

TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF BUSINESS

DEPARTMENT OF ACCOUNTING AND FINANCE

UNIVERSITY EXAMINATION FOR:

BACHELOR OF COMMERCE/BACHELOR OF BUSINESS ADMINISTRATION

BFI 4403 FINANCIAL FORECASTING AND MODELLING

SPECIAL AND SUPPLEMENTARY EXAMINATION

SERIES: JULY 2025

TIME: 2 HOURS

DATE: Pick Date Select Month Pick Year

Instructions to Candidates

You should have the following for this examination.

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

- a) Discuss the shortcomings of forecasting in business **(5 marks)**
- b) The following information relates to Moja, Mbili and Tatu companies for the year ended 31 December 2024

	Moja	Mbili	Tati
Net earnings for the year (million)	Ksh 200	Ksh 180	Ksh 250
Number of common stock outstanding (millions)	40	45	50

Total dividends declared during the year (million) 50	Ksh 90	Ksh 80	Ksh 100
Stockholder's equity (million)	Ksh 800	Ksh 1350	Ksh 200

Required:

Calculate the sustainable growth rate of each company and comment on your results **(10 marks)**

c) Maisha Masha company wishes to prepare a three-year projection of net income using the following information:

i. 2021 base year amounts are as follows:

Sales revenues	4,500,000	
Cost of sales	2,900,000	
Selling and administrative expenses		800,000
Net income before taxed		800,000

ii. Use the following assumptions:

- Sales revenues increase by 6% in 2022, 7% in 2023 and 8% in 2024
- Cost of sales increase by 5% each year
- Selling and administrative expenses increased only 1% in 2022 and will remain at the 2022 level there after
- The income tax rate = 46%

Required:

d) Prepare a proforma income statement for the year 2022,2023 and 2024

(8 marks)

e) By use of examples, explain the differences between:

- Qualitative and quantitative forecasting (4 marks)
- Horizontal and vertical analysis (3 marks)

Question TWO

a) As an analyst you gathered the following data from two companies in the same industry. Selected income and balance sheet data

	Company X	Company Y
Revenues	900	500

EBIT	35	100
Interest expense	5	0
\$BT	30	100
Taxes	10	40
Net income	20	60
Total assets	250	300
Total debt	100	50

Required:

Calculate the ROE for both companies and use the extended DuPont analysis to explain the critical factors that account for the differences in the two companies ROEs **(12 marks)**

b) Explain the steps followed in forecasting business phenomena **(8 marks)**

Question THREE

a) Distinguish between the trend and the seasonal variation in a time series **(5 marks)**

b) Sogoi Ltd purchased a certain raw material are shown quarterly over three years in the following table

<i>Year</i>	<i>Quarter</i>	<i>Purchases of raw material (ksh 000)</i>
2022	1	12
	2	11
	3	18
	4	5
2023	1	19
	2	12
	3	22
	4	10
2024	1	26
	2	15
	3	30
	4	16

- i. Calculate a centered four-point moving average trend (5 marks)
- ii. Using the multiplicative model and the trend estimated in part (i) estimate the seasonal factors in each quarter (5 marks)
- iii. Use your results to forecast (to the nearest whole numbers) the company's purchases of the raw material in the four quarters of 2025 (5 marks)

Question FOUR

- a) Sales data of a Motor Bikes manufacturer are given below;

Period	Actual (A)	Forecast (F)
1	217,000	215,000
2	213,000	216,000
3	216,000	215,000
4	210,000	214,000
5	213,000	211,000
6	219,000	214,000
7	216,000	217,000
8	212,000	216,000

Required:

Calculate mean absolute deviation (MAD), mean square error (MSE), mean absolute percentage error (MAPE) and tracking signal and comment on your results (12 marks)

- b) Explain the merits and limitations of the following forecasting techniques:
- i. Exponential smoothing (4 marks)
 - ii. Regression analysis (4 marks)

Question FIVE

- a) Explain the advantages of financial modelling in business (8 marks)
- b) Discuss the following qualitative forecasting techniques;
- i. Historical analogy (3 marks)
 - ii. Panel consensus (3 marks)
 - iii. Delphi method (3 marks)
 - iv. Market research (3 marks)