PART I

Case scenario – I

Z Ltd. paid a dividend of ₹ 5 for the current year. The dividend is expected to grow at 25% for the next 6 years and at 10% per annum thereafter. The return of government bond is 13% per annum and market return is expected to be around 20%. The correlation between market return and Z Ltd. share return is 0.3733. The standard deviation of market return and Z Ltd. shares is 12% and 18% respectively.

Round off to two decimal places.

From the information given above, choose the correct answer to the Question no. 1 to 5 : (5 × 2 = 10)

1. What is the present value at the end of 4th year?
   - A. ₹ 23.71
   - B. ₹ 12.56
   - C. ₹ 6.53
   - D. ₹ 6.99

2. What is the intrinsic value of Z Ltd. shares?
   - A. ₹ 156.69
   - B. ₹ 303.14
   - C. ₹ 349.62
   - D. ₹ 341.30

3. What is the expected return of Z Ltd shares?
   - A. 15%
   - B. 23.92%
   - C. 16.92%
   - D. 16.5%

4. What is value in perpetuity at the start of the 6th year?
   - A. ₹ 156.69
   - B. ₹ 303.14
   - C. ₹ 349.62
   - D. ₹ 341.30

5. If current market price of the shares is ₹ 315 than stock is
   - A. Over valued
   - B. Under valued
   - C. Fairley valued
   - D. Cannot be determined

Case scenario – II

The following information is available in respect of Bond 1 and Bond 2

	Bond 1	Bond 2
Face value, redeemable value at par	₹ 1000	₹ 1000
Coupon rate, payable annually (%)	6%	10%
Time to maturity (years)	5	3

An investor has the portfolio consisting of 75% of Bond 1 and 25% of Bond 2. The current YTMs prevailing in the market is 10%.

Year (n) :	1	2	3	4	5
PVIF(10%, n) :	0.9091	0.8264	0.7513	0.6830	0.6209

From the information given above, choose the correct answer to the Question no. 6 to 9 : (4 × 2 = 8)

6. What should be the price and duration of Bond – 2?
   A. ₹ 826.43 and 2.49
   B. ₹ 1,000 and 2.74
   C. ₹ 924.85 and 2.74
   D. ₹ 1000 and 2.49

7. New price of the portfolio if YTM changes from 10% of 10.5% based on the duration is:
   A. ₹ 870.12
   B. ₹ 902.36
   C. ₹ 1832.23
   D. ₹ 1864.45

8. What should be the price and duration of Bond – 1?
   A. ₹ 848.34 and 4.43
   B. ₹ 811.09 and 4.38
   C. ₹ 1,227.44 and 4.43
   D. ₹ 658.15 and 3.90

9. What will be the price sensitivity of the portfolio?
   A. – 4.027
   B. – 2.491
   C. – 3.643
   D. – 3.981

Case scenario – III

Based on the following information, choose the correct answer from the following questions:

Situation	Action	Exercise Price	Premium	Spot Price
I	Exercised	140	20	160
II	Exercised	200	15	175
III	Lapsed	300	25	400

From the information given above, choose the correct answer to the Question no. 10 to 12 : (3 × 2 = 6)

10. In situation I, the investor's position and amount of profit or loss is :
    A. Put option and ₹ 20
    B. Call option and ₹ 0
    C. Put option and ₹ 0
    D. Call option and ₹ 20

11. In Situation III, the investor's position and the amount of profit / loss is :
    A. Put option, ₹ (25)
    B. Call option, ₹ 75
    C. Short position, ₹ 100
    D. Long position, ₹ (100)

12. In situation II, the investor's position and the amount of profit / loss is :
    A. Put option and ₹ 10
    B. Call option and ₹ 10
    C. Put option and ₹ 25
    D. Call option and ₹ 25

Case scenario – IV

The Company X Ltd. proposes to take over Y Ltd. The chief executive of a company thinks that shareholders always look for the earnings per share. Therefore he considers maximization of the earnings per share as his company's objective. The following information is available in respect of X Ltd. and Y Ltd.

	X Ltd.	Y Ltd
Net profit	80 lakh	15.75 lakh
P/E ratio	10.50	10
Current market price per share	₹ 42	₹ 85

From the information given above, choose the correct answer to the Question no. 13 to 15 : $(3 \times 2 = 6)$

13. Maximum exchange ratio which the company should offer so that the company could keep EPS at current level is

A. 1:0.952

B. 1:2.125

C. 1:2.023

D. 1:0.196

14. If the company borrows funds @15% rate of interest and buys out Target Company by paying cash, how much should he offer to maintain his EPS assuming tax rate @ 30%.

A. 210 lakhs

B. 315 lakhs

C. 150 lakhs

D. 0 lakhs

15. No. of shares to be issued by X Ltd.

A. 3.9375 lakhs

B. 1.7639 lakhs

C. 3.7485 lakhs

D. 0.3631 lakhs

PART II

1. (a) Following is the data regarding Three Securities.

Stock	Expected Return (%)	Std. deviation	Correlation with the Market return
A	19%	2.50	0.840
B	13.50%	2.00	0.540
C	11.00%	0.80	0.975
Market risk	–	1.20	–
Market rate of return	14.00%	–	
Risk free rate	9.00%	–	–

(i) Advise which of the above stocks are over, under or correctly valued in the market?

(ii) What will be strategy you would like to recommend? (6 Marks)

(b) A firm is considering a proposal to set up a cement manufacturing plant with an initial investment of ₹ 150 crore. The firm has the option to abandon the project after one year by selling it to a competitor for ₹ 100 crore if the market conditions are unfavorable and the demand is low, the project's value will decline by 60%. However, if the market conditions turn out to be favorable and the demand for cement is high, the value of the project at the end of year 1 will increase by 50%.

Given that the risk free rate of interest as 8%, what will be the value of the abandonment option and the value of the project with abandonment option? (4 Marks)

(c) This decision determines the division of earnings between payments to shareholders and reinvestment in the company. What this decision is called? What are other decisions falling in this strategy? Briefly explain. (4 Marks)

2. (a) Mr X invested ₹ 1,00,000 at a face value of ₹ 10 per unit in a dividend reinvestment plan in a mutual fund during its initial public offering on 1st July, 2022. On 31st March, 2023, the mutual fund declared a dividend of 10%. At that time Mr X calculated his holding period return to be 115%.

On 31st March, 2024 the mutual fund declared a dividend of 20% and Mr. X redeemed all his investment and calculated his holding period return to be 193.134%.

You are required to calculate

(i) The NAVs as on 31.03.2023 and 31.03.2024.

(ii) Calculate the total units redeemed. (6 Marks)

(b) PQ Ltd. expects sales of ₹ 100 lakhs in the year 1. The same will increase by ₹ 20 lakhs per year over the next four years. At the end of 5 years the project would be wound up. The Deprecation will be charged at 20% p.a. on straight line method. The expenses excluding the depreciation will be 40% of the sales. There will be no salvage value of the plant. PQ Ltd. proposes to invest in the plant an amount where the Net Present Value will be Zero.

Corporate Tax rate is 30%.

You are required to calculate the investment which can be made in the plant. (8 Marks)

3. (a) XY Ltd. is planning to expand its operations in view of growing demand for its products. For this purpose, it is considering to borrow an amount of ₹ 100 crores for a period of 3 months in the coming 6 months' time from now. The current rate of interest is 8% per annum but due to inflation 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 8.20% per annum.

You are required to calculate due to FRA:

(i) The actual interest rate if the Banker pays to XY Ltd. an amount of ₹ 9,78,952.52

(ii) The actual interest rate if XY Ltd. will pay to the Banker a sum of ₹ 9,80,872.98 (6 Marks)

(b) On 20.10.2024, the balance in NOSTRO account with XYZ Bank in London was GBP 80000 and the balance in overbought was GBP 50000. During the day the following transactions have taken place.

Events	Amount (GBP)
DD Purchased	25,000
Purchased a bill on London	75,000
Sold forward TT	50,000
Forward purchased contract cancelled	25,000
Remitted by TT	42,500
Draft in London cancelled	20,000

What steps would you take, if you are required to maintain a credit balance of GBP 10,000 in the NOSTRO account and keep as overbought position on GBP 32,500? (8 Marks)

4. (a) On January 1, 2023 an investor has a portfolio of 5 securities as given below:

Security	Price (Rs.)	No. of shares	Beta
A	612.65	3000	?
B	334.20	5000	1.15
C	454.45	6000	0.40
D	775.10	10000	0.95
E	781.05	3000	0.85

Portfolio beta is 0.859.

The cost of capital to the investor is 10.5% p.a.

You are required to calculate:

(i) The beta of Security A.

(ii) The theoretical value of the Nifty futures for February, 2023. Current value of Nifty 6500.

(iii) The number of contract of Nifty the investor needs to sell to get a full hedge until February, for his portfolio, if the current value of Nifty is 6500 and Nifty futures have a minimum trade lot requirement of 200 units. Assume that the Futures are trading at their fair value.

(iv) What will be new beta if 4 Future contracts are sold to the investors?

No. of days in a year be traded as 365 days

Given: ln (1.105) = 0.0998, $e^{0.015858} = 1.01598$ and $e^{0.01668} = 1.01682$ (6 Marks)

(b) Economic Value Added (EVA) of ABC Ltd was ₹ 31,10,000.

Following is the capital structure of ABC Ltd. at the end of current financial year:

Equity (Share Capital + Reserves & Surplus)	₹ 170 lakhs
Debt (Coupon Rate 10%)	₹ 80 lakhs
Invested Capital	₹ 250 lakhs

Following data is given to estimate the cost of equity capital :

Beta of ABC Ltd.	0.90
Risk-free rate (i.e. current yield on Govt. Bonds)	8%
Average market risk premium	10%

Economic Value Added (EVA) of ABC Ltd was ₹ 31,10,000.

The applicable corporate income tax rate is 30%.

You are required to calculate the Profit After Tax of ABC Ltd. (4 Marks)

(c) Succession planning is a good way for companies to ensure that businesses are fully prepared to promote and advance all employees—not just those who are at the management or executive levels. (4 Marks)

Do you agree? Justify.

OR

(c) MN Bank entered into a plain Vamila Swap through an OIS (Overnight Index Swap) on a principal of ₹ 5 crores and agreed to receive MIBOR overnight floating rates for a fixed payment on the principal. The swap was entered into on Monday 2nd August and was to commence on 3rd August and run for a period of 7 days.

Respective MIBOR rates for Tuesday to Monday were

8.00%, 8.25%, 8.15%, 7.90%, 7.95%, 8.15%.

MN Bank received ₹ 275 net of settlement.

Working is to be rounded off. Bank does not accept decimal values.

You are required to calculate the fixed rate and Interest under both legs wh Sunday is holiday.

P

5. (a) PQR Ltd. is considering a project in US, which involve an initial investment of ₹ 124.50 Crore. The project will have useful life of 5 years. Current spot exchange rate is INR/USD is 83. The risk free rate in US is 4.186 % and the same in India is 6.9768%. Cash inflows in USD from the project are as follows

Year	1	2	3	4	5
Cash inflow	30,00,000	40,00,000	50,00,000	60,00,000	70,00,000

PQR Ltd. is expecting net surplus of ₹ 1858.08 lakh to be received after closure of the project. There is no salvage value. PQR Ltd. want to take a forward cover to protect itself from exchange rate fluctuations.

n	1	2	3	4	5
PVIF(6.976%, n)	0.935	0.874	0.817	0.764	0.714
PVIF(4.186%,n)	0.959	0.921	0.884	0.849	0.815
PVIF(12%, n)	0.893	0.797	0.712	0.636	0.567
PVIF(15%, n)	0.870	0.756	0.658	0.572	0.497

You are required to recommend the INR/USD rate for the forward cover? (6 Marks)

(b) AMN Ltd. has surplus cash of ₹ 200 lakhs and wants to distribute 30% of it to the shareholders. The company decides to buy back shares. The Finance officer of the company estimates that it share price after repurchase is likely to be 15% above the buyback price if the buyback route is taken. The number of shares outstanding at present is 15 lakhs and the current EPS is ₹ 3.00.

Bought Back price is to be rounded off to one decimal point.

You are required to determine.

(i) The price at which the shares can be repurchased, if the market capitalisation of the company should be ₹ 250 lakhs after buyback.

(ii) The number of shares that can be repurchased.

(iii) The impact of share repurchase on the EPS, assuming that net income is the same.

(4 Marks)

BQK2

(c) Mohan buys 10,000 shares of X Ltd. @ ₹ 25 per share whose beta value is 1.5 and sells 5,000 shares of A Ltd. @ ₹ 40 per share having a beta value of 2. He obtains a complete hedge by buying 25 Nifty Futures. He closes out his position at the closing price of the next day when the share of X Ltd. has fallen by 4% and Nifty Futures has dropped by 2.50%. In the process he suffered a loss of ₹ 16625.

You are required to determine

(i) The value of the Nifty future

(ii) Initial cash outlay

(iii) Cash inflow at the close out

(iv) Percentage Gain/ loss to Shares of A Ltd. at the time of closure (4 Marks)

(a) A Portfolio Manager (PM) has three mutual funds in his portfolio. Following are the details of these three mutual funds :

Particulars	Growth fund	Balanced fund	Regular fund	Market
Average Return (%)	7.5	6.3	5.4	
Variance				50.41
Sharpe Ratio	–0.15	–0.36	–0.48	
Treynor's Ratio	–2	–3	–4.80	

The yield on 182 days Treasury bill is 9 per cent per annum.

You are required to calculate

(i) Variance of the Funds

(ii) Coefficient of Determination of the Funds (8 Marks)

(b) True Life Inc., a US based company, has won a contract to implement a project in India. The project will require an initial investment of ₹ 8000 million. The whole project along with the equipment will be sold to the Indian Government for ₹ 9600 million in one-year time. Since the Indian Government will pay for the amount in Indian Rupee (₹), the company is worried about exposure due to exchange rate volatility.

(i) Construct a swap that will help the True Life Inc. to reduce the exchange rate risk.

(ii) Assume that the Indian Government offers a swap at spot rate which is INR/USD 80 in one year. The spot rate after one year is expected to be INR/USD 84. Further, you may also assume that the True Life Inc. can also take a USD loan at 6% per annum. **ADVISE** whether the company should opt for this option or just do nothing. (6 Marks)
