

CHUKA**UNIVERSITY****RESIT/ SPECIAL EXAMINATIONS****EXAMINATION FOR THE AWARD OF
BACHELOR OF COMMERCE****BCOM 435: FINANCIAL MODELLING AND FORECASTING****STREAMS: BCOM****TIME: 2 HOURS****DAY/DATE: THURSDAY 26/07/2018****11.30 AM – 1.30 PM****INSTRUCTIONS:****Answer Question One and any other Two Questions****Question One**

- (a) Richard owns a share that has a current price of sh 120. Its price at the end of two years has two possibilities either sh. 100 or sh. 300. Assume that Richard buys a call option on the share with an exercise price of sh. 150 at the end of two years. Calculate the value of the call option using binomial model if the risk free rate is 10%. [5 marks]
- (b) Discuss the different types of financial model and forecast. [2 marks]
- (c) Distinguish between a financial model and a forecast [2 marks]
- (d) Explain the steps involved in forecasting [6 marks]
- (e) Compute call option and put option price by applying Black-scholes option pricing model on the following values.

Exercise price	Shs. 50	
Continuous yearly risk free rate (T-bills)	10%	
Standard deviation of stock returns	25%	
Time remaining to expiration	9 months	
Current market price	shs. 45	[7 marks]

- (f) A company currently pays a dividend of sh. 2 per share and this dividend is expected to grow at 20% for 5 years, 10% for the next 3 years after which it will fall to a constant rate of 7% thereafter. The risk free rate is 7.5% and the risk premium of 4.5% is required to compensate for the risk. Required: Determine the intrinsic value of the company's share. [7 marks]

Question Two

- (a) The following is the balance sheet of Migingo limited as at 31st December 2013

	(000)
<u>Fixed Assets</u>	
Land	15,000
Machinery	8,000
Equipment	5,000
<u>Current Assets</u>	
Cash	3,000
Bank	2,500
Debtors	3,500
Stock	<u>3,000</u>
	<u>40,000</u>
Financed by:	
Ordinary share capital	24,000
Retained earnings	4,000
15% long term debt	5,000
Creditors	4,500
Accrued expenses	<u>2,500</u>
	<u>40,000</u>

Additional information

The sales for the year ended 31st December 2013 amounted to sh 50,000,000. The sales will increase by 10% in 2014 and 20% in 2015

The after tax profit on sales is 15%

The company's dividend payout ratio is 75%

Any external financing will be affected through the use of commercial paper. Required

- (i) Determine the amount of external financial requirements for the next two years. [7 marks]
- (ii) Prepare a proforma balance sheet as at 31st December 2015 [7 marks]
- (b) Highlight the steps involved in financing planning [6 marks]

Question Three

- (a) Differentiate between the following terms
- (i) Weak form of efficiency and strong form of efficiency. [2 marks]
- (ii) Capital market line and security market line [2 marks]
- (iii) Delphi method and Scenario writing [2 marks]

(iv) Cross-impact analysis and Jury of executive option [2 marks]

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

Portfolio	Expected Return %	Standard deviation (σ_p)
A	15	5
B	13	6
C	10	7
D	16	10

If the market return is 10% with a standard deviation of 4% and risk free rate of 6%, determine using the capital market line equation which of the portfolios are efficient and which are inefficient. [6 marks]

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

Portfolio	Portfolio expected return (%)	Portfolio beta
1	12	0.90
2	16	1.05
3	18	1.20

The expected return on the market portfolio is 15% and the risk free rate is 5%. Use the capital asset pricing model to identify whether the portfolios are fairly priced.

[6 marks]

Question Four

(a) Discuss the components of time series analysis. [4 marks]

(b) The following information relates to XYZ limited. The current market price of the ordinary share is sh. 10 per share

Statement of income

	Sh (000)
Sales	15,000
Cost of goods sold	(9,000)
Trading expenses	(1000)
Earnings before interest and tax	5,000
Interest	(1500)
Earning before tax	3,500
Tax (40%)	(1400)
Earnings after tax	<u>2100</u>

Statement of Financial Position

	Sh (000)
<u>Fixed Assets</u>	
Land	15,000
Machinery	5,000
Equipment	4,000

<u>Current assets</u>	
Cash	2,000
Bank	1,500
Debtors	3,500
Stock	<u>3,000</u>
	<u>34,000</u>
Financed by:	
Ordinary share capital (500000)	20,000
Preference share capital (200000)	5,000
Share premium	1,500
Retained earnings	2,500
<u>Long term liabilities</u>	
Debentures	2,500
<u>Current liabilities</u>	
Creditors	1,500
Bank overdraft	<u>1,000</u>
	<u>34,000</u>

Required: Altman Z score model and interpret its meaning. [8 marks]

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

Probability	R_A (%)	R_B (%)	R_C (5%)
0.2	16	15	4
0.3	13	18	6
0.5	20	22	8

Required:

Determine the portfolio risk and portfolio expected return consisting of 30% of A, 40% of B and 30% in C. [8 marks]
