ₹ 80 x 1.05 + 25 x ₹ 1,000 x 0.975

= ₹ 2,45,000 – ₹ 2,10,000 + ₹ 24,375 = ₹ 59,375

Gain/ Loss

= ₹ 59,375 – ₹ 75,000 = - ₹ 15,625 (Loss)

(c) Favourable arguments for Technical Analysis are as follows:

(a) Under influence of crowd psychology trend persist for some time. Tools of technical analysis help in identifying these trends early and help in investment decision making.

(b) Shift in demand and supply are gradual rather than instantaneous. Technical analysis helps in detecting this shift rather early and hence provides clues to future price movements.

(c) Fundamental information about a company is observed and assimilated by the market over a period of time. Hence price movement tends to continue more or less in same direction till the information is fully assimilated in the stock price.

Unfavorable arguments for Technical Analysis are as follows:

(a) Most technical analysts are not able to offer a convincing explanation for the tools employed by them.

(b) Empirical evidence in support of random walk hypothesis cast its shadow over the usefulness of technical analysis.

(c) By the time an uptrend and down trend may have been signalled by technical analysis it may already have taken place.

(d) Ultimately technical analysis must be a self-defeating proposition. With more and more people employing it, the value of such analysis tends to decline.

(c) **OR**

Some of the parameters to identity the currency risk are as follows:

(i) **Government Action**: The Government action of any country has visual impact in its currency. For example, the UK Govt. decision to divorce from European Union i.e. Brexit brought the pound to its lowest since 1980's.

(ii) **Nominal Interest Rate**: As per interest rate parity (IRP) the currency exchange rate depends on the nominal interest of that country.

(iii) **Inflation Rate**: Purchasing power parity theory impact the value of currency.

(iv) **Natural Calamities**: Any natural calamity can have negative impact.

(v) **War, Coup, Rebellion etc**.: All these actions can have far reaching impact on currency's exchange rates.

(vi) **Change of Government**: The change of government and its attitude towards foreign investment also helps to identify the currency risk.

Question 5

(a) Sun Ltd. manufactures high-quality modern furniture and sells to retail outlets in India and Nepal. Since the cost of quality wood in India is very high, the company is reviewing the proposal for import of wood in bulk from Nepalese supplier. The estimate of net Indian (₹) and the Nepalese Currency (NC) cash flows for this proposal is as follows:

Net Cash Flow (in millions)

Year	***0***	***1***	***2***	***3***
NC	*(75.000)*	*7.800*	*11.400*	*12.300*
Indian (₹)	*0*	*8.607*	*12.600*	*13.800*

Other information is as under:

(i) Sun Ltd. evaluates all investments by using a discount rate of 8% per annum. All Nepalese customers are invoiced in NC. NC cash flows are converted to Indian currency (₹) at the forward rate and discounted at the Indian rate.

(ii) Inflation rates in Nepal and India are expected to be 8% and 6% per annum respectively.

The current exchange rate is ₹ 1 = NC 1.60.

You are required to Compute the Net Present Value (NPV) of the proposal and show your recommendation.

PVF @ 8%

Year	*1*	*2*	*3*
PVF	*0.926*	*0.857*	*0.794*

Calculation up to 3 decimal points. ***(7 Marks)***

(b) In 2024, Mr. Raj, an investor made a lump sum investment in an equity mutual fund that had an entry load of ₹ 0.05 per unit. By the end of the year, the NAV appreciated by 13.60%. Additionally, the fund declared a total capital gain and dividend of ₹ 5.00 per unit, which were reinvested at a year-end NAV of ₹ 25. As a result, the investor held 15,000 units at year-end.

The fund also charges an exit load of 1% if redeemed within 1 year. The investor is in the 20% tax bracket. Inflation rate during the year is 4.50%.

You are to required to

(i) Calculate the number of units purchased by Mr. Raj at the beginning of the investment.

(ii) Calculate the NAV per unit and the total investment amount made by Mr. Raj at the beginning of the year.

(iii) Appraise the return percentage and the real return percentage, if Mr. Raj decided to exit the investment at the end of the year.

Calculation up to 2 decimal points. ***(7 Marks)***

Answer

(a) Working Notes:

(i) Computation of Forward Rates

End of Year	***NC***	***NC/₹***
1	NC 1.60 $x\frac{1.08}{1.06}$	1.630
2	NC 1.630 $x\frac{1.08}{1.06}$	1.661
3	NC 1.661 $x\frac{1.08}{1.06}$	1.692

(ii) NC Cash Flows converted in Indian Rupees

Year	***NC (Million)***	***Conversion Rate***	***₹ (Million)***
0	-75.000	1.600	-46.875
1	7.800	1.630	4.785
2	11.400	1.661	6.863
3	12.300	1.692	7.270

Net Present Value (₹ Million)

Year	**Cash Flow in India**	**Cash Flow in Nepal**	**Total**	**PVF @ 8%**	**PV**
0	---	- 46.875	- 46.875	1.000	- 46.875
1	8.607	4.785	13.392	0.926	12.401
2	12.600	6.863	19.463	0.857	16.680
3	13.800	7.270	21.070	0.794	16.730
					- 1.064

Decision: Since NPV of the project is negative project should not be accepted.

(b) (i) Let X be the number of units purchased at the beginning of the year, then

$$X + \frac{5.00}{25.00} x\ X = 15000$$

X = 12,500 units

Thus, 12,500 units was purchased by Mr. Raj at the beginning of investment.

(ii) Let NAV per unit in the beginning of the year is N then

N X 1.1360 = 25, N = ₹ 22.01

Thus, NAV per unit at the beginning of the year is ₹ 22.01 and total investment made by Mr. Raj is:

= (₹ 22.01 + ₹ 0.05) x 12,500 = ₹ 2,75,750

(iii) If Mr. Raj decided to exit then Return and Real Return in percentage terms shall be computed as follows:

NAV at the end	₹ 25
No. of Units	15000
Amount Redeemable	₹ 3,75,000
Less: Exit Load	₹ 3,750
Amount Received on Redemption of Units	₹ 3,71,250
Total Amount Realized	₹ 3,71,250
Less: Initial Investment	₹ 2,75,750
Return	₹ 95,500
Less: Tax @ 20%	₹ 19,100
Net Return	₹ 76,400
Return in Percentage Terms (₹ 76,400/ ₹ 2,75,750)	27.71%
Real Return in Percentage Terms (27.71%/1.045)	26.52%
Or Real Return $\frac{1+0.2771}{1+0.045} - 1$ =	22.21%

Question 6

(a) ABC Ltd.'s share is currently traded at the price of ₹ 192.50 per share. Mr. Roni is planning to purchase the shares of the company. For this purpose, he has taken the services of a financial analyst to know whether the price of ABC Ltd. is fairly priced. The analyst has assembled the following information:

- *The before-tax required rates of return on ABC Ltd. debt, preferred stock, and common stock are 8.60%, 11%, and 13%, respectively.*
- *The company's target capital structure is 20% debt, 30% preferred stock and 50% Common stock.*
- *The market value of the company's debt is ₹275 million and its preferred stock are valued at ₹120 million.*
- *ABC Ltd.'s free cash flow to the firm (FCFF) for the year just ended is ₹125 million. FCFF is expected to grow at a constant rate of 8% for the foreseeable future.*
- *The tax rate is 30%.*
- *ABC Ltd. has 20 million outstanding common shares.*

You are required to -

(i) As a financial analyst, on the basis of value per share, advise Mr. Roni whether he should purchase the shares of the company at market price or not.

(ii) Assume, we are to get same value of equity as calculated in (i) for using FCFE approach, calculate free cash flow to the equity (FCFE) for the year just ended, if FCFE is expected to grow at a constant rate of 8.50% for the foreseeable future.

Calculation up to 2 decimal points. ***(7 Marks)***

(b) *Quick & Smart Inc. is a leading software development company in the UK. It has a substantial portfolio of its trade in various countries including the USA. It has recently invoiced a USA customer the sum of USD ($) 75,00,000 receivable in one year's time. Quick & Smart Inc.'s Chief Finance Officer (CFO) is considering two alternatives for hedging the exchange risk:*

***Alternative I**: Borrowing present value of USD ($) 75,00,000 now for one year, converting the amount into GBP (£), and repaying the loan out of eventual receipts.*

***Alternative II**: Entering into a 12 month forward exchange contract with the company's bank to sell the USD ($) 75,00,000.*

The spot exchange rate is GBP (£) 1 = USD ($) 1.3288

The 12 month forward exchange rate is GBP (£) 1 = USD ($) 1.3128

Interest rates for 12 months are = USA 4.50%; and UK 5%.

You are required to -

Calculate net proceeds in GBP (£) under both the alternatives and advise the company.

Note:** Ignore bank commission and decimals.* ***(7 Marks)

Answer

(a) Working Notes:

(I) Calculation of WACC

= 8.60% (1 – 0.30) x 20% + 11% x 30% + 13% x 50%

= 1.20% + 3.30% + 6.50% = 11%

(II) Value of Firm based on FCFF

$$= \frac{₹\ 125 Million(1.08)}{0.11-0.08} = \frac{₹135 Million}{0.03} = ₹\ 4500\ Million$$

(i) To decide whether the value of share is justified let us compute the value per share based on FCFF as follows:

Value of Firm	₹ 4500 Million
Less: Value of Company's Debt	₹ 275 Million
Less: Value of Company's Preferred Stock	₹ 120 Million
Value of Equity Shares	₹ 4105 Million
No. of Equity Shares	20 Million
Value of Per Equity Share	₹ 205.25

Advise: Mr. Roni should purchase share at this price as it is underpriced.

(ii) Computation of Free Cash Flow to Equity

Value of one Equity Share as per FCFF ₹ 205.25

Accordingly, by using Growth Model formula we can find the FCFE per share as follows:

$$205.25 = \frac{FCFE(1.085)}{0.13-0.085}$$

FCFE per share = ₹ 8.51

No. of Equity Shares outstanding 20 million

FCFE of the ABC Ltd. shall be ₹ 8.51 x 20 million = ₹ 170.20 million

Alternatively, this calculation can be made on the total capital instead of per share basis as follows:

$$4105 = \frac{FCFE(1.085)}{0.13-0.085}$$

FCFE = ₹ 170.25 million

(b) *Alternative I*

Borrowing PV of US$ 75,00,000 (US$ 75,00,000/ 1.045)	$ 71,77,033
Converting it into GBP (£) at Spot Rate	$ 1.3288
Converted Amount	£ 54,01,139
Add: Interest on the same @ 5%	£ 2,70,057
	£ 56,71,196

Alternative II

Applicable Forward Rate of 1 £	$ 1.3128
Amount Receivable in $ after one year	$ 75,00,000
Amount receivable in £ after	£ 57,12,980

Advise: Since amount receivable is higher under alternative II the company should opt for it.