



BRAINWARE UNIVERSITY

Term End Examination 2018 - 19

Programme – Master of Business Administration / Master of Commerce in Banking & Financial Accounting

Course Name – Financial Derivatives, Options, Futures & Risk Management / Risk Management & Derivatives

Course Code – FM403 / MCM404A

(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) A person making riskless profit is known as-
 - a. Hedger
 - b. Speculator
 - c. Arbitrager
 - d. Writer
 - (ii) If an option is exercised before maturity, then it is known as-
 - a. Call option
 - b. Put option
 - c. European option
 - d. American option
 - (iii) Which one of the properties stated below for hedge fund is not true?
 - a. It is similar to mutual fund
 - b. They accept fund from financially sophisticated individuals
 - c. They offer securities to public for collecting fund
 - d. It is used for hedging, speculation and arbitrage
 - (iv) A person has sold a stock. He wants to hedge risk of price. Then what he will do-
 - a. Buy futures
 - b. Sale futures
 - c. Buy put
 - d. None of the above
 - (v) Theoretical price of futures is Rs.140. It will mature after 3 months. It is now available in the market at Rs.165. Here arbitragers will ----- futures and ----- underlying assets to make profit.
 - a. Buy, buy
 - b. Buy, sale
 - c. Sale, buy
 - d. Sale, sale

- (vi) Rate of change in value of option with respect to volatility is known as-
- Alpha
 - Beta
 - Gamma
 - Vega
- (vii) Margin call is required -
- At the end of each day
 - Once in a week
 - Net margin balance is \leq maintenance margin
 - None of the above
- (viii) SWAPs is applicable for
- Converting fixed loan into floating loan
 - Taking loan in foreign currency at cheaper rate
 - Both (a) and (b)
 - Neither (a) nor (b)
- (ix) Formula of determining forward price on currencies is -
- $F_1 = S_0 \frac{(1+r_d)}{(1+r_f)}$
 - $F_1 = S_0 \frac{(1+r_f)}{(1+r_d)}$
 - $F_1 = \frac{1}{S_0} \frac{(1+r_d)}{(1+r_f)}$
 - $F_1 = \frac{1}{S_0} \frac{(1+r_f)}{(1+r_d)}$
- (x) Functions of derivative market includes
- Price discovery
 - Transfer of risk
 - Leveraging
 - All of the above

Group – B

(Short Answer Type Questions)

3 x 5 = 15

Answer any *three* from the following

- Price of gold in spot market is \$1,800 per ounce. Forward contracts are of one on gold is available now at \$2,000 per ounce. Money can be borrowed at 5% p.a. Cost of storing gold is zero and gold provides no income. Analyze the possibility of arbitrage. If so, how? What is arbitrage profit for 100 ounce gold? Explain with logic. 1+3
+1
- A 3 month put option on share of company X with strike price of Rs.550 is selling for Rs.60 when the share is trading at Rs.500. Find out-
 - Intrinsic value of put option. 1
 - Time value of put option 1
 - Interpret time value 1
 - Explain the price of asset, where put option holder will break even. 2
- Explain normal backwardation and Contango concepts used in futures. 5

- | | | |
|----|--|---|
| 5. | Identify pay offs on European option on stock having price of in spot market Rs.100 on maturity. | 1 |
| | (a) Long call with exercise price of Rs.90. | 1 |
| | (b) Short call with exercise price of Rs.80. | 1 |
| | (c) Long put with exercise price of Rs.110. | 1 |
| | (d) Short put with exercise price of Rs.110. | 1 |
| | (e) Long call with exercise price of Rs.100 | 1 |
| 6. | A stock is selling for Rs.440. A call option in the market on some stock is available at strike price of Rs.450. It has premium of Rs.6. Another option is also available at Rs.7 with strike price of Rs.465. | |
| | (a) Analyze whether price of two options stated above is appropriate. | 2 |
| | (b) Explain how a person can enjoy benefit from this situation | 3 |

Group – C

(Long Answer Type Questions)

3 x 15 = 45

Answer any *three* from the following

- | | | |
|-----|---|----|
| 7. | “Futures price can differ from its theoretical price to provide scope of arbitrage”- Explain with the help of cash and carry approach and reverse cash and carry approach. | 15 |
| 8. | Consider the following rates of foreign exchange for Euro.
Spot (INR per EURO) 57.90 – 58.10
One month Forward (INR per EURO) 57.50 – 57.80 | |
| | (a) Explain whether the Euro is at premium / discount | 2 |
| | (b) Calculate annualized premium/discount on Euro. | 2 |
| | (c) Interpret the answer (b) | 2 |
| | (d) Calculate average (mid) rate for 3 months, 6 months and 12 months forward rate assuming spread of 0.50, 0.80 and 1.00 respectively. | 9 |
| 9. | (a) Define the concept of margin used in derivative market. | 2 |
| | (b) Explain the situation where margin is required. | 3 |
| | (c) Analyze different types of margin | 6 |
| | (d) Explain the procedure of marking of margin | 4 |
| 10. | (a) Write put-call parity theory in detail. | 12 |
| | (b) Spot market of a share shows price of Rs.80. Call has a strike price of Rs.85. It will mature after 2 months. It is selling at Rs.2. Calculate premium of 2months put with Rs.85 strike price. Interest at risk free rate is 6%. Ignore dividend. | 3 |

11. An investor has taken long position on gold futures. Price of 10 gm. Gold in spot market is Rs.31100. On futures lot size is 100 gm. He has invested in 5 numbers of futures. 4% is margin money. 90% is maintenance level. Spot price in next 10 days is as follows-

Days	Price	Days	Price
1	31,040	6	30,680
2	30,610	7	31,200
3	30,820	8	31,260
4	30,440	9	31,340
5	30,880	10	31,740

- (a) Estimate initial margin required 2
- (b) Ascertain maintenance margin? 2
- (c) Adjust margin balance on daily basis and show the time and amount of margin call. 9
- (d) If the position is closed on 8th day, show the will get from clearing house? 2
