CBCS SCHEME

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16/17MBAFM405

Fourth Semester MBA Degree Examination, June/July 2019
Financial Derivatives

Time: 3 hrs. Max. Marks:80

Note: 1. ***Answer any FOUR full questions from Q.No.1 to Q.No.7.***
2. ***Question No. 8 is compulsory.***
3. ***Use of Logarithm, e^x, normal distribution tables are permitted.***

1 a. What is LIBID Rate? **(02 Marks)**

b. Discuss each of the following type of traders in a derivatives market: Hedgers, speculators and Arbitrageurs. **(06 Marks)**

c. A 5 year bond with a yield of 11% (continuously compounded) pays an 8% coupon at the end of each year. (Face value is 100).
i) What is the bond's price?
ii) What is the bond's duration? **(08 Marks)**

2 a. Describe 'Value at Risk' VaR. **(02 Marks)**

b. An investor holds a portfolio consisting of five securities as shown below:

S.No.	Security	No. of Shares	Price of Share	Beta
1	A	400	Rs.120	0.7
2	B	200	Rs.32	0.8
3	C	1000	Rs.68	1.6
4	D	6000	Rs.230	1.2
5	E	700	Rs.500	1.2

Fearing a market crash, the investor is considering hedging his portfolio by using December put options on S and P CNX Nifty available with exercise value 1532 and delta = –0.432. What should he do? **(06 Marks)**

c. What are the assumptions of Black and Scholes model? **(08 Marks)**

3 a. Differentiate between maintenance margin and variation margin. **(02 Marks)**

b. Calculate the price of a forward contract using the following data: (contract size: 100)
Price of the share = Rs.75 Time to expiration = 9 months
Dividend expected = Rs.2.20 per share Time to dividend = 4 months
Continuously compounded risk free rate of return = 12% per annum **(06 Marks)**

c. Describe the factors which affect option prices and how they affect call option price and put option price. **(08 Marks)**

4 a. What do you understand by "convenience yield" in commodities market? **(02 Marks)**

b. You are given below information on some options. State whether each one of these in-the-money, out-of-the-money, or at-the-money, and determine for each option the Intrinsic Value and Time Value.

S.No.	Option	Stock Price	Exercise Price	Option Price
1	Call	58	55	8.40
2	Call	40	42	5.60
3	Put	112	100	5.30
4	Put	104	110	9.70
5	Put	12	15	4.00
6	Call	37	35	10.50

(06 Marks)

c. An investor sold a two month future contract on wheat for the contract price of Rs.18.50/kg. The contract size is 1000 kg of wheat. The initial margin required on this contract is 20% of the contract value and the maintenance margin is 80% of the initial margin. The future price per kg of wheat fluctuated during the first 10 days of the contract as follows:

Days	1	2	3	4	5	6	7	8	9	10
Wheat Prices (in Rs.)	18.90	18.65	19.10	19.40	19.15	19.75	20.10	20.50	20.15	20.00

You are required to prepare a margin amount for the investor. **(08 Marks)**

5 a. What is put-call parity? **(02 Marks)**

b. Distinguish between forward and futures. **(06 Marks)**

c. Consider the following data about call options on BHEL for which one contract involves 1100 shares.

Strike price (Rs)	170	180	190
Premium (Rs)	21.10	14.00	8.00

Help an investor to create a butterfly spread. Find the pay off at various ranges of stock prices of Rs.168, Rs.185 and Rs.198. **(08 Marks)**

6 a. What is Covered call and Naked call? **(02 Marks)**

b. Differentiate between stress testing and back testing. **(06 Marks)**

c. What is Forward Market Commission? What are its functions? **(08 Marks)**

7 a. How is strangle strategy created? **(02 Marks)**

b. Suppose that zero interest rates with continuous compounding are as follows:

Maturity (years)	Rate (% per annum)
1	2.0
2	3.0
3	3.7
4	4.2
5	4.5

Calculate forward interest rates for the second, third, fourth and fifth years. **(06 Marks)**

c. Companies X and Y have been offered the following rates per annum on a $5 million 10 year investment:

	Fixed Rate	Floating Rate
Company X	8.0%	LIBOR
Company Y	8.8%	LIBOR

Company X requires a fixed rate investment; company Y requires a floating rate investment. Design a swap that will net a bank, acting as intermediary, 0.2% per annum and will appear equally attractive to X and Y. **(08 Marks)**

8 ***Compulsory:***

From the following data

i) Obtain the call and put option values based on Black and Scholes' formulation.

Stock price = Rs. 206
Exercise price = Rs.200
Time to expiration = 47 days
Standard deviation of the continuously compound rate of return on stock = 0.26
Continuously compounded rate of return = 8%

ii) How would the option value change, if a dividend if Rs.12 per share is expected to be received in 12 days time? **(16 Marks)**

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