(Knowledge for Development)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS

2020/2021 ACADEMIC YEAR

THIRD YEAR THIRD SEMESTER

MAIN EXAMINATION

FOR THE DEGREE OF BACHELOR OF COMMERCE

COURSE CODE: BCO 323 / Bco 318

COURSE TITLE: MANAGERIAL STATISTICS

DATE: 1-10-2021 **TIME:** 2hours

KIBUCO observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over.

Answer Question One in Section A and Any other TWO (2) Questions in Section B

1. Ten accounting workers in Wakulima Factory were interviewed on their monthly salaries status and the data collected is given below:

Salary sh.('000)	No of workers
11	5
37	3
25	3
62	2
51	2
21	3
18	0
43	2
32	3
20	1

a) Calculate the mean and standard deviation of the worker's salaries. (4 marks)

b) Give a 95% confidence limit for the mean salary. (4 marks)

c) Describe the main features of a continuous normal distribution (4 marks)

d) The following table shows the number of motor registrations provided by the Kenya Bureau of Statistics for a term of 5 years and the sale of motor tires by Kwetu Tyres Limited for the same period.

Year	Motor Registrations	No. of Tyres Sold
1	600	1,250
2	630	1,100
3	720	1,300
4	750	1,350
5	800	1,500

a) Using a calculator find the linear regression equation to estimate the sale of tires when the motor registration is known. (8 marks)
b) Estimate sales of tires when motor registration is 850 units. (4 marks)
c) If a random sample of 25 tyres with standard deviation of 30 is picked from a population known to have a mean $\mu=1000$ that is randomly distributed, find the 99 % confidence interval for the unknown population. (6 marks)

6 marks

QUESTION TWO

A computer manufacturer believes that approximately 10% of all customers favor his product, brand Hp. To test his believe, 2500 customers are selected at random from the population of customers and questioned about their computer brand preference. A total of y=218 express a preference for Hp brand.

i) Construct a 10 % confidence interval for the proportion of customers who favor brand Hp computers. 6 marks

ii) Explain four reasons why it is advisable to use random sampling rather than a census in studying a population. 4 marks

iii) Determine the probability that z lies between

a) z= 1.28 z= 1.31 1 mark

b) Differentiate between Type I and Type II error. 4 marks

QUESTION THREE

A comparison of the wearing quality of two types of vehicle tyres was obtained by road testing samples of $n_1=n_2=100$ tyres for each type. The number of kilometers until wear –out was recorded, where wear-out was defined as a specific amount of tyre wear. The test results were follows:

μ_1 = 26,400 kilometers μ_2= 25,100 kilometers

S_1^1= 1,440,000 S_2^2=1,960,000

i) Estimate the difference in mean time to wear-out, and place on the error of estimation. 10 marks

ii) Place a confidence interval on the difference in mean time to wear-out for the above samples. 5 marks

QUESTION FOUR

a) With examples differentiate between regression and correlation (6 marks)

b) After studying maize yield in the North Rift the following data was collected:

Number of tonnes	number of families
2- 4	3
5-7	6
9-11	12
12-14	5

i) Using a student t distribution construct a 0.05% level confidence interval for the maize yield. 9 marks

ii) How many farmers lie between z= 1.23 and z= 2.18 6 marks

QUESTION FIVE

a) With examples differentiate between the various sampling methods. 10 marks

b) Discuss the limitations of studying a population using the census approach. 10 marks