CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS.

EXAMINATION FOR THE AWARD OF BACHELOR OF

SOCI 403: SOCIAL STATISTICS II

STREAMS: **TIME: 2 HOURS**

DAY/DATE: THURSDAY 6/12/2019   **8.30 A.M – 10.30 A.M**

INSTRUCTIONS
- **Answer question one and any other two questions**
- **Do not write anything on the question paper**

1. (a) Explain the following terms used in social statistics.

    (i) Parameter

    (ii) Estimation

    (iii) Hypothesis   [6 marks]

    (b) Discuss the scales of measurements used in correlation analysis.   [8 marks]

    (c) (i) Describe briefly the procedure used in testing hypothesis.   [5 marks]

    (ii) A sample of 200 was taken to test the null hypothesis (H_0) that the mean number of hours that a student spend in leisure in a month is not less than 250 hours. If the sample mean was 285 hours with variance of 38.5, test the null hypothesis at $\alpha = 0.05$ level of significance in a two tailed test given that the critical test statistics is 2.15. [7 marks]

    (d) Explain two factors that influence correlation coefficient.   [4 marks]

2.   The following are scores for students in mathematics and physics.

Mathematics	Physics
20	19
9	10
13	9
11	9
13	9
14	8
18	9
20	20
20	16

(a) Calculate spearman's rank correlation coefficient (r_s)   [10 marks]

(b) Calculate Pearson correlation coefficient.   [10 marks]

3.   In a work place, the variable of self concept can affect one's self actualization, given the following scores in the two variables.

 (a) Derive the regression equation.   [10 marks]

 (b) Predict the value of self actualization given:

 (i) Self concept = 7

 (ii) Self concept = 16   [4 marks]

Self concept	Self actualization
15	14
17	14
10	13
14	14
6	4
8	9
10	10
13	11
12	15
11	16

(c) State and explain three applications of statistics in social sciences.   [6 marks]

4.   (a) The following data was obtained from two different groups of respondents, x and y

X	Y
20	20
27	26
34	32
12	14
15	14
16	20
17	18
29	30
40	52
62	80
72	20

The null hypothesis indicated that there is no significance difference in the means of the two groups. Using t-test the null hypothesis at $\alpha = 0.05$ significance level, given that critical t = 2.50.   [18 marks]

(b) What is a chi-square?   [2 marks]