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CA Final

Advanced Financial Management

New Questions by ICAI

From Exam Papers, RTPs & MTPs of last 5 attempts

Updated till May 26 MTP-2

Relevant for May 26

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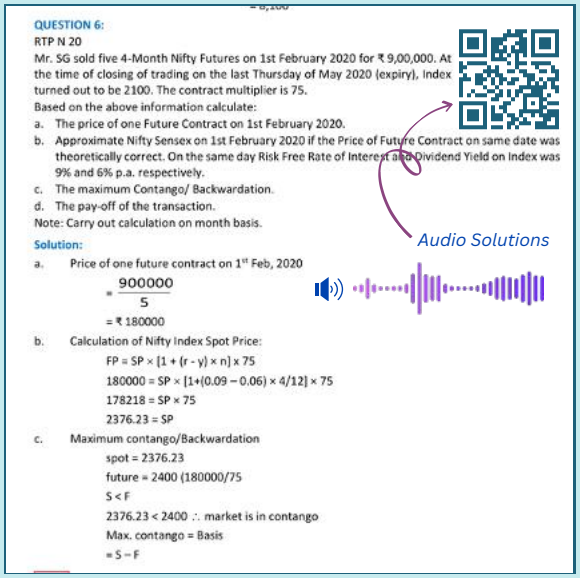


QUESTION 6:

RTP N 20

Mr. SG sold five 4-Month Nifty Futures on 1st February 2020 for ₹ 9,00,000. At the time of closing of trading on the last Thursday of May 2020 (expiry), Index turned out to be 2100. The contract multiplier is 75.

Based on the above information calculate:

a. The price of one Future Contract on 1st February 2020.

b. Approximate Nifty Sensex on 1st February 2020 if the Price of Future Contract on same date was theoretically correct. On the same day Risk Free Rate of Interest and Dividend Yield on Index was 9% and 6% p.a. respectively.

c. The maximum Contango/ Backwardation.

d. The pay-off of the transaction.

Note: Carry out calculation on month basis.

Solution:

a. Price of one future contract on 1st Feb, 2020

$= \frac{900000}{5}$

= ₹ 180000

b. Calculation of Nifty Index Spot Price:

FP = SP × [1 + (r - y) × n] x 75

180000 = SP × [1+(0.09 – 0.06) × 4/12] × 75

178218 = SP × 75

2376.23 = SP

c. Maximum contango/Backwardation

spot = 2376.23

future = 2400 (180000/75

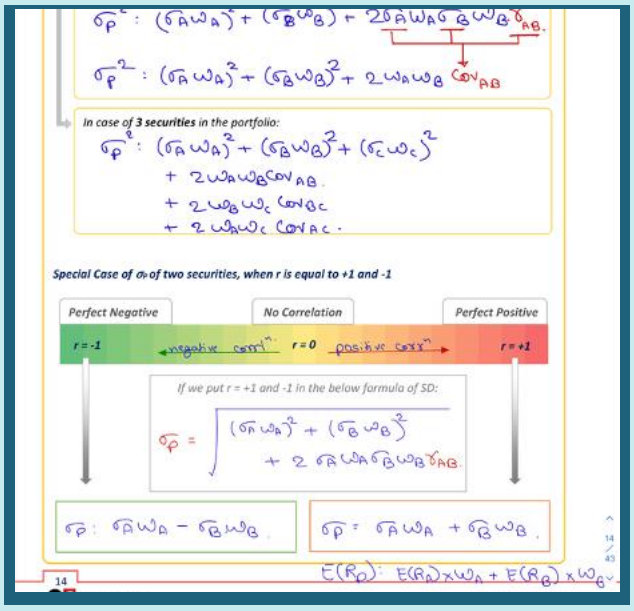
S < F

2376.23 < 2400 ∴ market is in contango

Max. contango = Basis

= S – F

Audio Solutions



$\sigma_p^2 : (\sigma_A w_A)^2 + (\sigma_B w_B)^2 + 2 w_A w_B \sigma_{AB}$

In case of 3 securities in the portfolio:

$\sigma_p^2 : (\sigma_A w_A)^2 + (\sigma_B w_B)^2 + (\sigma_C w_C)^2 + 2 w_A w_B Cov_{AB} + 2 w_B w_C Cov_{BC} + 2 w_A w_C Cov_{AC}$

Special Case of σ_p of two securities, when r is equal to +1 and -1

Perfect Negative | No Correlation | Perfect Positive

r = -1 | negative corr^n | r = 0 | positive corr^n | r = +1

If we put r = +1 and -1 in the below formula of SD:

$\sigma_p = \sqrt{(\sigma_A w_A)^2 + (\sigma_B w_B)^2 + 2 \sigma_A w_A \sigma_B w_B \gamma_{AB}}$

$\sigma_p : \sigma_A w_A - \sigma_B w_B$ | $\sigma_p = \sigma_A w_A + \sigma_B w_B$

$E(R_p) : E(R_A) \times w_A + E(R_B) \times w_B$

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UNIQUE STRUCTURED CONCEPT NOTES

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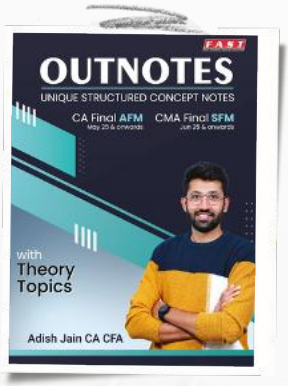

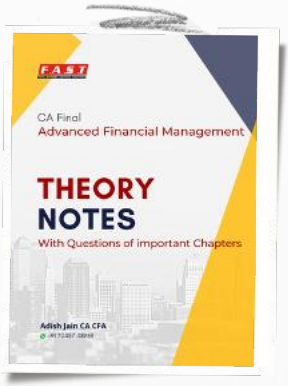

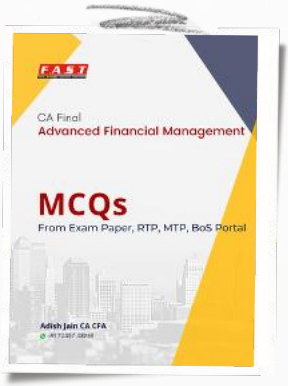

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Download all relevant materials applicable for upcoming attempt!

New Questions & MCQs in Exams Paper, RTPs and MTPs of Past 5 Attempts

May 26 – MTP

QUESTION 1:

Advise Mr. S a speculator the net position to be taken on the Index Future that will give a complete hedge against the following transactions:

(i) He has a long position in the share on the cash market of ₹ 50 lakhs on the R Limited. The beta of the R Limited is 1.25 and it is expected that the prices its shares is going to rise.

(ii) He has a short position on the cash market of ₹ 25 lakhs on the W Limited. The beta of the W Limited is 0.90 and it is expected that the prices its shares is going to depreciate.

Solution:

	Company Name	Position in shares	Amount (₹) (4)	Beta (5)	(₹) (6) = (4) x (5)	Position in index futures
(i)	R Ltd.	Long	50 lakhs	1.25	+ 62,50,000	Short
(ii)	W Ltd.	Short	- 25 lakhs	0.90	- 22,50,000	Long
	Net Position				+ 40,00,000	Short

QUESTION 2:

The Investment portfolio of a Fund is as follows:

Government Bond	Coupon Rate (%)	Purchase Rate (FV ₹ 100 per Bond)	Duration (Years)
GOI 2026	11.68	106.50	3.50
GOI 2030	7.55	105.00	6.50
GOI 2035	7.38	105.00	7.50
GOI 2042	8.35	110.00	8.75
GOI 2052	7.95	101.00	13.00

Face value of total Investment is ₹ 5 crores in each Government Bond. Required:

a. Identify the type of the Fund.

b. Calculate NAV per unit of the Fund if number of units is 2.50 crore.

c. Suggest a suitable action to reduce risk by churning out investment portfolio in the following scenario:

1. Interest rates are expected to lower by 25 basis points.

2. Interest rates are expected to raise by 75 basis points.

Also calculate the revised duration of investment portfolio in each scenario.

Note: Use simple average to make calculations.

Solution:

a. This type of Fund is a Gilt Fund as the amount of fund is invested in dated Government Securities.

b. To calculate NAV per unit first we shall calculate of actual investment of Funds as follows:

Security	Purchase price	Investment (₹ in lakhs)

GOI 2026	106.50	$\frac{5,00,00,000 \times 106.5}{100}$ = 532.50
GOI 2030	105.00	525.00
GOI 2035	105.00	525.00
GOI 2042	110.00	550.00
GOI 2052	101.00	505.00
Total		2,637.50
÷ Number of units		250
NAV per unit (₹)		₹ 10.55

b. Suitable action to churn out investment portfolio in following scenario is to reduce risk and to maximize profit or minimize losses.

$$= \frac{3.5 + 6.5 + 7.5 + 8.75 + 13.00}{5} = 7.95 \text{ years}$$

1) Interest rates are expected to be lower by 25 basis points in such case increase the average duration by purchasing GOI 2052 and disposing of GOI 2026. Revised average duration shall be:

$$= \frac{13 + 6.5 + 7.5 + 8.75 + 13.00}{5} = 9.75 \text{ years}$$

2) Interest rates are expected to rise by 75 basis points in such case reduce the average duration by Purchasing GOI 2030* and disposing of GOI 2052. Revised average duration shall be:

$$= \frac{3.5 + 6.5 + 7.5 + 8.75 + 6.5}{5} = 6.55 \text{ years}$$

(*) Purchasing of GOI 2026 is not beneficial as maturity period is very short and 75 bps is a comparatively higher change

QUESTION 3:

D and Co.is a company which installs pipes for supply of oxygen in the hospitals as per their specifications. It is planning to invest ₹ 40 crore in a new facility to convert vans and trucks into ambulance. Each ambulance will be designed and built according to customer requirements. D and Co. expects ambulance production and sales in the first four years of operation to be as follows:

Year	1	2	3	4
Ambulances produced and sold	250	300	450	450

The selling price for an ambulance depends on the van or truck which is converted, the quality of the units installed and the extent of conversion work required. D and Co. has undertaken research into likely sales and costs of different kinds of ambulances which could be selected by customers, as follows:

Ambulance type	Basic	Standard	Deluxe
Probability of selection	20%	45%	35%
Selling price (₹/unit)	30,00,000	42,00,000	72,00,000
Conversion cost (₹/unit)	23,00,000	29,00,000	40,00,000

Fixed costs of the production facility are expected to depend on the volume of ambulance production as follows:

Production volume (units/year)	200 - 299	300 - 399	400 - 499
Fixed costs (₹ crore/year)	40	50	55

The applicable tax rate for D and Co. is 28% per year, being settled in the year in which it arises. The company can claim tax allowable depreciation on the cost of the investment on a straight-line basis over ten years.

D and Co. evaluates investment projects using an after-tax discount rate of 11%.

Required:

1. Advise the company on the financial viability of the planned investment for the first four years of operation if tax benefit on unabsorbed depreciation for the remaining period will not available.
2. Advise the company on the financial viability of the planned investment continuing to produce and sell ambulances beyond the first four years if after the fourth year of operation, D and Co. expects to continue to produce and sell 450 ambulances per year for the foreseeable future.

Note: (1) Use PV Factors rounded off upto three decimal points.
(2) Present all calculation in ₹ Crore rounded off upto three decimal points.

Solution:

1) Average selling price = (30,00,000 x 0·20) + (42,00,000 x 0·45) + (72,00,000 x 0·35)
= ₹ 50,10,000 per unit

Average conversion cost = (23,00,000 x 0·20) + (29,00,000 x 0·45) + (40,00,000 x 0·35)
= ₹ 31,65,000 per unit

Average Contribution per unit = ₹ 50,10,000 - ₹ 31,65,000
= ₹ 18,45,000

Tax allowable depreciation = ₹ 40 crore/10 = ₹ 4 crore per year

Benefit of tax allowable depreciation = ₹ 4 crore x 0·28 = ₹ 1.12 crore per year

Calculation of NPV over four years (₹ Crores)

	Year	1	2	3	4
	Contribution per unit	0.1845	0.1845	0.1845	0.1845
x	Number of units sold	250	300	450	450
	Total Contribution	46.125	55.35	83.025	83.025
Less:	Fixed costs	(40)	(50)	(55)	(55)
	Before-tax cash flow	6.125	5.35	28.025	28.025
Less:	Tax @ 28%	(1.715)	(1.498)	(7.847)	(7.847)
Add:	Tax benefit on Depreciation	1.120	1.120	1.120	1.120
	CFAT	5.53	4.972	21.298	21.298
	PVF @ 11%	0·901	0·812	0·731	0·659
	DCFs	4.983	4.037	15.569	14.035
	Total PV of Cash Inflows				38.624
Less:	Initial investment				40.000
	NPV				(1.376)

Advice: If only the first four years of operation are considered, the NPV of the planned investment is negative and so it would not be financially acceptable.

(ii) Ignoring tax allowable depreciation, after-tax cash flow from year five onwards will be:
= ₹ 28.025 crore – ₹ 7.847 crore = ₹ 20.178 crore per year

Present value of this cash flow in perpetuity
= (₹ 20.178 crore /0·11) x 0·659 = ₹ 120.885 crore

There would be a further six years of tax benefits from tax allowable depreciation. The present value of these cash flows would be

= ₹ 1.12 crore x 2.787 = ₹ 3.121 crore

Increase in NPV of production and sales continuing beyond the first four years would be:

= ₹ 120.885 crore + ₹ 3.121 crore = ₹ 124.006 crore

In other words, NPV of the planned investment would be ₹ 122.632 crore (₹ 124.006 crore – ₹ 1.376 crore)

Advise: If production and sales beyond the first four years are considered, the NPV is strongly positive and so the planned investment is financially acceptable.

QUESTION 4:

P Ltd. is studying the possible acquisition of Q Ltd. which is also in same industry by way of merger. The following data are available:

Firm	After-tax earnings	No. of equity shares	Market price per share	Book Value Per share
P Ltd.	₹ 10,00,000	2,00,000	₹ 75	₹ 210
Q Ltd.	₹ 3,00,000	50,000	₹ 60	₹ 105

Board of Directors of both the companies are in the process of negotiating the terms of proposed merger. In case if P Ltd. considers to buyout Q Ltd. by paying in cash, then it shall borrow the required funds @ 15% rate of interest per annum.

Both companies are in the tax bracket of 35%.

1. In case P Ltd. wants to be sure that its EPS is not diminished by the merger, the relevant exchange ratio to achieve the same objective should be.....
   (a) 0.33
   (b) 1.20
   (c) 1.30
   (d) 1.10

2. The type of Merger of P Ltd. & Q Ltd. shall be .....
   (a) Horizontal Merger
   (b) Vertical Merger
   (c) Congeneric Merger
   (d) Reverse Merger

3. Suppose if P Ltd. is exchanging its share on one-to-one basis for Q Ltd. and post-merger there is no change in PE Ratio of any of the company then post-merger market capitalization shall be .....
   (a) ₹ 125.00 Lakh
   (b) ₹ 130.00 Lakh
   (c) ₹ 187.50 Lakh
   (d) ₹ 195.00 Lakh

4. Suppose if P Ltd. is offering about ₹ 35 Lakh to Q Ltd. for the proposed acquisition it will result in.....
   (a) EPS accretion
   (b) EPS dilution
   (c) No Change
   (d) Risk free EPS

5. Suppose instead of a friendly takeover, P Ltd. attempts a hostile takeover of Q Ltd. To defend itself, Q Ltd. offers substantial compensation to its managers in the event they are removed due to the takeover. This defensive tactic adopted by Q Ltd. is called…….
   (a) Crown Jewels
   (b) Poison Pill
   (c) White Knight
   (d) Golden Parachutes

QUESTION 5:

1. In Real Options, the "option to abandon" is similar to……
   (a) Call option
   (b) Put option
   (c) Forward contract
   (d) Swap
2. Real options add value to a project primarily because they……
   (a) Reduce accounting profits
   (b) Ignore uncertainty
   (c) Capture managerial flexibility
   (d) Eliminate business risk

QUESTION 6:

A Ltd. is planning to borrow an amount of ₹ 300 crores for a period of 3 months in the coming 6 months' time from now. The current rate of interest is 9% p.a., but it is likely to go up in 6 months' time. The company wants to hedge itself against the likely increase in interest rate.
You as CFO has been asked to suggest both traditional as well as modern methods to hedge interest rate risk.
Suppose the banker of A Ltd. has quoted the following Forward Rate Agreement (FRA) rates:

3 x 6	8.10%	8.15%
6 x 9	8.20%	8.30%
9 x 12	8.35%	8.45%

A Ltd. has already issued redeemable bonds or debentures.
From the information given above, choose the correct answer to the following questions:

1. In an FRA contract, the company intending to borrow funds in future should…….
   (a) buy FRA at bid rate.
   (b) sell FRA at bid rate.
   (c) buy FRA at offer rate.
   (d) sell FRA at offer rate.
2. If interest rates rise above the FRA rate, the A Ltd. under FRA will……
   (a) incur loss and pay banker.
   (b) neither gain nor lose.
   (c) receive compensation from banker.
   (d) cancel the contract.

3. The FRA settlement amount is discounted because……
   (a) interest rates are uncertain
   (b) FRA is settled in advance
   (c) principals are not exchanged
   (d) only interest differential is paid

QUESTION 7:

You are an investment analyst working for a financial advisory firm. You have been asked to analyze the bond market's yield curve to assist your clients in making investment decisions. The yield curve represents the relationship between the interest rates (yield) and the time to maturity for debt securities, usually government bonds.
For simplicity, assume the following yield data for government bonds over various maturities (measured in years):
Yield Curve Table

Maturity (Years)	Yield (%)
1 Year	3.00%
2 Years	4.00%
3 Years	5.00%
5 Years	6.00%
7 Years	6.40%
10 Years	7.00%
15 Years	7.40%
30 Years	7.60%

From the information given above, choose the correct answer to the following questions:

1. The shape of the yield curve given in the data can best be described as.....
   a. Inverted
   b. Flat
   c. Normal (upward sloping)
   d. Humped
2. Which bond carries the highest interest rate risk (price sensitivity)?
   a. 1-year bond
   b. 5-year bond
   c. 10-year bond
   d. 30-year bond
3. If inflation expectations increase sharply, the most immediate impact will likely be seen on yield curve.
   a. Yield curve will become flat.
   b. Yield curve will become humped.
   c. Entire yield curve shifting upward.
   d. Entire yield curve shifting downward.

May 26 - RTP

QUESTION 8:

Mr. Y is a rational risk taker. He takes his position in derivative market of a single stock through margin trading for 4 days in a week. He does not take a position on Friday to avoid weekend effect and takes position only for four days in a week i.e. Monday to Thursday. He transfers the amount on Monday morning and withdraws the balance on Friday morning. He desires to take a maximum exposure in the derivative market where Value at Risk (VAR) should not exceed the balance lying in his bank account. The position by his manager, as per standing instructions, is taken on the free balance lying in the bank account in the morning on each Monday.

On Monday morning (before opening of the capital market) he has transferred an amount of ₹ 11 Crore to his bank account. A fixed deposit also matured on this Monday. The maturity amount of ₹ 63,42,560 was also credited to his account by the bank in the morning of the Monday. However, Mr. Y received the intimation of the same in the evening. The bank needs a minimum balance of ₹ 1,000 all the time.

The other information with respect to stocks A and B, which are under consideration for this week, is as under:

A		B	
Return	Probability	Return	Probability
6	0.10	4	0.10
7	0.25	6	0.20
8	0.30	8	0.40
9	0.25	10	0.20
10	0.10	12	0.10

From the information given above, choose the correct answer to the following questions:

1. The amount that will not be considered for taking position on Monday morning is…….
   (a) ₹ 63,41,560
   (b) ₹ 63,42,560
   (c) ₹ 11,00,00,000
   (d) ₹ 10,99,99,000
2. II. Which stock has a wider dispersion of returns based on the given probability distribution?
   (a) Stock A
   (b) Stock B
   (c) Both have equal dispersion
   (d) Cannot be determined
3. III. In Value at Risk (VaR) analysis, which factor directly increases VaR for a given investment?
   (a) Higher expected return
   (b) Lower confidence level
   (c) Higher standard deviation
   (d) Shorter holding period
4. IV. Since Mr. Y invests in derivative of a single stock (not a portfolio), the risk considered for VaR is……
   (a) diversifiable risk
   (b) unsystematic risk only
   (c) total risk
   (d) market risk only

QUESTION 9:

An Indian exporting firm, Radhey & Sons exported dry fruits worth of AUD 1 million to an importer in Sydney. Radhey and Sons are worried about likely depreciation of AUD in near future as it is likely that the export sum will be received after 3 months. Today as such as there is no derivative contract is available in AUD to hedge itself from such depreciation.

The following data is given:
Spot rate: ₹ 64.00/AUD

3 months interest rates (per annum):

	Deposit	Borrowing
₹	10%	12%
AUD	4%	5%

From the information given above, choose the correct answer to the following questions:

I. In a money market hedge for a foreign currency receivable, the exporter should……..
   (a) borrow in domestic currency and invest foreign currency
   (b) borrow in foreign currency and invest domestic currency
   (c) borrow and invest in domestic currency only
   (d) borrow and invest in foreign currency only

II. In case Radhey & Sons adopts Money Market hedge strategy, the interest rate to be used to compute amount borrowed shall be……
   (a) 4% per annuam
   (b) 5% per annuam
   (c) 10% per annuam
   (d) 12% per annuam

III. If a forward contract in AUD were available, the money market hedge would……..
   (a) always be superior
   (b) always be inferior
   (c) be compared with forward hedge for cost efficiency
   (d) become invalid

IV. Interest Rate Parity theory assumes……..
   (a) No capital mobility
   (b) Presence of arbitrage opportunities
   (c) Efficient markets with no arbitrage opportunities
   (d) Fixed exchange rate system

Jan 26 – Exam Paper

QUESTION 10:

PQR Ltd. is considering two new products A and B, only one of which can be added to its production line. Product A is sure seller. It is certain that 2,00,000 units of product A with the firm's maximum capacity can be manufactured and sold each year with a contribution margin of 5 per unit.

Product B with a contribution margin of ₹ 10 per unit is potentially more profitable.

However, there is uncertainty about its marketability and following sales forecast has been prepared:

Sales unit of B (per annum)	**Probability**
50,000	0.25

1,00,000	0.50
1,50,000	0.25

Fixed cost per year is ₹ 6,00,000,

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

1. If Company select product A, the profit of the company is -
   (A) ₹ 2,00,000
   (B) ₹ 4,00,000
   (C) ₹ 6,00,000
   (D) ₹ 10,00,000
2. If company select product B and sale 1,40,000 units, the profit of the company is-
   (A) ₹ 4,00,000
   (B) ₹ 8,00,000
   (C) ₹ 10,00,000
   (D) ₹ 12,00,000
3. If company select product B, the expected value of profit of the company is -
   (A) ₹ 2,00,000
   (B) ₹ 4,00,000
   (C) ₹ 8,00,000
   (D) ₹ 10,00,000

QUESTION 11:

MNC Limited company's financial statements for FY 2024-25 are provided:

Income Statement	(₹ in Cr.)
Sales revenues	7500
Costs and expenses	7300
Income before taxes	200
Taxes (30%)	60
Net income	140

MNC Limited's Balance Sheet as at 31st March, 2025

Liabilities	(₹ in Cr.)	Assets	(₹ in Cr.)
Equity	2000	Net Fixed Assets	4000
Long term Debt	2500	Current Assets	2000
Current Liabilities	1500		
	6000		6000

Additional Information

1. The company expects a 40% sales growth next financial year.
2. The company will have a 25% dividend payout ratio next year.
3. All costs, current assets and current liabilities are expected to increase with sales.
4. Except retained earnings no new Equity is to be raised.

Required:

Compute External Funding Requirement through raising Long-term Debt:

a. If the company is operating at 65% capacity usage for fixed assets.

b. If the company is operating at 95% capacity usage for fixed assets.

Solution:

(i) External Funding Requirement in case of 65% capacity utilization

With only 65% Utilization, growth by 40% can be achieved without any corresponding increase in Fixed Assets (65*1.4 times = 91%)

External Funding Requirement through Long Term Debt	(₹ in Crore)
Expected Sales Revenue (7500 x 1.4)	10500
Costs and Expenses (7300 x 1.4)	10220
Income before taxes	280
Taxes (30%)	84
Net Income	196
Dividend Payout@25% of ₹ 196	49
Retained Earnings/ Internal Sources of Funds	147
Additional Funds Required (2000 – 1500)*0.4	200
Balance to be met from Long Term Debt	53

(ii) External Funding Requirement in case of 95% capacity utilization

With only 95% Utilization, growth by 40% can be achieved by corresponding increase in Fixed Assets of ₹ 1320 Crore (95%*1.4 times = 1.33 times of existing Fixed Assets of ₹ 4000 Crore). Projected Fixed Assets increase to ₹ 5320 Crore.

External Funding Requirement through Long Term Debt	(₹ in Crore)
Expected Sales Revenue (7500 x 1.4)	10500
Costs and Expenses (7300 x 1.4)	10220
Income before taxes	280
Taxes (30%)	84
Net Income	196
Dividend Payout@25% of ₹ 196	49
Retained Earnings/ Internal Sources of Funds	147
Additional Funds Required (8120 – 2100 – 2000 – 2500)	1520
Balance to be met from Long Term Debt	1373

QUESTION 12:

Ms. Priya initiated the following option strategy on Omega Industries Limited's equity shares:
Transactions executed:

1. Bought one European Call Option with the following terms:
   Premium paid: ₹ 42 per share
   Strike Price: ₹ 620
   Maturity: 3 months
2. Bought one European Put Option with the following terms:
   Premium paid: ₹ 8 per share
   Strike Price: ₹ 480
   Maturity: 3 months

Additional Information:

- Current Market Price (CMP) of Omega Industries: ₹ 550 per share
- Lot size: 150 shares per contract
- Ms. Priya holds the positions until expiration

Required:

1. Calculate the net profit/loss in the following scenarios at expiration:
   a. Share price remains unchanged at ₹ 550
   b. Share price declines to ₹ 380
   c. Share price appreciates to ₹ 680
2. Determine the upper and lower breakeven points for this strategy.

Solution:

1. Net profit/los

	(a) S_T: 550	**(b) S_T: 380**	**(c) S_T: 680**
Call (E: 620)	(Lapse)	(Lapse)	(Exercise)
Gross payoff	0	0	680 – 620 = 60/share
Net payoff	(0 – 42) × 150 = 6300 loss	(0 – 42) × 150 = 6300 loss	(60 – 42) × 150 = 2700 gain
Put (E: 480)	(lapse)	(Exercise)	(lapse)
Gross payoff	0	480 – 380 = 100/share	0
Net payoff	(0 – 8) × 150 = 1200 loss	(100 – 8) × 150 = 13800 gain	(0 – 8) × 150 = 1200 loss
Net Gain/(loss)	₹ 7,500 Loss	₹ 7,500 Gain	₹ 1,500 Gain

(ii) Total premium paid: 42 + 8 = ₹50
Upper BE : 620 + 50 = 670
Lower BE : 480 – 50 = 430

QUESTION 13:

A speculator purchases BFL Ltd. May Futures (lot of 125 shares) at 7750 and chooses to Write BFL 7790 May call option with a premium of ₹ 30 (lot of 125 shares). As on May 18, spot prices rise and so the futures price and call premium. Futures price rise to 7780. Call premium also rises to ₹ 36. Brokerage for the transaction is 0.02% for the transaction value of futures and strike price net of call premium for options.

You are required to calculate:

a. Profit / Loss on Futures net of transaction costs.
b. Profit / Loss on options net of transaction costs.
c. Overall profit from both the positions net of costs.
d. Total Brokerage cost.

Solution:

(a) Working Notes:

(1) Brokerage Payable on Initial Position

On Futures (7750 x 125 x 0.02%)	₹ 193.75
On Options (₹ 7790 – ₹ 30) x 0.02% x 125	₹ 194.00
Total	₹ 387.75

(2) Brokerage Payable on Closing Position

On Futures (7780 x 125 x 0.02%)	₹ 194.50
On Options (₹ 7790 – ₹ 36) x 0.02% x 125	₹ 193.85
Total	₹ 388.35

(i) Profit/ Loss on Futures

Selling Futures	7,780
Buying Futures	7,750
Profit per share	30
Total Profit 125 x ₹ 30	3,750.00
Less: Brokerage on Initial Position	193.75
Brokerage on Closing Position	194.50
Net Profit	3,361.75

(ii) Profit/ Loss on Options

Loss on writing Call Option (₹ 36 - ₹ 30)	6
Loss on Call Option (125 x ₹ 6)	750.00
Add: Brokerage Paid on Initial Position	194.00
Brokerage on Closing Position	193.85
Net Loss	1,137.85

(iii) Overall profit:

Profit/ Loss on Futures (Net Profit)	3,361.75
Less: Profit/Loss on Options (Net Loss)	1,137.85
Overall Profit	2,223.90

(iv) Total Broking Cost

On Initial Position	387.75
On Options	388.35
Total	776.10

QUESTION 14:

Following are the direct quotes available in the international market:

GBP 1 = EURO 1.2950/65 (Direct rate)

GBP 1 = USD 1.6025/6000

EURO 1 = USD 1.2375/9000

You are required to:

a. Calculate Bid & Ask Cross Rates for Euro per Pound (Euro/Pound)
b. Prove that arbitrage gains are not possible if—
   1. You buy Pounds against Euro under direct route and sell through cross rate route.
   2. You sell Pounds against Euro under direct route and buy through cross rate route

Solution:

(i) Ask Cross Rate for Euro Per Pound

$$\frac{USD / GBP_{Ask}}{USD / Euro_{Bid}} = \frac{1.6025}{1.2375}$$

= Euro 1.2950/ GBP

Bid Cross Rate for Euro Per Pound

$$\frac{USD / GBP_{Bid}}{USD / Euro_{Ask}} = \frac{1.6000}{1.9000}$$

= Euro 0.8421/ GBP

Final Quote: GBP 1 = EUR 0.8421 / 1.2950

(ii) Calculation of Arbitrage Gain/ Loss

(1) Buy Pounds against Euro under direct route and sell through cross rate route.

Buying Pound against Euro under direct route	Euro 1.2965
Selling Pound against Euro through Cross Route	Euro 0.8421
Loss per Pound	Euro 0.4544

(2) Sell Pounds against Euro under direct route and buy through cross rate route

Buying Pound against Euro through Cross Route	Euro 1.2950
Selling Pound against Euro under direct route	Euro 1.2950
Loss per Pound	Nil

Arbitrage is not possible – Proof

(1) If you want to buy Pounds against Euro, under the direct route, you can acquire Pound at the quoting bank's selling rate of Euro 1.2965/Pound. If you sell Pounds under cross rate route, you can sell Pound at the Cross-rate Bid price calculated in (i) above i.e. 08421/ Pound resulting in a loss of 0.4544 Euros. Hence arbitrage is not possible.

(2) If you want to sell Pounds against Euro, under the direct route, you can sell Pounds at the quoting bank's buying rate of Euro 1.2950/ Pound. If you buy Pounds under cross rate route, you can get Pounds at the Cross rate Ask price calculated in (i) above i.e 1.2950/ Pound resulting in no profit no loss hence arbitrage is not possible.

QUESTION 15:

Name	Status	Principal Amount (₹ in mn)	Duration of loan/deposit (time)	Interest rates of Borrowing/ Lending	Strike Rate (PLR)	Premium (%) (lump sum)	If PLR rate at the end of first 6-months (Reset Period)
AB Ltd.	Borrower	₹ 5.00	5 Years	PLR + 0.5	8% p.a.	0.4%	10% p.a.
XY Ltd.	Depositor	₹ 2.00	3 Years	PLR - 0.5	8% p.a.	0.5%	6% p.a.

You are required to:

a. Elaborate the strategy to be adopted by both the companies to hedge against the risk of interest rate fluctuations.
b. Premium paid/received based on the strategy to be adopted in (i) using 8% p.a. as the reference rate.
c. Net Gain / loss due to hedging to both the companies.

Solution:

(i) Strategy to be adopted by both the companies:

- AB Ltd. – Buying Cap Option
- XY Ltd. – Buying Floor Option

(ii) Equated six monthly Premium paid by both companies

AB ltd: Total premium paid = 9,000,000 × 0.4%
= ₹ 20,000

Now, Equivalent Periodic premium: (A)

$A \times PVAF_{(10\ period,\ 4\%)}$ = Premium Amount

A × 8.111 = 20,000

A = 2,465.79

XY Ltd: Total premium paid = 2,000,000 × 0.5%
= ₹ 10,000

Now, Equivalent periodic premium (A)

$A \times PVAF_{(4\%,\ 6\ period)}$ = Premium Amount

A × 5.242 = 10,000

A = 1,907.67

(ii) Net Gain / loss due to hedging

	AB	XY
Gross payoff received	5 mn × (10 – 8)% × 6/12 = 50000.00	2 mn × (8 – 6)% × 6/12 = 20000.00
Less: Periodic Premium	- 2465.79	- 1907.67
Net gain / (loss)	₹ 47534.21	₹ (18092.33)

QUESTION 16:

Stork Capital, a SEBI Registered Mutual Fund, launched its first New Offer (NFO) on June 1, 2024, with a face value of ₹ 10 per unit. The fund received subscriptions for 180 lakh units.

An underwriting agreement was in place with Griffin Securities Ltd., which agreed to underwrite the entire issue of 200 lakh units for a commission of 2.0%.

The fund's financial activities are summarized below:

- Initial investments in various capital market instruments amounted to ₹ 1,780 lakhs.
- Marketing expenses for the NFO were ₹ 25 lakhs.
- During the financial year ended March 31, 2025, the fund sold securities with a cost of ₹ 250 lakhs for ₹ 280 lakhs.
- The fund subsequently purchased new securities for ₹ 265 lakhs.
- Management expenses are regulated by SEBI and cannot exceed 0.50% of the average funds invested during the year. The actual management expenses incurred were ₹ 5.50 lakhs, of which ₹ 50,000 was outstanding at year-end.
- Dividends earned on investments amounted to ₹ 5.0 lakhs, of which ₹ 40,000 was yet to be collected.
- The fund's policy is to distribute 80% of all realized earnings (capital gains and dividends).

- The market value of the investment portfolio as of March 31, 2025, was ₹ 2,150.50 lakhs.

Required: Determine the closing per unit Net Asset Value (NAV) of the fund as on March 31, 2025. Show all necessary workings.

Note: Round off all calculations to two decimal places.

Solution:

a **Calculation of allowed management expense**

		(₹ lakhs)
	Opening fund invested: (A)	1780
–	cost of securities sold	(250)
+	cost of securities purchased	265
	Closing fund invested (B)	1795
	Average fund invested (A + B)/2	1787.5
	Allowed Management expenses (1787.5 × 0.5%)	8.94

Self-note: suggest missed to give the effect of 10 months to expense % given in question.

∵ Actual Expensed (5.5 lac) < allowed exp (9.94)
∴ Eligible expense = ₹ 5.5 lac
cash expenses paid = ₹ 5 lac

b **Calculation of Closing Cash Balance:**

			(₹ lakhs)
	Issue of units	[200 lakh × 10]	2000.00
–	Commission	[200 lakh × 2%]	40.00
–	Purchase of securities		178.00
–	Marketing expenses		25.00
+	Sale of Securities		280.00
–	Purchase of Securities		265.00
–	Management Expenses		5.00
+	Div received	[5 – 0.4]	4.60
–	Dividend Distributed	[280 – 250 + 4.6] × 0.8	27.68
	Closing Cash Balance		₹141.92

c **Calculation of NAV p.u.**

		(₹ lakhs)
	Market value of securities	250.50
+	Closing cash	141.92
+	Dividend receivable	0.40
–	O/S Expenses	- 0.50
	Total Net asset value	2292.32
÷	Number of units	200.00
	NAV Per unit	₹ 11.46

Jan 26 – MTP

No new Questions

Jan 26 – RTP

No new Questions

Sep 25 – Exam Paper

QUESTION 17:

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:

1. Cost of Equity of the company using CAPM.
2. Earnings Per Share (EPS) of the company.
3. Equity value of the company if applicable EBIDTA multiple is 4.
4. Enterprise Value of the company.

Calculation up to 2 decimal points.

Solution:

(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

QUESTION 18:

The following details are given for TC 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	0.8	0.7	
Proportion of allocated fund	50%	50%	

You are required to

a. Calculate the systematic and unsystematic risk for the companies'
b. Calculate portfolio risk.
c. If the 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.

Solution:

(i) Calculation of Systematic and Unsystematic Risk:

	TC Ltd.		PC Ltd.	
Systematic Risk ($\beta^2\sigma^2_{M}$)	Variance	$= (0.8)^2(2.10)$ $= 1.344$	Variance	$= (0.7)^2(2.10)$ $= 1.029$
	SD	$= \sqrt{1.344}$ $= 1.159\%$	SD	$= \sqrt{1.029}$ $= 1.014\%$
Unsystematic Variance (Total Risk – Systematic Risk)	Variance	$= 5.80 - 1.344$	Variance SD	$= 4.80 - 1.029$ $= 3.771$ $= \sqrt{3.771}$

	SD	= 4.456 = $\sqrt{4.456}$ = 2.111%	= 1.942

(ii) Portfolio Risk

Self-note: Risk of the portfolio can be calculated using both the models: Markowitz and Sharpe Index. The suggested answer used Markowitz whereas the model more logical use is Sharpe Index. The answer from both will be same and if the final answer is correct, the marks will be allotted for solution done using any of the models.

Alternative 1: Markowitz Model:

Covariance of TC & PC as per Sharpe = $\beta_1 \beta_2 \sigma^2_m$
= 0.8 x 0.7 x 2.10
= 1.176

Accordingly,

σ^2_p = $(0.50)^2(5.80) + (0.50)^2(4.80) + 2 \times 1.176 \times 0.50 \times 0.50$
= 3.238

σ_p = $\sqrt{3.238}$
= 1.800%

Alternative 2: Sharpe Index Model:

Portfolio Beta = 0.8 × 0.50 + 0.6 × 0.50
= 0.750 times

Systematic variance of PF = $\sigma^2_m \times \beta^2_p$
= $2.1 \times (0.750)^2$
= 1.181

Unsystematic Variance of PF = $\sigma^2_{EA} \times W^2_A + \sigma^2_{EB} \times W^2_B$
= $4.456 \times (0.5)^2 + 3.771 \times (0.5)^2$
= 2.057

σ^2_p = 1.181 + 2.057
= 3.238

σ_p = $\sqrt{3.238}$
= 1.800%

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

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

Existing Risk (50:50) = 1.800%

Revised Return (60:40) = 0.60 X 0.12 +0.40 X 0.18
= 14.40%

Revised Risk (60:40) = $\sqrt{(5.80) \times (0.60)^2 + (4.80) \times (0.40)^2 + 2 \times 1.176 \times 0.60 \times 0.40}$
= 3.421

σ_P = $\sqrt{3.421}$

= 1.85

Advice: 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 1.80% to 1.85%.

QUESTION 19:

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 required to:

1. Calculate the number of units purchased by Mr. Raj at the beginning of the investment.
2. Calculate the NAV per unit and the total investment amount made by Mr. Raj at the beginning of the year.
3. 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.

Solution:

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

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

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 20:

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 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 -

a. 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.

b. 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.

Solution:

Working Notes:

(I) Calculation of WACC

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

= 11%

(II) Value of Firm based on FCFF

$$= \frac{125\text{ m} \times (1.08)}{0.11 - 0.08} = ₹\ 4500\text{ Million}$$

(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

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

FCFE = ₹ 170.25 million

QUESTION 21:

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 ($) 1.3288
The 12-month forward exchange rate	GBP (£) 1 = USD ($) 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.

Solution:

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.

Sep 25 – MTP

QUESTION 22:

XYZ Ltd., a medium-sized company in the renewable energy sector, is experiencing steady sales growth. The company's management, however, is concerned about balancing rapid growth with long-term sustainability. In the past year, XYZ's growth objectives have led to aggressive expansion plans, but management now realizes that such growth might not be financially sustainable in the long run. This raises concerns about how to maintain the company's financial health while meeting its ambitious growth targets.

The CFO of XYZ Ltd. highlights the importance of Sustainable Growth Rate (SGR).

The company now needs to ensure that its operational and financial policies align with its growth goals. XYZ must avoid expanding too quickly, which could strain its financial resources and lead to excessive borrowing. Moreover, management must also consider the long-term implications of resource consumption, particularly in the renewable energy industry, where sustainability is key to both current and future stakeholders.

XYZ Ltd. also realizes that it needs to focus on building its growth capability alongside its growth strategy. Without the necessary infrastructure and financial planning in place, the company's efforts to achieve long-term, sustainable growth

could be in jeopardy. Furthermore, the company is aware of the risks of relying too much on external financing and recognizes the need for a balance between maintaining sufficient equity and minimizing debt.

Given the importance of these considerations, XYZ's management team must now review their growth strategy and financial policies to ensure they are consistent with the firm's sustainable growth objectives.

From the information given above, choose the correct answer to the following questions:

1. The concept of Sustainable Growth Rate introduced by.....
(a) Harry Markowitz
(b) William Sharpe
(c) Black Scholes
(d) Robert C. Higgins

2. The Sustainable Growth Rate (SGR) represents.....
(a) the rate at which the company can grow by issuing more equity.
(b) the maximum rate of growth in sales that can be achieved without borrowing additional funds.
(c) the growth rate determined by market demand for XYZ's products.
(d) the rate of growth determined by inflationary pressures.

3. According to the case scenario the risk associated with growing too quickly is that.....
(a) the company might not be able to retain competent staff.
(b) the company could face liquidity issues due to over-expansion.
(c) the company's stock price might decline.
(d) it could reduce the company's market share.

4. Which of the following twin cornerstones are necessary for XYZ Ltd. to achieve sustainable growth?
(a) Market conditions and competition.
(b) Growth capability and growth strategy.
(c) Product innovation and marketing strategy.
(d) Cost-cutting measures and increased sales.

5. In an inflationary condition if creditors require that XYZ Ltd.'s historical cost debt-to-equity ratio stay constant, the inflation.....
(a) reduces the need for external financing.
(b) increases the sustainable growth rate by lowering costs.
(c) lowers the sustainable growth rate.
(d) It has no effect on the company's growth rate.

QUESTION 23:

On 1 April 2015, Sunidhi was holding a portfolio of 10 securities whose value was ₹ 9,94,450, the weighted average of beta of 9 securities of the portfolio was 1.10.

Since she was expecting a fall in the prices of the shares in near future to hedge her portfolio, she sold 5 contracts of NIFTY Futures (Multiplier of 25) expiring in May 2015, which was trading at 8767.07 on 1 April.

Required:

(1) Calculate the beta of the 10th security.

(2) Reconcile the reasons in spite of 2% fall in the market as per Sunidhi's apprehension if she would have earned some profit on her cash position.

Solution:

1. First, we shall compute weighted beta of the portfolio of all 10 securities:
Let weighted beta of the Portfolio is β_P, then,

$$\text{Number of contract short} = V_P \times \frac{\beta_T - \beta_P}{F \times M}$$

$$-5 = \frac{994450 \times (0 - \beta_P)}{8767.07 \times 25}$$

$$\beta_P = 1.102 \text{ times}$$

Now, let beta of 10th security is β_{10} then,

$$1.102 = 0.90 \times 1.10 + 0.10 \times \beta_{10}$$

$$\beta_{10} = 1.120 \text{ times}$$

2. The main reason for the profit in cash position might be due to reason that contrary to her expectation fall in the value of cash position there may be increase in value of cash position or decrease in the stock price may be lesser than 2%.

QUESTION 24:

SS Company is considering the replacement of its existing machine with a new machine. The Purchase price of the New machine is ₹ 26 Lakhs and its expected Life is 8 years. The company follows straight-line method of depreciation on the original investment (scrap value is not considered for the purpose of depreciation). The other expenses to be incurred for the New Machine are as under:

1. Installation Charges ₹ 9,000
2. Fees paid to the consultant for his advice to buy New Machine ₹ 6,000.
3. Additional Working Capital required ₹ 17,000. (will be released after 8 years)

The written down value of the existing machine is ₹ 76,000, and its Cash Salvage Value is ₹ 12,500. The dismantling of this machine would cost ₹ 4,500. The Annual Earnings (before tax but after depreciation) from the New Machine would amount to ₹ 3,15,000. Income tax rate is 35%. The Company's required Rate of Return is 13%.

You are required to advise on the viability of the proposal.

PVIF (13%, 8) = 0.376 PVIFA (13%, 8) = 4.80

Solution:

1. Computation of Annual Depreciation-

Particulars			₹
Purchase Price			26,00,000
Add: 1. Installation Charges			9,000
2. Fees Paid to Consultant for Advice			6,000
Total Cost of New Machine		[A]	26,15,000
Net Proceeds of Sale	(12,500 – 4,500)	[B]	8,000
Less: WDV			76,000
Capital Loss due to Sale			68,000
Tax savings on Capital Loss @35%		[C]	23,800

Working Capital Outflow	[D]	17,000
Net Initial Cash Outflow	[A - B – C + D]	26,00,200

2. Computation of Annual CFATs-

Particulars	₹
Annual Earnings	3,15,000
Less-Tax @35%	1,10,250
Earning after Tax	2,04,750
Add-Depreciation on New Machine	3,26,875
Annual Cash Savings	5,31,625

3. Computation of Net Present Value

Particulars	Period	Cash Flow (₹)	PVF @13%	PV (₹)
Initial Net Outflow	0	- 26,00,200	1	26,00,200
Annual CFAT	1-8	5,31,625	4.8	25,51,800
Working Capital Realized	8	17,000	0.376	6,392
NPV of the Proposal				(42,008)

Decision: Since NPV of the project is negative it is not viable.

Sep 25 – RTP

QUESTION 25:

In a recent Board Meeting of N Ltd. following financials of N Ltd. for the year ending 31st March 2025 were presented:

Balance Sheet as on 31.03.2025

Liabilities	₹ '000	Assets	₹ '000
Equity Capital	4,80,000	Fixed Assets	2,42,000
10% Bonds	92,000	Cash	88,000
Sundry Creditors	66,000	Sundry Debtors	1,10,000
Bills Payable	88,000	Closing Stock	3,3,0000
Other Current Liabilities	44,000		
Total Liabilities	7,70,000	Total Assets	7,70,000

Income Statement for the Year ending 31.03.2025

Particular	(₹ '000)	(₹ '000)
Sales		11,77,000
Less: Cost of Goods Sold		
Material	4,18,000	
Wages	2,64,000	
Factory Overheads	1,29,800	8,11,800
Gross Profit		3,65,200
Less: Selling & Distribution Cost	1,10,000	
Administrative Cost	1,22,800	2,32,800
Earnings Before Interest and Taxes (EBIT)		1,32,400

Less: Interest Charges		9,200
Earning Before Tax		1,23,200
Less: Taxes @ 50%		61,600
Net Profit (PAT)		**61,600**

During the Board Meeting:

(i) Director A said that the company can maintain a certain growth even though the net profit margin remains constant, and assets increases proportionately to sales and it distributes its 30% of its net profit. To maintain this growth rate, it will not require any external funds.

(ii) Director B proposed that just by maintaining a target capital structure and without issuing additional equity and maintaining target dividend pay-out ratio as proposed by Director A, more growth rate can be achieved.

(iii) Director C though agreed with views of Director A and Director B, but is of the view that in the coming year it is expected that sales is likely to rise by 15%, hence if required we can go for issue of equity shares, bonds or debentures to achieve the same growth in sales.

From the information given above, choose the correct answer to the following questions:

1. The Director A is talking about.....
(a) Internal Growth Rate
(b) Sustainable Growth Rate
(c) External Funding Requirements
(d) External Growth Rate
Ans. (a)

2. The Director B is talking about....„.....
(a) Internal Growth Rate
(b) Sustainable Growth Rate
(c) External Funding Requirements
(d) External Growth Rate
Ans. (b)

3. The Director C is talking about……
(a) Internal Growth Rate
(b) Sustainable Growth Rate
(c) External Funding Requirements
(d) External Growth Rate
Ans. (c)

4. If we go by the proposal of Director C, then approximately…….funds shall be raised from in form of equity or debt, assuming that dividend as proposed by Director A is paid out and assets and current liabilities are increased in the same proportion as increase in sales.
(a) ₹ 1,15,500 thousand
(b) ₹ 85,800 thousand
(c) ₹ 79,332 thousand
(d) ₹ 36,212 thousand
Ans. (d)

May 25 – Exam Paper

QUESTION 26:

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.

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.

QUESTION 27:

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:

1. 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

2. 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

3. NAV per unit of the Scheme- Star Gold is-

(a) ₹ 21.135

(b) ₹ 21.035

(c) ₹ 20.785

(d) ₹ 21.235

QUESTION 28:

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:

1. 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

2. 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

3. 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

QUESTION 29:

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:

1. 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

2. 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

3. 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

4. Identify which option gives the highest proceed.
(a) Option hedge
(b) Forward hedge
(c) Money market hedge
(d) No hedge

QUESTION 30:

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 places.

PV Factor at 10% & 6% are as under:

	1	2	3	4	5
10%	0.909	0.826	0.751	0.683	0.621
6%	0.943	0.89	0.84	0.792	0.747

Solution:

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
PVAF for 5 years at 10%	3.790
PV of Cash Inflow	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

5. 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.

QUESTION 31:

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:

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

b. If DEF Ltd. also purchases a floor, what are net savings if interest rate rises to 10%?
c. Calculate net savings if interest rates fall to 4 percent considering cap & floor both purchase.
d. 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?

Solution:

(i) Premium for purchasing the Cap = 0.0075 × $ 50,00,000 = $ 37,500
Gross Payoff received on Cap (10% - 8% = 2%) i.e., $ 50,00,000 × 2/100 = $ 1,00,000
Net saving = = ($ 1,00,000 - $ 37,500) = $ 62,500

(ii) Premium for purchasing the Floor = 0.0085 × $ 50,00,000 = $ 42,500
Gross Payoff received on Cap (10% - 8% = 2%) i.e., $ 50,00,000 × 2/100 = $ 1,00,000
Net saving = $ 1,00,000 - $ 80,000 = $ 20,000

(iii) Payoff from floor $ 50,00,000 × (5% – 4%)/100 = $ 50,000
Net saving = $ 50,000 – $ 80,000 = ($ 30,000)

(iv) Sell the Floor, company will receive $ 42,500 and pay premium for Cap $ 37,500
Net premium received = $ 42,500 – $ 37,500 = $ 5,000
Gross payoff on Cap = 0.03 × $ 50,00,000
= $ 1,50,000
Net saving = $ 1,50,000 + $ 5,000
= $ 1,55,000

May 25 – MTP

QUESTION 32:

Mr. Ramesh, a 40-year-old investor, has invested ₹10,00,000 in an actively managed Equity Mutual Fund. The fund has an Expense Ratio of 2.50% and follows the Nifty 50 Index as its benchmark. Upon analyzing the Fund details, he comes across the concept of Tracking Error (TE) and finds out that the same Fund has a Tracking Error (TE) of 3.20%.

A few months later, Mr. Ramesh receives a notification that the Fund has implemented Side Pocketing. The Fund has an exposure of 15% of his investment in a debt instrument of XYZ Ltd, a company facing a severe financial crisis. Since XYZ Ltd has defaulted on its payments, the Fund Manager has moved this portion into a side pocket.

Following the decision of Fund Manager, Mr. Ramesh decides to reconsider any of the following option:

1. Should he stay invested in this Fund and wait for the Side-Pocketed assets to recover?
2. Should he switch to a Passive Index Fund that has a lower Tracking Error and lower Expense Ratio
3. Should he redeem his remaining liquid holdings and invest in a better-performing actively Managed Fund?

Based on the above scenario and given his current situation, choose the most appropriate answer for the following multiple-choice questions:

1. Is it necessary for investors to pay close attention to the Expense Ratio of a Mutual Fund because……..

A. a high expense ratio can significantly reduce net returns over time.
B. a higher expense ratio always guarantees better fund performance.
C. the expense ratio only matters in the first year of investment.
D. funds with higher expense ratios are always risk-free.

2. The Fund has been …… in replicating return on Nifty 50.

A. Successful

B. Unsuccessful

C. Can't say

D. Data is insufficient

3. After the decision of Fund Manager for side-pocketing the equivalent portion of Mr. Ramesh's investment shall_____

A. remains illiquid until the Fund Manager decides to sell it or the company recovers.

B. be immediately written off, and the Mr. Ramesh loses that portion.

C. be returned to Mr. Ramesh in proportion to his holdings.

D. be moved into a different Mutual Fund Scheme with no risk.

4. If Mr. Ramesh switches to a Passive Index Fund with an expense ratio of 0.8%, then he will save annually compared to his current Expense Ratio of 2.50%?

A. ₹ 8,000

B. ₹ 10,000

C. ₹ 17,000

D. ₹ 18,000

5. The advantage for Mr. Ramesh to switch over to a Passive Index Fund shall be____

A. lower expense ratio and lower tracking error.

B. guaranteed recovery of side-pocketed assets.

C. higher risk exposure compared to active funds.

D. avoiding capital gains tax on redemption.

QUESTION 33:

On 20.10.2024, the credit balance of an Indian bank in NOSTRO account with LMN Bank in London was £ 1,60,000 and the overbought position was £ 1,00,000. During the day, the following transactions have taken place:

Events	Time	Amount
DD Purchased	11:08	50,000
Purchased a bill on London	11:50	1,50,000
Sold forward TT	13:15	1,00,000
Forward purchased contract cancelled	13:55	50,000
Remitted by TT	14:45	85,000
Draft in London cancelled	15:00	40,000

Based on the above scenario, choose the most appropriate answer for the following multiple-choice questions:

Self-note: *Ambiguous question*

1. How much was the total amount of purchase commitments made during the day by the Indian Bank?

A. £ 2,00,000

B. £ 1,50,000

C. £ 3,40,000

D. £ 50,000

2. The final cash balance in the NOSTRO account at the end of 20.10.24 stands at …….

A. £ 85,000
B. £ 75,000
C. £ 20,000
D. £ 160,000

3. The transaction took place at …….shall affect both exchange & cash position of the bank with LMN Bank.

A. 11:08
B. 11:50
C. 14:45
D. 15:00

4. If at the end of day bank is required to maintain a credit balance of £ 20,000 in the NOSTRO account, then it…….

A. shall buy forward £ 15,000
B. shall sell spot TT £ 55,000
C. shall buy spot TT £ 55,000
D. shall sell forward £ 55,000

5. If bank takes required steps to maintain a credit balance of £ 20,000 in the Nostro account, then what additional step was required to achieve the overbought position of £ 65,000?

A. Buying forward £ 15,000
B. Selling forward £ 65,000
C. Buying forward £ 60,000
D. Selling forward £ 15,000

QUESTION 34:

Zenith Capital, a boutique investment firm, manages portfolios for high-net-worth individuals (HNIs). Their lead portfolio manager, Mr. R, has been closely analyzing market trends to optimize returns for their fixed-income portfolio. Over the past few months, he has observed fluctuations in interest rates and anticipates a significant shift in the near future.

To optimise returns, Mr. R is considering three different investment strategies for clients having ₹ 10 crore of fund and are interested in Fixed Income Portfolio. Each strategy is designed to align with the client's risk appetite and future liquidity needs.

Strategy A: Investing the entire ₹ 10 crore in a single bond with a 7-year maturity to match a specific financial obligation in the future.

Strategy B: Allocating ₹ 5 crore in short-term bonds (1-year maturity) and ₹ 5 crore in long-term bonds (7-year maturity) to balance risk and return.

Strategy C: Spreading the ₹ 10 crore investment equally across bonds with maturities of 1 to 5 years to ensure periodic liquidity.

Meanwhile, Mr. R is also considering forecasting models to predict interest rate movements. He is evaluating economic indicators such as inflation, historical rate trends, and a combination of multiple economic factors to enhance the firm's forecasting accuracy.

Mr. R suggested Strategy B for Mr. H (a HNI) having a sum of ₹ 10 crore for investment in Fixed Income Portfolio. As per the strategy half amount on fund is proposed to be invested in 7-year bonds yielding 8% per annum and balance in 1-year short term bond yielding 6% per annum. Interest on these bonds is compounded annually.

Based on the above case scenario, choose the correct answer to the following questions:

1. What is the primary objective of an active bond portfolio strategy?

A. To maintain a fixed return irrespective of market conditions

B. To outperform the market by making informed investment decisions

C. To minimize volatility and ensure steady returns

D. To invest in government bonds only

2. If any HNI follows Strategy A, then ……of fixed-income portfolio strategy is being followed.

A. Barbell Strategy

B. Ladder Strategy

C. Bullet Strategy

D. Duration Matching

3. In the Barbell Strategy, the funds are typically allocated……..

A. by making entire investment in bonds with the same maturity period.

B. by dividing investment equally between short-term and long-term bonds.

C. by dividing equal amount in bonds with different maturity periods.

D. by investing only in short-term bonds.

4. In the ladder Strategy, the funds are typically allocated…….

A. by making entire investment in bonds with the same maturity period.

B. by dividing investment equally between short-term and long-term bonds.

C. by dividing equal amount in bonds with different maturity periods.

D. by investing only in short-term bonds.

5. It is expected that interest rate in coming 8 years are expected to fall by 25 bps each year and if Mr. H does not withdraw any amount from the Fund during these 7 years the total value of the investment at the end of the 7th year shall be approximately……

A. ₹ 15.036 crore

B. ₹ 15.721 crore

C. ₹ 15.739 crore

D. ₹ 15.829 crore

QUESTION 35:

An American institutional investor is exploring investment opportunities in different countries. Before proceeding, they believe a thorough analysis of options in the securities available to ensure a higher return while minimizing risk.

To achieve this objective, it formed a team consisting of following persons with respective assigned tasks:

Mr. A – He is entrusted with the task of analysing various Macro-economic factors e.g. historical performance of the economies in the past/ present and expectations in future, growth of different sectors of the economies in future with signs of stagnation/degradation at present. In addition to that he also analysed the trends in peoples' income and expenditure.

Ms. B – After receiving inputs/ recommendations from Mr. A she is entrusted with the task of assessment regarding all the conditions and factors relating to demand of the particular product, cost structure of the industry and other economic and Government constraints in the same country.

Mr. C – After receiving inputs/ recommendations from Ms. B he is entrusted with the task of careful examination of the company's quantitative and qualitative fundamentals. Which includes a comparison of price earning ratios of different companies. Further, In addition to examine the financial solvency, liquidity of the company he is also advised for the evaluation of future growth prospects of the company identified.

Based on the above case scenario, choose the correct answer to the following questions:

1. If Mr. A want to evaluate the impact of macroeconomic trends on their potential investment. Which of the following factors is least likely to influence their decision?

A. Growth rates of national income

B. Inflation rates

C. Market speculation trends

D. Barometer indicators

2. The investor learns that inflation is expected to rise. Based on economic analysis, how might this affect their stock investment decision?

A. Stock prices are expected to decline due to reduced consumer demand

B. Stock prices are expected to rise as stocks act as a hedge against inflation

C. Stock prices will remain unaffected as inflation only affects bond markets

D. Stock prices will become highly volatile, but long-term growth remains unchanged

3. Which of the techniques shall be primarily used by Ms. B to carry out the required analysis at his part?

A. Anticipatory Surveys

B. Indicator Approach

C. Input-Output Analysis

D. Decision Tree Analysis

4. Mr. A while analyzing industry growth, finds that certain indicators tend to peak before the economy's overall growth. These indicators are best classified as.....

A. Lagging indicators

B. Leading indicators

C. Coincidental indicators

D. Random indicators

5. Specifically, the team of Mr. A, Ms. B, and Mr. C are entrusted with the task of carrying out.....

A. Fundamental Analysis

B. Technical Analysis

C. Market Analysis

D. Security Analysis

May 25 – RTP

QUESTION 36:

ABC, a large business house is planning to sell its wholly owned subsidiary KLM. Another large business entity XYZ has expressed its interest in making a bid for KLM. XYZ expects that after acquisition the annual earning of KLM will increase by 10%.

Following information, ignoring any potential synergistic benefits arising out of possible acquisitions, are available:

a. Profit after tax for KLM for the financial year which has just ended is estimated to be ₹ 10 crore.

b. KLM's after tax profit has an increasing trend of 7% each year and the same is expected to continue.

c. Estimated post tax market return is 10% and risk free rate is 4%. These rates are expected to continue.

d. Corporate tax rate is 30%

	XYZ	ABC	Proxy entity for KLM in the same line of business
No. of shares	100 lakhs	80 lakhs	--
Current share price (₹)	287	375	--
Dividend pay out	40%	50%	50%
Debt : Equity at market values	1 : 2	1 : 3	1:4
P/E ratio	10	13	12
Equity beta	1	1. 1	1.1

Assume gearing level of KLM to be the same as for ABC and a debt beta of zero.

You are required to calculate:

a. Appropriate cost of equity for KLM based on the data available for the proxy entity.

b. A range of values for KLM both before and after any potential synergistic benefits to XYZ of the acquisition.

c. Compute the market value of KLM as a part of ABC.

Note: Round off calculation up to 2 decimal and compute figure in ₹ crores.

Solution:

(a) To calculate cost of equity for KLM first we shall calculate β of KLM as follows:

β (equity ungeared for the proxy company) = 1.1 X 4 / [4 + (1 – 0.3)] = 0.94

0.94 = β equity geared X 3/ [3 + (1 - 0.3)]

β equity geared = 1.16

Cost of equity = 0.04 + 1.16 X (0.10 – 0.04)

= 10.96%

(b) Based on the data available range of valuation can be computed using P/E and dividend-based valuation approach.

(i) P/E valuation

(Based on earning of ₹ 10 Crore)

	Using proxy entity's P/E	**Using XYZ's P/E**
Pre synergistic value	= 12 X ₹ 10 Crore = ₹ 120 Crore	= 10 X ₹ 10 Crore = ₹ 100 Crore
Post synergistic value	= 12 X ₹ 10 Crore X 1.1 = ₹ 132 Crore	= 10 X ₹ 10 Crore X 1.1 = ₹ 110 Crore

(ii) Divided valuation model

	Based on 50% pay-out	Based on 40% pay-out
Pre synergistic value	$= \frac{0.5 \times 10 \times 1.07}{0.1096-0.07}$ = ₹ 135.10 Crore	$= \frac{0.4 \times 10 \times 1.07}{0.1096-0.07}$ = ₹ 108.08 Crore
Post synergistic value	$= \frac{0.5 \times 10 \times 1.1 \times 1.07}{0.1096-0.07}$ = ₹ 148.61 Crore	$= \frac{0.4 \times 10 \times 1.1 \times 1.07}{0.1096-0.07}$ = ₹ 118.89 Crore

(c) Market Price

Although no information is available about the value of KLM, it may be possible to calculate a market value based on proportion of earnings of ABC that is generated by KLM.

Market value of ABC = 80 Lakh Shares X ₹ 375 = ₹ 300 Crore

Post-tax earnings of ABC = ₹ 300 crore/13 = ₹ 23.08 Crore

If market value of ABC is allocated to KLM in the proportion of relative earning of KLM to that of ABC, KLM would have a market value of ₹ 300 crore X [10/23.08] = ₹ 129.98 Crore.

KLM's Post Tax earning = ₹ 10 Crore.

If ABC's P/E ratio is applied to it, the market value of KLM becomes ₹ 10 Crore X 13 = ₹ 130 Crore.

Nov 24 – Exam Paper

QUESTION 37:

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:

1. What is the intrinsic value of Z Ltd. shares?

A. **₹156.69**
B. ₹303.14
C. ₹349.62
D. ₹341.30

2. What is the present value at the end of 4th year?

A. ₹23.71
B. ₹12.56
C. **₹6.53**
D. ₹6.99

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

QUESTION 38:

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:

1. 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

2. 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

3. 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.

4. What will be the price sensitivity of the portfolio?
   A. -4.027
   B. -2.491
   C. **-3.643**
   D. -3.981

QUESTION 39:

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:

1. 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)

2. 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

3. 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

QUESTION 40:

The 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 tree rate	9.00%	-	-

a. Advise which of the above stocks are over, under or correctly valued in the market?
b. What will be strategy would you like to recommend?

Solution:

a) Calculation of Beta and Required rate of return:

Security	Beta	Required rate of return: $R_j = R_f + \beta (R_m - R_f)$
A	$= \frac{0.840 \times 2.50}{1.20} = 1.75$	= 9% + 1.75 (14% - 9%) = 17.75%
B	$= \frac{0.540 \times 2.00}{1.20} = 0.90$	= 9% + 0.90 (14% - 9%) = 13.50%
C	$= \frac{0.975 \times 2.00}{1.20} = 0.65$	= 9% + 0.65 (14% -b%) = 12.25%

Stock	Required rate of return %	Expected rate of return%	valuation
A	17.75%	19.00%	Under Valued
B	13.50%	13.50%	Correctly Valued
C	12.25%	11.00%	Over Valued

b) Strategy:

Stock	Decision
A	Buy
B	Hold
C	Sell

QUESTION 41:

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

a. The NAVs as on 31.03.2023 and 31.03.2024.
b. Calculate the total units redeemed.

Solution:

a) **Calculation of NAV on 31st March 2023 (NAV_1):**

Number of units on 1st July 2022 (n_0) = 1,00,000/10 = 10,000 units

Dividend reinvested = 10,000 × 10 × 10% = ₹ 10,000

Number of units reinvested $= \frac{10,000}{NAV_1}$

Number of units on 31st March 2023 (n_1) $= 10,000 + \frac{10,000}{NAV_1}$

Now, calculation of NAV_1:

Holding Yield $= \frac{(NAV_1 \times n_1) - (NAV_0 \times n_0)}{(NAV_0 \times n_0)} \times 100$

$115 = \frac{(NAV_1 \times [10,000 + \frac{10,000}{NAV_1}]) - 1,00,000}{1,00,000} \times 100$

$NAV_1 = ₹ 20.5$

Calculation of NAV on 31st match 2024 (NAV_2):

Number of units on 31st March 2023 (n_1) $= 10,000 + \frac{10,000}{20.5}$

$= 10,487.80$ units

Dividend reinvested $= 10,487.8 \times 10 \times 20\% = ₹ 20,975.6$

Number of units reinvested $= \frac{20,975.6}{NAV_2}$

Number of units on 31st March 2024 (n_2) $= 10,487.8 + \frac{20,975.6}{NAV_2}$

Now, calculation of NAV_2:

Holding Yield $= \frac{(NAV_2 \times n_2) - (NAV_0 \times n_0)}{(NAV_0 \times n_0)} \times 100$

$193.134 = \frac{(NAV_2 \times [10,487.8 + \frac{20,975.6}{NAV_2}]) - 1,00,000}{1,00,000} \times 100$

$NAV_2 = ₹ 25.95$

b) Number of units redeemed on 31st March 2024 (n_2) $= 10,487.8 + \frac{20,975.6}{25.95}$

$= 11,296.11$ units

QUESTION 42:

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.

Solution:

Self-note: The question is missing the data of discounting rate. That is why suggested answer has solved the question without calculating PV of future cash inflows. Alternatively, the question can also be solved assuming any other discounting rate.

Expected Sales & Cost excluding depreciation (₹ Lakhs)

Year	Expected Sales	Expected expenses @ 40%
1	100	40
2	120	48
3	140	56
4	160	64
5	180	72

Cash Inflow from the Project

Let the cost of the plant = P

The, Depreciation per year = 0.20P

Accordingly, annual CFAT will be (₹ Lakhs):

Year	Sales	Expenses	Depn	PBT	Tax @ 30%	PAT	Depn	CFAT
1	100	40	0.20P	60 – 0.20P	18 - 0.06P	42 – 0.14P	0.20P	42+ 0.06P
2	120	48	0.20P	72 – 0.20P	21.6 – 0.06P	50.4 – 0.14P	0.20P	50.40 + 0.06P
3	140	56	0.20P	84 – 0.20P	25.2 – 0.06P	58.8 – 0.14P	0.20P	58.80 + 0.06P
4	160	64	0.20P	96 – 0.20P	28.8 – 0.06P	67.2 – 0.14P	0.20P	67.20 + 0.06P
5	180	72	0.20P	108 – 0.20P	32.4 – 0.06P	75.6 – 0.14P	0.20P	75.60 + 0.06P
PV of Net Cash Inflows								294 + 0.30P

For NPV to be zero, PV of Cash OF (i.e., investment in plant) = PV of Cash Inflows

Accordingly, P = 294 + 0.30P

P = 420

Thus, the required investment to be made in plant shall be ₹420 lakhs.

QUESTION 43:

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:

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

b. The actual interest rate if XY Ltd. will pay to the Banker a sum of ₹ 9,80,872.98

Solution:

a) Position of XY Ltd = Long i.e., Contract to borrow.

Self-note: Since, XY Ltd had a gain on settlement, it means that FR would be lower than RR. It means RR – FR i.e., gain would be a positive number.

Calculation of actual interest rate (RR):

$$\text{Gain} = \frac{NP \times (RR - FR) \times n/12)}{1 + RR \times n/12}$$

$$9,78,952.52 = \frac{1,00,00,00,000 \times (RR - 0.082) \times 3/12}{1 + RR \times 3/12}$$

RR = 0.086 or 8.6%

b) Position of XY Ltd = Long i.e., Contract to borrow.

Self-note: Since, XY Ltd had a loss on settlement, it means that FR would be higher than RR. It means RR – FR i.e., loss would be a negative number.

Calculation of actual interest rate (RR):

$$-9,80,872.98 = \frac{1,00,00,00,000 \times (RR - 0.082) \times 3/12}{1 + RR \times 3/12}$$

RR = 0.078 or 7.8%

QUESTION 44:

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.

Solution:

Calculation of WACC:

$k_e = R_f + \beta \times (R_m - R_f)$

$= 8 + 0.90 \times 10 = 17\%$

$k_d = 10 \times (1 - 0.30) = 7.00\%$

$$WACC = 17 \times \frac{170}{250} + 7 \times \frac{80}{250} = 13.80\%$$

Now, calculating EBIT using EVA:

EVA = EBIT × (1 - t) – Invested Capital × WACC

31,10,000 = [EBIT × (1 – 0.3)] – (2,50,00,000 x 0.1380)

EBIT = ₹ 93,71,429

Calculation of profit after Tax (₹)

Operating Profit	93,71,429
Less: Interest	8,00,000
Profit before Tax	85,71,429

Less: Tax @ 30%	25,71,429
Profit after Tax	60,00,000

QUESTION 45:

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?

Solution:

Self-note: This question has following ambiguities:

1. *The data of discounting rate is missing in the question which is why institute has made a random assumption of 12%. Alternatively, some other rate may also be assumed.*
2. *The $ cash flows of all the years are to be converted to rupee using same ₹/$ forward rate.*
3. *Amount of ₹ 1858.08 lakh does not seem to be NPV based on its language given in question.*

Let the ₹/$ forward rate for every year be F.

Annual Cash inflows (in lakhs):

Year	$ CFs	₹ CFs
1	30.00	30.00F
2	40.00	40.00F
3	50.00	50.00F
4	60.00	60.00F
5	70.00	70.00F

Back-calculating the Forward rate (F) using NPV assuming a discount rate of 12% (₹ lakhs):

Year	CFs	PVF@12%	DCFs
0	- 12450	1.00	- 12450
1	30F	0.893	26.79F
2	40F	0.797	31.88F
3	50F	0.712	35.60F
4	60F	0.636	38.16F
5	70F	0.567	39.69F
			172.12F - 12450

Now, NPV = 172.12F – 12450

1858.08 = 172.12F – 12450

F = 83.13

Recommendation: Forward cover the rate of ₹/$ 83.13 is recommended.

QUESTION 46:

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 ₹ 16,625.

You are required to determine

a. The value of the Nifty future

b. Initial cash outlay

c. Cash inflow at the close out

d. Percentage Gain/ loss to Shares of A Ltd. at the time of closure

e. Price of A Ltd on closure.

Solution:

a) Position and MV of holdings:

Security	position	No. of shares	MPS	Market Value	Beta
X	Long	10,000	25	2,50,000	1.5
A	Short	- 5,000	40	- 2,00,000	2
Net PF Value				50,000	

$\beta_p = \frac{\beta_X \times MV_X + \beta_A \times MV_A}{MV_X + MV_A}$

$= \frac{1.5 \times 2,50,000 + 2 \times (-2,00,000)}{2,50,000 + (-2,00,000)}$

= - 0.5 times

Calculating price of futures using hedging formula:

No. of contract $= V_P \times \frac{\beta_T - \beta_P}{F \times M}$

+ 25 $= \frac{50,000 \times (0 - (-0.5)}{P_F}$

P_F = ₹ 1,000

b) Initial Cash Outlay = 2,50,000 + (-2,00,000) + (1,000 × 25)

= 75,000

Self-note: Position in futures ideally should not be considered in Cash Outlay. But suggested answer has done it.

c) Cash Inflow at closeout:

Profit/(loss) = IF at close out – Initial OF

- 16,625 = IF – 75,000

IF = 58,375

d) Gain loss on share A

	Total Loss			16,625
Less:	Loss on X	(2.5L × 4%)	=	10,000

Less:	Loss on Futures (25 × 1,000 × 2.5%)	=	625
	Loss on A		₹ 6,000

Loss in % $= \frac{6,000}{2,00,000} = 3\%$

e) Price on closure = 40 + 3% = ₹ 41.2

QUESTION 47:

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

a. Variance of the Funds

b. Coefficient of Determination of the Funds

Solution:

	Growth	Balanced	Regular
a) Sharpe Ratio $= \frac{E(r)-R_f}{\sigma_p}$	$-0.15 = \frac{7.5-9}{\sigma_G}$ $\sigma_G = 10\%$ $\sigma_G^2 = 100\%$	$-0.36 = \frac{6.3-9}{\sigma_B}$ $\sigma_B = 7.5\%$ $\sigma_B^2 = 56.25\%$	$-0.48 = \frac{5.4-9}{\sigma_R}$ $\sigma_R = 7.5\%$ $\sigma_R^2 = 56.25\%$
b) Treynor ratio $= \frac{E(R)-R_f}{\beta_p}$	$-2 = \frac{7.5-9}{\beta_G}$ $\beta_G = 0.75$ times	$-3 = \frac{7.5-9}{\beta_B}$ $\beta_B = 0.9$ times	$-4.8 = \frac{7.5-9}{\beta_R}$ $\beta_R = 0.75$ times
$\beta_s = r_{(s,m)} \times \frac{\sigma_s}{\sigma_m}$	$0.75 = r_{G,m} \times \frac{10}{7.1}$ $r_{G,m} = 0.5325$	$0.9 = r_{B,m} \times \frac{7.5}{7.1}$ $r_{B,m} = 0.852$	$0.75 = r_{R,m} \times \frac{7.5}{7.1}$ $r_{R,m} = 0.710$
Coefficient of determination	$r_{G,m}^2 = 0.2836$	$r_{B,m}^2 = 0.7259$	$r_{R,m}^2 = 0.504$

QUESTION 48:

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.

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

b. 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.

Solution:

(i) The following swap arrangement can be entered by True Life Inc.

(1) Swap a US$ loan today at an agreed rate with any party to obtain Indian Rupees (₹) to make initial investment.

(2) After one year swap back the Indian Rupees with US$ at the agreed rate. In Such Case the company is exposed only on the profit earned from the project.

(ii) **With the Swap**

	Year 0 (Million US$)	Year 1 (Million US$)
Buy ₹8000 million at spot rate of 1 USS = ₹80	(100.00)	--------
Swap ₹8000 million back at agreed rate of ₹ 80		100.00
sell ₹1600 million at 1 US$ = ₹84		19.05
Interest on $100 loan @6% for one year		(6.00)
	(100.00)	**113.05**

Net result is a net receipt of IJS$ 13.05 million

Without the swap

	Year 0 (Million US$)	Year 1 (Million US$)
Buy 8000 million at spot rate of 1 1US$ = ₹80	(100.00)	
Sell 9600 million at 1 US$ = ₹84		114.29
Interest on $100 loan @6% for one year		(6.00)
	(100.00)	**108.29**

Net result is a net receipt of US$ 8.29 million.

Decision: Since the net receipt is higher in swap option the company should opt for the same.

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QUESTION 49:

The Asset Management Company of the mutual fund (MF) has declared a dividend of 9.98% on the units under the dividend reinvestment plan for the year ended 31st March 2021. The investors are issued additional units for the dividend at the rate of closing Net Asset Value (NAV) for the year as per the conditions of the scheme.

The closing NAV was ₹ 24.95 as on 31st March 2021. An investor Mr. X who is having 20,800 units at the year-end has made an investment in the units before the declaration of the dividend at the rate of opening NAV plus an entry load of ₹ 0.04. The NAV has appreciated by 25% during the year.

Assume the face value of the unit as ₹ 10.00.

Based on above Case Scenario, answer the following questions:

1. The Opening NAV of the Asset Management Company shall be .....

(a) ₹ 20.24

(b) ₹ 19.96
(c) ₹ 18.75
(d) ₹ 17.65
Ans. (b)

2. The Number of the units purchased shall be …….
(a) 18750
(b) 17500
(c) 20450
(d) 20000
Ans. (d)

3. Original amount of the investment shall be ……
(a) ₹ 4,00,000
(b) ₹ 6,50,000
(c) ₹ 3,55,000
(d) ₹ 5,65,000
Ans. (a)

4. Which of the following statement about Expense ratio is/ are incorrect:
(i) It is the percentage of income that were spent to run a mutual fund.
(ii) It includes advisory fees, travel costs, registrar fees , custodian fees, etc.
(iii) It includes Brokerage costs for trading of Portfolio.
(iv) High Expense Ratio can seriously undermine the performance of a mutual fund scheme.
(a) (i), (ii), (iii)
(b) (i), (iii)
(c) only (iii)
(d) only (i)
Ans. (c)

5 . ……considers and uses downside deviation instead of total standard deviation in denominator.
(a) Expense Ratio
(b) Sharpe Ratio
(c) Treynor Ratio
(d) Sortino Ratio
Ans. (d)

QUESTION 50:

Suppose you are a risk manager at a financial institution, and your company has loaned a significant amount of ₹ 500 crore to a company X Ltd. for a period of 3 years at 6-month at MCLR plus 200 bps. You are concerned about X Ltd.'s ability to repay the debt due to recent market volatility. To protect your institution from potential default, you decide to purchase a Credit Default Swap (CDS) from ABC Bank Ltd. for same notional amount at a premium quoted at 1% per year through cash settlement.
On the respective reset dates for the same period actual MCLR interest rate comes out as follows:

Reset	MCLR
1	9.75%
2	10.00%

3	10.25%
4	10.35%
5	10.50%
6	10.60%

Based on above case scenario answer the following questions:

1. The primary purpose of a Credit Default Swap (CDS) is.....

(a) to increase the value of bonds.

(b) to protect against default risk of a debt obligation.

(c) to provide guaranteed profit to the buyer.

(d) to create a new form of loan.

Ans. (b)

2. Which of the following statements is true about CDS contracts?

(a) CDS contracts cannot be used for speculation.

(b) CDS contracts are governed by government regulations.

(c) CDS contracts are private agreements between two parties.

(d) CDS contracts eliminate all risks for the buyer.

Ans. (c)

3. Which organization publishes the guidelines and rules for conducting Credit Default Swap transactions?

(a) Federal Reserve

(b) International Swap and Derivative Association (ISDA)

(c) Securities and Exchange Commission (SEC)

(d) World Trade Organization (WTO)

Ans. (b)

4. Assuming no default occurs the total premium your company will pay during the designated loan period shall be.....

(a) ₹ 5 crore

(b) ₹ 10 crore

(c) ₹ 15 crore

(d) ₹ 30 crore

Ans. (c)

5. Suppose if the lender defaults somewhere in the beginning of third year of loan (after payment of interest upto 2 years) and the market value of a reference loans falls to 75% of its par value, then ABC Bank will pay your company .....in a cash settlement.

(a) ₹ 15 crore

(b) ₹ 30 crore

(c) ₹ 125 crore

(d) ₹ 500 crore

Ans. (c)

QUESTION 51:

You are an investment analyst working for a financial advisory firm. You have been asked to analyze the bond market's yield curve to assist your clients in making investment decisions. The yield curve represents the relationship between the interest rates (yield) and the time to maturity for debt securities, usually government bonds.

For simplicity, assume the following yield data for government bonds over various maturities (measured in years):

Yield Curve Table

Maturity (Years)	Yield (%)
1 Year	3.00%
2 Years	4.00%
3 Years	5.00%
5 Years	6.00%
7 Years	6.40%
10 Years	7.00%
15 Years	7.40%
30 Years	7.60%

Based on above case scenario answer the following questions:

1. The main characteristic of a normal yield curve is…….

(a) Short-term yields are higher than long-term yields.

(b) Short-term yields are lower than long-term yields.

(c) Yields remain the same across all maturities.

(d) Yields fluctuate randomly over different maturities.

Ans. (b)

2. Based on the revised yield data, what is the yield spread between the 10-year bond and the 1-year bond?

(a) 2.0%

(b) 3.5%

(c) 4.0%

(d) 5.0%

Ans. (c)

3. An inverted yield curve typically indicates……

(a) Economic growth

(b) Economic uncertainty

(c) An upcoming recession

(d) Inflationary pressure

Ans. (c)

4. If an investor is looking to invest for 2 years starting 3 years from now, the forward rate he would expect shall be……

(a) 7.41%

(b) 7.52%

(c) 7.76%

(d) 7.93%

Ans. (b)

5. If an investor is looking to invest for 2 years starting 5 years from now, the forward rate he would expect shall be……

(a) 7.41%

(b) 7.52%

(c) 7.76%

(d) 7.93%

Ans. (a)

QUESTION 52:

You as an investor purchased a 4-month European Call Option on the equity shares of X Ltd. for ₹ 10, of which the current market price is ₹ 132 per share and the exercise price ₹ 150. You expect the price to range between ₹ 120 to ₹ 190. The expected share price of X Ltd. and related probability is given below:

Expected Price (₹)	120	140	160	180	190
Probability	0.05	0.20	0.50	0.10	0.15

Based on above case scenario answer the following questions:

1. Expected price of share of X Ltd. at the end of 4 months shall be…….

a. ₹ 160.00
b. ₹ 160.50
c. ₹ 158.00
d. ₹ 140.00

2. Suppose if the exercise price prevails at the end of 4 months the Value of Call Option shall be……

a. ₹ 0
b. ₹ 18
c. ₹ 10
d. ₹ 14

3. In case the option is held to its maturity, the expected value of the call option shall be……

a. ₹ 0
b. ₹ 18
c. ₹ 10
d. ₹ 14

4. In the given different scenarios of expected prices of share of X Ltd. at the time of maturity the option shall be in-the-money in …… scenarios.

a. two
b. three
c. five
d. In none of the scenario

5. In the given different scenarios of expected prices of share of X Ltd. at the time of maturity the option shall be at-the-money in …… scenarios.

a. two
b. three
c. five
d. In none of the scenario

QUESTION 53:

The ABC Startup has the following expected profits (₹) under different scenarios along respective probabilities

Year	Best Case		Base Case		Worst Case	
	Revenue	Expenses	Revenue	Expenses	Revenue	Expenses
1	100,00,000	80,00,000	100,00,000	90,00,000	100,00,000	95,00,000
2	120,00,000	92,40,000	110,00,000	95,70,000	102,00,000	98,94,000
3	144,00,000	108,00,000	121,00,000	102,85,000	104,04,000	101,95,920

Probability	30%	60%	10%

You are required to suggest the value of ABC Startup using First Chicago Method assuming that:

a. Applicable discounting rate is 20%.
b. Startup is located in Tax-free Zone.
c. The multiple for Terminal is 10.
d. No depreciable assets are held by the ABC Startup.

Note:

1. Present Value Factor (PVF)

Year	1	2	3
PVF@20%	0.8333	0.6944	0.5787

2. Round off the calculation to whole numbers.

Solution:

Valuation of Startup under different scenarios:

a) Best Case Scenario

	Year 1	Year 2	Year 3	
Revenue	₹ 1,00,00,000	₹ 1,20,00,000	₹ 1,44,00,000	
Expenses	₹ 80,00,000	₹ 92,40,000	₹ 1,08,00,000	
Cash Flow/ Earnings	₹ 20,00,000	₹ 27,60,000	₹ 36,00,000	
Terminal Value				₹ 3,60,00,000
PVF @ 20%	0.8333	0.6944	0.5787	0.5787
PV	₹ 16,66,600	₹ 19,16,544	₹ 20,83,320	₹ 2,08,33,200
Value of Startup				₹ 2,64,99,664

b) Base Case Scenario

	Year 1	Year 2	Year 3	
Revenue	₹ 1,00,00,000	₹ 1,10,00,000	₹ 1,21,00,000	
Expenses	₹ 90,00,000	₹ 95,70,000	₹ 1,02,85,000	
Cash Flow/ Earnings	₹ 10,00,000	₹ 14,30,000	₹ 18,15,000	
Terminal Value				₹ 1,81,50,000
PVF @ 20%	0.8333	0.6944	0.5787	0.5787
PV	₹ 8,33,300	₹ 9,92,992	₹ 10,50,341	₹ 1,05,03,405
Value of Startup				₹ 1,33,80,038

c) Worst Case Scenario

	Year 1	Year 2	Year 3	
Revenue	₹ 1,00,00,000	₹ 1,02,00,000	₹ 1,04,04,000	
Expenses	₹ 95,00,000	₹ 98,94,000	₹ 1,01,95,920	
Cash Flow/ Earnings	₹ 5,00,000	₹ 3,06,000	₹ 2,08,080	
Terminal Value				₹ 20,80,800

PVF @ 20%	0.8333	0.6944	0.5787	0.5787
PV	₹ 4,16,650	₹ 2,12,486	₹ 1,20,416	₹ 12,04,159
Value of Startup				₹ 19,53,711

Value of ABC Startup as per First Chicago Method:
= 0.30 x ₹ 2,64,99,664 + 0.60 x ₹ 133,80,038 + 0.10 x ₹ 19,53,711
= ₹ 1,61,73,293

Nov 24 – RTP

QUESTION 54:

Two friends, Mr. A and Mr. N were discussing about the risks of market. While Mr. A is sort of risk averse, Mr. N is an aggressive investor and believes in taking risk.
Mr. N said we cannot diversify the market risk at all, and he quoted the Modern Portfolio Approach. Both friends analyze the market data for the few months and came out with expected returns on two stocks for a particular market.

Market Return	Aggressive	Defensive
7%	4%	9%
25%	40%	18%

Based on the above scenario, answer the following questions:

1. The Beta of Defensive stock is……
(a) 2
(b) 0.5
(c) 4
(d) 1
Ans. (b)

2. If the market return is equally likely to be 7% or 25% then expected return of Aggressive stock shall be……..
(a) 18%
(b) 13.50%
(c) 22%
(d) 11%
Ans. (c)

3. The Alpha of the Defensive stocks is……..
(a) -10%
(b) 22%
(c) 5.50%
(d) 12%
Ans. (c)

4. The Modern Portfolio Theory was propounded by ……
(a) William Sharpe
(b) Black Scholes
(c) Stephen Ross
(d) Harry Markowitz
Ans. (d)

5. As per Capital Market Line (CML) Theory the Portfolios lying on the CML over the market portfolio are called ……

(a) Lending Portfolios
(b) Borrowing Portfolios
(c) Diversified Portfolios
(d) Risk- Free Portfolios

Ans. (c)

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No new questions