

GUJARAT TECHNOLOGICAL UNIVERSITY

MBA – SEMESTER III – EXAMINATION – WINTER 2025

Subject Code: 1539504

Date: 18/12/2025

Subject Name: Financial Derivatives

Time: 10:30 AM to 01:30 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.1** Explain the following terms. **14**
- a) Calendar Spread
 - b) Hedger and speculator
 - c) Delta and Gamma
 - d) Basis risk
 - e) Forward contract
 - f) Swap
 - g) Decision tree
- Q.2 (a)** Explain the difference between futures and options. **7**
- Q.2 (b)** Explain the three conditions of perfect hedge with example. **7**
- OR**
- Q.2 (b)** The price of Suzlon shares at NSE is Rs.85, while a three month futures contract on Suzlon is being traded at Rs.90. If the trader can borrow at 12% p.a., is there an arbitrage opportunity available in the prices ruling in the spot and futures market? If yes then how can profit be made assuming 1 future contract is of 1000 shares? **7**
- Q.3 (a)** State the assumptions of put call parity theory. How can you apply the put call parity theory to binomial and BSM models? **7**
- Q.3 (b)** Explain in detail the specifications of a futures contracts. **7**
- OR**
- Q.3 (a)** Explain graphically moneyness of call and put options. **7**
- Q.3 (b)** Describe the use of swap to reduce risk. **7**
- Q.4 (a)** Write short-note on options Greeks. **7**
- Q.4 (b)** “Forward contracts are zero-sum games”. Explain. **7**
- OR**
- Q.4 (a)** Spot price of a stock is Rs.1200. Call option with exercise price Rs.1240 with expiry of 90 days is available. The stock price can increase by 4% or decrease by 1.5%. If risk free rate is 6% p.a., calculate the price of the call by using two stage binomial option pricing model **7**
- Q.4 (b)** Evaluate the types of risks attached to equity mutual funds, how can a fund manager hedge his exposure against downfall in the market? **7**

Q.5 A trader named Mr Maliya expects his favorite stock TCS to trade around Rs. 950 (with about 2-3% spread on the higher side). Overall market is volatile and therefore he does not want to take price risk. He is able to invest in TCS call options having following strike prices-
Call option of strike price X= 930, C = 65
Call option of strike price X= 950, C = 50
Call option of strike price X= 970, C = 35

- | | | |
|------------|---|----------|
| (a) | Construct butterfly spread strategy using call options, mention break-even point and maximum profit | 7 |
| (b) | Calculate his net profit/loss if the spot price on the date of expiry is Rs.960 | 7 |
| OR | | |
| (a) | Construct bull spread using call option with exercise price Rs.950 and Rs.970 . Calculate break-even point and maximum possible profit. | 7 |
| (b) | Calculate his net profit/loss if the spot price on the date of expiry is Rs.960 | 7 |
