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08MBAFM427

**Fourth Semester MBA Degree Examination, June/July 2011**  
**Risk Management**

Time: 3 hrs.

Max. Marks:100

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

**2. Q.No. 8 is compulsory.**

**3. Use of time value tables and normal distribution tables is permitted.**

- 1
  - a. Differentiate between risk and uncertainty. (03 Marks)
  - b. Explain the significance of insurance and financial derivatives instruments in hedging risk. (07 Marks)
  - c. Why is risk identification important for a firm? Briefly explain the steps in the risk management process. (10 Marks)
- 2
  - a. Define basis. When is basis said to have i) strengthened ii) weakened? (03 Marks)
  - b. Differentiate between forward and futures contract. (07 Marks)
  - c. Using the following data prepare a margin account of the investor. Assume that if a margin call is made at a time and the investor takes a short position. One contract size is 500 units., unit price is Rs.25/- No. of contracts = 10, initial margin is 12% and the maintenance margin is 75% of the initial margin. The date of contract is 1<sup>st</sup> June 2009. Prices on the following dates were as follows: 2<sup>nd</sup> June, 2009 – Rs.25.50/-, 3<sup>rd</sup> June – Rs.24.30/-, 4<sup>th</sup> June – Rs.26.50/-, 5<sup>th</sup> June – Rs.25.10/- and 6<sup>th</sup> June – Rs.25.75/-. (10 Marks)
- 3
  - a. When is the option said to be i) In-the-money ii) At-the-money iii) Out-of-the-money. (03 Marks)
  - b. ABC Ltd is quoted in the market at Rs.40/- for its shares. If the risk free rate of interest is 12% p.a. continuously compounded and ABC Ltd., is certain to pay a dividend of Rs.2.50/- per share 3 months from now, find the value of the 6 months future contract on 100 shares of ABC Ltd. (07 Marks)
  - c. An investor holds a long position in 1000 shares of a certain company. He bought these shares at Rs.210/- each. Fearing a fall in the market, he bought a put option contract involving 1000 shares with an exercise price of Rs.212/- at a premium of Rs.7.80/- per share. Explain how this position will perform in the different price scenarios on expiration at Rs.190/-, Rs.195/-, Rs.200/-, Rs.205/-, Rs.210/-, Rs.215/-, Rs.220/- and Rs.225/-. (10 Marks)
- 4
  - a. Explain the difference between writing a call option and buying a put option. (03 Marks)
  - b. Describe the factors that affect the option prices. (07 Marks)
  - c. Company A wishes to borrow US dollars at a fixed rate of interest, company B wishes to borrow Japanese yen at a fixed rate of interest. The amounts required by the two companies are roughly the same at the current exchange rate. The companies have been quoted the following interest rates, which have been adjusted for the impact of taxes:

	Yen	US Dollars
Company A	5.0%	9.6%
Company B	6.5%	10.0%

Design a swap that will net a bank, acting as intermediary, 50 basis points p.a. and equally attractive to the two companies and ensure that all the foreign exchange risk is assumed by the bank.

(10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

- 5 a. What is an open interest in an option contract? (03 Marks)
- b. In June 2009, a 6 month call on "Innova Ltd" stock with an exercise price of Rs.25/- sold for Rs.2/-. The stock price was Rs.20/-. The risk free rate of interest was 5% p.a.
- i) How much would you be willing to pay for a put on Innova Ltd's stock with the same maturity and exercise price?
- ii) What happens if the actual price is different from what you are willing to pay? (07 Marks)
- c. An investor buys a put option with an exercise price of Rs.200/- for Rs.15. What is the maximum loss that he should incur? What is the maximum gain, which he would gain/earn? What is the break-even stock price i) in case of put option and ii) in case of call option? (10 Marks)

- 6 a. Distinguish between a covered and a naked call. (03 Marks)
- b. Estimate the time to expiration of the call and put options on a stock about which the pertinent information is given below:  
 Call option : Rs. 10.30/- } R.S. Model  
 Put option : Rs. 6.44/- }  
 Exercise price : Rs. 100/-, Stock price = Rs. 100/-, Riskfree rate of interest = 8%. (07 Marks)
- c. The following call options are traded in the market at present with the same maturity.

Option	Exercise price	Call premium
1	60	7
2	75	5
3	90	4

Explain how an investor can create a "butterfly spread", using the above options. Explain his profit or loss if the spot price at maturity is Rs.55/-, Rs.70/-, Rs.80/- and Rs.95/-. Draw his pay off diagram. (10 Marks)

- 7 a. Briefly explain: i) Straddle ii) Strips and straps iii) Strangles (03 Marks)
- b. What is a FRA? State the significant characteristics of a FRA. (07 Marks)
- c. Suppose that the risk-free zero curve is flat at 7% p.a. with continuous compounding and that defaults can occur halfway through each year in a new 5-year credit default swap. Suppose that the recovery rate is 30% and the default probabilities each year conditional on no earlier default is 3%, estimate the credit default swap payoff. Assume payments are made annually and probability of default is 0.0300, 0.0291, 0.0282, 0.274 and 0.0266. (10 Marks)

8 Case Study :

Using the following data, calculate

- i) Call option on an index
- ii) Put option on an index
- iii) Also, state whether each of the options is in-the-money or out-of-the-money.
- iv) Split the options premia into intrinsic and time values.

Data:

Spot value of the index = 1238

Exercise price = 1230

Risk-free rate of return = 8% pa

Standard deviation of the continuously compounded rate of return = 0.42

Time to expiration = 45 days

Continuous dividend rate on the index = 1.8%

(20 Marks)

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