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Fourth Semester MBA Degree Examination, Dec.2014/Jan.2015
Risk Management

Time: 3 hrs.

Max. Marks:100

Note: 1. Answer any FOUR full questions from Q.No.1 to Q.No.7.

2. Question No. 8 is compulsory.

3. Use of standard normal distribution table permitted.

- 1 a. Name various sources of risk. (03 Marks)
 b. Distinguish stock derivatives from commodity derivatives. (07 Marks)
 c. Vikas bought Infosys March futures @ Rs.3003 on 19/3/2013. The contract expires on 28th March. Lot size is 200 shares. Margin required is 18% of contract value. Using the following prices, prepare statement showing marking to market. (10 Marks)

Date: March 2013	20	21	22	25	26	27	28
Closing prices: Rs.	3050	3102	3150	3206	3158	3103	3125

- 2 a. What do you mean by swaption? (03 Marks)
 b. Write a note on credit default swaps and total return swaps. (07 Marks)
 c. Companies A and B have been offered the following rates per annum on a \$ 20 million for a five year loan.

Company	Fixed	Floating
A	10%	MIBOR + 0.30%
B	11.2%	MIBOR + 1.0%

Company A requires floating and B requires fixed rate. Design a swap that is equally attractive to both the companies. (10 Marks)

- 3 a. Mention various types of interest rates. (03 Marks)
 b. Explain stress testing and back testing. (07 Marks)
 c. The following information is available about a share and a call option on the same:
 Spot price – Rs.150, Exercise price – Rs.140,
 Time to expiration – 6 months, Variance of stock return – 0.49%
 Risk free rate of return continuously compounded 10%.
 Compute the value of the call option using Black and Scholes model. (10 Marks)

- 4 a. What is netting? (03 Marks)
 b. Write a note on any two commodity exchanges in India. (07 Marks)
 c. Compute the value at risk for the portfolio from the following:

Microsoft shares	AT & T
Rs.1 crore	Rs.50,00,000
Daily volatility 2%	Daily volatility 1%

Return on two shares have a bivariate normal distribution with a correlation of 0.30
 N = 10 days, X = 99% (i.e. confidence level value = 2.33) (10 Marks)

- 5 a. What is meant by convergence? (03 Marks)
 b. Explain the steps in risk management. (07 Marks)

- 5 c. A value weighted market index consists of only five stocks. The index currently stands at 1240. The market lot for index futures is 100. Some details regarding the constituent stocks are given below:

Company	Price per share (Rs.)	Market capitalisation (Rs. in crores)
A	72	50
B	115	250
C	425	350
D	48	75
E	220	275

The following dividends per share are expected:

A Rs. 5 – 30 days from now.

B Rs. 15 – 45 days from now

E Rs. 20 – 60 days from now

C and D are not expected to pay any dividend. The risk free rate of return continuously compounded is 10% per annum. Compute the price of a future contract on the index with six months to maturity. (10 Marks)

- 6 a. What is legal liability exposure? (03 Marks)
 b. Write a note on treasury bond futures and treasury note futures. (07 Marks)
 c. A call option with an exercise price Rs.100, is available on a share which is currently sold at Rs.100. The price of the share is likely to be up by 15% or down by 10% at the end of 3 months. The risk free rate is 20%. Determine the hedge ratio and the value of call option using the binomial model. (10 Marks)
- 7 a. What is meant by currency swap? (03 Marks)
 b. Briefly explain the specifications of futures. (07 Marks)
 c. Following are the spot rates with continuous compounding, calculate forward rates for the second, third, fourth and fifth year. (10 Marks)

Maturity (years) :	1	2	3	4	5
Zero rate (% per annum):	12.00	13.00	13.70	14.20	14.50

- 8 On 1/2/2013 following options (call and put) are available on SBI and RIC shares. Show the arbitrage process and profit using put-call parity theory.
SBI – Exercise price (E) Rs.2400 (for both call and put)
 Stock price (S_0) = Rs.2453
 Call option premium (C) = Rs.55.31
 Put option premium (P) = Rs.3.90
 Continuously compounded risk free rate of interest 10 percent per annum.
 Time to expiration 28 days (Assume 365 days in a year)
 One contract is for 125 shares (lot size)
 (Assume stock price of Rs.2425 and Rs.2375 on expiration to show arbitrage profit)
RIL – Exercise price (E) Rs.920 (for both call and put options)
 Stock price (S_0) Rs.921.90
 Call option premium (C) = Rs.24.60
 Put option premium (P) = Rs.3.6
 Continuously compounded risk free rate of interest 10% percent per annum.
 Time to expiration 28 days (Assume 365 days in a year)
 One contract is for 250 shares (lot size)
 (Assume stock price of Rs.930 and 910 on expiration to show arbitrage profit). (20 Marks)
