The Co-operative University of Kenya

END OF SEMESTER EXAMINATION – DECEMBER 2016

EXAMINATION FOR THE BACHELOR OF COMMERCE
(BCOM YR IV SEM I)

UNIT CODE: HCOB 2408/ HBB 2403

UNIT TITLE: FINANCIAL RISK MANAGEMENT

DATE: 5TH DECEMBER, 2016   **TIME: 2:00 PM – 4:00 PM**

INSTRUCTIONS:

- Answer question **ONE (compulsory)** and any other **TWO** questions

QUESTION ONE

(a) A U.K importer has future payables of DM 20,000,000 in one year. It must decide whether to use options or a money market hedge this position. The following information is available

Spot rate	£ 0.74=DM1
One year call option Exercise price	£ 0.76=DM
Premium	£ 0.04 per DM
One year put option Exercise price	£ 0.77=DM
Premium	£ 0.02 per DM
Sterling deposit rate	8% per annum
Sterling borrowing rate	9% per annum
mark deposit rate	6% per annum
Mark borrowing rate	7% per annum

Forecast one-year spot rate	£ 0.70	£0.77	£ 0.70
Probability	25%	55%	20%

Required:

i.   Assuming that the importer's objective is to minimize the sterling value of DM payables. Which of the hedging instruments would you recommend? Verify your answer by estimating the sterling cost for each type of hedge. Compare cost of hedging with non-hedging   (10 Marks)

ii.   What non-financial and financial factors may influence the exporter's decision in choosing between the hedging instruments?   (10 Marks)

iii.   Consider a three-period binomial model in which a currency currently trades at a price of $70. The currency price can go up 15.9 percent or down 8.5 percent each period. The risk-free rate is 4.45 percent. Calculate the price of a European call option expiring in three periods with an exercise price of $65. Also, calculate the price of a European put option expiring in two periods with a $75 strike.   (10 Marks)

QUESTION TWO

(a) Consider a security that sells for Shs. 100 today. A forward contract on this security that expires in two years is currently priced at Shs. 110. The annual rate of interest is 9.75 percent. Assume that this is an off-market forward contract today, $V_0(0,T)$, and indicate whether payment is made by the long to the short or vice versa   (4 Marks)

(b) Consider a three-period binomial model in which a stock currently trades at a price of Shs 10. The stock price can go up 13 percent or down 15 percent each period. The risk-free rate is 5percent. Calculate the price of a European call option expiring in three periods with an exercise price of Shs 8.   (6 Marks)

(c) Explain any FIVE (5) factors that may influence volatility of stock returns on the Nairobi securities exchange   (10 Marks)

QUESTION THREE

(a) Assume you bought on BB's stock with an exercise price of Shs 850 at a premium of Shs 38.50

     i. Prepare a table showing the total pay off and profit you make if, on the expiration date, BB is trading at the following prices: Shs 830, 840, 850, 860, 870, 880, 890, 900, 800, 810, 920.   (7 Marks)

     ii. Draw a curve for profit and payoff on the same graph   (5 Marks)

(b) Illustrate the concept of put-call parity   (8 Marks)

QUESTION FOUR

(a) The current stock price for XYZ ltd is Shs 85. A European call option with an exercise price of Shs 85 will expire in 160 days. The yield on a 160 day Treasury bill is 5.18%. The standard deviation of annual returns on XYZ's stock is 445. Compute the premium for a call option on this stock using Black Scholes model   (5 Marks)

(b) Explain any FIVE (5) variables that may affect the value of a forward contract
                        (5 Marks)

(c) Show how you would make a portfolio delta-neural and also self-financing by including bonds and call options to a stock that is currently traded at Shs 100, given that the delta for the call=0.2499 and the call price=Shs 5.55   (10 Marks)