

JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA

PGDM / PGDM (M) / PGDM (SM)

V TRIMESTER (Batch 2023-25)

END TERM EXAMINATIONS

REAPPEAR EXAM

(SET – III)

Course Name	Financial Derivatives & Risk Management (FDRM)	Course Code	20223
Max. Time	2 Hours	Max. Marks	40

INSTRUCTIONS:

- **Attempt all Questions. This is an open book exam. All questions need to be done in an excel file with separate sheets for each question.**

Q1. Suppose a 6-m forward contract on shares of ITC Limited is available. The current market price of ITC is Rs 484. If the risk-free interest is 6% per annum what should be the price of the 6-month forward contract? If the current market price of ITC future is 488. Evaluate the arbitrage opportunities and determine the arbitrage profit and loss with respect to stock price upward and downward. **(CLO 3; BT Level V, III; 2 X 3= 6 marks)**

Q2. XYZ Corporation, a US-based company, imports goods from the UK and has a future payment of £1,000,000 due in 90 days. If the current future price is \$1.31/£. In 90 days, the exchange rate in the spot market is \$1.34/£, and the currency futures price is \$1.36/£. The futures contract has a notional value of £100,000 per contract.

2 a) Determine the risk associated with the investment and suggest a hedging strategy for the US-based company.

2 b) Compute the basis risk if it exists and estimate the value for the trader at maturity?

(CLO 2; BT Level II, IV; 4 X 2= 8 marks)

Q3. A stock is selling for Rs 75. Call option as well as put with strike of Rs 80 and maturity of 3 months are available on the stock.

3 a) What is the minimum price these options must be if the risk-free rate of interest is 12% p.a. with monthly compounding?

3b) If the stock pays a dividend of Rs 2.00 in one month, Evaluate how this would affect the minimum price arrived at in a).

3c) Evaluate the arbitrage opportunities with the market price of options higher or lower than the minimum value. **(CLO 3; BT Level V, III; 3X 2= 6 marks)**

Q4. Assess the importance of Delta and Gamma and compute the value of both Greek letters for at-the-money 6900 call and put options with three months to expiry. The volatility of the underlying stock is 31% and risk-free rate is 6.5% continuously compounding **(CLO 3; BT Level V; 6 marks)**

Q5. A call option with an exercise price of Rs 50 costs Rs2. A put option with a strike price of Rs 45 costs Rs 3. Determine how a strangle can be created from these two options and Illustrate profit profile of strangle, suppose stock price on expiration date is ranging from 40 to Rs 60. **(CLO 2; BT Level III, IV; Marks: 3 X2=6)**

Q6. The risk of spot prices on gold as measured from its standard deviation is placed at Rs 130. Similarly, the price risk of the 3-m futures contract on gold is estimated to be Rs 180. The co-efficient of correlation between the two is placed at 0.15. In order to hedge spot position on gold, determine ratio of futures contract would be optimal? **(CLO 2; BT Level III; Marks: 4)**

Q7. Consider a multinational corporation, Company A, based in the United States, and Company B, based in the United Kingdom. Both companies have differing financing needs in terms of interest rates and currency exposure. Company A has access to a low-interest rate in USD but needs to raise funds in GBP for a project in the UK. Company B, on the other hand, has access to a low-interest rate in GBP but requires funds in USD for its expansion in the U.S.

Explain the concept of a currency swap and how it could be beneficial for both companies in this scenario as well as the potential risks associated with currency swaps for both parties involved. Analyze how exchange rate fluctuations might impact the success of this currency swap, and what risk management strategies could be employed to mitigate these risks. **(CLO 2; BT Level IV; Marks: 4)**