(The University of Choice)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

UNIVERSITY EXAMINATIONS

2018/2019 ACADEMIC YEAR

THIRD YEAR SECOND SEMESTER

MAIN EXAMINATION

FOR THE DEGREE OF BACHELOR OF SOCIAL WORK AND BACHELOR OF CRIMNOLOGY AND CRIMINAL JUSTICE

COURSE CODE: SCR 314

COURSE TITLE: SOCIAL STATISTICS

DATE: 23/5/2019 TIME:8:00AM-10:00AM

INSTRUCTIONS TO CANDIDATES

Answer Question One and Any other TWO (2) Questions

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 3 Printed Pages. Please Turn Over.

Question One (30 Marks)

a) Define the following terms as used in social statistics:
   i) Population (1mk)
   ii) Sampling frame (1mk)
   iii) Sampling unit (1mk)

b) Distinguish between the following pairs of terms as used in social statistics:
   i) Descriptive and inferential statistics (2mks)
   ii) A parameter and a statistic (2mks)

c) The table below indicates data on students' performance. Use the table to calculate the statistics below.

0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99
2	10	20	40	28	28	40	20	10	2

   i) Calculate the mean (3mks)
   ii) Median (3mks)
   iii) Standard deviation (3mks)
   iv) State the importance of each of the statistics above (3mks)
   v) From the information above, construct a histogram (3mks)

d) Which scale of measurement would be used for the following data
   i) Age groups of a population census (1mk)
   ii) Blood pressure of patients (1mk)
   iii) Race (1mk)

e) Describe the **five** steps in hypothesis testing (5mks)

Question 2 (20 marks)

a) Explain f**our** importance of studying social statistics for an undergraduate student (4mks)

b) State **four** ways in which a researcher can ensure the validity of their study results (4mks)

c) 1000 families were selected at random in a city to test the belief that high income families usually send their children to private schools while the low income families to government schools. The results are indicated below:

Income status	Private	Government	Total
Low	370	430	800
High	130	70	200
Total	500	500	1000

   i) State one null and alternative hypothesis for this study (2mks)

ii) Is there a significant relationship between family income status and school preference at 0.05 significance level (chi-square value at 0.05=3.841) (10mks)

Question 3 (20 marks)

a) State **four** ethical considerations in statistics (4mks)

b) Distinguish between correlation and regression (2mks)

c) The following scores were obtained when a group of 11 students were tested on two tests: X and Y

Student	1	2	3	4	5	6	7	8	9	10	11
X	2	2	4	5	3	6	4	5	6	8	7
Y	2	3	4	4	5	5	6	7	8	9	8

i) State one null and alternative hypothesis for this study (2 marks)

ii) Is there a statistically significant relationship between the two variables (10mks)

iii) State other variables that could affect the results of this study (2mks)

Question 4 (20 marks)

a) Explain **four** reasons why we collect data in research (4mks)

b) Given the scores of 20 students in a mathematics test: 25, 99, 28, 44, 56, 76, 35, 39, 41, 72, 48, 50, 54, 30, 58, 64, 44, 74, 34, 26; Find the interquartile range of the data (4mks)

c) A psychologist is interested in establishing whether different TV shows lead to a more positive outlook on life. Three category of people were randomly sampled and subjected to three conditions: Papa Sirandula, Churchil Live, and No Program. After the program a blood sample was taken and serotonin levels measured (remember more serotonin means happier! The results are tabulated below

Papa Sirandula	70	77	83	90	97	92	80
Churchil Show	37	43	50	57	63	72	51
No program	3	10	17	23	30	40	24

i) State one null and alternative hypothesis for this study (2 marks)

ii) Is there a statistically significant difference between the three groups? (Critical ANOVA value =3.885) (10mks)

iii) Based on the findings, what recommendation would you give? (2 marks)