BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF COMMERCE

DEPARTMENT OF BANKING AND FINANCE

DERIVATIVE SECURITIES (BS241)

3 HOURS (100 Marks)

OCT 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) How do hedgers, speculators and arbitrageurs differ in their derivative trading strategies? (5)

b) Explain why financial futures have replaced agricultural futures as the most actively traded contracts. (20)

[25 Marks]

QUESTION TWO

a) The price of gold is currently \$500 per ounce. The forward price for delivery in one year is \$700. An arbitrageur can borrow money at 5% per annum. What should the arbitrageur do? Assume that the cost of storing gold is zero and that gold provides no income. (5)

b) Explain why derivatives are zero-sum games. (5)

c) Discuss the challenges in establishing a derivative market in Zimbabwe. (15)

[25 Marks]

QUESTION THREE

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 types of derivatives that can be useful for the agricultural and mining commodities in an emerging market. (15)

[25 Marks]

QUESTION FOUR

a) 'Hedging prevents the investor from future price fluctuations?' Discuss this statement? (15)

b) Calculate 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)

[25 Marks]

QUESTION FIVE

a) Write notes on the following:

i) In-the-money

ii) Out-of-the-money

iii) At the money

iv) Time value of an option

v) Intrinsic value of an option

vi) Write and holder of an option

(12)

b) Explain the significance of options market in developed financial markets with suitable examples. (13)

[25 Marks]

QUESTION SIX

a) You would like to speculate on a rise in the price of a certain stock. The current stock price is \$29, and a three-month call with a strike of \$30 costs \$2.90. You have \$5 800 to invest.

Required:

i) Identify two alternative strategies, one involving an investment in the stock and the other involving investment in the option. (4)

ii) What are the potential gains and losses from each? (4)

b) A cattle farmer expects to have 120 000 pounds of live cattle to sell in three months. The live cattle futures contract on the Exchange is for the delivery of 40 000 pounds of cattle.

Required:

i) How can the farmer use the contract for hedging? (4)

ii) From the farmer's viewpoint, what are the pros and cons of hedging? (5)

c) On June 10, a silver dealer requires 100 kg of silver on September 20 to meet a certain contract of the spot price of silver is Rs. 9000 per 100 gm and futures price is \$8500 per 100 gm. Each contract which is traded on NCDEX is of 10 kg. What type of position should the silver dealer take in futures market?

NB. Also calculate the net change in wealth. (8)

[25 Marks]

END OF EXAMINATION