Seat No.: ________ Enrolment No.___________

GUJARAT TECHNOLOGICAL UNIVERSITY

MBA - SEMESTER– III EXAMINATION – WINTER 2019

Subject Code: 4539222 **Date: 4-12-2019**

Subject Name: Financial Derivatives

Time: 10:30 AM TO 1.30 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 with examples **14**

(a) Imperfect hedge
(b) Implied volatility
(c) Covered call writing
(d) Upside and downside risk
(e) American option
(f) Currency swaps
(g) Hedge ratio

Q.2. (a) Explain what meant by counterparty risk? In which type of derivative contract counterparty risk is eliminated? **07**

Q.2. (b) The following summarizes the relationship between an option's strike price and the market price of the underlying asset. Explain the moneyness of the option with example and write in the money /out of the money etc **07**

Market scenario	Call option	Put option
Market price> strike price		
Market price<strike price		
Market price= strike price		
Market price~		

OR

Q.2. (b) The BSE index futures contract has a multiplier of 10. Assume that you enter (long) into one BSE index futures contract at INR 38600 on 22nd September. Assume the initial margin is 5% of the initial contract value and the maintenance margin is Rs. 15000 at any given time. The following table shows the settlement price of the day of trading between 23rd September and 27th September. You close out your position on 27th September prepare the table showing daily balances in your margin account. **07**

Date	Settlement vale of the index
September 23, 2019	39,090
September 24, 2019	39,097
September 25, 2019	38,593
September 26, 2019	38,989
September 27, 2019	38,822

Q.3. (a) A swap contract can be considered as a series of forward contract. Explain why? **07**

Q.3. (b) A state Bank share is selling at INR 2500 on Jan 1. It has a call and put option with maturity on March 31 with an exercise price of INR 2700. The call is priced at INR 85 and the put is priced at INR160. **07**

(1) If you believe that the price of the SBI share would be INR 2750 on March 31, What action would you take?

(2) If you believe that the price of the SBI share would be INR 2650 0n March 31, What action would you take?

(3) If you believe that the price of the SBI share would be INR 2530 on March 31, What action would you take?

(4) If you believe that the price of the SBI share would be INR 2400 on March 31, What action would you take?

OR

Q.3. (a) What is the advantage of writing covered call as compared to writing naked call? **07**

Q.3. (b) Sheelal, the finance manager of Gemini enterprises requires INR 5,000,000 for expansion over a period of two years. She approaches the bank for a loan to finance this expansion project on January 1, 2009. The bank offers her two choices: **07**

i. A loan with a fixed rate of 9% for the next two years, with interest payable every six months.

ii. A floating rate loan with the base rate of six-month MIBOR, with a reset period every six months. The rate on the loan will be six-month MIBOR + 180 basis points, and interest will be payable at the end of every six months. MIBOR on January 1, 2009, at the time of taking the loan is 6%.

Sheela is not sure which of these loans she should opt for. She has contacted some analysts to get some idea about where MIBOR rates could be in the next two years, and the analysts estimates are: six-month MIBOR on July 1, 2009 is 6.8%; on January 1, 2010, is 7.3%; and on July 1, 2010, is 7.1%.

a) Calculate the effective interest rates on January 1, 2009; July 1, 2009; January 1, 2010; and July 1, 2010, under the floating rate loan.

b) Calculate the interest amount on June 30, 2009; December 31, 2009; June 30, 2010; and December 31, 2010, under both fixed rate loan and floating rate loan.

c) On the basis of the interests calculated, determine which alternative should be chosen. What other factors need to be considered in deciding on which loan should be opted for?

Q.4. (a) What is the role of clearing house in futures contract and explain the purpose of a margin requirement in future trading? **07**

Q.4. (b) Assume that Asian paints stock is currently selling for INR 1750. There is a call option on Asian paints with a maturity of 90 days and an exercise price of INR 1800. The volatility of the stock price is 15%, and the risk free rate is 9%. From a risk less hedge and calculate the price of a call option **07**

OR

Q.4. (a) What is meant by delta, gamma, theta, Vega, and rho of options? **07**

Q.4. (b) Spice Jet requires 2000000 barrels of aviation fuel every month. Since the price of aviation fuel depends on the price of crude oil, Spice jet faces price risk. At the beginning of each month, Spice Jet goes for a long hedge in crude oil futures contract for 2000000 barrels, with expiry by the end of that month. **07**

1. What is meant by long hedge?
2. What is the purpose of the long hedge undertaken by Spice Jet?
3. Would Spice Jet be able to completely eliminate the price risk of aviation fuel? Explain

Q.5 **CASE STUDY:**

'**Invest**' trading company is a private fund. It receives the money from wealthy clients. The research department of the company is continuously identifying the speculative and arbitrage opportunities available in the market to earn profits. The research team was looking for arbitrage opportunities (if exist) in the banking stocks on 1st of Feb 2019. Following is the data related to prices on 1st Feb and future price of the stock available on NSE on 1st March 2019

SBI.

Price On 01 feb 2019(spot price) = 284.30

Price On 01 march 2019(Future price) = 272.95

AXIX BANK

Price On 1 feb 2019(spot price) = 716.4

Price On 01march 2019(Future price) = 703.1

HDFC

Price On 01 feb 2019(spot price) = 2091.65

Price On 01march 2019(Future price) = 2083.20

ICICI

Price On 01 feb 2019(spot price) = 354.50

Price On 01march 2019(Future price) = 353.50

KOTAK

Price On 01 feb 2019(spot price) = 1272.2

Price On 01march 2019(Future price) = 1308.65

Q.5. (a)	Explain the cost of carry model with respect to financial futures. How one should identify arbitrage opportunities using cost of carry model?	**07**
Q.5. (b)	Calculate the theoretical future price on 1st of Feb using cost of carry model for selected companies. And identify whether arbitrage opportunity is there in the market with respective stocks. Assume risk free rate of interest in that period was 6.42%	**07**
	OR	
Q.5. (a)	If the banking stocks are paying dividends then how are you incorporate the dividend information in the pricing formula?	**07**
Q.5. (b)	Using the above information, Identify overvalued and undervalued stocks. Explain the action arbitragers would take to earn profit, in terms of buying and selling.	**07**

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