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20MBAFM402

Fourth Semester MBA Degree Examination, June/July 2025
Financial Derivatives

Time: 3 hrs.

Max. Marks:100

Note: 1. *Answer any FOUR full questions from Q.No.1 to Q.No.7.*
2. *Question No. 8 is compulsory.*

1 a. Explain the meaning and benefits of financial derivatives. (03 Marks)
   b. Discuss the factors causing the growth of derivatives and the role of market players. (07 Marks)
   c. Explain the derivatives in market in India. (10 Marks)

2 a. Differentiate between futures and forwards. (03 Marks)
   b. Explain the mechanics of buying and selling futures and forwards. (07 Marks)
   c. Calculate the valuation of futures using the cost of carry model. The current spot price of stock is Rs 1000 and the risk – free interest rate is 8% per annum (compounded annually). The cost of storage and insurance is Rs 10 per year. If the contract is for 6 months. Calculate the fair price of the futures contract using the cost of carry model. (10 Marks)

3 a. Define option contracts and explain their features. (03 Marks)
   b. Solve put – call parity WITH THE GIVEN INFORMATION.
      • Call option price (C) = Rs 50   • Put option price (P) = Rs 30
      • Stock price (S) = Rs 200   • Strike price (X) = Rs 220
      • Risk free rate = 5 %   • Time to expiry = 1 year. (07 Marks)
   c. Using the Black – Scholes model. Calculate the value of an option contract. (10 Marks)

4 a. What are Financial swaps? Explain their advantages. (03 Marks)
   b. Explain the mechanics of Interest rate swaps. (07 Marks)
   c. TWO Companies, Company X and Company Y, enter into a 5 – year interest rate swap agreement with a national principal of Rs 100 crores. The terms of the swap are
      • Company X pays a fixed rate of 6% per annum
      • Company Y pays a floating rate based on MIBOR
      • The floating rate for the five year is :
         • Year 1 : 5.2 %   • Year 2 : 6.5 %   • Year 3 : 7.1 %
         • Year 4 : 5.8 %   • Year 5 : 6.3 %.
      Calculate the net cash flow exchanged each year. (10 Marks)

5 a. Define commodity derivatives and their types. (03 Marks)
   b. Explain the role of SEBI in regulating commodity derivatives in India. (07 Marks)
   c. A trader enters into a futures contract to buy 200 barrels of crude oil at futures price of Rs 5000 per barrel. At the time of contract expiration, the spot price changes as follows :
      • Scenario 1 : The spot price rises to Rs 5,200 per barrel
      • Scenario 2 : The spot price falls to Rs 4,800 per barrel.
      Calculate the trader's gain or loss in both cases. (10 Marks)

6   a. What are Credit derivatives?   **(03 Marks)**
    b. Explain the concept of value at Risk (VaR) and its applications in risk management.
                                                                             (07 Marks)
    c. Given a port folio with a 95% confidence level, expected return of Rs 50,000 and standard
        deviation of Rs 12,000. Calculate the 1 – day VaR using the Z – score method.
                                                                             (10 Marks)

7   a. What is Hedging?   **(03 Marks)**
    b. Explain different hedging strategies using Futures and options.   **(07 Marks)**
    c. A company expects to receive $ 1 million in 3 months and wants to hedge against exchange
        rate risk using currency futures. Given the current USD / INR spot rate is 83.5 and the
        3 – month future rate is 84.2. Calculate the potential gain or loss if the spot rate at expiry is
        85.0.   **(10 Marks)**

8   a. Explain the importance of derivatives in risk management.   **(10 Marks)**
    b. A port folio manager holds a stock port folio worth Rs 10 crores with a beta of 1.2. The
        Nifty 50 index is currently at 20,000 and Nifty futures contracts are priced at Rs 20,200 per
        unit. Each Nifty futures contract represents 50 units. If the manager wants to hedge the port
        folio completely using index futures. Calculate the number of contracts needed and the total
        hedge value.   **(10 Marks)**

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