OR	iii.	An investor purchases a straddle on Stock ABC, which is currently trading at $100. The investor buys one 100 strike call for $6 and one 100 strike put for $4. What is the total cost of the straddle, the breakeven points, and the maximum profit potential?	**6**	3	1, 3	4

Q.6		Attempt any two:					
	i.	Describe the various types of financial swaps?	**5**	2	1, 2	5
	ii.	Company X and Company Y enter into a currency swap agreement where Company X agrees to pay 5% interest annually on a principal of $5,000,000 in USD, and Company Y agrees to pay 6% annually on a principal of €4,000,000 in EUR. The exchange rate is 1 USD = 0.9 EUR. Calculate the equivalent EUR payment from Company X and the USD payment from Company Y for the first year.	**5**	3	1, 3	5
	iii.	Company A and Company B enter into an interest rate swap agreement where Company A agrees to pay a fixed rate of 5% annually on a notional amount of $3,000,000, and Company B agrees to pay a floating rate based on LIBOR, which is currently 4.2%. The swap has annual payments. Calculate the total payment (net) for the first year by each party.	**5**	3	1, 3	5

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Total No. of Questions: 6 *Total No. of Printed Pages:4*

Enrollment No.....

Faculty of Management Studies
End Sem Examination Dec 2024
MS5EF15 Financial Derivatives

Programme: MBA Branch/Specialisation: Management / Finance

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.

			Marks	**BL**	**PO**	**CO**	**PSO**
Q.1	i.	Which of the following is NOT a feature of financial derivatives? (a) They derive their value from an underlying asset (b) They can be used for hedging, speculation, and arbitrage (c) They involve a fixed principal amount (d) They trade only on exchanges	**1**	1	1	1	
	ii.	A trader who uses derivatives to protect themselves from potential price fluctuations in an asset is called a: (a) Speculator (b) Arbitrager (c) Hedger (d) Broker	**1**	1	1	1	
	iii.	A forward contract on a financial asset such as stocks or bonds is classified as a: (a) Physical forward contract (b) Financial forward contract (c) Speculative forward contract (d) Non-deliverable forward contract	**1**	1	1	2	
	iv.	In futures quotes, a "bid" price represents the: (a) Price at which the seller is willing to sell (b) Price at which the buyer is willing to buy (c) Price at which the contract will be settled (d) Price of the underlying asset	**1**	1	1	2	

v.	Which of the following factors increases the value of a call option? (a) A decrease in the volatility of the underlying asset (b) An increase in the time to expiration (c) A decrease in the risk-free interest rate (d) A decrease in the spot price of the underlying asset	**1**	1	1, 2	3
vi.	In the Black-Scholes-Merton model, which of the following is NOT a required input for pricing European options? (a) The current price of the underlying asset (b) The risk-free interest rate (c) The expected dividends of the underlying asset (d) The volume of the underlying asset traded	**1**	1	1, 2	3
vii.	A strangle is an investment strategy that combines: (a) A call and a put for the same expiry date but at different strike prices (b) Two puts and one call with the same expiry date (c) Two calls and one put with the same expiry dates (d) A call and a put at the same strike price and expiry date	**1**	1	1, 2	4
viii.	A bear spread involves: (a) Buying a higher strike call and selling a lower strike call (b) Buying and selling options with the same strike price (c) Buying a higher strike put and selling a lower strike put (d) None of these	**1**	1	1	4
ix.	Which of the following financial swaps would most likely be used to hedge the risk of fluctuating interest rates in different currencies? (a) Interest rate swap (b) Currency swap (c) Commodity swap (d) Credit default swap	**1**	1	1	5

	x.	In a commodity swap, two parties exchange: (a) Fixed income for floating income (b) Commodity price risk for interest rate risk (c) Commodities such as oil or gold at current market prices (d) Cash flows based on the price of a specific commodity	**1**	1	1	5
Q.2	i.	Explain the meaning of derivative market in India.	**2**	2	2, 4	1
	ii.	Differentiate between Exchange-Traded Derivatives (ETDs) and Over-the-Counter (OTC) Derivatives.	**3**	4	1, 4	1
	iii.	Discuss about the different types of traders in the derivatives market.	**5**	2	1, 3	1
OR	iv.	What is the role of the derivatives market in the Indian economy?	**5**	1	1, 2	1
Q.3	i.	Explain any two key features of a forward contract. Compare forward futures.	**4**	2	1	2
	ii.	Describe the concept of Stock Futures and Stock Index Futures, and their uses in risk management.	**6**	2	2, 4	2
OR	iii.	What is the Cost of Carry model? How does it explain the relationship between the cash price and the futures price?	**6**	1, 4	1, 4	2
Q.4	i.	What are the factors that determine the pricing of an option?	**4**	1	1, 2	3
	ii.	Discuss about the various types of options available in the financial markets, with examples?	**6**	2	2	3
OR	iii.	Explain Black – Scholars Merton Model and binomial of option pricing with proper example.	**6**	2	2	3
Q.5	i.	What are the advantages of principal protected notes?	**4**	1	1	4
	ii.	Differentiate between strip and strap strategies. Draw pay off diagram.	**6**	2	4	4

Marking Scheme
MS5EF15 (T) Financial Derivatives (T)

Q.1	i)	(d) They trade only on exchanges	**1**
	ii)	(c) Hedger	**1**
	iii)	(b) Financial forward contract	**1**
	iv)	(b) Price at which the buyer is willing to buy	**1**
	v)	(b) An increase in the time to expiration	**1**
	vi)	(c) The expected dividends of the underlying asset	**1**
	vii)	(a) A call and a put for the same expiry date but at different strike prices	**1**
	viii)	(a) and (b) both	**1**
	ix)	(d) Cash flows based on the price of a specific commodity	**1**
	x)	(b) Currency swap	**1**
Q.2	i.	Meaning of derivative market – 2 marks	**2**
	ii.	Difference between ETDs & (OTC) – 3 marks 1 mark for each point	**3**
	iii.	Types of traders – 5 marks 1 mark for each point	**5**
OR	iv.	Role of the derivatives market – 5 marks 1 mark for each point	**5**
Q.3	i.	Features of a forward contract- 2 marks	**2**
	ii.	Concept of Stock Futures and its uses – 4 marks 1 mark for each point Concept of Stock Index Futures and its uses – 4 marks 1 mark for each point	**8**
OR	iii.	Cost of Carry model - 4 marks Relationship between the cash price and the futures price - 4 marks	**8**
Q.4	i.	Factors that determine the pricing – 3 marks 1 mark for each point	**3**
	ii.	Types of options – 7 marks 1 mark for each point	**7**
OR	iii.	Black – Scholars Merton Model with example – 3.5 marks binomial of option pricing with example – 3.5 marks	**7**
Q.5	i.	Advantages of Principal protected notes - 4 marks	**4**
	ii.	Differentiate between Calendar Spread and Diagonal Spread - 6 marks 1 mark for each point	**6**
OR	iii.	**1.Total Cost of the Straddle**: • Buy 100 strike call = $6. • Buy 100 strike put = $4. • Total cost = $6 + $4 = **$10** (per share or $1,000 for 100 shares). - 1.5 marks **2. Breakeven Points**: • Breakeven 1 (upside) = Strike price + Total cost = $100 + $10 = **$110**. • Breakeven 2 (downside) = Strike price - Total cost = $100 - $10 = **$90**. - 1.5 marks **3. Maximum Profit**: • The maximum profit is **unlimited** to the upside (if the stock rises significantly above $110). • The maximum profit on the downside is also **unlimited** if the stock falls significantly below $90. – 1.5 marks **4. Maximum Loss**: • The maximum loss occurs if the stock price remains at $100, and both options expire worthless. • Maximum loss = **$10** (the total premium paid for both options). – 1.5 marks	**6**

Q.6 i. Types of financial swaps – 5 marks **5**

1 mark for each point

ii. **5**

- **Company X's payment in USD**:
  Company X pays 5% on $5,000,000.
  Payment = 5% × $5,000,000 = $250,000.
- **Company Y's payment in EUR**:
  Company Y pays 6% on €4,000,000.
  Payment = 6% × €4,000,000 = €240,000.
- **Company X's payment in EUR equivalent**:
  Since the exchange rate is 1 USD = 0.9 EUR, Company X's payment in EUR equivalent = $250,000 × 0.9 = €225,000.
- **Company Y's payment in USD equivalent**:
  Company Y's EUR payment = €240,000.
  In USD, this payment = €240,000 ÷ 0.9 = $266,666.67.

iii. **5**

- **Fixed leg payment by Company A**:
  Fixed rate = 5%,
  Notional principal = $3,000,000,
  Payment = 5% × $3,000,000 = $150,000.
- **Floating leg payment by Company B**:
  Floating rate = 4.2%,
  Notional principal = $3,000,000,
  Payment = 4.2% × $3,000,000 = $126,000.
- **Net payment from Company A to Company B**:
  Net payment = $150,000 (fixed) – $126,000 (floating) = $24,000.
- **Result**:
  Company A will pay Company B $24,000 for the first year.

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