Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
MBA - SEMESTER– IV EXAMINATION – WINTER 2019

Subject Code: 2840202   **Date: 2-12-2019**

Subject Name: Risk Management

Time: 2.30 PM to 5.30 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   **6**

(a)

1. Which of the parties in an option contract has limited profits but unlimited losses

    A. Buyer   B. Writer

    C. Both of the above   D. None of the above

2. The process of transferring price risk using a derivative contract is called?

    A. Speculation   B. Arbitrage

    C. Hedging   D. Diversification

3. Which of the following shows the total number of outstanding futures contract available for delivery at the time?

    A. Volume   B. Open Interest

    C. Advance decline ratio   D. None of the above

4. An exporter faces currency risk in the scenario of

    A. Appreciation of home currency   B. Depreciation of home currency

    C. Both of above   D. None of above

5. Gama of an option is derived from which of the following?

    A. Beta   B. Delta

    C. Theta   D. Rho

6. The rate at which a bank sells foreign currency to a trader is called

    A. Invert Rate   B. Bid Rate

    C. Repo Rate   D. Ask Rate

Q.1   **(b)**   1. Maintenance Margin   **04**

                           2. Cross Hedging

                           3. Index future

                           4. Square off

Q.1   **(c)**   Define and Differentiate forwards and futures.   **04**

Q.2   **(a)**   What is a derivative? Briefly explain various types of derivate products.   **07**

       (b)   Explain various Greek letters in Options   **07**

OR

(b) Sun TV futures contract has a lot size of 1,000 shares. Assume that **07** you take long position on one Sun TV futures contracts at INR 271.25 at 11 a.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 showing the daily margin balances in your account.

Date	Settlement Value of the Index (INR)
September 6	271.25
September 7	273.80
September 8	276.90
September 9	272.50
September 10	272.10

Q.3 **(a)** Explain these terms: In the Money, Out of Money and At the money **07** with suitable examples for both call and put options.

(b) The S&P CNX Nifty index value on April 1 is 4,950 points, and there **07** is a futures contract available on this index with expiry in June and a maturity of 86 days. If the risk-free rate is 6% per annum and the CNX Nifty dividend yield is 2%, calculate the futures price of the CNX Nifty on April.

OR

Q.3 **(a)** What do you understand by Perfect Hedge and Imperfect Hedge? **07** Discuss the key factors responsible for imperfect hedge.

(b) The BSE 30 Sensex is at 15,600 points on April 1. There is a June **07** futures on BSE 30 Sensex with 88 days to maturity. The risk-free rate is 6%, and the BSE 30 Sensex has a dividend yield of 3%. The futures are trading at 15,800 points on April 1. Is there an arbitrage opportunity? If so, how can you arbitrage and what would be your arbitrage profit?

Q.4 **(a)** What is Options contract? Explain the factors affecting options **07** pricing.

(b) A security is selling at Rs 400 and call and put options are available **07** on the stock with a maturity of 90 days and an exercise price of Rs 420. The call is selling at Rs 6, and the risk-free rate is 8% per annum. According to put–call parity, what should the put sell for? Assume that the stock does not pay any dividend during the life of the option.

OR

Q.4 **(a)** Briefly explain straddle and strangle option strategies with suitable **07** examples.

(b) A share is selling at Rs 2500 on January 1. It has a call option with maturity on March 31 with an exercise price of Rs 2700.This option is selling for Rs 85. **07**

i) If on Feb, 14, the share Price is Rs 2540 what is the intrinsic value of this option on this day? Is the option in the money? Would you exercise this option on Feb, 14? Explain.

ii) If on Feb 14, the share price is Rs 2820 what is the intrinsic value of this option on this day? Is the option in the money? Would you exercise this option on Feb, 14? Explain.

Q.5 Alma Mettles Limited is a trader in aluminum and related products. On May 10, Alma Mettles Limited estimates that it will require 60 MT of aluminum on June 5.Both the spot and future contracts for aluminum are quoted in Indian Rupees per kg. The spot price of aluminum on May 10 is Rs 89.50. Through the experiences over the years the company has realized that it is wise strategy to hedge as the aluminum prices are very volatile. It has decided to hedge this price risk using aluminum futures in MCX India. The futures contracts are available with delivery on June 20, with a futures price of Rs 90.90. The contract size for the aluminum futures is 5 MT. The finance manager of the company has estimated that the standard deviation of changes in the spot price is 10, the standard deviation of changes in the futures price is 11, and the correlation between the changes in the spot price and futures price is 0.96.You are required to answer the following questions **14**

i.) Should Alma Mettles Limited go for long position or short position in aluminum futures?

ii) How many number of contracts should it undertake?

iii) If the spot price of aluminum on June 5 is Rs 91.25 and the futures price on June 5 is Rs 92.40 , what is the result of the hedge when compared to not hedging the exposure with
futures?

OR

Q.5 There are two companies that belong to the same industry but are having operations in different territories. They both are planning to borrow funds for further expansion. **14**

Company A can borrow at a fixed rate of 8% or at a floating rate of MIBOR + 150 basis points. Company B can borrow at a fixed rate of 9% or at a floating rate of MIBOR + 50 basis points.

Show that these two companies can improve their position through an interest rate swap. Also show gains that can be availed by both the parties through such swap.

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