CHUKA UNIVERSITY

UNIVERSITY EXAMINATIONS

RESITS/SPECIAL EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURAL ECONOMICS

AGEC 313: ECONOMETRICS

STREAMS: AGEC, AGBM **TIME: 2 HOURS**

DAY/DATE: MONDAY 28/8/2023 **8.30 A.M. – 10.30 A.M.**

INSTRUCTIONS:

(i) Answer **QUESTION ONE** and any other **THREE** questions
(ii) Do not write on the question paper

QUESTION ONE

a. Discuss four importance of econometrics (4 Marks)
b. Distinguish between Econometric model and Mathematical model? (4 Marks)
c. List five main assumptions of simple linear regression (5 Marks)
d. What will be the interpretation of B_1 in the following equations
   i. $Y=B_0+B_1X+u$ (2 Marks)
   ii. $Y=B_0+B_1 \log(X)+u$ (2 Marks)
   iii. $\text{Log } (Y)=B_0+B_1X+u$ (2 Marks)
   iv. $\text{Log } (Y)=B_0+B_1 \log(X)+u$ (2 Marks)
e. Differentiate between heteroskedasticity and autocorrelation (4 Marks)

QUESTION TWO

a. Discuss four types of data (8 Marks)
b. Discuss at least five reasons for autocorrelation (5 Marks)

c. List two methods of testing for autocorrelation (2 Marks)

QUESTION THREE

a. Describe the procedure for hypothesis testing in econometrics (5 Marks)

b. The following table shows the pieces of land their acreage and costs of production

Piece of land	(x)Acreage Hectares	(y) Cost Sh. 000
A	2.3	23
B	1.7	15
C	4.2	45
D	3.3	31
E	5.2	55
F	6.0	59
G	7.3	74
H	8.4	85
J	5.6	53

Determine the regression equations of y on x (10 Marks)

QUESTION FOUR

An economist wanted to establish the relationship between wealth (w) and consumption (c) and came up with the following intermediate results in real values:

$\Sigma w=1345.8 \quad \Sigma c=1224.1 \quad n=20 \quad \Sigma w^2=92520 \quad \Sigma c^2=75969 \quad \Sigma wc=83826$

a) Specify and estimate the model (8 Marks)

b) Interpret your results in (a) above (4 Marks)

c) Determine the coefficient of determination for the estimation above (3 Marks)

QUESTION FIVE

a. Explain briefly the role of stochastic term in an econometric model (8 Marks)

b. Define a dummy variable (2 Marks)

c. With aid of a diagram, illustrate the effect of gender dummy in the following model

Income=B_0+B_1Experience+B_2Gender

Where Income is in KES, Experience is in years and Gender (1=Male, 0=Female)

(5 Marks)

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