PAPER – 2 : ADVANCED FINANCIAL MANAGEMENT

PART – I Multiple Choice Questions

Case Scenario - I

Equity Researchers have estimated the rate of returns for Stock A, Stock B and Market Portfolio under each state of the economy is as under:

Economy	***Probability***	***Return on Stock A (%)***	***Return on Stock B (%)***	***Market Portfolio (%)***
Boom	*0.3*	*16*	*19*	*18*
Normal	*0.4*	*14*	*16*	*15*
Recession	*0.3*	*-9*	*-7*	*-8*

The risk-free rate of return is expected to be 8%. The covariance between Stock A and the Market Portfolio is 122.70, while the covariance between Stock B and the Market Portfolio is 125.40. Assume that the CAPM framework is valid in this market.

From the information given above, choose the correct answer to the question No. ***1*** *to* ***5****.*

1. *What is the expected rate of return (percentage) for Stocks A and B?*

   (A) 7.70% and 9.00%

   (B) 10% and 9.00%

   (C) 7.70% and 10%

   (D) 13.1% and 14.20%

2. *What will be the variance of market portfolio?*

   (A) 38.4

   (B) - 4.8

   (C) 126.8

   (D) 125.4

3. *What will be the beta of Stock A and Stock B respectively?*

   (A) 0.9542 and 1.00

   (B) 0.9862 and 1.24

   (C) 0.9785 and 1.00

   (D) 0.9785 and 1.24

4. *Required rate of return of Stock A is _____ and Stock B is _____.*

   (A) 8.9785 % and 9%

   (B) 9% and 8.978%

   (C) 8.9875% and 9%

   (D) 8.9785% and 10.4%

5. *Based on calculated Alpha of Stock A and Stock B in the above case scenario, which of the following statements is correct for purchase or sale of Stock A and Stock B?*

   (A) Stock A has a positive alpha, and Stock B has a negative alpha. This indicates that Stock A is underpriced and Stock B is overpriced.

   Therefore, purchase Stock A and sell Stock B.

   (B) Both Stock A and Stock B have positive alpha values, suggesting they are underpriced. Therefore, purchase both stocks.

   (C) Stock A has a negative alpha, while Stock B has a positive alpha. This means Stock A is overpriced and Stock B is underpriced. Therefore, sell Stock A and purchase Stock B.

   (D) Both Stock A and Stock B have negative alpha values, indicating they are overpriced. Therefore, sell both stocks. ***(5 × 2 = 10 Marks)***

Case Scenario - II

Steady Mutual Fund has the following assets in Scheme - Star Gold at the close of business as on 31st March, 2025:

Company	***No. of Shares (units)***	***Market Price per share (₹)***
A Ltd.	*20,000*	*25*
B Ltd.	*30,000*	*350*
C Ltd.	*38,000*	*290*
D Ltd.	*50,000*	*400*

The total numbers of units of Scheme - Star Gold are 20 lakhs. The Scheme - Star Gold has accrued expenses of ₹2,00,000 and other liabilities of ₹2,50,000.

From the information given above, choose the correct answer to the question No. ***6*** *to* ***8****:*

6. *Total gross value of the Scheme - Star Gold is -*
   - *(A) ₹325.00 lakhs*
   - *(B) ₹420.20 lakhs*
   - *(C) ₹480.40 lakhs*
   - *(D) ₹520.30 lakhs*
7. *Total net value of the Scheme - Star Gold is -*
   - *(A) ₹422.70 lakhs*
   - *(B) ₹420.70 lakhs*
   - *(C) ₹415.70 lakhs*
   - *(D) ₹424.70 lakhs*
8. *NAV per unit of the Scheme- Star Gold is-*
   - *(A) ₹21.135*
   - *(B) ₹21.035*
   - *(C) ₹20.785*
   - *(D) ₹21.235* ***(3 × 2 = 6 Marks)***

Case Scenario - III

Mr. X, an investor buys the stocks of WBL Limited worth ₹21,60,000 due to very strong fundamentals. Since last 3 months, the market sentiment is weak and witnessed a significant volatility and considered to remain weak for about the next three months. Keeping in the mind volatility in the market, Mr. X is planning to hedge his portfolio in the future market. The Beta of WBL stock is 1.3 and the current value of NIFTY is 2250 and 3 months future is selling at 2310. The current market price of the WBL stock is ₹240. Each Nifty future can be trade in units of 240 only.

Assume there is no transaction cost and M to M Margin.

From the information given above, choose the correct answer to the question No. ***9*** *to* ***11****:*

9. *Number of future contract to be buy/sell to hedge WBL stock against expected fall in the market (rounded of contracts) -*

   (A) Buy 6 future contracts

   (B) Sell 5 future contracts

   (C) Buy 5 future contracts

   (D) Sell 6 future contracts

10. *If Nifty index fall by 10% from 2250 to 2025 and WBL stock falls to ₹ 212, what will be Net Gain/Loss if portfolio was hedged on NIFTY future?*

   (A) Net Gain ₹ 3,42,000

   (B) Net Gain ₹ 3,02,100

   (C) Net Gain ₹ 50,100

   (D) Net Gain ₹ 90,000

11. *If NIFTY index rises by 6% from 2250 to 2385 and WBL stock rises to ₹ 255, what will be Net Gain/Loss when portfolio was in hedged?*

   (A) Net Loss ₹ 90,000

   (B) Net Gain ₹ 45,000

   (C) Net Gain ₹ 1,35,000

   (D) Net Gain ₹ 90,000 ***(3 × 2 = 6 Marks)***

Case Scenario - IV

ABC Ltd., a UK firm, has a receivable $ 20 Million due in 6 months. The company wants to cover full exposure. Following information are available:

Spot rate 1$ = £ 0.7720 / £ 0.7840

6 months forward rate 1$ = £ 0.7910 / £ 0.8040

Interest rates are as follows:

	US	***UK***
6 months deposit rate	*4.50% p.a.*	*5.50% p.a.*
6 months borrowing rate	*6.00% p.a.*	*7.50% p.a.*

Following options on pound are available:

Option	***Strike rate***	***Price***
Call	*£ 0.8100*	*£ 0.01*
Put	*£ 0.8100*	*£ 0.02*

ABC Limited has forecasted the spot rates for 6 months as follows:

Future Rates of 1$	***Probability***
£ 0.7800	*30%.*
£ 0.8100	*50%*
£ 0.8300	*20%*

From the information given above, choose the correct answer to the question No. ***12*** *to* ***15****:*

12. *What will be the total expected value of option hedge in pounds, if the full exposure of 20 Million is covered?*

    (A) £ 16.125 million

    (B) £ 16.50 million

    (C) £ 15.88 million

    (D) £ 15.70 million

13. *If ABC Ltd. is using forward hedge strategy, what will be total proceed in pound?*

    (A) £ 15.40 million

    (B) £ 15.88 million

    (C) £ 16.125 million

    (D) £ 15.82 million

14. *What will be expected spot rate at the end of 6 months and expected cost (proceed) if no hedge strategy is adopted by the company?*

    (A) £ 0.805/$, £ 16.10 million

    (B) £ 0.85/$, £ 15.8 million

(C) *£ 0.7720/$, £ 15.44 million*

(D) *£ 0.7910/$, £ 15.82 million*

15. *Identify which option gives the highest proceed.*

(A) *Option hedge*

(B) *Forward hedge*

(C) *Money market hedge*

(D) *No hedge* ***(4 × 2 = 8 Marks)***

ANSWER TO PART – I CASE SCENARIO BASED MCQS

1.	**Option C**
2.	**Option D**
3.	**Option C**
4.	**Option A**
5.	**Option C**
6.	**Option B**
7.	**Option C**
8.	**Option C**
9.	**Option B**
10.	**Option D**
11.	**Option B**
12.	**Option C**
13.	**Option D**
14.	**Option A**
15.	**Option D**

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) Following details are available for PQR Ltd.:

Current Dividend	*= ₹ 3.50*
Cost of Equity	*= 12.50%*
Growth Rate	*= 2%*

You required to -

(i) Calculate Price of Share of PQR Ltd.

(ii) Is PQR Ltd.'s Share over-valued if the Share Price = ₹ 45, ROE = 8% and EPS = ₹ 2.75?

Show your calculations using both the P/E Multiple Approach and Earnings Growth Model. ***(6 Marks)***

(b) With the help of the following information of PND Ltd., compute the Economic Value Added:

Equity Share Capital	*₹ 100 Lakhs*
Reserves and Surplus	*₹ 200 Lakhs*
8% Debentures	*₹ 300 Lakhs*
Cost of Equity	*= 15%*
Financial Leverage	*= 1.5 times*
Income Tax Rate	*= 25%*

(4 Marks)

(c) Mr. PK imports raw materials from China, processes them in India and manufactures finished goods which are then sold in the American market. In this transaction what types of risk faced by Mr. PK? ***(4 Marks)***

Answer

(a) (i) Present Value of the stock of PQR Ltd. is:-

Vo = 3.50(1.02)/0.125-0.02 = ₹ 34.00

(ii) (A) Value of stock under the PE Multiple Approach

Particulars	
Actual Stock Price	₹ 45.00
Return on equity	8%
EPS	₹ 2.75
PE Multiple (1/Return on Equity) = 1/8%	12.50
Market Price per Share	₹ 34.38

Since, Actual Stock Price is higher, hence it is overvalued.

(B) Value of the Stock under the Earnings Growth Model

Particulars	
Actual Stock Price	₹ 45.00
Return on equity	8%
EPS	₹ 2.75
Growth Rate	2%
Market Price per Share [EPS ×(1+g)]/(K_e – g)	₹ 46.75
= ₹ 2.75 × 1.02/0.06	

Since, Actual Stock Price is lower, hence it is undervalued.

(b) Financial Leverage = PBIT/PBT

1.5 = PBIT / (PBIT – Interest)

1.5 = PBIT / (PBIT – 24)

1.5 (PBIT – 24) = PBIT

1.5 PBIT – 36 = PBIT

1.5 PBIT – PBIT = 36

0.5 PBIT = 36

or = ₹ 72 lakhs

NOPAT = PBIT – Tax = ₹ 72 lakhs (1 – 0.25) = ₹ 54 lakhs.

Weighted Average Cost of Capital (WACC)

= 15% □ (300 / 600) + (1 – 0.25) □ (8%) □ (300 / 600) = 10.50%

EVA = NOPAT – (WACC □ Total Capital)

EVA = ₹ 54 lakhs – 0.105 □ ₹ 600 lakhs

EVA = - ₹ 9 lakhs

(c) In this transaction, possible types of risks are:

(i) **Currency Risk (Exchange Rate Risk):** Since raw materials imported from China and finished goods sold in the USA, fluctuation in exchange rates between Yuan, Indian rupee and US Dollar could impact cost and revenue.

(ii) **Political and Trade Risk:** Changes in trade policies, tariffs, or political instability in China, India, or the U.S. may affect the cost and availability of raw materials or access to markets.

(iii) **Market Risk:** The demand for the finished products in the US may fluctuate, affecting sales and profitability.

(iv) **Regulatory Risk** – Mr. PK must comply with various regulations in each country, including import/export laws, quality standards, and customs regulations.

Question 2

(a)

Security	*Standard Deviation (a)*	*Weights (w)*
R	*20%*	*0.8*
S	*50%*	*0.2*

Calculation upto two decimal place.

From the information given above, you are required to calculate Portfolio Standard Deviations, if-

(i) Securities returns are independent.

(ii) Securities returns are perfectly negatively correlated.

(iii) Securities returns are perfectly positively correlated. ***(6 Marks)***

(b) Mr. X gets the following 2-way quotes in the foreign exchange market:

₹/US$	***Spot***	***2-months Forward***
	₹ 86.00/₹ 86.20	*₹ 88.00/88.40*

Calculation upto two decimal place.

You are required to calculate -

I. How many US Dollars should Mr. X sell to get ₹ 40,00,000 after 2 months?

II. How many Rupees Mr. X is required to pay to obtain US$ 3,00,000 in the spot market?

III. Assume that Mr. X has US$ 75,000 in current account earning no interest. Return on Investment (ROI) on rupee investment is 12% per annum. Should Mr. X convert the US$ now or 2 months later?

(4 Marks)

(c) Identify the role of CFOs in addition to traditional role in post pandemic time.

(4 Marks)

Answer

(a) (i) Portfolio Variance and Standard Deviation of Portfolio if securities returns are independent:

$$\sigma_p^2 = x_1^2\sigma_1^2 + x_2^2\sigma_2^2$$

Accordingly,

Variance $(\sigma_P^2) = (0.80)^2(20)^2 + (0.20)^2(50)^2$

Variance $(\sigma_P^2) = 256 + 100 = 356$

Standard Deviation $(\sigma_P) = \sqrt{356} = 18.87\%$

(ii) Portfolio Variance and Standard Deviation of Portfolio if securities returns are perfectly negatively related:

$$\sigma_p^2 = (x_1\sigma_1 - x_2\sigma_2)^2$$

$$\sigma_p = x_1\sigma_1 - x_2\sigma_2$$

Accordingly,

Variance (σ_P^2) = $(0.80x20 - 0.20x50)^2$

Variance (σ_P^2) = $(6)^2$ = 36

Standard Deviation (σ_P) = $\sqrt{36}$ = 6%

(iii) Portfolio Variance and Standard Deviation of Portfolio if securities returns are perfectly positively related:

$$\sigma_p^2 = (x_1\sigma_1 + x_2\sigma_2)^2$$

$$\sigma_p = x_1\sigma_1 + x_2\sigma_2$$

Accordingly,

Variance (σ_P^2) = $(0.80x20 + 0.20x50)^2$

Variance (σ_P^2) = $(26)^2$ = 676

Standard Deviation (σ_P) = $\sqrt{676}$ = 26%

(b) (i) US $ required to get ₹ 40 lakhs after 2 months at the Rate of ₹ 88/$

$$\therefore \frac{₹\ 40,00,000}{₹\ 88} = \text{US \$ } 45454.55$$

(ii) ₹ required to get US$ 3,00,000 now at the rate of ₹ 86.20/$

US $ 3,00,000 × ₹ 86.20 = ₹ 2,58,60,000

(iii) Encashing US $ 75,000 Now Vs 2 month later

Proceed if we can encash in open mkt $ 75000 × ₹ 86 =	₹ 64,50,000
Opportunity gain=	₹ 1,29,000
Likely sum at end of 2 months	₹ 65,79,000

Proceeds if we can encash by forward rate :

$ 75000 × ₹ 88.00	₹ 66,00,000

It is better to encash the proceeds after 2 months and get opportunity gain.

Alternative Solution to Sub Part (iii)

Forward Premium:

Forward bid rate = ₹ 88.00, Spot bid rate = ₹ 86.00.

Premium = (Forward rate − Spot rate) ÷ Spot rate × (12/2) × 100 (annualized %).

Premium = (₹ 88.00 − ₹ 86.00) ÷ ₹ 86.00 × 6 = (2/86) × 6 = 0.023256 × 6 × 100 (annualized %).

= 13.95% p.a.

INR Interest Rate: 12% p.a.

Comparison:

Forward premium (13.95%) > INR interest rate (12%).

This indicates the forward rate offers a better return than investing INR, favoring conversion after 2 months.

(c) In post-pandemic time their role has been advanced in the following areas in addition to traditional role:

a. **Risk Management:** Now a days the CFOs are expected to look after the overall functioning of the framework of Risk Management system of an organisation.

b. **Supply Chain:** Post pandemic supply chain management system has been posing the challenge for the company to maintain the sustainable growth. Since CFOs are care takers of finance of the company, considering the financial viability of the Supply Chain Management their role has now become more critical.

c. **Mergers, acquisitions, and Corporate Restructuring:** Since in recent period to maintain the growth and capture the market share there has been a spate of Mergers and Acquisitions and hence the role of CFOs has become more crucial because these are strategic decision and any error in them can lead to collapse of the whole business.

d. **Environmental, Social and Governance (ESG) Financing:** With the evolving of the concept of ESG their role has been shifted from traditional financing to sustainability financing.

Question 3

(a) BC Ltd. is contemplating on buying a new machine at ₹ 70,00,000 with an additional working capital requirement of ₹ 10,00,000. The machine is expected to have an economic useful life of 5 years, with no salvage value. The company follows the straight line method of depreciation and same is accepted for tax purposes. The machine is expected to generate an incremental increase in the before tax cash operating income of ₹ 25,00,000 (in real terms) per year for a period of 5 years. The relevant tax rate is 35%. Inflation is expected to be 6% per year and the firms cost of capital in real term is 10% per year. Assuming that the working capital requirement will remain unchanged throughout the period, in spite of inflation.

Advise the company whether the machine should be purchased or not.

Show your NPV calculation in real term.

Calculation upto two decimal place.

PV Factor at 10% & 6% are as under –

PV factor	***1***	***2***	***3***	***4***	***5***
At 10%	*0.909*	*0.826*	*0.751*	*0.683*	*0.621*
At 6%	*0.943*	*0.890*	*0.840*	*0.792*	*0.747*

(6 Marks)

(b) Mr. X has excess cash of ₹ 50 lakhs which he wants to invest in short-term marketable securities.

Expenditure relating to this investment will be ₹ 1,25,000 and the securities invested will have an annual yield of 9%.

Mr. X seeks your advice -

(i) as to the period of investment so as to earn a pre-tax income of 5%.

(ii) as to the minimum period to break-even his investment expenditure.

(4 Marks)

(c) Mr. J believes that the market has demonstrated a weak type of efficiency. Explain the various types of tests that can be used to prove the weak form of efficient market theory. ***(4 Marks)***

Answer

(a) Working Notes:

1. Cash Outflow (Initial Outlay) = ₹ 70,00,000 + ₹ 10,00,000 = ₹ 80,00,000

2. Cash Flow After Tax and Present Value

Particulars	**(₹)**
Incremental cash operating income	25,00,000
Less: Taxes (0.35)	8,75,000
CFAT	16,25,000
Cum. PV Factor for 5 years at 10%	3.790
Present value	61,58,750

3. PV of tax shield due to Depreciation

Tax saving due to Depreciation per year	14,00,000
Tax rate	35%
Tax saving per year for five years	4,90,000

PV of tax shield due to depreciation

Years	**Tax saving (Nominal)**	**Inflation Factor at 6%**	**Real Tax Saving**	**PVF @ 10%**	**PV (₹)**
1	4,90,000	0.943	4,62,070	0.909	4,20,021.63
2	4,90,000	0.890	4,36,100	0.826	3,60,218.60
3	4,90,000	0.840	4,11,600	0.751	3,09,111.60
4	4,90,000	0.792	3,88,080	0.683	2,65,058.64
5	4,90,000	0.747	3,66,030	0.621	2,27,304.63
Present Value of tax shield due to Depreciation					15,81,715.10

4. PV of Release of Working Capital

	(₹)
Release of Working Capital at the end of 5th year	10,00,000
Inflation Factor at 6% at the end of 5th year	0.747
Cash Inflow in real terms	7,47,000
PVF @ 10% at the end of 5th year	0.621
Present Value of Inflow	4,63,887

Calculation of NPV

Particulars	Present Value (₹)
Initial Outlay	(80,00,000)
Present Value of CFAT	61,58,750
Present Value tax shield on Dep	15,81,715.10
Present Value Release of Working	4,63,887
	2,04,352.10

Recommendation: The Company should purchase the machine as the NPV of real cash flow is positive.

(b) (i) Pre-tax Income required on investment of ₹ 50,00,000

Let the period of Investment be 'P' and return required on investment ₹ 2,50,000 (₹ 50,00,000 x 5%)

Accordingly,

$$(₹\ 50,00,000 \times \frac{9}{100} \times \frac{P}{12}) - ₹\ 1,25,000 = ₹\ 2,50,000$$

P = 10 months

(ii) Break-Even its investment expenditure

$$(₹\ 50,00,000 \times \frac{9}{100} \times \frac{P}{12}) - ₹\ 1,25,000 = 0$$

P = 3.33 months or 3 months 10 days

(c) Three types of tests can be employed to empirically verify the weak form of Efficient Market Theory- Serial Correlation Test, Run Test and Filter Rule Test.

(a) Serial Correlation Test: To test for randomness in stock price changes, one has to look at serial correlation. For this purpose, price change in one period has to be correlated with price change in some other period. Price changes are considered to be serially independent. Serial correlation studies employing different stocks, different time lags and different time period have been conducted to detect serial correlation but no significant serial correlation could be discovered. These studies were carried on short term trends viz. daily, weekly, fortnightly and monthly and not in long term trends in stock prices as in such cases. Stock prices tend to move upwards.

(b) Run Test: Given a series of stock price changes each price change is designated + if it represents an increase and – if it represents a decrease. The resulting series may be -,+, - , -, - , +, +.

A run occurs when there is no difference between the sign of two changes. When the sign of change differs, the run ends and new run begins.

$$\frac{++}{1}/\frac{---}{2}/\frac{+}{3}/\frac{-}{4}/\frac{+}{5}/\frac{--}{6}$$

To test a series of price change for independence, the number of runs in that series is compared with a number of runs in a purely random series of the size and in the process determines whether it is statistically different. By and large, the result of these studies strongly supports the Random Walk Model.

(c) Filter Rules Test: If the price of stock increases by at least N% buy and hold it until its price decreases by at least N% from a subsequent high. When the price decreases at least N% or more, sell it. If the behaviour of stock price changes is random, filter rules should not apply in such a buy and hold strategy. By and large, studies suggest that filter rules do not out perform a single buy and hold strategy particular after considering commission on transaction.

Question 4

(a) Peacock Inc., a US based company, is planning to set up software development unit in India. The unit will remain in existence in India for one year and the software is expected to get developed within this time frame. Software developed will be bought back by the US parent at a transfer price of USD 4 Million. The software developed will be sold in the US for USD 6 Million. Other estimates are as under:

(i) Rent for fully furnished unit with necessary hardware in India is ₹25,00,000.

(ii) Manpower Cost - 120 software professionals will be working for 10 hours@ ₹275 per man-hour each day for 350 effective days in the year.

(iii) Administrative and Other Costs is ₹50,00,000

(iv) The rupee-dollar rate is ₹84 per USD.

Peacock Inc. will enjoy the following privileges in India:

A. All profits can be repatriated.

B. No withholding taxes.

C. Corporate taxes @20 percent on earnings.

Assume 365 days in year.

Advise Peacock Inc. on the financial viability of the project. ***(6 Marks)***

(b) GL Ltd. is having a Price Earnings Ratio (P/E Ratio) of 16 times and Earnings per Share (EPS) of ₹ 5. The total numbers of outstanding shares are 2,80,000.

FL Ltd. another company is also in the same industry. The GL Ltd. is in negotiation for acquisition of the FL Ltd. by issuing shares in the ratio of 4:5, i.e., for 5·shares of FL Ltd., 4 shares of GL Ltd. will be issued. The outstanding shares of FL Ltd. are 50,000. The EPS of the merged entity will be ₹ 5.4.

You are required to calculate-

(i) Pre-merger EPS of FL Ltd.

(ii) Number of shares of GL Ltd. to be issued to FL Ltd. if pre-merger EPS of GL Ltd. is to be maintained. ***(4 Marks)***

(c) "Tokenization is some extent resembles the process of securitization." In the reference of this statement, discuss similarities of tokenization and securitization. ***(4 Marks)***

OR

A venture capital fund manager provides funding at various stages of business growth, taking into consideration factors such as the investment horizon, risk perception, and the specific activities to be financed. You are required to complete the risk matrix provided below:

Financial stage	***Locking Period***	***Risk Perception***	***Activity to be Financed***
Seed money			
Start up			
Second stage			
Fourth stage			

(4 Marks)

Answer

(a) Proforma profit and loss account of the Indian software development unit

	₹	₹
Revenue (USD 4 million x ₹ 84)		33,60,00,000
Less: Costs:		
Rent	25,00,000	
Manpower (350 x 120 x 10 x ₹ 275)	11,55,00,000	
Administrative and other costs	50,00,000	12,30,00,000
Earnings before tax (EBT)		21,30,00,000
Less: Tax		4,26,00,000
Earnings after tax (EAT)		17,04,00,000
Repatriation amount (in rupees)		17,04,00,000
Repatriation amount (in dollars)		$ 20,28,571.43 or $ 20,28,571
Or		$ 2.029 or $ 2.03 Million

Advise: The cost of development software in India for the US based company is $ 1.971 or $ 1.97 million. As the USA based Company is expected to sell the software in the US at $ 6.00 million, it is advised to develop the software in India.

(b) (i) Pre Merger EPS

No. of shares to be issued by GL to FL (50,000 x 4/5)	40,000
Existing number of shares of GL	2,80,000
Total no. of shares Post Merger	3,20,000
EPS (Post Merger)	₹ 5.40
Post-Merger (Total Earning)	₹ 17,28,000
Less: Pre-Merger Earning of BL (2,80,000 x 5)	₹ 14,00,000
Pre-Merger Earning of FL	₹ 3,28,000
Number of shares of FL (Existing)	50,000
EPS (₹ 3,20,000/50,000)	₹ 6.56

(ii) Number of shares to be issued to FL to maintain Pre-Merger EPS

5.00 = 17,28,000/(2,80,000 + X)

14,00,000 + 5X = 17,28,000

X = 65,600

Thus, 65,600 shares to be issued by GL to FL to maintain pre-merger EPS.

Alternatively, it can also be computed as follows:

Swap Ratio if EPS before merger is maintained by GL

Then, Swap Ratio = 6.56 / 5 = 1.312

Number of shares of GL is to be issued to FL is 50000 shares x 1.312 = 65,600 shares

(c) Following are some similarities between Tokenization and Securitization:

(i) Liquidity: First and foremost both Securitization and Tokenization inject liquidity in the market for the assets which are otherwise illiquid assets.

(ii) Diversification: Both help investors to diversify their portfolio thus managing risk and optimizing returns.

(iii) Trading: Both are tradable hence helps to generate wealth.

(iv) New Opportunities: Both provide opportunities for financial institutions and related agencies to earn income through collection of fees.

OR

(c)

Financial Stage	**Locking Period**	**Risk Perception**	**Activity to be financed**
Seed Money	7-10	Extreme	For supporting a concept or idea or R&D for product development and involves low level of financing.

Start Up	5-9	Very High	Initializing prototypes operations or developing products and its marketing.
Second Stage	3-5	Sufficiently high	Expanding market and growing working capital needs though not earning profit.
Fourth Stage	1-3	Low	Facilitating public issue i.e. going public. Also called Bridge Financing.

Question 5

(a) On 1st April, an open-ended scheme of Progressive Mutual Fund had 800 Lakh units outstanding with Net Asset Value (NAV) of ₹44.30 per unit. At the end of April, it issued 16 Lakh units at opening NAV plus 2% load, adjusted for dividend equalization. At the end of May, 8 Lakh units were repurchased at opening NAV less 2% exit load adjusted for dividend equalization. At the end of June, 60% of its available income was distributed as dividend.

In respect of April-June quarter, the following additional information is available:

Particulars	***₹ in Lakh***
Portfolio Value Appreciation	*965.280*
Income of April	*49.440*
Income for May	*75.070*
Income for June	*93.710*

Calculation upto 4 decimal place.

You are required to calculate-

(i) Income available after distribution of dividend.

(ii) Issue price at the end of April.

(iii) Repurchased price at the end of May.

(iv) Net Asset Value (NAV) per unit as on 30th June. ***(7 Marks)***

(b) ZIO is a small-to-medium-sized privately held company specializing in electrical equipment manufacturing and is seeking additional investors. Below are key financial indicators to assist in evaluating the investment potential:

- *Break-even Achieved: The Company has reached its break-even point this year.*
- *EBITDA: ₹ 110 Lakh, including an extraordinary gain of ₹ 16 Lakh.*
- *Pending Adjustments: ₹ 38 Lakh in preliminary sales promotion costs are yet to be written off.*
- *Unlevered Beta: 1.5 (based on the industry benchmark).*
- *Capital Structure: Debt-to-Equity Ratio of 30:70.*
- *Risk-Free Rate: 6% (based on liquid bonds).*
- *Market Rate of Return: 12% (internal industry assessment).*
- *Equity Value (EV): The EV is to be taken at a multiple of 8 on EBITDA.*
- *The pre-tax cost of debt is 12.45% and assume a tax regime of 30%.*

The Future Cash Flows (FCFs) for the next three years are as follows:

	Year 1	Year 2	Year 3
Future cash flows (₹ in Lakh)	150	200	220

Future cash flows are discounted at Weighted Average Cost of Capital (WACC)

PV Factor at 15% & 14% are as under -

	1	2	3
PV Factor at 15%	0.870	0.756	0.658
PV Factor at 14%	0.877	0.769	0.675

Calculation upto 2 decimal places.

You are required to calculate potential value to be placed on ZIO Company.

(7 Marks)

Answer

(a) Calculation of Income available after Distribution of Dividend

	Units (Lakh)	Per Unit (₹)	Total (₹ In lakh)
Income from April	800	0.0618	49.4400
Add: Dividend equalization collected on issue	16	0.0618	0.9888
	816	0.0618	50.4288
Add: Income from May		0.0920	75.0700
	816	0.1538	125.4988
Less: Dividend equalization paid on repurchase	8	0.1538	(1.2304)
	808	0.1538	124.2684
Add: Income from June		0.1160	93.7100
	808	0.2698	217.9784
Less: Dividend Paid		0.1619	(130.7870)
	808	0.1079	87.1914

Calculation of Issue Price at the end of April

	₹
Opening NAV	44.3000
Add: Entry Load 2% of ₹ 44.3000	0.8860
	45.1860
Add: Dividend Equalization paid on Issue Price	0.0618
	45.2478

Calculation of Repurchase Price at the end of May

	₹
Opening NAV	44.3000
Less: Exit Load 2% of ₹ 44.3000	(0.8860)
	43.4140
Add: Dividend Equalization paid on Issue Price	0.1538
	43.5678

Closing NAV

		₹ (Lakh)
Opening Net Asset Value (₹ 44.30 × 800)		35440.0000
Portfolio Value Appreciation		965.2800
Issue of Fresh Units (16 × 45.2478)		723.9648
Income Received (49.440 + 75.070 + 93.710)		218.2200
		37347.4648
Less: Units repurchased (8 × 43.5678)	-348.5424	
Income Distributed	-130.7870	(-479.3294)
Closing Net Asset Value		36868.1354
Closing Units (800 + 16 – 8) lakh		808 lakh
∴ Closing NAV as on 30th June		₹ 45.6289

(b) The levered beta of the company will be 1.5[1+(1-0.3)*30/70)] = 1.95

The adjusted EBITDA would be ₹ 110 Lakh –₹ 16 Lakh – ₹ 38 Lakh = ₹ 56 Lakh

The EV will be multiple of 8 on the ₹ 56 Lakh obtained above = ₹ 448 Lakh

The Cost of equity in accordance with CAPM = $R_f + \beta (R_m - R_f)$

= 6% + 1.95 (12% - 6%) = 17.70%

The WACC = Cost of Equity + Cost of Debt

= 17.70 (70/100) + 12.45 (1-0.3) (30/100) = 15.00%

Finally, the future cash flows can be discounted at the WACC obtained above as under –

	Y1	Y2	Y3
Future Cash flows	150	200	220
Discount factor	0.870	0.756	0.658
PVs of cash flows	130.50	151.20	144.76
Value of the Firm			426.46

Question 6

(a) On 31st December, 2024, Mr. RS has taken a long position of 2 lots of Nifty Futures at price 25,400. One lot of Nifty Future is 50 units.

Margins:

(i) Initial margin required is 10% of contract value.

(ii) Maintenance margin required is 80% of initial margin.

The closing prices of Nifty Future for 5 days are given below:

Date	***Closing price of Nifty Future***
01 January, 2025	*25,520*
02 January, 2025	*25,390*
03 January, 2025	*25,250*
04 January, 2025	*24,800*
05 January, 2025	*25,100*

Evaluate the following:

I. Daily balances in margin account and payment on margin calls, if any.

II. If contract squared off on 5th January 2025, gain or loss to Mr. RS

III. If Mr. RS taken the short position, gain or loss to Mr. RS. ***(7 Marks)***

(b) DEF Ltd. has implemented a strategy to manage its exposure to fluctuating interest rates by engaging in both interest rate caps and floors.

The company has purchased $ 50,00,000 (i.e. call options on interest rates) cap of 8% at a premium of 0.75% of the face value to protects against rising interest rates. $ 50,00,000 (i.e. put options on interest rates) floor of 5% is also available at a premium of 0.85% of face value.

You are required to analyze the following situation:

(i) If Interest rate rise to 10 percent, what is the amount received by DEF Ltd.? What are the net savings from the cap?

(ii) If DEF Ltd. also purchases a floor, what are net savings if interest rate rises to 10%?

(iii) Calculate net savings if interest rates fall to 4 percent considering cap & floor both purchase.

(iv) If DEF Limited has purchases the cap and sell the floor and there is price rise is 11%, what will be net saving to the company? ***(7 Marks)***

Answer

(a) (i) Contract Size (₹ 25,400 x 50 x 2) = ₹ 25,40,000

Initial Margin (10% of 25,40,000) = ₹ 2,54,000

Maintenance Margin (80% of 2,54,000) = ₹ 2,03,200

Statement showing the daily balances in Margin A/c and margin call if any,

Day	Change in Future value (₹)	Margin A/c (₹)	Call Money (₹)
31/12/24	-----	2,54,000	
01/01/25	(₹ 25,520 - ₹ 25,400) x 50 x 2 = 12,000	2,66,000	
02/01/25	(₹ 25,390 - ₹ 25,520) x 50 x 2 = -13,000	2,53,000	
03/01/25	(₹ 25,250 - ₹ 25,390) x 50 x 2 = - 14,000	2,39,000	
04/01/25	(₹ 24,800 - ₹ 25,250) x 50 x 2 = - 45,000	2,54,000	60,000
05/01/25	(₹ 25,100 - ₹ 24,800) x 50 x 2 = 30,000	2,84,000	

(ii) Gain or Loss of Mr. RS squared off position on 05/01/2025

	(₹)
Ending margin	2,84,000
Less: Initial Margin	2,54,000
Profit	30,000
Less: Margin Call	60,000
Net Loss	(30,000)

(iii) Gain/ Loss if Mr. R has taken Short Position

Day	Change in Future value (₹)	Margin A/c (₹)	Call Money (₹)
31/12/24	-----	2,54,000	-
01/01/25	(₹ 25,400 - ₹ 25,520) x 50 x 2 = - 12,000	2,42,000	-
02/01/25	(₹ 25,520 - ₹ 25,390) x 50 x 2 = 13,000	2,55,000	-
03/01/25	(₹ 25,390 - ₹ 25,250) x 50 x 2 = 14,000	2,69,000	-
04/01/25	(₹ 25,250 - ₹ 24,800) x 50 x 2 = 45,000	3,14,000	-
05/01/25	(₹ 24,800 - ₹ 25,100) x 50 x 2 = - 30,000	2,84,000	-

Profit or Loss on Short Position

	(₹)
Ending margin	2,84,000
Less: Initial Margin	2,54,000
Profit	30,000

(b) (i) Premium for purchasing the Cap = 0.0075 × $ 50,00,000 = $ 37,500

If interest rate rises to 10%, Cap purchase receive (10% - 8% = 2%) i.e., $ 50,00,000 × 2/100 = $ 1,00,000,

= ($ 1,00,000 - $ 37,500) = $ 62,500

Net saving = $ 62,500

(ii) Purchase Floor, premium for Floor = 0.0085 × $ 50,00,000 = $ 42,500 and

Total premium will be $ 37,500 + $ 42,500 = $ 80,000 and

= ($ 50,00,000 × 0.02) – $ 80,000 = $ 20,000

Net saving = $ 20,000

(iii) If interest rate falls to 4 percent, there will be no payoff from the Cap, but there will be payoff from Floor.

However, the total premium ($ 37,500 + $ 42,500) = $ 80,000 is the cost.

Payoff from floor $ 50,00,000 × 0.01 (5% – 4% = 1%) = $ 50,000

= $ 50,000 – $ 80,000 = ($ 30,000)

Net loss = ($ 30,000)

(iv) Sell the Floor, company will receive 0.0085 × $ 50,00,000 = $ 42,500 and pay premium for Cap 0.0075 × $ 50,00,000 = $ 37,500, net premium receiving will be $ 42,500 – $ 37,500 = $ 5,000

If interest rate rises to 11%, Cap purchase receive = 0.03 × $ 50,00,000 = $ 1,50,000

= $ 1,50,000 + $ 5,000 = $ 1,55,000

Net saving = $ 1,55,000