

CBCS SCHEME

16/17MBAFM405



Fourth Semester MBA Degree Examination, Dec.2019/Jan.2020 Financial Derivatives

Time: 3 hrs.

Max. Marks:80

- Note: 1. Answer any FOUR full questions from Q.No.1 to Q.No.7.
2. Question No. 8 is compulsory.
3. Use of value table may be permitted.**

- 1 a. What do you mean by mark of market? (02 Marks)
b. Explain the factors contributing to the growth of derivatives market in India. (06 Marks)
c. 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; contract size = 500 units; unit price = Rs.22; number of contracts = 8; maintenance margin = $\frac{3}{4}$ th of initial margin; date of contract = June 3; initial margin = 12%; closing prices are:

Date	June 4	June 5	June 6	June 7	June 10	June 11	June 12
Price (Rs.)	22.30	23.10	22.90	23.00	23.15	22.85	22.95

(08 Marks)

- 2 a. Differentiate between exchange traded and over the counter derivatives. (02 Marks)
b. A share is currently traded at Rs.78. A 3 month futures contract on this share is traded at Rs.80.50. the risk-free rate of return continuously compounded is 8% p.a. No dividend is expected to the share in the next 3 months. Is there any arbitrage opportunity here? If so, explain the process of arbitrage and the profit to be made? (06 Marks)
c. Explain any 8 options trading strategies. (08 Marks)
- 3 a. What is meant by exotic option? (02 Marks)
b. What is the future value on a wheat contract, which is currently quoting at Rs.800 per tone? The duration of contract is 6 months. If costs Rs.12 as storage cost per tone of wheat per month. $R_f = 10\%$, lot size = 25. (06 Marks)
c. Explain the factors affecting option pricing. (08 Marks)
- 4 a. What is forward rate agreement? (02 Marks)
b. Explain the features and uses of financial swaps. (06 Marks)
c. Create a short straddle from the given information:
Call strike price Rs.310 per share
Put strike price Rs.310 per share.
Premium for call Rs.21 per share.
Premium for put Rs.42 per share.
Also show the net pay off diagram and discuss its characteristics. Closing price on expiry data as follows: 220, 240, 260, 280, 300, 310, 320, 340, 360, 380, 400 (08 Marks)
- 5 a. Give the meaning of scalpers. (02 Marks)
b. Define and differentiate between futures and forwards. (06 Marks)
c. An investor holds a long position in 1000 shares of a company. He bought these shares at Rs.210 each. Fearing a fall in the market, he has bought a put option contract involving 1000 shares with exercise price of Rs.212 at a premium of Rs.7.80 per share. Explain how this position will perform in different price scenarios on expiration. Assume 5 prices below 210 and above 210, with a Difference of Rs.5 i.e. $210 - 5 = 205$ or $210 + 5 = 215$. (08 Marks)

- 6 a. How are 'naked' calls different from 'covered' calls? (02 Marks)
 b. What is meant by value of risk? Explain methods to compute VaR. (06 Marks)
 c. Calculate the value of call option using Black and Scholes model, given the following information:
 Current market price of the share is Rs.243.
 Exercise price Rs.250
 Volatility (standard deviation) = 0.54
 Risk-free rate of interest = 9% p.a.
 Time to expiry = 65 days
 If the investor wants to buy a put option with the same exercise price and expiry date as call option, what will be the value of put option? (08 Marks)
- 7 a. What is meant by credit risk? (02 Marks)
 b. A call option with an exercise price of Rs.100 is available on a share which is currently sold at Rs.100. The price of the share is likely to be up by 15% or down by 10% at the end of 3 months. The risk-free rate is 20%. Determine the hedge ratio and the value of call option using the binomial model. (06 Marks)
 c. Assuming that AAA wants a floating rate, BBB desires a fixed rate. Design a swap deal for AAA and BBB, in such a way, that, it benefits both the companies. The following information is available:

Company	Fixed Rate	Floating Rate
AAA	10%	MIBOR + 25 bp
BBB	12%	MIBOR + 75 bp

(08 Marks)

8 **CASE STUDY:**

On January 1, 2018 an investor has a portfolio of 5 shares as given under:

Security	Price	No. of shares	Beta
A	59.50	5000	1.05
B	81.85	8000	0.35
C	101.10	10000	0.80
D	125.15	15000	0.85
E	140.50	1500	0.75

The cost of capital to the investor is 12.5% per annum. You are required to:

- a. Calculate the beta of his portfolio. (04 Marks)
 b. Calculate the theoretical value of the NIFTY futures for February. (04 Marks)
 c. If its current value is 1005 and NIFTY futures have a minimum trade lot requirement of 200 units, obtain the number of contracts of NIFTY he needs to sell in order to get a full hedge until February for his portfolio. Assume that the futures are trading at their fair value. (04 Marks)
 c. Calculate the number of futures contracts the investor should trade if he desires to reduce the beta of his portfolio to 0.7. (04 Marks)

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