

CHUKA



UNIVERSITY

**SUPPLEMENTARY / SPECIAL EXAMINATIONS
FOURTH YEAR EXAMINATION FOR THE AWARD OF BACHELOR OF
COMMERCE**

BCOM 436: FINANCIAL ECONOMETRICS

STREAMS: BCOM Y4S1

TIME: 2

HOURS

DAY/DATE: MONDAY 16/11/2020

8.30 A.M - 10.30 A.M.

INSTRUCTIONS:

- Answer Question ONE and any other TWO questions

QUESTION ONE

- a) Discuss relevance of financial econometrics to a financial manager in a firm (6 marks)
- b) Discuss four types of trends that affect times series data (8 marks)
- c) The following data relates to the profits generated by a firm between the financial year 2010 and 2016. Fit a straight line trend by a method of least squares method and calculate the trend values. Also predict the likely profit for the year 2023 (10 marks)

							2
							0
							1
Year	2012	2013	2014	2015	2016	2017	8
Profits (in Ksh M)	12	10	14	11	13	15	1
							6

- d) Explain three properties of a good parameter estimator (6 marks)

QUESTION TWO

- a) Discuss the assumptions of linear regression model and show how they may affect financial models (8 marks)
- b) A random sample of 200 consumer accounts at a large brokerage firm is selected for the purpose of estimating the mean number of transaction per year for each customer. The sample mean is 12. Determine 99% confidence interval for the mean number of transactions of all consumer accounts of the firm (4 marks)
- c) Explain the following terms as used in financial econometrics
 - i) Normality (2marks)
 - ii) Reliability (2marks)
 - iii) Multicollinearity (2 marks)
 - iv) Autocorrelation (2 marks)

QUESTION THREE

e) Fit a straight line trend by a method of least squares method to the following data

							2
							0
							1
Year	2010	2011	2012	2013	2014	2015	6
Production (in tonnes)	12	10	14	11	13	15	1
							6

Required: Calculate the trend values and predict the likely production for the year 2023 (10 marks)

- f) Explain the steps involved in hypothesis testing (6 marks)
- g) In a survey of buying habits, 400 women shoppers are chosen at random in supermarket A. Their average weekly food expenditure is Ksh 250 with a standard deviation of Ksh 40. For another group of 400 women shoppers chosen at random in supermarket B located in another area of the same city, the weekly average food expenditure is Ksh 220 with a standard deviation of Ksh 55. Test at 1% level of significance whether the average weekly food expenditures of the populations of women shoppers are equal (4marks)

QUESTION FOUR

- a) As a result of tests on 20,000 electric fans manufactured by a company, it was found that lifetime of the fans was normally distributed with an average life of 2,040 hours and standard deviation of 60 hours. On the basis of the information, estimate the number of fans that are expected to run for more than:
 - (i) 2,150 hours (2 marks)
 - (ii) less than 1960 hours (2 marks)
- b) Explain the assumptions of analysis of variance (4 marks)
- c) A company gives on job training to its sales staff which are followed by a test. It is considering whether it should terminate the services of any sales person who does not do

well in the test. The following data gives the test scores by nine officers during the last one year.

Test Scores	14	19	24	21	26	22	15	20	19
Sales (ksh M)	31	36	48	37	50	45	33	41	39

Required:

- i) Compute the coefficient of correlation between test scores and sales made by the officers (8 marks)
- ii) Comment on your answer in (i) above (2 marks)

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