

**CHUKA**



**UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

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

**BCOM 433: FINANCIAL MODELING AND FORECASTING**

**STREAMS: BCOM Y4S1 ODEL**

**TIME: 2 HOURS**

**DAY/DATE : WEDNESDAY 6 /10/ 2021**

**8.30 AM – 10.30 AM**

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**INSTRUCTIONS TO CANDIDATES:**

- Answer Question ONE and any other TWO
- DO NOT WRITE ANYTHING on the question paper.

**QUESTION ONE (30 MARKS)**

- a. Explain the benefits derived from corporate planning models [8 Marks]
- b. Distinguish between the following types of financial models
- (i) Qualitative models [3 Marks]
- (ii) Quantitative models [3 Marks]
- c. The following information and statement of Financial statement relates to ABC Ltd for the year ended 31<sup>st</sup> December 2015.

Sales Revenue Ksh.6.0 Million

Cost of sales (all variable) = 0.50\* Sales Revenue

Selling and administrative expenses: 50% of the Gross profit

Interest cost = 10% of non-current liabilities

Taxes = 0.3\* Income before tax

## STATEMENT OF FINANCIAL POSITION

As at 31<sup>st</sup> December 2015.

	Ksh.000
• Land	1,000
• Property, Plant & Equipment	13,000
<b>Total non-current assets</b>	<b>14,000</b>
Current Assets:	
Cash	400
Accounts receivables	3,000
Inventory	4,000
<b>Total current assets</b>	<b>7,400</b>
<b>Total assets</b>	<b>21,400</b>
Financed by:	
Ordinary share capital [500,000]	1,000
Preference share capital [100,000]	1,000
Share premium	2,000
Retained earnings	3,400
<b>Shareholders' equity</b>	<b>6,400</b>
<b>Current Liabilities:</b>	
Accounts payables	5,000
Notes payables	1,000
<b>Total current liabilities</b>	<b>6,000</b>
<b>Non-current liabilities:</b>	
4-year Loan	5,000
Mortgage	4,000
<b>Total Non-current Liabilities</b>	<b>9,000</b>
<b>Total liabilities and shareholders' equity</b>	<b>21,400</b>

**Additional information:**

The ordinary shares are currently priced at 120% of their book value.

**Required:**

- i. Compute the Altman Z-score for ABC Ltd and interpret your results. [12 Marks]
- ii. Discuss the likely effects of financial distress to a company [4 Marks]

**QUESTION TWO (20 MARKS)**

- (a) Distinguish between simulation and deterministic corporate planning models. [4 Marks]
- (b) Outline the steps a model builder would follow to perform a forecast [6 Marks]
- (c) The table below displays 10 month time series data on stock prices of Hubei Company Ltd. Cross listed on Johannesburg stock exchange.

Month (t)	1	2	3	4	5	6	7	8	9	10
Stock price ( $Y_t$ ) Rs	60	64	58	66	70	60	70	74	62	74

A financial analyst is indifferent on which smoothing constant  $\alpha = 0.5$  or  $\alpha = 0.61$ , would give better prediction for future stock prices. Using a three year average to initialize the data, give your advise on the basis of

- (i) Theil U-statistic
- (ii) Mean squared error [10 Marks]

**QUESTION THREE (20 MARKS)**

- (a) Explain four components of time series data [8 Marks]
- (b) There is a general belief by asset pricing researchers that returns on a stock can be predicted by the level of a firm's book-to-market ratio. A financial analyst has gathered the following historical data on stock returns (%) and book-to-market ratio for ABC Ltd . Stock over a span of 12 years.

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Returns %	15	20	14	16	25	20	20	23	14	22	18	18
B/M	0.9	1.9	1.1	1.4	2.3	1.2	1.2	2.2	0.7	1.3	1.5	1.7

**Required:**

- (i) Fit the regression equation on the data using least squares method [6 Marks]
- (ii) Hence project the return on the share if the market-to-book ratio is 0.4 [2 Marks]
- (iii) Estimate the standard error of the regression coefficient [4 Marks]

**QUESTION FOUR (20 MARKS)**

- d. Explain the meaning of qualitative models and discuss three qualitative models that can be adopted in forecasting financial data. [8 Marks]
- e. The fiancé manager for Sony Holdings Ltd. Wishes to prepare a four-month projection of cash collection using a lagged model structure:  
 $C.C = a * sales + b * sales (-1) + c * sales (-2)$   
 Where: CC = cash collection from customers  
 The firm will maintain the following credit collection policy
- (i) 60% percent is received in the month of sale
  - (ii) 20% in the month following the sale
  - (iii) The balance in the second month following the sale.

The table below shows estimated sales for the first five months of the year 2021

Month	Estimated Credit Sales Ksh.
1	120,000
2	100,000
3	140,000
4	150,000
5	160,000

If 5% of the cash collection expected in the second month following the sale is deemed doubtful, prepare a schedule showing cash flow projections for he first four months of the year 2021. Assume that credit sales in the last month of the year 2020 were Ksh.80,000. [12 Marks]

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