MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)
University Examinations for 2015/2016 Academic Year

SCHOOL OF BUSINESS AND ECONOMICS

DEPARTMENT OF BUSINESS ENTREPRENEURSHIP AND MANAGEMENT SCIENCES

SECOND SEMESTER EXAMINATION FOR DEGREE IN BACHELOR OF COMMERCE

BAC 309: FINANCIAL DERIVATIVES

Date: 7/12/2015 **Time: 8:30 – 10:30 AM**

INSTRUCTIONS

Answer Question ONE and any other two Questions

QUESTION ONE

(a) Define a Financial Derivative (2 marks)

(b) Explain the following types of financial derivatives:

(i) Forwards
(ii) Futures
(iii) Options
(iv) Swaps

(8 marks)

(c) The stock price 6 months from the expiration of an option is $42. The exercise price of the option is $40, the risk free rate is 10% p.a. and the volatility is 20% p.a.

Required:

Calculate the value of the option if it is a:

(i) European call option (10 marks)

(ii) European put option (10 marks)

QUESTION TWO

(a) Explain four functions of financial derivatives. (6 marks)

(b) Explain the following terms.

(i) Long position (2 marks)
(ii) Short Position (2 marks)
(iii) Striking Price (2 marks)

(c) A Company bought a 2 year futures contract on an investment asset that provides no income. It costs Shs.20 per unit to store the asset with the payment being made at the end of the 2 years. If the spot price of the asset is Shs.4,500 per unit and the risk free rate is 7% per unit for all maturities, calculate the Futures price F_0 (8 marks)

QUESTION THREE

What do the following terms mean with respect to a call option?

(i) In-the-money
(ii) Out of –the-Money
(iii) At- the- Money
(iv) Near-the Money (8 marks)

(b) What do you understand by the term "Swaps"? Give and explain three examples (12 marks)

QUESTION FOUR

(a) Identify and explain four types of futures contracts. (4 marks)

(b) What are the main purposes of futures contracts? (4 marks)

(c) Wisdom Investments Ltd. Purchased a forward contract of a coupon bearing bond whose price is Shs. 9,000. The forward contract will mature in 9 months. If a coupon payment of Shs.400 is expected after 4 months, and the 4-month and 9-month risk free interest rates are 3% p.a and 4% p.a compounded continuously, calculate:

(i) The forward Price F_0 (6 marks)
(ii) The amount of arbitrage profit that Wisdom Investments Ltd. locks in if any. (6 marks)

QUESTION FIVE

(a) Explain the following terms in relation to options

- (i) Vega
- (ii) Gamma
- (iii) Rho (6 marks)

(b) Differentiate between European options and American options. (4 marks)

(c) You are considering to buy a put option on a stock index. The current price of the index is Shs.305 and the strike price is Shs.300. The dividend yield is 3% p.a and the risk free interest rate is 8% and the volatility of the index is 25% p.a. Calculate the gamma of the index. (10 marks)