MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

University Examinations 2013/2014

FOURTH YEAR, SECOND SEMESTER EXAMINATION FOR THE DEGREE IN BACHELOR OF COMMERCE

HBC 2219: FINANCIAL MODELLING AND FORECASTING

DATE: APRIL 2014   **TIME: 2HOURS**

INSTRUCTIONS: *Answer question **one compulsory** and any other **two** questions*

QUESTION ONE – 30 MARKS

(a) Distinguish between iconic and symbolic model.   (4 marks)

(b) Explain the steps involved in financial forecasting.   (5 marks)

(c) Distinguish between horizontal and vertical analysis of financial statements.   (2 marks)

(d) The following is a comparative statement of financial position for Cheryl's investments for the year ended 31st December 2011 and 2012.

	2012	2011
	Amount Sh.	Amount sh.
Assets		
Current assets	550,000	533,000
Long-term investment	95,000	177,000
Property, Plant and Equipment	444,500	470,000
Intangible assets	50,000	50,500
Total assets	**1,139,500**	**1,230,500**
Liabilities:		

Current Liabilities	210,000	243,000
Non-current Liabilities	100,000	200,000
Total Liabilities	**310,000**	**443,000**
Stockholders' Equity		
Preferred stock 6%sh. 100 par	150,000	150,000
Common stock sh.100 par	500,000	500,000
Retained earning	179,000	137,500
Total stockholders' Equity	**829,500**	**787,500**
Total Liabilities and stockholders Equity	**1,139,500**	**1,230,500**

Required: Prepare a horizontal analysis for the above statement. (10 mark

(e) The price and demand of a soft drink has been documented as follows:

Price (Ksh.000	2	3	5	4	2	6	1	3
Number of bottles	12	11	4	6	11	4	4	10

 i. Calculate the R-square and interpret your result. (5 marks)

 ii. Determine the regression equation and test the reliability of the regression coefficient at 10% level of significance. (3 marks)

QUESTION TWO –20 MARKS

(a) Explain the benefits of the statement of changes in financial position.
(b) Consider the following income statement for Rama Ltd for the year ended 31st December 2011.

	Shs.000
Sales	20,000
Less :Costs	16,969.70
Taxable Income	3,030.30
Less :Taxes	1,030.30
Net Income	2,000
Less: Dividends	1,000
Addition to Retained Earnings	1,000

Statement of Financial Position As at 31st December 2011

	Sh. 000	Sh. 000	Sh.000
Assets			
Non-current;			
Plant and Equipment (Net)			24,000
Current:			
Cash		1,000	
Accounts Receivables		2,000	
Notes payable		<u>3,000</u>	
		6,000	
Less :Current liabilities			
Accounts payable	6,000		
Notes payable	<u>4,000</u>	**10,000**	4,000
			20,000
Equities & long-term liabilities			
Common stock		4,000	
Retained Earnings		10,000	
Long-term Debt		6,000	**20,000**

The following assumptions are to be taken into consideration:

(i) The corporation tax rate is 34%

(ii) All balance sheet items are expected to increase spontaneously with sales except common stock and retentions

(iii) The company will maintain 50% pay-out rate for the foreseeable future.

Required: Prepare a proforma income statement and statement for financial position to determine the external financing needed to support 10% growth rate in sales.

QUESTION THREE – 20MARKS

(a) Joan's statement of income for the year ended December 31, 2010.

Sales	Sh.25, 265.00
Costs of Goods Sold	<u>-Sh.19, 891.00</u>
Gross profit	Sh.5, 374.00
Cash operating expense	<u>-sh.2, 761.00</u>

EBITDA	2,613.00
Depreciation & Amortization	-Sh.156.00
Other Income (NET)	-Sh.6.00
EBIT	Sh. 2,451.00
Interest	Sh.0.00
EBT	Sh.2, 451.00
Income Taxes	(Sh.785.00)
Net Income (EAT)	Sh.1, 666.00

Joan's Statement of Financial position as at December 31, 2010.

Assets:

Current Assets:	sh. 7,681.00
Non- Current Assets:	sh. 3,790.00
Total Assets	sh. 11,471.00

Liabilities:

Current Liabilities:	Sh.5, 192.00
LT Debt & Other LT Liab:	Sh.971.00
Equity:	Sh.5, 308.00
Total Liab.and Equity	Sh. 11,471.00

i. Determine ROE using Dupont system. Hence forecast the sustainable growth rate if the company has a policy of retaining 60% of its earnings.

ii. How much should the profit margin ratio so as to obtain a 25% growth?

(b) The following data on sales are given below

Time period(t)	Actual sales (00) (yt)
1	Sh 60.0
2	64.0
3	58.0
4	66.0
5	70.0
6	60.0

7	70.0
8	74.0
9	62.0
10	74.0
11	68.0
12	66.0
13	60.0
14	66.0
15	62.0

Use a six-period average as the initial forecast with a smoothing constant $\alpha=0.40$ to determine the exponentially smoothed average for period 15.

QUESTION FOUR – 20MARKS

(a) Explain briefly the components of time series data. (8 marks)

(b) The sales data for ABC Ltd (in million of shillings) for the year 2009 to 2012 inclusive are given:

Year	Q1	Q2	Q3	Q4
2009	3.7	4.1	3.3	3.5
2010	3.7	3.9	3.6	3.6
2011	4.0	4.1	3.3	3.1
2012	3.3	4.4	4.0	4.0

Determine:

a) The trend in the data using least squares method. (5 marks)
b) The standard error of the coefficient b and interpret your result. (3 marks)
c) Forecast sales for the first and second quarter of 2013 using multiplicative model. (4 marks)

More often, financial decision makers apply qualitative approaches to forecasting that rely heavily on judgement and less on analytical tools. Discuss three of such judgemental forecasting methods.

Cheryl Colby, the CFO of Charming Florist Ltd seeks to construct the firm's pro-forma balance sheet for the next fiscal year. Sales are projected to grow at 10% to the level of Sh.330 million. Current assets, fixed assets, short term debt and long term debt are 25%, 150%, 40% and 45% of the total sales, respectively. Charming Florist pays out 40% of the net income. The value of common stock is constant at Sh.50 million. The profit margin on sales is 12%.

i.   Based on Colby's forecast, how much external fund does Charming Florist need?
ii.   Reconstruct the current balance sheet based on the projected figures.

iii.   Lay out the firm's balance sheet for the next fiscal year.

QUESTION FIVE – 20MARKS

(a) Explain difference between Jury of executive opinion and Delphi method of qualitative forecasting.
                                                                                          (2 marks)

(b) Smart group of companies deal in sale of Toys in the past, it sold an average of 1000 toys each year. On the average each year, it sold 200 units in quarter one, 350 in quarter two, 300 in quarter three and 150 in quarter four. What will be the forecast for next year sale?   (6 marks)

(c) The demand and forecast information of XYZ company over a 12 month period is shown in the following table.

Period	Demand	Forecast
1	1600	1523
2	2200	1810
3	2000	2097
4	1600	2383
5	2500	2627
6	3500	2957
7	3300	3243
8	3200	3530
9	3900	3817
10	4700	4103
11	4300	4390
12	4400	4677

Calculate:

  i.   Mean absolute deviation (MAD)   (2 marks)
 ii.   Mean absolute percentage error(MAPE)   (2 marks)
iii.   Mean square error (MSE)   (2 marks)
 iv.   Running sum forecast errors (RSFE)   (2 marks)
  v.   Tracking signal   (2 marks)
 vi.   Assuming that the control limits for the tracking signal are ±3, what can be concluded about the quality forecast?   (2 marks)