



Name :

Roll No. :

Invigilator's Signature :

CS/MBA(N)/SEM-4 (FT) & 6 (PT)/FM-406/2012

2012

DERIVATIVES AND RISK MANAGEMENT

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

- i) The futures contracts are marked-to-market on a
 - a) Daily basis
 - b) Weekly basis
 - c) Monthly basis
 - d) None of these.

- ii) Which of the following is not an assumption of pricing of financial contracts ?
 - a) The markets are perfect
 - b) There are transaction costs
 - c) All assets are infinitely divisible
 - d) Bid-ask spreads do not prevail.



- iii) A response to negative risk event is known as a
 - a) Work item
 - b) Work package
 - c) Workaround
 - d) Work breakdown structure.
- iv) A covered call writer
 - a) buys a call and buys a stock
 - b) sells the call and holds the stock
 - c) sells the call and buys the stock.
- v) Gains and losses on future positions are settled
 - a) by signing promissory notes
 - b) each day after the close of trading
 - c) within five business days
 - d) through dmat account instacheques.
- vi) The minimum balance allowed in a margin account is
 - a) the initial margin
 - b) the maintenance margin
 - c) \$ 1000
 - d) none of these.
- vii) If price increases over a life of a future contract, it is a case of
 - a) Normal backwardation
 - b) Contango
 - c) None of these.



- viii) An option trader who feels that a stock price will be range bound having only small fluctuations around its current price will go for a
- a) Bull spread b) Butterfly spread
c) Bear spread d) none of these.
- ix) A trader buys, June expiry call options each at a strike price of Rs. 200 and 220 respectively. Simultaneously, he writes 2nd June expiry call options at a strike price of Rs. 210. This strategy is called
- a) Butterfly spread b) Bull spread
c) Bear spread d) Strip.
- x) If an investor writes a call option and takes a long position in the underlying stock, the strategy is called
- a) Writing a naked option
b) Writing a covered call
c) Protective put strategy
d) Strip.
- xi) An option has a delta of 0.5. If there is a Rs. 4 change in the price of the underlying share, the change in the price of the option would be
- a) Rs. 2 b) Rs. 4
c) Rs. 8 d) no change in the price.
- xii) If daily volatility of Nifty is 1.92, standard deviation figure, sigma or σ used in Black Scholes formula should be
- a) 30% b) 1.92 %
c) 1.38 % d) 35 %.



GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. The share of X Ltd. Company stands at Rs. 120, put options with a strike price of Rs. 130 are priced at Rs. 15.
 - a) What is the intrinsic value of options ?
 - b) What is the time value of options ?
 - c) If the share price falls to Rs. 50 by the expiry date, what would be the profit / loss for the holder and writer of the options ?
3. An Indian importer has to settle a bill for \$ 1,35,000. The exporter has given the Indian company two options.
 - (i) Pay immediately without any interest charge
 - (ii) Pay after 3 months with interest 6% p.a.

The importer bank charges 16% p.a. on overdraft. If the exchange rate are as follows, what should the company do ?

Spot (Rs. / \$) : 48.35 / 48.36

4. Describe Bi-modal Model of valuation of options.
5. What do you mean by "In-the-money" and "Out-of-the-money" ?
6. What do you mean by a "Circus Swap" ?

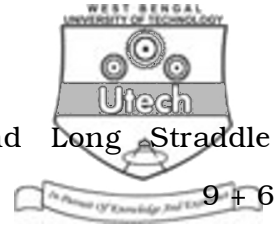


GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) Explain Basis Risk and Convergence in the context of Forwards and Futures.
- b) The spot price today is Rs. 160/-. The risk free interest rate is 10%. At what price should a futures contract expiring in three months be priced ? If the price of the futures is Rs. 162/- or Rs. 166/-, is there an arbitrage opportunity ? Explain by solving. $6 + 9$
8. a) State the assumptions of the Black-Scholes model.
- b) Calculate the value of call if the spot price is Rs. 30/-, exercise price is Rs. 25, time to expiry is 3 months, risk free rate of return is 5% and the standard deviation of return is 0.45. $6 + 9$
9. a) Calculate the pay-off schedule and draw the pay-off chart for the following Long Straddle strategy : Mr. A has purchased a long straddle by buying a May Rs. 4500 Put for Rs. 85 and a May Rs. 4500 Call for Rs. 122. The current price of the stock is Rs. 4450. On expiry it is expected that the underlying asset shall close at Rs. 3800, Rs. 4000, Rs. 4200, Rs. 4293, Rs. 4400, Rs. 4600, Rs. 4707, Rs. 4800, Rs. 5000, Rs. 5200 and Rs. 5300.



b) Explain Covered Put Strategy and Long Straddle Strategy. 9 + 6

Table value for N (x) when x is greater than or equal to zero

x	0.00	0.01	0.02	0.03	0.04	0.05	0.06
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315

0.07	0.08	0.09
0.8078	0.8106	0.8133
0.8340	0.8365	0.8389

10. Current price of C Ltd. share is Rs. 100. Suppose, party A takes the following positions against party B :

C1	Long call	Strike = Rs. 105	Premium paid = Rs. 7
C2 and C3	Short calls	Strike = Rs. 100	Premium received Rs. 4 × 2 = Rs.8
C4	Long call	Strike = Rs. 95	Premium paid = Rs. 3

Show calculations of :

Pay-off for party A (if P < 95)

Pay-off for party A (if P = 95)

Pay-off for party A (if P is more than 95 but less than 100)

Pay-off for party A (if P = 100)

Pay-off for party A (if P is more than 100 but less than 105)

Pay-off for party A (if P = 105)

Pay-off for party A (if P > 105)



11. Write short notes on any *three* from the following : 3×5

- a) Swaps
- b) Convertibles
- c) Delta
- d) Gamma
- e) American option style.

12. Explain the "Cash and Carry" and "Reverse cash and carry" arbitrage.
