(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS 2021/2022 ACADEMIC YEAR

SECOND YEAR 2ND SEMESTER SPECIAL/SUPPLEMENTARY EXAMINATIONS

FOR THE DEGREE OF BACHELOR OF SCIENCE INAGRICULTURAL ECONOMICS & RESOURCE MANAGEMENT

COURSE CODE: AEC 223
COURSE TITLE: ECONOMETRICS

DATE: 28TH JULY 2022   **TIME:** 8 – 10 AM

INSTRUCTIONS TO CANDIDATES

Answer all Questions in section A and any other two (2) Questions in section B.

TIME: 2 Hours

This paper consists of 3 printed pages. Please Turn Over ▶

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QUESTION ONE

30 MARKS

(a) Discuss the types of data used for econometric analysis, highlighting their key characteristics and differences **(10 marks)**

(b) Explain the concept of regression and its significance **(5 Marks)**

(c) Define regression coefficients? What does each one tell us about the variables under study

(5 Marks)

(d) What is a confidence interval, how would you calculate it and what information does it provide in econometric analysis. **(10 marks)**

QUESTION TWO

20 MARKS

The data below shows quantity supplied of an agrochemical at various prices over a period of nine years

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021
Quantity Supplier (boxes)	80	82	86	91	83	85	89	96	93
Price/ box in hundreds of KSh.	145	140	130	124	133	127	120	110	116

(a) Calculate the value of r **(3Marks)**
(b) Calculate the regression coefficients **(7 Marks)**
(c) Interpret this result **(5 Marks)**
(d) Estimate the quantity that would be supplied if the price of the agrochemical increased to KSh.15,000 in the year 2022 **(3 Marks)**
(e) Estimate the price at which the quantity supplied would be 100 Boxes **(2 Marks)**

QUESTION THREE

20 MARKS

(a) For the validity of OLS estimates, there are assumptions made, whose violation would make OLS estimates unreliable and incorrect. Briefly discuss these assumptions **(14 Marks)**
(b) A linear equation always includes an error term. Explain the purpose of including this term? **(6 Marks)**

QUESTION FOUR   20 MARKS

(a) After estimating a regression line depicting the relationship between two variables, why would an economist test their hypothesis? **(2Marks)**

(b) Explain the procedure generally followed in testing a hypothesis **(8 marks)**

(c) Write short notes on the following **(10 Marks)**
   (i)   Null and alternative hypothesis
   (ii) One tailed and two tailed test
   (iii) Acceptance region

QUESTION FIVE   20 MARKS

Consider the data below, fit a multiple linear regression model to this data set and interpret the results

Y	X_1	X_2
140	60	22
155	62	25
159	67	24
179	70	20
192	71	15
200	72	14
212	75	14
215	78	11