M.Com. (Semester – IV) Examination, April 2017
COO 4A1 : DERIVATIVES MARKETS (OA – 18)

Duration : 3 Hours   Max. Marks : 60

Instructions : 1) *This paper consists of* **Nine** *questions carrying* **equal** *marks.*
2) *Question No.* **1** *consists of* **5 compulsory** *questions of* **2** *marks* **each**.
3) *Answer* **any five** *questions from question 2, 3, 4, 5, 6, 7, 8 and* **9**.
4) **Each** *question carries* **10** *marks. Figures to the* **right** *indicate marks.*
5) *Present value and Logarithm Tables will be* **supplied** *on request.*

1. Answer the following short questions :   **(5×2=10)**

   a) Discuss in brief "Exchange Traded Derivatives Vs. OTC Derivatives".

   b) Who is a Hedger in Derivatives Market ? Why Hedging is required ?

   c) What is sensitivity of options ? How do you compute Delta of Options ?

   d) What is Convenience yield in Commodity Derivatives ?

   e) List out LC Gupta Recommendations on Derivatives in brief.

2. A) What is Financial Derivative ? Discuss in brief the types of Derivatives.   **5**

   B) Explain in brief about the players in Derivatives Market.   **5**

3. A) What is Future Contract ? How Future Contracts are differ from Forwards ?   **5**

   B) What is Financial Option ? Discuss in brief the factors determines the Option Price.   **5**

4. A) What is a Currency Future ? How do you compute price of Currency Futures under Covered Interest Arbitrage ?   **5**

   B) Define Commodity Derivative. How Commodity Future's pricing is different from Stock Future's Pricing ?   **5**

5. A) Calculate the 6-month's forward price of an asset that pays no income when the spot price of the asset is Rs. 114 and the Risk Free Interest Rate is 7 percent p.a.

   After one month what will be the value of this Forward Contract if interest rates rise to 8.5 percent and the Spot price of the asset declines to Rs. 109 ? What is the value of this Forward Contract in Present Value terms ?   **5**

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B) Assume that the following term structure was observed on a particular day : **5**

Period	1	2
Spot Interest Rate (%) p.a.	10	11

   i) Find out the Forward Interest Rate for 2nd Period.

   ii) Suppose, if the market maker quotes 15 percent as the 1 period Forward Rate what will happen to arbitrageur ? Show the arbitrage process if possible.

6. A) Assume that the Spot price of a particular stock is Rs. 180 and the Risk Free Interest Rate is 5 percent. If a 90-day call option with a Strike price of Rs. 175 on this stock is trading at premium of Rs.15.

   i) What will be the price of a Put Option of the same maturity under Put-Call Parity Relationship ?

   ii) Is there any arbitrage possibility if the Put Options are trading at a premium of Rs. 6.50 instead of the price computed in (i) above ? If yes, illustrate. **5**

   B) The share of Sri Raashi Ltd., stands at Rs. 120, Put Options with a strike price of Rs. 130 are at premium of Rs. 15. You are required to compute the following :

   i) What are the Intrinsic Value and Time Value of Option ?

   ii) If the share price falls to Rs. 50 by the expiry date, what would be the profit/loss for the holder and writer of the options ? **5**

7. A) Consider a European Call Option on Stock when there is ex-dividend dates in two months and four months. The dividend on each announce date is Rs. 0.50. Current price of a share is Rs. 40, the exercise price of Option is Rs. 40, the Stock volatility is 30 per cent p.a. and time to maturity is 6-months. Calculate the price of Call Option using Black-Scholes Models. **5**

   B) Calculate the price of 3-months European Put Option of a Stock under Black-Scholes model with a Strike Price of Rs. 50 when the Current Stock Price is Rs. 50. The Risk Free Interest rate is 10 percent p.a. and also assumes that volatility of stock price is 30 percent p.a. **5**

8. A) A Stock is currently selling at Rs. 40. It is known that at the end of 1-month, it will be either Rs. 42 or Rs. 38. The Risk Free Interest Rate is 8 percent p.a. with a continuous compounding. Compute the value of 1-month European Call Option with a Strike Price of Rs. 39 using Binomial Option Pricing Model. **5**

B) A Stock is currently selling at Rs. 50. It is known that at the end of 6-months, it will be either Rs. 45 or Rs. 55. The Risk Free Interest Rate is 10 percent p.a. Strike price of option is Rs. 50. Compute the price of 6-months European Put Option using Binomial Option Pricing Model.   **5**

9. A) Suppose on March 10th, 2013, the following yields and prices existed in Foreign Exchange Market :

Spot Exchange Rate	Rs./USD $	47.35/$
Future Exchange Rate	Rs./USD $	47.78 $
6-months Indian Interest Rate	On Rupees	5 percent p.a.
6-months US Interest Rate	On Dollars	6 percent p.a.

Show that if there is any arbitrage opportunity and also compute the profit profile under arbitrage.   **5**

B) Assume the Stock of Escorts Ltd., is trading at Rs. 68 per share. You are expecting the stock to be trade between to 60 to 70 with next month. You would like to profit from this situation :

Consider to :

i) Buy 1 In-the-Money (ITM) Call of Rs. 60 @ a premium of Rs. 8.60 per contract.

ii) Sell In-the-Money (ITM) Call of Rs. 65 @ a premium of Rs. 4.90 per contract.

iii) Sell 1 out-of-the-Money Call of Rs. 70 @ a premium of Rs. 2.70 per Contract and

iv) Buy 1 Out-of-the-Money call of Rs. 75 @ a premium of Rs. 1.30 per contract.

You are required to show the pay-off under Long-Call in option strategy and compute the Net Profit from each spread.   **5**