Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MBA – SEMESTER - 3 - EXAMINATION – SUMMER 2021

Subject Code: 4539222 **Date: 19/08/2021**

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.**

Q.1 Define the following terms in short **14**

(a) Upside and downside risks
(b) Interest rate risk
(c) Cost of Carry
(d) Swaps
(e) Binomial Options
(f) Covered and Spread
(g) Derivatives

Q.2 **(a)** Differentiate between Forward Contracts and Futures Contracts. **07**

(b) Mr. Patel took a forward contract of 200 shares, currently trading at Rs. 112 per share, is due in 45 days. If the annual risk – free rate of interest is 9%, calculate the value of contract price. **07**

How would the value be changed if a dividend of Rs. 4 per share is expected to be paid in 25 days before the due date?

OR

(b) Mr. A, a cashew merchant, wants to buys 5 cashew contract on march 5 at INR 5,600 each. The initial margin for Mr. A is 5.5% of the contract value. The future price is for each carton, and the contract size is 50 carton. Mr. A close out his position on march 16. The future price from march 6 to march 16 are show below. The variation margin is INR 50,000. Prepare margin account for Mr. A march 5 is a Monday and trading take place only on weekdays. **07**

Date	Future price
March 5	INR 5,600
March 6	INR 5,650
March 7	INR 5,675
March 8	INR 5,610
March 9	INR 5,570
March 12	INR 5,520
March 13	INR 5,400
March 14	INR 5,480
March 15	INR 5,570
March 16	INR 5,650

Q.3 **(a)** Define hedging and speculation. Explain factors affecting basic risk forward and future. **07**

(b) Assume that an SBI share is currently trading at INR 2,300. There is also a call option and a put option on the SBI with an exercise price of INR 2,400 and with a maturity of 90 days. The call option is priced at INR 165. The ninety day risk free rate is 8% per annual. Calculate the price of the put option. **07**

OR

Q.3 **(a)** Explain the types of Swap and terminology of swap. **07**

(b) ITC share are sellin at INR 230 on September 1. American call and American put option are available with expiry on October 29 with an exercise price of INR 250. The call is priced at INR 9.60 and the risk free rate is 9%. Calculate the put price using put-call parity. The contract size for ITC option is 1,125. **07**

Q.4 **(a)** Define Greek in option hedging. Also explain delta, gamma, theta, vega, rho. **07**

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

OR

Q.4 **(a)** Explain the International and Indian derivatives market. Also explain Trading system and types of traders in Indian market. **07**

(b) Assume that a stock is currently priced at INR 1,200. There exist a call option with an exercise price of INR 1,240 and expiry of 90 days. At the end of 90 days, the stock price can either increase by 8% or decrease by 3%. If the risk free rate is 6%, calculate the price of the call by using binomial option pricing modal. **07**

Q.5 From the following data, calculate the value of call option using Black and Scholes model and put option using put-call parity relationship: **14**

Current price of the share	= Rs.486
Exercise price	= Rs.500
Time to expiration (Assume 365 days in a year)	= 65 days
Standard Deviation	= 0.54
Continuously compounded rate of interest	= 9%

OR

Q.5 Infosys stock is selling at INR 1,130. There exits a call option on Infosys with expiry in 60days at an exercise price of INR 1,140. It is estimated that every 30 days, the Infosys price could increase by 6% or decrease by 4%. The risk free rate is 8%. Calculate the call price by using the two period binomial option pricing modal. **14**

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