

- Q.5 i. Introduce the Black-Scholes option pricing model. Explain the assumptions underlying this model. **4**
- ii. Define an option contract in financial markets. Explain the key components of an option and the two main types of options. **6**
- OR iii. An investor shorts a share at 110 and receives premium of ₹ 5. If the investor would have long purchase the same share at 100, then what would be the payoff position at different market prices? **6**
- Q.6 Attempt any two:
- i. Define a financial swap contract. What are the primary features of swap agreements in financial markets? **5**
- ii. Differentiate between interest rate swaps, currency swaps, and cross-currency swaps based on their underlying assets and objectives. Provide examples of scenarios where each type of swap is used. **5**
- iii. Explain interest rate swaps with its types. **5**

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Total No. of Questions: 6

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Enrollment No.....



Faculty of Management Studies  
End Sem Examination May-2024

MS3EF08 Financial Derivatives

Programme: BBA

Branch/Specialisation: Management

Duration: 3 Hrs.

Maximum Marks: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

- Q.1 i. Which of the following best describes a financial derivative? **1**
- (a) A physical asset such as real estate or machinery
- (b) A contract whose value is derived from an underlying asset or security
- (c) An interest-bearing bond issued by a government
- (d) Shares of a publicly traded company
- ii. What is the primary purpose of financial derivatives? **1**
- (a) To guarantee fixed returns on investments
- (b) To transfer risk between parties
- (c) To increase government revenue
- (d) To control inflation rates
- iii. Which act governs the regulation of securities and derivatives markets in India? **1**
- (a) Income Tax Act
- (b) SEBI Act, 1992
- (c) Companies Act, 2013
- (d) Reserve Bank of India Act, 1934
- iv. What is the main focus of regulations related to clearing and settlement in financial markets? **1**
- (a) Maximizing trading profits
- (b) Minimizing liquidity
- (c) Ensuring transparency and risk management
- (d) Encouraging speculative trading

- v. What is a key difference between forward contracts and futures contracts? **1**  
 (a) Futures contracts are standardized and traded on exchanges, whereas forward contracts are customized and traded over-the-counter (OTC)  
 (b) Forward contracts are more liquid than futures contracts  
 (c) Futures contracts have longer maturity periods compared to forward contracts  
 (d) Forward contracts have higher transaction costs compared to futures contracts
- vi. How are forward prices determined in forward contracts? **1**  
 (a) Based on the current spot price of the underlying asset  
 (b) Based on historical prices of the underlying asset  
 (c) Determined by government regulations  
 (d) Randomly assigned by the exchange
- vii. Which of the following factors affects the price of options? **1**  
 (a) Interest rates (b) Stock dividends  
 (c) Government regulations (d) Economic growth rates
- viii. What is the concept of put-call parity in options trading? **1**  
 (a) The relationship between the price of a put option and a call option  
 (b) The equilibrium relationship between the prices of a put option, a call option, and the underlying asset  
 (c) The maximum price limit for put options and call options  
 (d) The minimum price limit for put options and call options
- ix. What is the primary purpose of interest rate swaps? **1**  
 (a) To speculate on changes in interest rates  
 (b) To exchange different currencies at predetermined rates  
 (c) To hedge against interest rate fluctuations  
 (d) To minimize transaction costs
- x. Which type of swap involves exchanging interest payments in different currencies? **1**  
 (a) Interest rate swap (b) Currency swap  
 (c) Credit default swap (d) Commodity swap

- Q.2 i. List two types of derivatives commonly traded in India's financial markets and briefly explain their functions. **2**  
 ii. Explain the activities of different type of traders in derivative market. **3**  
 iii. What do you mean by derivative instrument? How can one classify derivative instruments? **5**
- OR iv. Discuss the concept of derivatives. What role do derivatives play in the financial world? **5**
- Q.3 i. Discuss the role of stock exchanges in implementing regulations related to clearing and settlement of trades in Indian securities markets. **4**  
 ii. Explain the significance of the Securities Contracts (Regulation) Act, 1956 in the context of India's financial regulatory framework. **6**
- OR iii. Explore the regulatory framework for risk management in Indian financial markets. How do regulatory measures aim to mitigate risks and ensure market stability? **6**
- Q.4 i. Differentiate between forward and futures contracts based on their key characteristics, including standardization, trading venue, and counterparty risk. **4**  
 ii. On January 1, price of Reliance share is 450 and two parties enter into a forward contract for delivery of 1000 shares of Reliance on April 15 at a price of ₹ 460. Find out the profit/loss profile of seller (short position) if the price of Reliance share turns out to be: (a) ₹ 470 (b) ₹400 on April 15. **6**
- OR iii. A farmer in Punjab expects to harvest 20,000 bags of wheat in late July. On 10 June, the price of wheat is 160 per bag. The farmer is worried as he suspects that price will fall below 160 before his July delivery date. He can hedge his position by selling July wheat futures. The July wheat futures price is 157 per bag. The farmer sold the July wheat futures. When July end approached, the price had fallen to 150 per bag. What is the value of the hedged position? **6**

## Scheme of Marking

### Financial Derivatives (T) - MS3EF08 (T)

Q.1	i)	Answer: B) A contract whose value is derived from an underlying asset or security	1
	ii)	Answer: B) To transfer risk between parties	1
	iii)	Answer: B) SEBI Act, 1992	1
	iv)	Answer: C) Ensuring transparency and risk management	1
	v)	Answer: A) Futures contracts are standardized and traded on exchanges, whereas forward contracts are customized and traded over-the-counter (OTC)	1
	vi)	Answer: A) Based on the current spot price of the underlying asset	1
	vii)	Answer: B) Stock dividend	1
	viii)	Answer: B) The equilibrium relationship between the prices of a put option, a call option, and the underlying asset	1
	ix)	Answer: C) To hedge against interest rate fluctuations	1
	x)	Answer: B) Currency swap	1
Q.2	i.	"List two types of derivatives commonly traded in India's financial markets and briefly explain their functions."	2
	ii.	Write a short note on evolution of derivative market in india.	3
	iii.	What do you mean by Derivative instrument? How can one classify derivative instruments? Also discuss the activities of different type of traders in derivative market. What do you understand by derivative instrument?	5
OR	iv.	Discuss the concept of derivatives. What role do derivatives play in the financial world?	5

Q.3	i.	Discuss the role of stock exchanges in implementing regulations related to clearing and settlement of trades in Indian securities markets.	4
	ii.	Explain the significance of the Securities Contracts (Regulation) Act, 1956 in the context of India's financial regulatory framework.	6
OR	iii.	Explore the regulatory framework for risk management in Indian financial markets. How do regulatory measures aim to mitigate risks and ensure market stability?	6
Q.4	i.	Differentiate between Forward and Futures contracts based on their key characteristics, including standardization, trading venue, and counterparty risk.	4
	ii.	Profit/Loss to short position (Seller) = Number of units X (Forward price - Future spot price) a) Forward price = 460 Future spot price = 470 $= 1,000 \times (460 - 470) = - 10,000$ (b) Forward price = 460 Future spot price = 400 $= 1000 \times (460 - 400) = ₹60,000$	6
OR	iii.	The farmer has sold the July future @ 157 per bag while the market price has fallen to 150 per bag. Hence he would gain on the future contract: $(157 - 150) \times 20,000 = ₹1,40,000$ Thus, the farmer covered the loss by hedging his position in the market.	6
Q.5	i.	Introduce the Black-Scholes option pricing model. Explain the assumptions underlying this model and describe the mathematical formula used to calculate theoretical option prices based on these assumptions.	4
	ii.	Define an Option contract in financial markets. Explain the key components of an option and the two main types of options.	6
OR	iii.	Short Position Details: Short sell price (SP) = ₹ 110 Premium received (P) = ₹ 5	6

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Long Position Details:

Purchase price (PP) = ₹ 100

Payoff Analysis at Different Market Prices (MP)

Case 1: Market Price (MP) ≤ ₹ 110 (Profit Zone for Short Position)

In this scenario, the investor benefits from the short sell position, and the maximum potential profit is capped by the premium received.

Payoff for Short Position (S):

Payoff = Short Sell Price (SP) - Market Price (MP) + Premium Received (P)

Payoff = ₹ 110 - MP + ₹ 5

Payoff = ₹ 115 - MP

Case 2: Market Price (MP) > ₹ 110 (Loss Zone for Short Position)

Here, the short seller incurs losses beyond the short sell price, with losses increasing as the market price rises above ₹ 110.

Payoff for Short Position (S):

Payoff = Short Sell Price (SP) - Market Price (MP) + Premium Received (P)

Payoff = ₹ 110 - MP + ₹ 5

Payoff = ₹ 115 - MP

Payoff for Long Position (L):

The investor's long position (if they had purchased at ₹ 100) will start making profits once the market price (MP) exceeds the purchase price (PP).

Payoff for Long Position (L):

Payoff = Market Price (MP) - Purchase Price (PP)

Payoff = MP - ₹ 100

Summary of Payoff Positions:

For Market Price (MP) ≤ ₹ 110:

Short Position Payoff (S): ₹ 115 - MP

Long Position Payoff (L): MP - ₹ 100

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For Market Price (MP) > ₹ 110:

Short Position Payoff (S): ₹ 115 - MP

Long Position Payoff (L): MP - ₹ 100

Conclusion:

The investor's payoff position will depend on the market price (MP) at expiration:

If MP ≤ ₹ 110, the short position's payoff (S) will be better than the long position's payoff (L).

If MP > ₹ 110, the short position's payoff (S) will result in losses beyond ₹ 110, whereas the long position's payoff (L) will begin to generate profits above ₹ 100.

Q.6

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|------|---|-----------|
| i.   | Define a financial swap contract. What are the primary features of swap agreements in financial markets?  | 5         |
| ii.  | Differentiate between interest rate swaps, currency swaps, and cross-currency swaps based on their underlying assets and objectives. Provide examples of scenarios where each type of swap is used. | 5         |
| iii. | Interest rate swaps   | 2.5 marks |
|      | Its types.  | 2.5 marks |

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