



BRAINWARE UNIVERSITY

Course –MBA

Financial Derivatives, Options, Futures and Risk Management (FM403)

(Semester – 4)

Time allotted: 3 Hours

Full Marks: 70

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group –A

(Multiple Choice Type Question)

10 x 1 = 10

1. *Choose the correct alternative from the following*
 - (i) In the money Put option is when
 - a. $S_t = K$
 - b. $S_t > K$
 - c. $S_t < K$
 - d. None of the above
 - (ii) A player goes long on Call if she apprehends
 - a. Market for Underlying will appreciate
 - b. Market for Underlying will depreciate
 - c. Market for Underlying will be volatile
 - d. None of the above
 - (iii) Which one of the following initiate an arbitrage opportunities?
 - a. $p = S_0 - Ke^{-rt}$
 - b. $p = Ke^{-rt} - S_0$
 - c. $p < S_0 - Ke^{-rt}$
 - d. $p > Ke^{-rt} - S_0$
 - (iv) Which one of the following is a factor impacting the price of a derivative on stock?
 - a. Foreign Exchange rate
 - b. Stock price
 - c. Stock Alpha
 - d. Stock beta
 - (v) Which one of the following derivative needs initial margin?
 - a. Forwards
 - b. Futures
 - c. Options
 - d. Swaps
 - (vi) Which one of the following is suitable in making gain in Bull market?
 - a. Long Call
 - b. Short Call
 - c. Long Put
 - d. Forward

- (vii) Suppose you are holding 500 stocks of a company. Bear in stock market is approaching. Which one of the following derivatives could shield your loss in bull market?
- | | |
|--------------|---------------|
| a. Long Put | b. Long Call |
| c. Short Put | d. Short Call |
- (viii) A long futures contract holder apprehends
- | | |
|--------------------------------|-------------------------------|
| a. Underlying will depreciate | b. Underlying will appreciate |
| c. Underlying will be volatile | d. None of the above |
- (ix) Option transaction is a zero sum game because
- | | |
|---------------------------------|----------------------------------|
| a. Gain of long > Gain of short | b. Gain of Short = Loss of Short |
| c. Gain of Long = Loss of Short | d. Gain of long < Gain of short |
- (x) Holder of which of the following derivatives bears least obligation?
- | | |
|-------------|------------|
| a. Forwards | b. Futures |
| c. Options | d. Swaps |

Group – B

(Short Answer Type Questions)

3 x 5 = 15

Answer any *three* from the following

- | | |
|--|-----|
| 2. Write features of futures contract. | [5] |
| 3. You are a long put option holder with $K = Rs. 120$. On date of maturity, if $S_t = Rs. 100$, will you exercise the option? If yes, what will be your gain neglecting premium? | [5] |
| 4. You are an exporter of goods to US worth \$30000, receivable after three months. You are apprehending that \$ will depreciate in three months. Do you hedge your position through futures contract? If yes explain your action. | [5] |
| 5. Differentiate Short futures and Short Call option. | [5] |
| 6. Define exotic option. | [5] |

Group – C

(Long Answer Type Questions)

3 x 15 = 45

Answer any *three* from the following

7. (a) Explain Credit risk. [8]
 (b) Explain volatility of market. [7]
8. (a) Define Gamma and Vega. [8]
 (b) Write down advantages of interest rate derivatives. [7]
9. (a) Explain Transaction exposure. [8]
 (b) Write short note on Energy derivatives. [7]
10. (a) If $S_0 = 200, K = 100$ and $e^{0.05} = 1.0512$ compute price of a futures contract today considering maturity of 1 year. [6]
 (b) If $K = 50, S_T = 120$ and $c = 5$ then compute the gain of a long call holder at time $t = T$. [5]
 (c) You went short in a futures contract at time $t = 0$ when $F_0 = 200$. The settlement price at the end of trading is 350. Compute your gain/loss in margin account. [4]
11. (a) Write true or false of the following statement:
 “Put option writer has the right to sale the underlying if situation permits but has no obligation” [2]
 (b) Write one distinguishing feature of American Call option [2]
 (c) Draw the pay-off diagram of Long call and Short put. [6]
 (d) Differentiate Arbitraging and Hedging [5]