PG – 543

IV Semester M.B.A. (Day and Eve.) Examination, November/December 2023 (CBCS) (2022-23 and Onwards) MANAGEMENT

4.2.3 : Risk Management and Derivatives (Finance)

Time : 3 Hours | Max. Marks : 70

SECTION – A

Answer **any five** of the following. **Each** question carries **five** marks. **(5×5=25)**

1. What is risk ? What are the different types of risk of a business enterprise ?

2. What is meant by option contracts and what are the trading strategies with options ?

3. On 31/05/2023 Mr. R has taken a long position of two lots of Nifty futures at 17300. One lot Nifty future consist of 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 :

Days	Closing Price of Nifty Future (Rs.)
01/06/2023	17340
02/06/2023	17180
05/06/2023	16990
06/06/2023	16900
07/06/2023	17120

   You are required to prepare a statement showing the daily balances in the margin account and payment of margin, if any.

4. The share price of XYZ Ltd. is selling for Rs. 104. ABC buys a 3 months call option at a premium of Rs. 5. The exercise price is Rs. 105. What is the ABC pay-off if the share price is Rs. 100 or Rs. 105 or Rs. 115 or Rs. 120 at the time the option is exercised ? What is the Pay-off the seller of the call option ? Also draw the Pay-off diagram.

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5. The equity share of VCC Ltd. is quoted at Rs. 210. A 3 month call option is available at a premium of Rs. 6 per share and a 3-month put option is available at a premium of Rs. 5 per share. Ascertain the net payoffs to the option holder of a call option and put option, given :

   a) The strike price in both cases is Rs. 220.

   b) The share price on the exercise day is Rs. 200,210,220,230 and 240.

6. The current market price of an equity shares of Penchant Ltd. is Rs. 420. Within a period of 3 months the maximum and minimum price of it is expected to be Rs. 500 and Rs. 400 respectively. If the risk-free rate of interest is 8% p.a. What would be the value of a 3 months call option under the Risk Neutral method at the strike rate of Rs. 450 ? Given $e^{0.02} = 1.0202$.

7. Companies A and B have the following interest rates.

	A	B
US Dollars (Floating rate)	LIBOR + 0.5%	LIBOR+1%
Canadian (Fixed rate)	5.0%	6.5%

   A want to borrow the US dollars at a Floating rate of interest and B wants borrow the Canadian dollars at fixed rate of interest. A financial institution is planning to arrange the swap and requires a 50-basis point spread. If the swap is equally attractive to A and B, what rate of interest will A and B end up paying ?

SECTION – B

Answer **any three** questions. **Each** question carries **10** marks. **(3×10=30)**

8. Explain the margin and settlements mechanism in futures.

9. You are given three call options on a stock at exercise price of Rs. 40, Rs. 45 and Rs. 50 with expiration date in the three months and the premium of Rs. 4, Rs. 2 and Re 1 respectively. Show the options can be used to create a butterfly spread. Construct a table with different market prices and show profit changes with stock prices ranging from Rs. 30 to Rs. 60 for the butterfly spread.

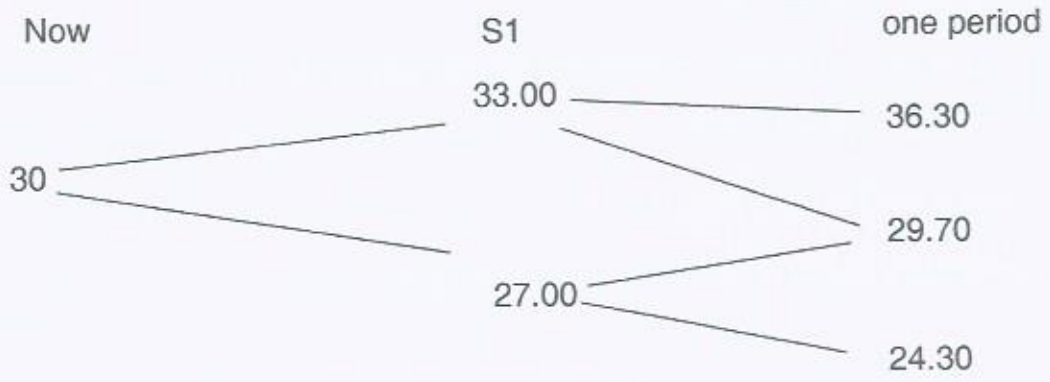
10. Mr. Khalique holds 10,000 shares of Ess Bee Eye Bank @ Rs. 2,738.70 when 1month Index Future is valued @ 6086. The share has a Beta (β) of 0.1.

How many Index Futures should he short to perfectly hedge his position ? A single Index Future is a lot of 50 indices. Justify your result in the following cases :

i) When the index zooms by 1%.

ii) When the index plummets by 2%.

11. Following is a two sub periods tree of 6-months each for share of CAB Ltd.



Using the binomial model, calculate the current fair value of a regular call option on CAB stock with the following characteristics : X = Rs. 28, Risk free rate is 5% p.a. You should also indicate the composition of the implied riskless hedge portfolio at the valuation date.

SECTION – C

Compulsory question : **(1×15=15)**

12. On 1st July 2023, Mr R has made the following investment.

Name of the company	No. of equity shares	Beta	Purchase price per equity share
PL Ltd.	1000	1.25	Rs. 700

He wants to hold the investment till the end of September 2023 with the expectation of huge dividends to be announced in the AGM. On the date of investment, September Nifty futures are quoting at Rs. 17,500 and tradeable with the lot size of 50 for each contract.

You are the Investment advisor for Mr. R,

i) Please advice Mr. R how to hedge his market exposure using the available data.

ii) Calculate the profit or loss of Mr. R during the expiry of September 2023 futures in the following situation :

   a) Nifty futures rise by 10%

   b) PL Ltd. falls by 5%.

iii) Is it possible for stocks as well as Nifty to raise or fall at the same percentage ? Please state the reason.