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Unit-III

6. Assume a share is trading at Rs.100. A dividend of Rs.1.50 each is expected at the end of 3, 6, 9, and 10 months from now. The risk-free rates of interest is 8% and the stock price has a volatility of 25%. What is the value of a call option with an exercise price of Rs.110, with maturity of 6 months?

What is the value of a call option with an exercise Price of Rs.110, with maturity of 12 months? (Normal distribution tables to be made available) 10

7. (a) How would you make a portfolio delta as well as gamma neutral? Illustrate with an example.  
(b) What do you understand by 'vega' and 'rho' of an option? 5+5

Unit-IV

8. Critically discuss the role of financial derivatives in a financial system. 10
9. Write short notes on any two of the following: 5+5
- (a) Risk neutral valuation of derivatives.  
(b) Value at Risk (VAR)  
(c) Mark-to-market mechanism.

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**MS-3099**

M.B.A.(Semester-IV) Examination, 2015

**FINANCIAL DERIVATIVES**

(FP-425)

*Time Allowed : Three Hours ] [ Maximum Marks : 70*

Note : Answer five questions in all. Question No.1 is compulsory. In addition answer one question from each Unit. Use of financial/scientific calculator is permitted.

1. Answer the following questions in brief: 3×10=30
- (a) What are the advantages of futures contracts over forward contracts?  
(b) Explain backwardation and contango.  
(c) Explain cash and carry arbitrage.  
(d) What do you understand by put-call parity?  
(e) The Price of a State Bank of India share is Rs.1800. If the risk-free rate of interest is 6% P.a continuously compounded, then at what minimum price would a call

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option on the stock with strike price of Rs.1700 and maturing after one month, sell for?

- (f) A Stock is trading at Rs.500. A call option on the same stock with 3 months to maturity and an exercise price of Rs.550 is selling for Rs.12. What should be the price of a put option on the stock with 3 months to expiry? Assume the strike price for the put option Rs.550 and risk-free interest rate at 8%.
- (g) What are the assumptions under Black-Scholes option pricing model?
- (h) Differentiate between historical volatility and implied volatility.
- (i) What is a Currency Swap? How is it operationally different from an Interest rate Swap?
- (j) Explain the concept of delta hedging.

Unit-I

2. The following spot and interest rate prevail in the market :

Spot rate(Per `)	60.00	61.00
Interest rates: rupee	8.00%	8.50%
Euro	5.00%	5.50%

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Find out:

- (a) The lower bound to the 6-month forward ask rate.
- (b) Upper bound to the 6-month forward bid rate. 5+5
3. (a) How would you hedge a long position in a portfolio of stocks with Index futures? Explain with an example.
- (b) How would you control the beta of a portfolio with futures? What are the other ways of doing so and what is the advantage of adjusting beta with index futures? 5+5

Unit-II

4. (a) When and how should we use long and short Butterfly strategy?
- (b) Differentiate between call Bull Spread and Put Bear Spread. 5+5
5. A firm has a swap under which it pays a fixed interest of 9% and receives floating interest on a semi-annual basis. The swap has 14 Months to go, with next payment falling due after two months. The rate for the floating payment was fixed four months ago at 10.10%. If the term structure for the next 15 months is flat at 10.10%. What is the value of the swap for the firm? 10

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P.T.O.