

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

MBA - SEMESTER– III EXAMINATION – WINTER 2020

Subject Code:4539222

Date:06/01/2021

Subject Name:Specialization-Finance_Financial Derivatives (FD)

Time:10:30 AM TO 12.30 PM

Total Marks: 47

Instructions:

1. Attempt any **THREE** questions from Q1 to Q6.
2. **Q7 is compulsory.**
3. **Make suitable assumptions wherever necessary.**
4. **Figures to the right indicate full marks.**

- Q1.** Define the terms **06**
- (a) (a) Basis Rate
(b) Basis Risk
(c) Derivatives
- (b) (a)Forward Rate Agreement **06**
(b)Options
(c) Speculation
- Q2.** (a) Differentiate between Forward Contracts and Futures Contracts. **06**
(b) Explain the trading and settlement mechanism in Futures contract. **06**
- Q3.** (a) Mohan Textiles has imported cotton from Ng Exports in Cambodia for Cambodian Riel (KHR) 40 Million on May 20, and Mohan Textiles will pay the amount on July 20. The exchange rate on May 20 is $INR1=KHR86.3844$. Since Mohan Textiles is concerned about currency risk, it enters into a non-deliverable forward contract with the IDBI Bank for a notional amount of KHR 40 million. According to the forward contract, the forward rate is fixed at $INR1=KHR86.4356$, with expiry on July 20. If the actual spot rate on July 20 is $INR1=KHR87.3542$, what will be the settlement on September 30? **06**
(b) Write short-note on Greeks in Options. **06**
- Q4.** (a) On January 1, Ramesh Jewellers estimates that they would require 250Kgs of silver on March 1. The spot price of the silver on January 1 is Rs.26,500 and futures are available on silver with a contract size of 30kgs. The price of February Futures with a contract size of 30Kgs. The price of February futures with a delivery on February 25 is Rs.27,230 and the price of March Futures with delivery on March 28 is Rs.28,320. The standard deviation of spot price changes is 940 and the standard deviation of futures price changes is also 940. The correlation of the price changes is 1. Calculate the result of hedging using appropriate futures which would be best suited according to his requirement of delivery time. How should Ramesh Jewellers hedge the price risk? **06**
(b) Write a short-note on Commodity Swaps. **06**
- Q5** (a) Ramesh, the fund manager of Accufunds, observes that he value of NSE CNX50 Index is at 4,600 on March 5, and the value of the equity portfolio **06**

owned by the fund is Rs.5,00,00,000 on March 5. He can borrow at the risk-free interest rate of 9%. He estimates that the dividend yield on the index is 2% and the beta of the portfolio 1.4. he wants to hedge his equity portfolio with futures until April 15. He finds that CNX50 futures are available with expiry on April 28 with a contract multiplier of 50.

- Explain how he should hedge, that is, how many futures contracts will be needed and what position should he take in the futures.
- If the CNX50 Index value is 4,4,50 on April 15, what would be the value of the hedged portfolio on April 15?

(b) Write a short-note on Options Trading Strategies. **06**

Q6. (a) ITC shares are selling at INR 230 on September 1. American Call and Put options are available with expiry on October 29 with an exercise price of INR250. The call is priced at INR9.60, and the risk-free rate is 9%. ITC is expected to pay a dividend of INR10 on October 1. Calculate the put price using put-call parity. The contract size for ITC options is 1,125. **06**

(b) Explain the Spread Positions in Options. **06**

Q7. (a) Infosys stock is selling at INR1,130 on September 1. There exists a call option on Infosys with the expiry on October 29 and an exercise price of INR1,140. It is estimated that every 30 days, the Infosys share price could either increase by 6% or decrease by 4%. The risk-free rate is 8%. Calculate the call price by using the two-period Binomial Options Pricing Model. **5.5**

(b) Sun TV futures contract has a lot size of 1,000 shares. Assume that you take a short position on 10 Sun TV futures contracts at Rs.271.25 at 11a.m. on September 6. Assume that the initial margin is 10% of the initial contract value and the maintenance margin is 8% of the initial margin. The following table shows the settlement prices on the days of trading between September 6 and September 10. You close out your position on September 10. Prepare a table shown the daily margin balances in your account. **5.5**

Date (Sep.)	6	7	8	9	10
Rs.	271.25	273.80	276.90	272.50	272.10

OR

Q7. (a) Assume that on March 1, Tata Steel is selling for INR480 and there is a call option on this stock expiring after 90days with an exercise price of INR500. The risk free rate is 8% and the volatility in the stock price is estimated to be 25%. The stock will pay a dividend of INR15 after 60days. Calculate the price of the call according to Black and Scholes formula. **5.5**

(b) The price of Suzlon shares at NSE is quoted at Rs.85, while a three month future contract on Suzlon is traded at Rs.90. If one can borrow at 12% and Suzlon is not paying any dividend in the next three months, is there any arbitrage opportunity available in the prices ruling in the spot market and futures market? If so how can the profit be made? Assume size of the futures contract as 1,000 shares. **5.5**
