

GUJARAT TECHNOLOGICAL UNIVERSITY
MBA– SEMESTER - III-EXAMINATION- SUMMER-2023

Subject Code: 4539222

Date: 21/06/2023

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.
4. Use of simple calculators and non-programmable scientific calculators are permitted.

Q. No.	Question Text and Description	Marks
Q.1	Define the following terms: (a) ITM, OTM (b) Butterfly strategy (c) Commodity forward (d) Open Interest (e) Interest rate futures (f) Delta and Theta in option (g) Bull spread	14
Q.2	(a) What do you mean by derivative? Explain the different types of derivatives with its features in detail.	07
	(b) What do you mean by hedging? Explain the principle of hedging and use of single stock future for hedging.	07
	OR	
	(b) Explain the meaning of SWAP and discuss the various types of Swap in detail.	07
Q.3	(a) Explain the meaning of risk management. How derivative can be use to mitigate the risk?	07
	(b) AT & T shares are selling at INR 1,620 on December 20. AT&T January futures are available with a contract size of 200 and expiry on January 29. The risk-free interest rate is 6%. L&T is expected to pay a dividend of INR 100 per share on January 5. What will be the AT&T January futures price on December 20?	07
	OR	
Q.3	(a) Discuss various option combination trading strategies in details.	07
	(b) Consider a 3-month futures contract on the Nifty Fifty Index. Assume that the dividend yield is estimated to be 2%. The current value of the index is 16,280 points, and the risk-free rate is 8%. What will be the price of the futures contract with expiry in three months?	07
Q.4	(a) On July 1, ABC shares are selling at INR 1,185. There are call options and put options available with the exercise date of September 30 and an exercise price of INR 1,260 on the ABC shares with a contract size	07

of 225. It is estimated that the stock price could be either INR 1,300 or INR 1,100 on the expiry date of September 30. The risk-free rate is 8%. Calculate the price of a put option on July 1.

- (b) On November 20, the spot price of jute is INR 2,198 per 100 kg and the price of December jute futures with expiry on December 15 is INR 2,276. The standard deviation of the spot price change is estimated as INR 260, and the standard deviation of the futures price change is estimated as INR 248. The correlation coefficient between the spot price change and the futures price change is estimated to be 0.99. The Gujarat Jute Corporation is planning to sell 40 MT of jute on December 15 and wants to hedge the price risk of jute. How should the corporation hedge its exposure? **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%. Calculate the price of the call according to the Black–Scholes formula **07**
- (b) Explain the how the bear spread can be created using the call and put options with payoff. **07**

Q.5 **CASE STUDY:**

ABC futures contract has a contract size of 375 and on September 1, ABC shares are selling at INR 2,330. You own 750 shares of ABC October ABC futures with expiry on October 29 are selling at INR 2,352. Assume that the spot price of ABC shares on October 29 is INR 2,300. You plan to hedge your holding in a ABC shares.

- (a) What type of hedging is appropriate and what positions will you required to assume in futures? What position you should hold if you want to buy the shares in October? **07**
- (b) What would be the result of your hedge in above case, that is, what is the effective price at which you would sell the shares? **07**

OR

- Q.5** (a) Explain how you would hedge in above case? **07**
- (b) What would be the result of your hedge, that is, what is the effective price at which you would sell the shares if on 29th October Spot rate is 2372 and futures rate is 2382? **07**
