BCOM 435

CHUKA   UNIVERSITY

UNIVERSITY EXAMINATIONS

EMBU CAMPUS

**FOURTH YEAR EXAMINATION FOR THE AWARD OF DEGREE
OF BACHELOR OF COMMERCE**

BCOM 435: FINANCIAL MODELLING AND FORECASTING

STREAMS: BCOM (Y4S1)   **TIME: 2 HOURS**

DAY/DATE: MONDAY 8/8/2016   **2.30 P.M. – 4.30 P.M.**

INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

QUESTION ONE

(a)   Distinguish between the following terms

    (i)   A model and a forecast   [2 marks]

    (ii)   Definitional equation and behavioral equation   [2 marks]

    (iii)   European option and American option   [2 marks]

    (iv)   In the money and at the money   [2 marks]

(b)   You have bought one 6 month put option on a share with an exercise price of sh. 96 at a premium of sh 4. The share has a current price of sh 100. You expect the share to either rise to sh 108 or fall tosh 95 after 6 month. What will be the payoff when the option matures. Draw a diagram to explain.   [5 marks]

(c)   XYZ Limited an institutional investor holds shares in four companies as shown below

Company	No. of shares held	Beta equity coefficient	Marker price per share	Expected returns on equity
A	20,000	1.12	65	18
B	30,000	0.89	50	23
C	30,000	0.70	45	11
D	20,000	1.60	80	18

Expected market return is 14%

Risk free rate is 9%

Required:

(i)   Determine the required rate of return on each share and hence advise the XYZ limited on the worth of each investment on the portfolio.   [4 marks]

(ii) Calculate the expected return and required return on the overall portfolio of XYZ limited hence comment on the worth of the portfolio to the company.[4 marks]

(d)   Asembo Limited manufactures a product "Bandari". The company's labour cost varies with labour hours. They have the followinginformation of labour cost and labour hours f or a 6 month period that ended on 30th August 2015 as shown below.

Months	Labour hours	Labour cost
January	300	3200
February	120	1400
March	200	2300
April	170	1900
May	120	1600
June	90	1100
July	250	3000
August	180	2400

(a)   Use regression analysis to estimate the cost function.   [7 marks]

(b)   Use the equation in a above estimate the labour cost in December if the labour hours are expected to be 520.   [2 marks]

QUESTION TWO

(a)   The management of ABC Limited wants to establish the amount of financial needs for the next 2 years. The balance sheet of the term as at 31st December 2000 is as follows:

	Sh '000'
Net fixed assets	120,000
Current assets	
Stock	45,000
Debtors	30,000
Cash	5,000
Total assets	200,000
Financed by:	
Ordinary share capital	85,000
Retained earnings	35,000
10% long term debt	25,000
Trade creditors	35,000
Accrued expenses	20,000
	200,000

Additional information:

-   Sales amounted to sh30,000,000 in 31st December 2000. The firm's project that sales will increase by 10% in 2001 and 15% in 2002

-   After tax profit on sales has been 8% and the firm intends to use a 10% after tax return.

-   The firm intends to maintain its dividend payout ratio of 60%

Required:

(a)   Determine the amount of external finance requirements for the next two years and prepare a proforma balance sheet as at 31st December 2002.   [10 marks]

(b)   Outline the steps involved in financial planning.   [3 marks]

(c)   Determine the price of a European call option using the black and Scholes model if the current share price is 60, exercise price is sh 55, risk free rate is 10%, the share return volatility is 40% and the time to expiration is 6 months.[7 marks]

QUESTION THREE

(a)   Explain the following terms as they apply to capital market theory

(i)   Efficient frontier

(ii)   Unsystematic risk

(iii)   Weak form of efficiency   [3 marks]

(b)   A share is currently selling for sh 120. There are two possible prices of the share after one year sh 132 or sh 105. Assume that the risk free rate of return is 9% per annum. What is that value of two year call option with an exercise price of sh 125 using the binomial model.   [7 marks]

(c)   The following statement of financial position and income statement relating to Migingo company that was recently listed on the Nairobi securities exchange and its shares are currently selling at sh 10 per share.

	Sh (000)
Fixed assets	
Land	13,000
Plant & equipment	5,000
	18,000
Current assets	
Cash	1,500
Debtors	4,000
Inventories	1,000
	6,500
Less current liabilities	
Creditors	(2,500)
Bank overdraft	(1,500)
	20,500
Financed by:	
Ordinary share capital (1,000,000)	2,000
Preference share capital (150,000)	1,500
Share premium	2,500
Retained earnings	1,800
Total shareholders earnings	7,800
Long term liabilities	12,700
Total long-term liabilities and equity	20,500

MIGINGO STATEMENT OF INCOME

FOR THE YEAR ENDED 31ST DEC 2015

	Sh (000)
Sales	9000
Cost of goods sold	(4500)
Selling and administrative expenses	(1500)
Earnings before interest and tax	3000
Interest	(1000)
Earnings before tax	2000
Taxes (50%)	(1000)
Net income	1000

Required:

Compute the Altman Z- scoremodel and interpret its meaning.   [10 marks]

QUESTION FOUR

(a)   Consider the returns of three securities A, B and C with their respective probabilities

Probability	Return (%) A	Return (%) B	Return (%) C
0.2	16	14	3
0.3	14	19	5
0.5	20	22	6

Required:

Determine the portfoliorisk and portfolio expected return for a portfolio consisting of 40% of A, 20% of B and 40% of C.   [8 marks]

(b)   An investor is evaluating three portfolios with the following characteristics

Portfolio	Portfolio return	Portfolio beta
1	16%	1.2
2	14%	0.8
3	13.5%	0.9

Expected return on the market is 14.5% and the risk free rate is 4.5% use the capital asset pricing model to identify which among the above portfolio are efficient or inefficient.

[6 marks]

(c)   Outline the characteristics of forecasting.   [3 marks]

(d)   State the assumptions of capital asset pricing model.   [3 marks]