Seat No. /Enrollment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
MBA SEMESTER- III - EXAMINATION-SUMMER-2024

Subject Code: 4539222 **Date: 01/05/2024**
Subject Name: Financial Derivatives
Time: 02:30 PM TO 05:30 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Use of simple calculators and non-programmable scientific calculators are permitted.**

Marks

Q.1 Define the following terms: **14**

(a) Open Interest
(b) Mark-to Market
(c) ITM, OTM, ATM
(d) Delta and Gamma of options
(e) Types of order
(f) Types of risk
(g) State the factors affecting option prices.

Q.2 **(a)** What are the options trading strategies? Discuss in detail. **07**

(b) Explain principle of hedging. What are hedging strategy of futures and forward contacts to minimize the price risk? **07**

OR

(b) Assume that a Reliance share is currently selling for INR 2,750 and has a call as well as a put option on it, with an exercise price of INR 2,800 and an expiry of 90 days. The price of the call is INR 50, and the price of the put is INR 100. What would be the gain from a bought strip, payoff for the following spot rate is as given below. **07**

Spot rate	2650	2700	2750	2800	2850	2900	2950	3000	3050	3100	3150

Q.3 **(a)** Suppose the S&P CNX Nifty index value is 4,958 points on April 17, and you believe that the market will do very well in the near future. The June index futures contract is trading at 4,990, and the contract multiplier is 50. (i) How would you speculate using futures? (ii) On April 25, the market has moved up such that the index value is 5,012 and the futures price is 5,017.6, and you decide to close the position. What would be your profit? **07**

(b) Bajaj shares are selling at INR 991.55 on May 10. The contract size for Bajaj futures is 200, and the futures expire on June 29. The risk-free interest rate is 7%. What will be the June futures price on May 10, if no dividend will be paid before June 29? If Bajaj shares is expected to pay a dividend of INR 40 on June 5, what would be the futures price? **07**

OR

Q.3 **(a)** What do you mean by swaps? Discuss the different types of swaps in detail. **07**

(b) On November 20, the spot price of jute is INR 2,198 per 100 kg and the price of December jute futures with expiry on December 15 is INR 2,276. The standard deviation of the spot price change is estimated as INR 260, and the standard deviation of the futures price change is estimated as INR 248. The correlation coefficient between the spot price change and the futures price change is estimated to be 0.99. The Bengal Jute Corporation is planning to sell 40 MT of jute on December 15 and wants to hedge the price risk of jute. How should the corporation hedge its exposure? **07**

Q.4 **(a)** What do you mean by Derivatives? Discuss various types of derivatives and also show the payoff of forward and option contracts. **07**

(b) What are the functions of derivative market? Discuss the growth of Indian derivatives market and international derivative market. **07**

OR

Q.4 **(a)** On July 1, NTPC shares are selling at INR 1,185. There are call options and put options available with the exercise date of September 30 and an exercise price of INR 1,260 on NTPC shares with a contract size of 225. It is estimated that the stock price could be either INR 1,300 or INR 1,100 on the expiry date of September 30. The risk-free rate is 8%. Calculate the price of a call option on 1st July. **07**

(b) Assume that KIA Motors stock is currently selling for INR 750. There is a call option on KIA Motors with a maturity of 90 days and an exercise price of INR 800. The volatility in the stock price is estimated to be 22%. The risk-free rate is 8%. What will be the price of a call option that has a maturity of 90 days? **07**

Q.5 **CASE STUDY:**

You believe that the share price of Piramal Healthcare ltd. is likely to increase from its price of INR 238.50 on March 15. There are futures contracts available on Piramal Healthcare with expiry on June 30 at a futures price of INR 245. The contract size for Piramal healthcare futures is 1,800 shares. You plan to buy 9,000 Piramal Healthcare shares on June 20. Since the price at which you can buy Piramal Healthcare shares on June 20 is uncertain on March 15, you plan to hedge using futures.

(a) What is long and short hedge? What type of hedging is appropriate? Formulate the hedging strategy. **07**

(b) What would be the result of your hedge, that is, what is the effective price at which you would sell the shares if, on June 20, the price of Piramal Healthcare shares is INR 260 and the June futures price is INR 262? **07**

OR

Q.5 **(a)** Explain how you would hedge, if you are planning to buy the Piramal Health care shares on 30th June. Is it perfect hedge? comment **07**

(b) What would be the result of your hedge, that is, what is the effective price at which you would sell the shares if, if the share price is INR 220 and the futures price is INR 224 on June 20? **07**

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