



**KABARAK UNIVERSITY**

**UNIVERSITY EXAMINATIONS  
2010/2011 ACADEMIC YEAR**

**FOR THE DEGREE OF BACHELOR OF COMMERCE**

**COURSE CODE: FNCE 423**

**COURSE TITLE: OPTIONS AND FUTURES MARKETS**

**STREAM: Y4S2**

**DAY: WEDNESDAY**

**TIME: 2.00 – 4.00 P.M**

**DATE: 15/12/2010**

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**INSTRUCTIONS:**

1. Question **ONE** is compulsory
2. Answer **any other THREE** questions from the rest of the questions
3. Begin a new question on a new page

**TIME ALLOWED 2 HOURS**

**Note:**

Black-Scholes Model:

$$C_0 = S_0 N(d_1) - E e^{-rt} N(d_2)$$

Where :

$$d_1 = \{ \ln (S_0/E) + (r + \frac{1}{2}\delta^2)t \} / \sqrt{\delta^2 t}$$

$$d_2 = d_1 - \sqrt{\delta^2 t}$$

And

$$P_0 = C_0 - S_0 + E e^{-rt}$$

Attached: Cumulative probabilities of the Standard Normal Distribution Function

**PLEASE TURNOVER**

### **QUESTION ONE**

- a) With relevant examples, differentiate between commodity derivatives and financial derivatives (5 marks)
- b) Explain the reactions of speculators in derivatives markets (4 marks)
- c) Bethwel, a young investor, is interested in a call option on Metrics ltd stock. The exercise price of the call option on this stock is shs. 115 with a value of shs 4. The stock is currently selling at shs 121 and has 3 months to expiration. The annual risk free interest rate, continuously compounded is 12 percent p.a. while the standard deviation of the company is 0.3 per year.

#### **Required**

- (i) Calculate the value of the call option using the B-S model and advice Bethwel appropriately (12 marks)
- (ii) Advice an investor in the short position given that the value of the put option in the above scenario is shs. 3 (4 marks)

### **QUESTION TWO**

- a) Consider a futures contract with the following terms:  
Spot price of gold is shs. 4,000  
Future price of gold (for delivery in one year) is shs 4, 500  
Interest rate is 10%

#### **Required:**

- Using the cash-and-carry model, Show whether there is an arbitrage in the futures contract (4 marks)
- b) Discuss the factors that have led to the growth of the futures markets and point out the economic importance of such markets (11 marks)

### **QUESTION THREE**

- a) In the trading of options, why is it crucial to know the strike price and option premium? (5 marks)
- b) Discuss the relevance of options markets in developing economies (10 marks)

### **QUESTION FOUR**

- a) Explain the main differences between interest rate swaps and currency swaps (5 marks)
- b) Discuss the main functions of swaps markets pointing out the limitations of such markets (10 marks)

### **QUESTION FIVE**

- a) Explain the main advantages of over the counter derivatives (7 marks)
- b) Consider a house available for sale which is currently valued at shs. 10 million. The risk free rate of bank borrowing for one year is 18% and the banks compound this semi annually. If this house is rented out, it fetches shs. 600,000 per year. An investor is considering buying this house in one year's time and the owner is asking for a forward price of shs. 12 million.

**Required:**

Given that the house is rented out, advice an investor interested in buying the house (8 marks)