(*Knowledge for Development*)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS
2020/2021 ACADEMIC YEAR

FOURTH YEAR 2ND SEMESTER
SPECIAL/SUPPLIMENTARY EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURAL ECONOMICS & RESOURCE MANAGEMENT

COURSE CODE: IAE 485
COURSE TITLE: ECONOMETRICS

DATE: 13TH JANUARY 2022 **TIME:** 11 – 1 PM

INSTRUCTIONS TO CANDIDATES

Answer Question One and any other two (2) Questions.

TIME: 2 Hours

This paper consists of 2 printed pages. Please Turn Over

Q1.

The following data relates to AGEX limited company for the year ending 30th June, 2014:

Table 1.Output produced at various costs

month	Jan	Feb	March	April	May	June
Y (output in units)	50	55	60	50	70	65
Total cost (KES)	4,900	5,250	5,850	5,200	6,650	6,050

Required

i) Using regression analysis technique, determine the fixed and variable costs expression for the company **(5 marks)**

ii) Write down the cost equation in the form of $\hat{Y}_i = \hat{b}_1 + \hat{b}_2 Xi$ **(2 marks)**

iii) Calculate the coefficient of determination **(5 marks)**

iv) Calculate the correlation coefficient **(5 marks)**

v) Given a production of 70 units, how much will it cost? Interpret your answer **(3 marks)**

vi) Explain the significance of studying correlation **(10 marks)**

Q2.

a) Differentiate between regression and causation **(4 Marks)**

b) Using specific examples, write short notes on ordinal and continuous data, and explain how such data is tested statistically **(6marks)**

c) Are the following models linear regression models? Why or why not? **(4marks)**

i) $Yi = e\beta 1+\beta 2Xi+ui$

ii) $Yi = 1/1 + e\beta 1+\beta 2Xi+ui$

d) Explain with reasons whether the following statements are true, false, or uncertain **(6marks)**

i) Since the correlation between two variables, Y and X, can range from -1 to $+1$, this also means that cov (Y, X) also lies between these limits.

ii) If the correlation between two variables is zero, it means that there is no relationship between the two variables whatsoever.

iii) If you regress Yi on $\hat{}Yi$ (i.e., actual Y on estimated Y), the intercept and slope values will be 0 and 1, respectively.

Q3.

Discuss the significance of the stochastic disturbance (error term) in econometric analysis **(20 marks)**

Q4.

a) Explain five approaches used to handle multicollinearity problem **(10marks)**

b) Outline the consequences of multicollinearity **(5 marks)**

c) What is autocorrelation and how does it arise **(5 marks**

Q5.

a) Discuss the sources of autocorrelation **(8 marks)**

b) Explain six assumptions of the Durbin-Watson test of autocorrelation **(12 marks)**

Q6.

a) Critically evaluate the following statement, "In fact, multicollinearity is not a modeling error. It is a condition of deficient data." **(10 marks)**

b) Explain the significance of studying correlation **(10 marks)**