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CA FINAL
GROUP I - PAPER 2
ADVANCED FINANCIAL MANAGEMENT
(Series 3)

Time Allowed: - 3 Hours

Maximum Marks: 100

This question paper comprises two parts, Part I and Part II.
Part I comprises MCQ & Part II comprises questions which require descriptive answers.

PART - I (MCQs)
All MCQs are compulsory

Question no. 1-15 carry 2 marks each

Case Study 1

GlobalFinance Inc., a multinational corporation with a diverse portfolio of assets, is navigating a challenging market environment marked by fluctuating exchange rates, volatile commodity prices, and unpredictable equity markets. To ensure robust risk management and strategic optimization, the company's board is considering the adoption of exotic options tailored to their unique needs. However, the decision-making process is complicated by multiple factors, including varying market conditions, cost considerations, and the need to align options with their broader corporate strategy.

Currency Hedging and Flexibility

GlobalFinance is heavily exposed to USD/EUR fluctuations. Recent trends indicate uncertainty, with macroeconomic indicators offering conflicting signals. The company is weighing the use of an option that allows flexibility in deciding whether to hedge with a call or put. Their finance team is debating the timing of the decision, as delaying might provide clarity on trend but also increase the opportunity cost.

Volatile Stock Market Dynamics

The company has invested in a high-growth sector but is concerned about sudden stock price movements. They are exploring an option that activates only if a certain price threshold is crossed. Some executives argue that this approach could be risky if the threshold is never met, while others believe it could help reduce costs compared to traditional options.

Diversified Commodity Portfolio

GlobalFinance's commodities division manages a portfolio including oil, gold, and agricultural products. The company is considering a strategy that bases the option payoff on the combined performance of the portfolio. However, the management is unsure whether to focus on individual commodity performance or the basket as a whole, given the correlations among the commodities.

Price Volatility Smoothing

For a key agricultural commodity, daily price fluctuations have made long-term planning difficult. The finance team suggests an exotic option that considers the average price over the option's lifetime to avoid being overly impacted by temporary price spikes. Management is discussing whether to use an

option with an arithmetic or geometric average and how this choice aligns with their budget constraints and risk appetite.

Event-Driven Risk Management

The company is pursuing an infrastructure project contingent on receiving a government subsidy. If the subsidy is approved, GlobalFinance will require funding in a foreign currency. They are evaluating a binary option, but concerns have been raised about high premium cost relative to likelihood of event.

You are required to answer the following:

- 1. GlobalFinance is considering an exotic option that allows them to decide later whether to take a call or put position, but at a higher premium. Which exotic option fits this description?**
 - (a) Barrier Option
 - (b) Chooser Option
 - (c) Look Back Option
 - (d) Spread Option
- 2. For their commodity portfolio, GlobalFinance wants an option where the payoff depends on the combined value of multiple underlying assets, such as oil, gold, and agricultural products. Which exotic option best suits this need?**
 - (a) Asian Option
 - (b) Basket Option
 - (c) Look Back Option
 - (d) Binary Option
- 3. GlobalFinance is considering a binary option to hedge the funding risk of a project tied to a government subsidy. What is a key characteristic of binary options in this scenario?**
 - (a) Payoff depends on the difference between two underlying asset prices.
 - (b) Payoff is predetermined and only occurs if a specific event takes place.
 - (c) Payoff is based on the average price of the underlying during the option's lifetime.
 - (d) Payoff can be exercised multiple times before the expiration date.
- 4. GlobalFinance is evaluating an option for their stock portfolio where the value depends on the difference between the prices of two underlying assets, such as stocks from different industries. Which exotic option would best suit this requirement?**
 - (a) Spread Option
 - (b) Look Back Option
 - (c) Bermuda Option
 - (d) Compound Option
- 5. GlobalFinance is considering an option for their commodity portfolio that offers the flexibility to adjust the strike price at the time of maturity based on the highest or lowest price achieved during the option's duration. Which exotic option provides this feature?**
 - (a) Look Back Option
 - (b) Compound Option
 - (c) Barrier Option
 - (d) Bermuda Option

Case Study 2

Indira has a fund of ₹ 3,00,000 that she wishes to invest in the share market. She plans to rebalance her portfolio every 10 days for one month. The current NIFTY index stands at 5326, and the minimum possible NIFTY index within the next month is expected to be 4793.4. Indira plans to use the Constant Proportion Portfolio Insurance (CPPI) strategy with a multiplier of 2 to determine her equity and risk-free investments. Indira wants to know how she should rebalance her portfolio under three distinct situations:

Immediately to start with.

After 10 days if the NIFTY falls to 5122.96.

Another 10 days later if the NIFTY touches 5539.04.

You are required to answer the following:

- 6. Indira is looking to make her first equity investment under the CPPI strategy. What amount should she invest in equity initially when the portfolio value is ₹ 3,00,000 and the floor value is ₹ 2,70,000?**
 - (a) ₹ 60,000
 - (b) ₹ 1,20,000
 - (c) ₹ 45,000
 - (d) ₹ 90,000
- 7. After 10 days, the NIFTY falls to 5122.96. Indira's equity investment is now worth ₹ 57,713. If the total portfolio value is ₹ 2,97,713, how much should she invest in equity after this 10-day period using the CPPI strategy?**
 - (a) ₹ 52,000
 - (b) ₹ 60,426
 - (c) ₹ 50,426
 - (d) ₹ 55,426
- 8. After another 10 days, the NIFTY rises to 5539.04. Indira's equity investment is now worth ₹ 59,928, and the total portfolio value is ₹ 3,02,215. How much should she invest in equity at this point, according to the CPPI strategy?**
 - (a) ₹ 64,430
 - (b) ₹ 62,430
 - (c) ₹ 70,000
 - (d) ₹ 60,430

Case Study 3

Nitrogen Ltd, a UK company is in the process of negotiating an order amounting to € 4 million with a large German retailer on 6 months credit. If successful, this will be the first time that Nitrogen Ltd has exported goods into the highly competitive German market. The following three alternatives are being considered for managing the transaction risk before the order is finalized.

- (i) Invoice the German firm in Sterling using the current exchange rate to calculate the invoice amount.
- (ii) Alternative of invoicing the German firm in € and using a forward foreign exchange contract to hedge the transaction risk.

- (iii) Invoice the German first in € and use sufficient 6 months sterling future contracts (to the nearly whole number) to hedge the transaction risk.

Following data is available:

Spot Rate	€ 1.1750 – € 1.1770/£
6 months forward points	0.60 – 0.55 Euro Cents
6 months future contract is currently trading at	€ 1.1760/£
6 months future contract size is	£ 62,500
After 6 months Spot rate and future rate	€ 1.1785/£

You are required to answer the following:

- 9. Calculate to the nearest £ the receipt for Nitrogen Ltd, under (i) proposal.**

- (a) £ 33,98,471
- (b) £ 34,04,255
- (c) £ 34,01,361
- (d) £ 40,00,000

- 10. Calculate to the nearest £ the receipt for Nitrogen Ltd, under (ii) proposal.**

- (a) £ 33,98,471
- (b) £ 40,00,000
- (c) £ 34,14,426
- (d) £ 34,21,728

- 11. Calculate to the nearest £ the receipt for Nitrogen Ltd, under (iii) proposal.**

- (a) £ 34,01,360
- (b) £ 33,75,000
- (c) £ 34,01,305
- (d) £ 40,08,438

- 12. In your opinion, which alternative would you consider to be the most appropriate and the reason thereof.**

- (a) Convert Now
- (b) Forward
- (c) Future
- (d) No Hedge

Case Study 4

Ambani Ltd. is considering a project “Karna”, which is normally distributed and has mean return of ₹ 4 crore with Standard Deviation of ₹ 3.20 crore.

In case Ambani Ltd. loses on any project more than ₹ 2.00 crore, then it will be going to bankrupt.

Given: Standard Normal Distribution Table (Z-Score) providing area between Mean and Z score

Z Score	Area
1.85	0.4678
1.86	0.4686

1.87	0.4693
1.88	0.4699
1.89	0.4706

You are required to answer the following:

13. Area under Normal Curve corresponding to the Z Score

- (a) 1.875
- (b) -1.875
- (c) 0.625
- (d) -0.625

14. Probability of company going to bankrupt

- (a) 46.96%
- (b) 96.96%
- (c) 50.00%
- (d) 3.04%

15. Probability of company not going to bankrupt

- (a) 46.96%
- (b) 96.96%
- (c) 50.00%
- (d) 3.04%

PART – II (Descriptive Answers)

This part comprises 6 questions. Question No. 1 is compulsory. Attempt any 4 questions out of the remaining 5 questions.

Question 1A**(6 Marks)**

Based on the following data, estimate the Net Asset Value (NAV) 1st July 2021 on per unit basis of a Debt Fund:

Name of Security	Face Value ₹	Purchase Price ₹	Maturity Date	No. of Securities	Coupon Date(s)	Duration of Bonds
10.71% GOI 2033	100	104.78	31 st March, 2033	100000	31 st March	7.3494
10 % GOI 2028	100	100.00	31 st March, 2028	50000	31 st March & 30 th September	5.086
9.5 % GOI 2026	100	97.93	31 st December, 2026	40000	30 th June & 31 st December	4.3949
8.5% SGL 2030	100	91.36	30 th June 2030	20000	30 th June	6.5205

Number of Units (₹ 10 face value each): 100000

All securities were purchased at a time when applicable Yield to Maturity (YTM) was 10%. On NAV date, the required yield increased by 75 basis point and Cash in hand and accrued expenses were ₹ 6,72,800 and ₹ 2,37,400 respectively.

Question 1B**(4 Marks)**

XYZ Ltd. wants to purchase ABC Ltd. by exchanging 0.7 of its share for each share of ABC Ltd. Relevant financial data are as follows:

	XYZ Ltd.	ABC Ltd.
Equity shares outstanding	10,00,000	4,00,000
EPS (₹)	40	28
Market price per share (₹)	250	160

- Illustrate the impact of merger on EPS of both the companies.
- The management of ABC Ltd. has quoted a share exchange ratio of 1:1 for the merger. Assuming that P/E ratio of XYZ Ltd. will remain unchanged after the merger, what will be the gain from merger for ABC Ltd.?
- What will be the gain/loss to shareholders of XYZ Ltd. if the exchange ratio is 1:1?
- Determine the maximum exchange ratio acceptable to shareholders of XYZ Ltd.

Question 1C**(4 Marks)**

With regards to financing activity of market expansion, acquisition & product development for a profit making company, answer the following:

- What is this financing called?

- (ii) At which stage this financing is required by the company?
- (iii) General lock in period of funds at this stage of financing.
- (iv) What is the risk perception at this stage of financing?

Question 2A

(8 Marks)

Mr. A, a HNI invested on 1.4.2021 in certain equity shares as below:

Name of Co.	No. of shares	Cost (₹)
X Ltd.	1,00,000 (₹ 100 each)	2,00,00,000
Y Ltd.	50,000 (₹ 10 each)	1,50,00,000

In September 2021, 10% dividend was paid out by X Ltd. and in October 2021, 30% dividend paid out by Y Ltd. On 31.3.2022 market quotations showed a value of ₹ 220 and ₹ 290 per share for X Ltd. and Y Ltd. respectively.

On 1.4.2022, a technical analyst indicated as follows:

- (1) that the probabilities of dividends from X Ltd. and Y Ltd. for the year ending 31.3.2023 are as below:

Probability factor	Dividend from X Ltd. (%)	Dividend from Y Ltd. (%)
0.2	10	15
0.3	15	20
0.5	20	35

- (2) that the probabilities of market quotations on 31.3.2023 are as below:

Probability factor	Price/share of X Ltd.	Price/share of Y Ltd.
0.2	220	290
0.5	250	310
0.3	280	330

You are required to:

- (i) Analyze the average return from the portfolio for the year ended 31.3.2022;
- (ii) Analyze the expected average return from the portfolio for the year 2022-23; and
- (iii) Calculate comparative risk in the two investments.

Question 2B

(6 Marks)

You are interested in buying some equity stocks of RK Ltd. The company has 3 divisions operating in different industries. Division A captures 10% of its industries sales which is forecasted to be ₹ 50 crore for the industry. Division B and C captures 30% and 2% of their respective industry's sales, which are expected to be ₹ 20 crore and ₹ 8.5 crore respectively. Division A traditionally had a 5% net income margin, whereas divisions B and C had 8% and 10% net income margin respectively. RK Ltd. has 3,00,000 shares of equity stock outstanding, which sell at ₹ 250.

The company has not paid dividend since it started its business 10 years ago. However from the market sources you come to know that RK Ltd. will start paying dividend in 3 years' time and the pay-out ratio is 30%. Expecting this dividend, you would like to hold the stock for 5 year. By analysing the past

financial statements, you have determined that RK Ltd.'s required rate of return is 18% and that P/E ratio of 10 for the next year.

Evaluate:

- (i) Would you will be in purchasing RK Ltd. equity at this time based on your one year forecast?
- (ii) Price you will like to pay for the stock of RK Ltd if you expect earnings to grow @ 15% continuously.

Ignore taxation.

PV factors are given below:

Years	1	2	3	4	5
PVIF @ 18%	0.847	0.718	0.609	0.516	0.437

Question 3A

(8 Marks)

Following are the estimates of the net cash flows and probability of a new project of M/s X Ltd.:

	Year	P = 0.3	P = 0.5	P = 0.2
Initial investment	0	4,00,000	4,00,000	4,00,000
Estimated net after tax cash inflows per year	1 to 5	1,00,000	1,10,000	1,20,000
Estimated salvage value (after tax)	5	20,000	50,000	60,000

Required rate of return from the project is 10%. Find:

- (i) The expected NPV of the project.
- (ii) The best case and the worst case NPVs.
- (iii) The probability of occurrence of the worst case, if cash flows are perfectly dependent overtime and independent overtime.
- (iv) Standard deviation and coefficient of variation assuming that there are only three streams of cash flow, which are represented by each column of the table with the given probabilities.
- (v) Coefficient of variation of X Ltd. on its average project is in the range of 0.95 to 1.0. If the coefficient of variation of this project is found to be less risky than average, 100 basis points are deducted from the Company's cost of Capital. Should the project be accepted by X Ltd?

The PV factors are given below:

Years	1	2	3	4	5
PVIF @ 10%	0.909	0.826	0.751	0.683	0.621

Question 3B

(6 Marks)

Teer Ltd. is considering acquisition of Nishana Ltd. CFO of Teer Ltd. is of opinion that Nishana Ltd. will be able to generate operating cash flows (after deducting necessary capital expenditure) of ₹ 10 crore per annum for 5 years.

The following additional information was not considered in the above estimations.

- (i) Office premises of Nishana Ltd. can be disposed of and its staff can be relocated in Teer Ltd.'s office not impacting the operating cash flows of either businesses. However, this action will generate an immediate capital gain of ₹ 20 crore.

- (ii) Synergy Gain of ₹ 2 crore per annum is expected to be accrued from the proposed acquisition.
- (iii) Nishana Ltd. has outstanding Debentures having a market value of ₹ 15 crore. It has no other debts.
- (iv) It is also estimated that after 5 years if necessary, Nishana Ltd. can also be disposed of for an amount equal to five times its operating annual cash flow.

Calculate the maximum price to be paid to shareholders of Nishana Ltd. if cost of capital of Teer Ltd. is 20%. Ignore any type of taxation.

Question 4A

(6 Marks)

A US company wants to setup a manufacturing plant in India which requires an initial outlay of ₹ 8 Million. It is expected to have a useful life of 5 years with a salvage value of ₹ 2 Million. The company follows straight line method of depreciation. To support additional level of activity, investment would require one time additional working capital of ₹ 1 Million.

Since cost of production is lower in India, variable cost of production would be ₹ 30 per unit. Additional fixed cost per annum is estimated at ₹ 0.5 Million. The company is projecting its annual sales to 80,000 units at price of ₹ 100 per unit. Applicable tax rate to the company is 34% and its cost of capital is 8%.

Inflation rates in US and India are expected to be 8% and 9% respectively. The current exchange rate is ₹ 72 per US Dollar.

Assuming that all profit will be repatriated every year and there will be no withholding taxes, estimate the net present value of the proposed project in India and evaluate its feasibility.

PVF @ 8% for the five years are as under:

Year	1	2	3	4	5
PVIF @ 8%	0.926	0.857	0.794	0.735	0.681

Note: Make calculations upto 2 decimals and also round off exchange rate in 2 decimals.

Question 4B

(4 Marks)

The following data are available for a bond:

Face Value ₹ 10,000 to be redeemed at par on maturity

Coupon rate 8.5 per cent per annum

Years to Maturity 5 years

Yield to Maturity (YTM) 10 per cent

You are required to calculate:

- (i) Current market price of the Bond,
- (ii) Macaulay's Duration,
- (iii) Volatility of the Bond,
- (iv) Convexity of the Bond

Given

Years	1	2	3	4	5
PVIF (10%, n)	0.909	0.826	0.751	0.683	0.621
PVIF (8%, n)	0.926	0.857	0.794	0.735	0.681

Question 4C**(4 Marks)**

"Tokenization, to some extent resembles the process of Securitization." Is it True? What are the similarities of Tokenization and Securitization?

Question 5A**(6 Marks)**

On 31/08/2025 Mr. R has taken a Long position of 2 lots of Nifty Futures at ₹ 17,300. One lot of Nifty future is 50 units.

Initial Margin required is 10% of Contract Value.

Maintenance Margin required is 80% of Initial Margin.

The closing price of 5 days are given below:

Date	Closing Price of Nifty Future (₹)
01/09/2025	17,340
02/09/2025	17,180
03/09/2025	16,990
06/09/2025	16,900
07/09/2025	17,120

You are required to

- Prepare a statement showing the daily balances in the margin account & payment on margin calls, if any.
- Compute the Gain or Loss of Mr. R, if contract squared off on 07/09/2025.
- What would be the Gain or Loss of Mr. R, if he had taken the short position? Also Prepare a statement showing the daily balances in the margin account in this case.

Question 5B**(4 Marks)**

Following are the details of a portfolio consisting of three shares:

Share	Portfolio weight	Beta	Expected return in %	Total variance
A	0.20	0.40	14	0.015
B	0.50	0.50	15	0.025
C	0.30	1.10	21	0.100

Standard Deviation of Market Portfolio Returns = 10%

You are given the following additional data:

Covariance (A, B) = 0.030

Covariance (A, C) = 0.020

Covariance (B, C) = 0.040

Calculate the Portfolio variance considering:

- Correlation between each pair of securities. (Modern Portfolio Theory by Markowitz)
- Co-movement between securities due to change in the market index. (Sharpe Index Model)

Question 5C**(4 Marks)**

Suppose a dealer quotes 'All-in-cost' for a generic swap against six month LIBOR flat. Semi-annual fixed payment under swap is ₹ 20,000. Notional principal amount of swap is 25 times of semi-annual fixed payment.

- (i) Calculate 'All-in-cost' rate.
- (ii) Find the corresponding LIBOR on the effective date of swap if the six month period from the effective date of swap to the settlement date comprises 180 days and first floating rate payment is ₹ 18,000.
- (iii) In (ii) above, if the settlement is on 'Net' basis, how much the fixed rate payer would pay to the floating rate payer?

Generic swap is based on 30/360 days basis.

Question 6A**(8 Marks)**

Mr. Dayal is interested in purchasing equity shares of ABC Ltd. which are currently selling at ₹ 600 each. He expects that price of share may go upto ₹ 780 or may go down to ₹ 480 in three months. The chances of occurring such variations are 60% and 40% respectively. A call option on the shares of ABC Ltd. can be exercised at the end of three months with a strike price of ₹ 630.

- (i) What combination of share and option should Mr. Dayal select if he wants a perfect hedge?
- (ii) What should be the value of option today (the risk free rate is 10% p.a.)?
- (iii) What is the expected rate of return on the option?

Question 6B**(6 Marks)**

The following market data is available:

Spot USD/JPY 116.00

Deposit rates p.a.	USD	JPY
3 months	4.50%	0.25%
6 months	5.00%	0.25%

- (i) Whether 3 months FRA rate at 3 months forward for Yen should be Nil or not.
- (ii) What should be 3 months FRA rate at 3 months forward for USD?
- (iii) Analyse is any arbitrage opportunity available if the 6 & 12 months LIBORS for USD are 5% & 6.5% respectively and Bank XYZ is quoting 6/12 USD FRA at 6.50% – 6.75%.