

BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF COMMERCE

DEPARTMENT OF BANKING AND FINANCE

DERIVATIVE SECURITIES (BS241)

3 HOURS (100 Marks)

JUN 2024

INSTRUCTIONS TO CANDIDATES

1. Answer any four questions.
2. All questions carry equal marks.
3. Credit will be given for grammatically well-constructed answers.

QUESTION ONE

- a) Entity X enters into a fixed price forward contract to purchase one million liters of oil in accordance with its expected usage requirements. The contract permits the entity to take physical delivery of the oil at the end of twelve months or to pay or receive a net settlement in cash, based on the change in fair value of oil. Explain if this contract can be accounted for as a derivative? (5)
 - b) How can financial derivatives be helpful in hedging, speculation and arbitrage? (20)
- [25 Marks]**

QUESTION TWO

- a) On January 1, 20X1 a city enters into a firm commitment contract to purchase a fire truck for delivery on June 30, 20X1 for Foreign Currency (FC)100,000. On January 1 20X1, it enters into a forward exchange contract to receive FC 100,000 and deliver Local Currency (LC) 109,600 on June 30, 20X1. Changes in the exchange rates affecting FC and LC are expected to offset each other.
 - i) Explain why the entity would enter into the forward exchange contract. Explain. (4)
 - ii) What is the hedged item? Explain. (4)
 - iii) What is the hedging instrument? Explain. (4)
 - b) An investor has 1000 shares of Rs. 500 each. How can put option be used to provide him, with insurance against risk when the value of the share is assumed to fall in next six months. (13)
- [25 Marks]**

QUESTION THREE

- a) Why is an option analogous to an insurance policy when used for hedging in a developing economy? (6)

- b) 'Forward contracts are often confused with futures contracts because of some similar economic functions.' Explain the similarity in the context of financial risk management. (8)
- c) Consider a forward contract on a non-dividend-paying stock that matures in three months. Suppose that the stock price is \$40, and the three-month risk free rate of interest is 5%.
 - i) What would be the delivery price in a forward contract negotiated today? (6)
 - ii) What action can be taken by the investor if the forward price is greater than the delivery price? (5)

[25 Marks]

QUESTION FOUR

- a) What is the price of a European call option on a non-dividend-paying stock when the stock price is \$52, the strike price is \$50, the risk free interest rate is 12% per annum, the volatility is 30% per annum, and the time to maturity is three months? (10)
- b) An entity has outstanding FC 5 million five-year debt. Principal is repayable at maturity in two years. It has entered into a currency swap contract for the notional value of FC 5 million. Under the contract it makes a payment of LC 5.1 million and receives a payment of FC 5 million on the date of maturity of the debt instrument. What type of hedge relationship is it? Explain. (15)

[25 Marks]

QUESTION FIVE

- a) Consider a forward contract on a non-dividend-paying stock that matures in three months. Suppose that the stock price is \$40, and the three-month risk free rate of interest is 5%.
 - i) What would be the delivery price in a forward contract negotiated today? (5)
 - ii) What action can be taken by the investor if the forward price is greater than the delivery price? (5)
- b) Discuss the uses and types of derivatives that can be useful for the agricultural and mining commodities in an emerging market. (15)

[25 Marks]

QUESTION SIX

- a) Give five examples of the options embedded in a project of a well-diversified multinational company. (10)
- b) Explain how the standardized features in a futures contract different from the rest of the derivative securities. (4)

- c) Under what circumstances are the following strategies appropriate in derivative trading:
 - i) a short hedge? and (2)
 - ii) a long hedge? (2)
- d) Explain why an American option is always worth at least as much as a European option on the same asset with the same strike price and exercise date. (7)

[25 Marks]

END OF EXAMINATION