Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MBA – SEMESTER 4 – EXAMINATION – SUMMER 2019

Subject Code:2840202 **Date:06/05/2018**

Subject Name: Risk Management

Time: 10:30 AM To 01:30 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q. No. Choose the correct option: **06**

Q.1(a) 1. Margins are imposed on options sellers to safeguard the interest of:

A. Exchange B. Brokers

C. Buyers D. All of the above

2. A contract which gives the holder a right to buy a particular asset at a particular rate on or before a specified date is known as:

A. European Option B. Sraddle

C. American Option D. Strangle

3.The maximum loss of a call option holder is equal to:

A. Strike-Spot Price B. Spot Price

C. Premium D. So+Premium

4.How the increase in volatility in asset price, will affect the value of the option?

A. Increase the value B. Decrease the value

C. May not affect D. Any of the above

5.Break-even of a put option occurs when spot price is equal to:

A. Strike price + Premium B. Strike price - Premium

C. Premium D. None of the above

6.In Black and Scholes options valuation model, the increase in time to expiry will:

A. Increase value of call B. Decrease value of call

C. Decrease value of put D. None of the above

Q.1(b) Define the following terms: **04**

1. Intrinsic Value
2. American Option
3. Continuous Compounding
4. Open Interest

Q.1 (c) Discuss American Option vs. European Option **04**

Q.2(a) An investor sales 5 future contracts on gold. Future price is Rs. 1555. The initial margin is 4% and minimum margin is 90% of initial margin. The contract size is 100. From the following information prepare margin account for short position. **07**

Day	1	2	3	4	5	6	7	8	9	10
Price (Rs.)	1552	1530.5	1541	1522	1544	1534	1560	1563	1567	1587

(b) Explain Put-Call Parity with example. **07**

OR

(b) A BHEL futures contract has a contract size of 375 and on September 1, BHEL shares are selling at Rs. 2330. You own 1000 shares of BHEL. October BHEL futures with expiry on October 29 are selling at Rs. 2352. Assume that the spot price of BHEL shares on October 29 is Rs. 2300. You plan to hedge your holding in BHEL shares. **07**

i. What type of hedge is appropriate?
ii. What would be the result of your hedge, that is, what is the effective price at which you would sell the shares?

Q.3(a) What do you mean by Derivatives? What are the differences between Forward and Future contacts? **07**

(b) A stock is selling for Rs. 500. If the risk free rate of interest is 10% p.a. continuously compounded. Then at what minimum price following put options on the stock would sell for: **07**

i. A put with strike price of Rs. 450 maturing 1 month later
ii. A put with strike price of Rs. 500 maturing 2 months later
iii. A put with strike price of Rs. 550 maturing 2 months later

OR

Q.3(a) Discuss Butterfly Spread with example. **07**

(b) A stock is trading at Rs. 500. A call option on the same with 3 months to maturity and exercise price of Rs. 550 is selling for Rs. 12. What would be the price of a put option on the stock with 3 months to expiry and exercise price of Rs. 550? Assume risk free rate at 8%. **07**

Q.4(a) Give a note on Straddle and Strips in details. **07**

(b) A stock is selling at Rs. 1130. There is a call and put options expiry on 58 days with exercise price of Rs. 1150. The share price could either increase by 6% or decrease by 4%. The risk free rate is 8%. Find price of call option. **07**

OR

Q.4(a) On May 10, Meenakshi Rolling Flour Mills estimates that it will require 50 MT of wheat on June20. The spot price of wheat on May 10 is Rs. 1214. It wants to hedge the risk of increase in the price of wheat in the future and decides to hedge the price risk using wheat futures in MCX India. Futures contracts are available with delivery on June 20, with a future price of Rs. 1205. The contract size for wheat future is 10 MT. The standard deviation of changes in spot price is Rs. 105. The standard deviation of changes in future price is Rs. 120. The correlation between the spot price and future price changes is 0.96. Calculate hedge ratio, hedging effectiveness and number of contracts. **07**

(b) ITC shares are selling for Rs. 235 on April 18. Future contracts on ITC are available with maturity on April 29 (12 days to maturity). The risk free rate is 8% p.a. continuously compounded. Calculate the price of future. **07**

Q.5 A 2-month call option on the Infosys with strike price of Rs. 2100 is selling for Rs. 140 when the share is trading at Rs. 2200. Find out the following: **14**

i. What is the intrinsic value of the call option?
ii. Under what circumstances the option holder would exercise his call?
iii. At what price of the asset the call option holder would break even?
iv. If the price of Infosys becomes Rs. 2150, should the option holder exercise the call option?
v. What is the payoff of the holder if the price of Infosys share is Rs. 2000, Rs. 2250 and Rs. 2500 on the date of expiry of the option?

OR

Q.5 An asset is trading at Rs. 40 with volatility of 30%. The risk free rate is 8%. **14**

i. Find the value of call option with exercise price of Rs. 40 and maturity of 6 months.
ii. Also find the delta, gamma, theta, vega, and rho of options.

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