

GUJARAT TECHNOLOGICAL UNIVERSITY
MBA – SEMESTER –III-EXAMINATION – SUMMER-2022

Subject Code: 4539222**Date: 16-07-2022****Subject Name: Financial Derivatives****Time: 02:30 PM TO 05:30 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** Explain below given terms : **14**
- (a) Option
 - (b) Swaps
 - (c) Forward
 - (d) Open interest
 - (e) Hedge Ratio
 - (f) Covered and Spread
 - (g) Price Quote
- Q.2** (a) What is derivative? Explain features of derivatives. Bring out the difference between the forward, future and options contracts in detail. **07**
- (b) Define hedging and speculation. Explain factors affecting basic risk forward and future. **07**
- OR**
- (b) Who are the principal users of the derivatives market? What are their motives and how do they reduce their risk? **07**
- Q.3** (a) What is Basis Risk? Explain in detail factors affecting Basis Risk. **07**
- (b) What is the role of clearing house in futures contract and explain the purpose of a margin requirement in future trading **07**
- OR**
- Q.3** (a) Write the difference between Spot/cash market and Derivative market. **07**
- (b) A swap contract can be considered as a series of forward contract. Explain why? **07**
- Q.4** (a) What is meant by delta, gamma, theta, Vega, and rho of options? **07**
- (b) Explain the Straddle and Strangles Combination Strategy with example. Also discuss the difference between them. **07**
- OR**
- Q.4** (a) Assume that on June 1, Tata Steel is selling at INR 488.95 and there is a call option on this stock expiring on June 29 with an exercise price of INR 500. The risk-free rate is 12%, and the volatility of the stock is estimated as 25%. **07**

Calculate the price of the call according to the Black–Scholes formula.

- (b) Kingfisher Airlines uses 20,000 barrels of aviation fuel every month. On January 1, Kingfisher would like to hedge the price risk of aviation fuel for March and would like to enter into a futures contract with expiry on February 28. Since there are no futures on aviation fuel, the chief financial officer of Kingfisher decides to enter into February crude oil futures. The crude oil futures contract size is 100 barrels and the price of these futures on January 1 is USD 72 per barrel. The standard deviation of the aviation fuel price is USD 6, and the standard deviation of the crude oil futures price is USD 4. The correlation between the aviation fuel price and the crude oil price is 0.90.
How many futures contracts should Kingfisher Airlines enter into and what will be the hedging effectiveness? **07**

- Q.5** (a) Explain the different assumptions made in the Black Scholes Model and explain their implications in describing the model. **07**
- (b) Which model is currently used in market for option pricing? Discuss its assumptions, formula and implications. **07**

OR

- Q.5** (a) Assume that a stock is currently priced at INR 1,200. There exists a put option with an exercise price of INR 1,240 and an expiry of 90 days. At the end of 90 days, the stock price can either increase by 8% or decrease by 3%.
If the risk-free rate is 6%, calculate the price of the call by using the binomial options pricing model. **07**
- (b) SBI shares are selling on January 1 at INR 2,500. Call options are available on SBI shares with expiry on January 29 and exercise price of INR 2,600. These options are priced at INR 70. The contract size is 132. These are American options and these options are not expected to pay any dividends during January. At what share price on January 29 would you exercise these call options? **07**
- (ii) Would you exercise these call options if the share price on January 17 is INR 2,640?
- (iii) Calculate the terminal value of these call options (in terms of per share) for SBI share prices of INR 2,400, INR 2,500, INR 2,600, INR 2,700 and INR 2,800.
- (iv) Calculate the gains and losses for the call buyer if SBI share prices of INR 2,400, INR 2,500, INR 2,600, INR 2,700, and INR 2,800.
- (v) Calculate the gains and losses for the call writer if SBI share prices of INR 2,400, INR 2,500, INR 2,600, INR 2,700, and INR 2,800.
