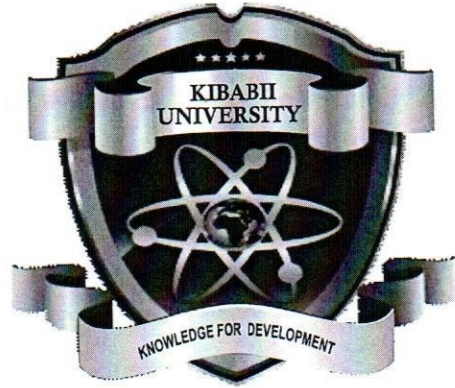*(Knowledge for Development)*

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS 2020/2021 ACADEMIC YEAR

FIRST YEAR 2ND ST SEMESTER MAIN EXAMINATIONS

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

COURSE CODE: AEC 125
COURSE TITLE: STATISTICS FOR ECONOMISTS

DATE: 13TH JULY 2021   **TIME:** 9AM – 11 AM

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 ▶

1

Q1.

a) A sample of 600 accounts was taken to test the accuracy of posting and balancing accounts where in 45 mistakes were found.

Required

i)	Find out the population proportion using 99% confidence level	**(4 marks)**
ii)	Determine the confidence interval	**(4 marks)**

b) The following 20 data measurements relate to various weights of Chicken breasts in XYZ Supermarket.

19.7,   19.9,   20.2,   19.9,   20.0,   20.6,   19.3,   20.4,   19.9,   20.3,   20.1,
19.5,   20.9,   20.3,   20.8,   19.9,   20.0,   20.6,   19.9,   19.8

Required

i)	Compute the mode	**(4 marks)**
ii)	Compute the median	**(4 marks)**
iii)	Compute the mean	**(4 marks)**
iv)	Using a hypothesized mean of 10, calculate the variance	**(5 marks)**
v)	Calculate the standard deviation of the weights using a hypothesized mean of 10.	**(5 marks)**

Q2.

Explain the various probability sampling methods, stating clearly their advantages and disadvantages   **(20 marks)**

Q3.

Write short notes on the following

i)	Discrete and continuous data	**(4 marks)**
ii)	Categorical variables	**(6marks)**
iii)	Sources of statistical data	**(6 marks)**
iv)	Grouped and ungrouped frequency distributions	**(4 marks)**

Q4.

a) On a single toss of a die, we can get only one of six possible outcomes: 1, 2, 3, 4, 5, or 6. These are mutually exclusive events. If the die is fair, find the probability of getting a 2 or a 3 on a single toss of the die. **(5 marks)**

b) A police department receives an average of 10 calls per hour. Find the probability of receiving 4 calls in a randomly selected hour. **(5 marks)**

c) Suppose X is a normally distributed random variable with a mean of 10 and variance of 4. Find the probability that X will assume a value between 7 and 14 **(5 marks)**

d) Find the probability of X in Q4.C above assuming a value smaller than 7 or larger than 14

(5 marks)

Q5.

a) Explain Five methods of primary data collection **(10 marks)**

b) In a sample of 600 candidates, 320 were female. Estimate the population proportion at 95% confidence interval. **(5 marks)**

c) A firm wants to know with a 95% level of confidence if it can claim that the boxes of detergent it sells contain less than 300g of detergent. From past experience the firm knows that the amount of detergent in the boxes is normally distributed. The firm takes a random sample of n=25 and finds that the hypothesized mean=320 g with a standard deviation of 75 g. Test the hypothesis that the mean is <300 g. **(5 marks)**