Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MBA – SEMESTER 4 • EXAMINATION – SUMMER 2019

Subject Code: 3549222 Date:06/05/2019

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.1 Explain the terms **14**

a) Interest rate swap
b) Currency Swap
c) Forward Contract
d) Future Contract
e) Option Contract
f) Swaption
g) MTM

Q.2 **(a)** What is the difference between exchange traded and over-the-counter derivatives? **07**

(b) What do you understand by risks and what are different ways of classifying and managing them? **07**

OR

(b) Explain various Greeks letter with suitable example. **07**

Q.3 **(a)** The current price of share is Rs. 50, and it is believed that at the end of one month the price will be either Rs. 55 or Rs. 45. What will be a European call option with an exercise price of Rs. 53 on this share be values at, if the risk free rate of interest is 15% per annum? Also calculate the hedge ratio. **07**

(b) Suppose that on January 1, price of Infosys share is Rs. 450 and a party enter into a forward contract for delivery of 1000 shares of Infosys on April 19 at a price of Rs. 460. Find out the profit/ loss of seller (short position) if the price of Infosys share turns out to be (i) Rs. 480 (ii) Rs. 400 on April 19. **07**

OR

Q.3 **(a)** Explain the factors affecting to Option Pricing. **07**

(b) Explain the principles of put-call parity with suitable example. **07**

Q.4 **(a)** A jute manufacturing unit has planned production of 4300 kg of jute to be sold six month later. The spot price of the jute is Rs 1900 per kg and 6 – month futures on the same is trading at Rs 1850 per kg. The price is expected to fall to as low as Rs 1700 per kg six month later. What can the jute manufacturing unit do to mitigate its risk of reduced profit? If decides to make use of future market what would be the effective realized price for its sale when the spot and futures price were Rs 1750 and Rs 1755. **07**

(b) Hyundai motors exports cars to Germany, and every three months, it receives EUR 500,000 from car shipments. On March 1, the exchange rate between the **07**

Indian Rupee and Euro is EUR 1= INR 70.7242. The euro interest rate is 6% per annum, while interest rate in India is 9% per annum. Hyundai wants to hedge its euro receipt through forward contract for the next 6 months. The 180-days forward rate is EUR 1= INR 71.5642.

1. What type of hedging strategy could be suitable for Hyundai?
2. Calculate 90 days and 180 days theoretical forward rate.
3. Identify whether there is any arbitrage opportunity.
4. If there is an arbitrage opportunity, calculate the arbitrage profit for EUR 500,000.

OR

Q.4 **(a)** Form a straddle using given information. Also prepare a graph by taking hypothetical spot price of stock. **07**

Call Option
Exercise Price = 100, Premium = 8
Put Option
Exercise Price = 100, Premium = 8

(b) Form a Butterfly spread using given information. Also prepare a graph by taking hypothetical spot price of stock. **07**

Call Option
Exercise Price = 90, Premium = 11
Exercise Price = 100, Premium = 8
Exercise Price = 110, Premium = 6

Q.5 An investor buys/Sells 5 futures contract of gold at MCX of India. Each contract is of 100 grams of gold. The price quotation is Rs. 21,500 per 10 grams. Initial margin is set at 5%, while minimum margin is 90% of the initial margin. Find out **(Long Position & Short Position Both)** the gain or loss on daily basis, position of margin account and margin call if any on daily basis when the contracts are marked-to-market. The clearing prices of the next 8 days are given and it is also assumed that on 8th day investor square off his position at price Rs. 21800. **14**

Day	0	1	2	3	4
Closing Price	21500	21450	21300	21400	21600
Day	5	6	7	8	
Closing Price	21200	21500	21550	21800	

OR

Q.5 Using the given data calculate the value of a call & put option as per Black & Scholes model. **14**

Stock Price	Rs. 120
Time to expire	3 Months (t = 0.25 years)
Risk free rate of interest	10% p.a. continuously compounded
Standard deviation of stock	0.6
Exercise price	Rs. 115

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