IV Semester M.B.A. Examination, May 2012
(Scheme : 2005 and 2007)
(Common to 2005 and 2007 Students)
Business Administration (Elective – FM – V)
Derivatives

Time : 3 Hours | Max. Marks : 75

SECTION – A

Answer **all** questions. **Each** carries **six** marks : **(5×6=30)**

1. What is a spread ? Briefly explain the different types of spread.

2. What are the different types of future contract ? Explain the differences between future and forward contract.

3. An investor holds shares of three companies AB, MN and PQ. Shares of AB and traded at Rs. 180/- the company is not expected to pay any dividend during the – six months. MN is traded at Rs. 560/- per share. MN is expected to pay a dividend Rs. 25/- per share three months from now. PQ is traded at Rs. 780/- per share. – Dividends of Rs. 10/- and Rs. 30/- per share are expected from PQ two months and four months from now respectively. Compute the price at which the investor can six-month futures contract on each of these shares. The risk free rate of return continuously compounded is 8% per annum. And it is expected to remain unchanging throughout the next six months.

4. From the following data, determine for each option, the intrinsic value and the time value. State whether each one of these is in the money. Out of the money or at the money.

Sl. No.	Option	Stock price	Exercise price	Option price
1	Put	36	32	5.30
2	Call	48	50	4.10
3	Call	107.50	105	8.40
4	Put	41	45	9.70

P.T.O.

5. The spot price of coconut oil is Rs. 7,500/- per quintal. The storage cost of cocc oil on an average is 75% per quintal for six months, payable at the end of stor period. The risk free rate of return is 8% per annum compounded quarterly. Com the price of six months futures contract on coconut oil. If the six months futu contract is traded at Rs. 7,950/- in the market is there possibility for arbitr opportunities, if so how can one design arbitrage ?

SECTION – B

Answer **any three** questions. **Each** carries **ten** marks : (

6. A fund manager has an equity portfolio of Rs. 60 lakhs. The beta of the por 1.25 since a fall is expected in the market, the fund manager is interested red the portfolio beta to 0.90.

   i) What amount of the portfolio should be replaced by risk free assets in or reduce the beta to 0.90 ?

   ii) Alternatively, if the manager does not want to reshuffle the portfolio, how use index futures for reducing beta ? Explain. The three month futures contract on the bench mark index is traded at 3500. The multiplier for in futures 100.

   iii) Assuming that the manager used index futures, what are his net gain/lo maturity if the index on maturity stood at 3325 and his portfolio value fe Rs. 75 lakhs ? No revision of portfolio was done during this period.

7. The shares of a company are currently traded at Rs. 258/-. Compute the p call option on this share with an exercise price of Rs. 248/- using Black and S model. Time to maturity is six months. The risk free rate of interest conti compounded is 8% per annum. The standard deviation of the continuously cc annual rate of returns of the stock is 0.3. Also compute the price of a put c this share with the same exercise price and maturity using put-call pa option mentioned is of European nature.

8. Using the following data prepare the margin account of the investor. Assume that if a margin call is made at any time, the investor would deposit the amount called for position – short and long; contract size – 500 units; unit price – Rs. 25; No. of contracts – 10; initial margin – 12%; maintenance margin – 3/4th of the initial margin. Date of contract – 1st June;

Date	:	2nd June	3rd June	4th June	5th June	6th June
Price (Rs.)	:	25.50	24.30	26.50	25.10	25.75

9. The following call options are traded in the market at present with the same maturity :

Option	Exercise Price	Call Premium
	Rs.	Rs.
1.	60	7
2.	75	5
3.	90	4

Explain how an investor can create a butterfly spread using the above options. Draw his pay off diagram. Explain his profit/loss if the spot price at maturity is :

a) Rs. 55,

b) Rs. 70,

c) Rs. 80 and

d) Rs. 95.

Explain the following hedging strategies :

i) Short stock long call

ii) Long stock short call

iii) Long stock long put

iv) Short stock short put.

SECTION – C

Case Study – **Compulsory** : (1×

11. The current stock price of Reliance is Rs. 340/-. A call option is available with strike price of Rs. 370/-. The continuously compounded interest rate is 12% p and the time to expiration is 3 months. There is a chance of the stock price movi up by 15% or going down by 10%. Using the single period Binomial Model you a required to ;

    i) Determine the value of call option

    ii) Determine the Hedge ratio and how to interpret the ratio for arbitrage operations.

    iii) IF the call option is now available for Rs. 9/- how would you make an arbitra profit ?