

VPM's
DR VN BRIMS, Thane
Programme: MMS (2016-18) (Finance)
Third Semester Examination October 2017

Subject	DERIVATIVES AND RISK MANAGEMENT		
Roll No.		Marks	60 Marks
Total No. of Questions	7	Duration	3 Hours
Total No. of printed pages	2	Date	30.10.2017

Total Marks: 60

- Instructions:**
1. **Q1 is compulsory.**
 2. **Answer any FOUR out of remaining SIX questions.**

Q1) What are the assumptions of Black-Scholes option pricing model?

The Spot price of a stock is Rs.1155 and the volatility of the stock is 25% p.a. European style call and put options are available with exercise price of Rs.1140 and time to expiration of 1 month. The risk free interest rate is currently at 7% p.a. Calculate the call and put option prices based on Black-Scholes option pricing model when no dividend is expected during the life of the options.

(20 Marks)

Q2) Answer any two from (a) or (b) or (c) ————— (5x2) = 10 Marks

- a) Explain the Put-Call parity theory for European option of non dividend paying stock. (5 Marks)
- b) Explain option based protective put buying strategy with an example. (5 Marks)
- c) What are the basic risks involved in the trading of derivatives instruments. (5 Marks)

Q3) Answer any two from (a) or (b) or (c) ————— (5x2) = 10 Marks

- a) Explain the following option Greeks in brief
 - i. Delta
 - ii. Theta (5 Marks)
- b) Explain the effect of primary factors on pricing of a call option. (5 Marks)
- c) Explain and illustrate futures based Long hedge strategy. (5 Marks)

Q4) Answer any two from (a) or (b) or (c) ————— (5x2) = 10 Marks

- a) Explain the following terms with reference to options contract
 - i. Strike price / Exercise price
 - ii. Option premium (5 Marks)
- b) What are the differences between futures contract and options contract? (5 Marks)
- c) Explain and illustrate futures based Reverse Cash and carry arbitrage strategy. (5 Marks)

Q5) Answer any two from (a) or (b) or (c) ————— (5x2) = 10 Marks

- a) Explain the following terms with reference to futures
 - i. Contract size/Lot size
 - ii. Expiry date (5 Marks)
- b) Explain options based Bull call spread strategy with an example. (5 Marks)
- c) A trader wants to take buy position in 2 contracts of the stock futures which trades at Rs.3000 with a lot size of 250. Historical annualized

volatility for the stock is 20%. Number of trading days in a year is 300.
Based on the above information,

- i) Calculate and explain VaR for 95% 3 days trading horizon.
- ii) Calculate and explain VaR for 99% 1 day trading horizon.

(5 Marks)

Q6) Answer any two from (a) or (b) or (c) ————— (5x2) = 10 Marks

- a) Explain the difference between hedgers and speculators with reference to derivatives market. (5 Marks)

- b) A trader buys two contracts of the index futures contract at 9000. The contract size is 50. What will be profit or loss to the trader if the contract is held till the maturity of the futures contract and the Index value on maturity of the contract is (i) 9500 and (ii) 8800? (5 Marks)

- c) A stock price is currently quoting at Rs.3000 and in one year period it may go up by 10% or down by 10%.The risk-free interest rate is 7% per annum. Calculate the value of one year European call option with a strike price of Rs.3000 using the one period binomial option pricing model. (5 Marks)

Q7) Answer any two from (a) or (b) or (c) ————— (5x2) = 10 Marks

- a) What are the basic assumptions of the Cost of carry model of futures pricing in perfect market conditions? (5 Marks)

- b) A call option on a stock with strike price of Rs.500 costs Rs.35 and a put option on the same strike price and expiration date costs Rs.40. Calculate and explain what range of the stock prices on the expiry would lead long straddle strategy to a loss. (5 Marks)

- c) What are the benefits and limitations of hedging? (5 marks)