CHUKA UNIVERSITY

UNIVERSITY EXAMINATIONS
EMBU CAMPUS
EXAMINATION FOR THE AWARD OF BACHELOR OF SCIENCE IN COMMUNITY DEVELOPMENT AND BACHELOR OF CRIMINOLOGY AND SECURITY STUDIES
SOCI 403/SOCI 475 SOCIAL STATISTICS II
STREAMS: CDEV Y4S1 **TIME:2 HOURS**
DAY/DATE: THURSDAY 07/08/2025 **11.30A.M. –1.30 P.M**

ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS
SECTION A: 3O MARKS, COMPURSORY

1. (a) Statistics involves estimates of measurement in samples and populations of study objects.

Explain what you understand by the following terms (10 Marks)

(i) Statistics

(ii) Parameter

(iii) Population

(iv) Sample

(v) Statistic

(b) Discuss three functions of statistics (6 Marks)

(c) Explain the meaning of inferential statistics (4 Marks)

(d) Differentiate between discrete and continuous data (5 Marks)

(e) Explain the process of hypothesis testing (5 Marks)

SECTION B (40 MARKS)

2. In a test for aptitude, the variable of self-awareness affects aptitude ranking of an individual.

Given the following scores in the two variables:

(a) Derive the regression equation (14 Marks)

(b) Predict the value of aptitude rank given:

(i) Self-awareness (X)= 7 (3 Marks)

(ii) Self-awareness (X) =16 (3Marks)

Self-awareness	Status of mental wellness
15	14
17	14
10	13
14	14
06	04
08	09
10	10
13	11
12	15
11	16

3. (a) Define standard error of the mean (2 Marks)

(b) Explain the importance of standard error of the mean (2 Marks)

(c) Given 24, 22, 22, 12, 19, 16, 17, 14 determine the standard error of the mean (6 Marks)

(d) State and explain five functions of statistics (10Marks)

4. (a) A researcher intended to test the following null hypothesis, Ho: There is no significant relationship between student's gender and their attitude towards science. To test the hypothesis data was collected from 100 science students as shown below:

Gender	Statement: Science is a subject for boys.			
	Agree	Undecided	Disagree	Total
Male	20	04	36	60
Female	10	06	24	40
Total	30	10	60	100

Use chi square and test the hypothesis at $\alpha=0.05$ level of significance. State whether the hypothesis was accepted or rejected (10 Marks)

(c) In order to determine the perception of women on the success of women empowerment, the following statement was made to a group of 200 women comprising 120 rural women and 80 urban youth. "Women empowerment has benefitted all women regardless of socio-economic profile." The following were their responses.

Women Category	Successful	Not sure	Not successful	Total
Urban	40	10	30	80
Rural	60	20	40	120
Total	100	30	70	200

Assuming the null hypothesis that women empowerment benefitted all women regardless of socio-economic profile was set at $\alpha=0.05$ significance level, state whether the null hypothesis was accepted or rejected based on the value of chi square calculated above. (10 Marks)

5. (a) Define correlation and explain three types of correlation (5 Marks)

(b) State the two(2) properties of correlation (4 Marks)

(b) Given the following set of data representing scores of students in History and Kiswahili.

Maths. (X)	Chem. (Y)
10	10
16	14
12	11
09	08
17	13
12	13

(i) Calculate the Pearson product moment correlation coefficient (5 Marks)

(ii) Compute the Spearman rank order correlation using the same data (4 Marks)

(c) Comment on the magnitude of correlation coefficients in b (i) and (ii) above (2 Marks)
