



*(University of choice)*

**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY  
(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY EXAMINATIONS**

**2022/2023 ACADEMIC YEAR**

**MAIN EXAMINATION**

**SECOND YEAR FIRST SEMESTER EXAMINATIONS**

**FOR THE DIPLOMA**

**OF**

**CRIMINOLOGY AND CRIMINAL JUSTICE**

**COURSE CODE: DCR 064**

**COURSE TITLE: SOCIAL STATISTICS**

**DATE: 13/4/2023**

**TIME: 2:00-4:00PM**

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**INSTRUCTIONS TO CANDIDATES**

ANSWER QUESTION ONE (30 MARKS) AND ANY OTHER TWO QUESTIONS (20 MARKS EACH)

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

### QUESTION ONE (30 MARKS)

a) Differentiate between the following concepts as used in social statistics

- i) Population and sample (2 Marks)
- ii) Probability sampling and non probability sampling (2 Marks)
- iii) Sample statistics and population parameters (2 Marks)
- iv) Bar graph and histogram (2 Marks)
- v) Descriptive statistics and inferential statistics (2 Marks)

b) A set of scores consists of the following values: 7, 3, 9, 5, 4

For these scores compute each of the following

- i.  $\Sigma X$  (1 mrk)
- ii.  $(\Sigma X)^2$  (1 mrk)
- iii.  $\Sigma X^2$  (1 mrk)
- iii.  $\Sigma X + 5$  (1 mrk)
- iv.  $\Sigma(X - 2)$  (1 mrk)

c) For the data below compute standard deviation (5 Marks)

Class	20-25	26-30	31-35	36-40	41-45	46-50	51-55
Frequency	5	4	5	9	13	17	3

d) Describe the concept of inferential statistics in research (4 Marks)

e) Using appropriate examples explain the following strategies of sampling

i) Simple random sampling (3 marks)

ii) Stratified sampling (3 marks)

### QUESTION TWO (20 MARKS)

Often, qualitative and quantitative research approaches are confusing among social science researchers. Critically discuss the differences between qualitative and quantitative research approaches (20 marks)

### QUESTION THREE (20 MARKS)

a) State two conditions that must be met for a researcher to use Chi-square (4 marks)

b) A public opinion poll surveyed a simple random sample of voters to establish whether there is a relationship between gender and voting preference. Respondents were classified by gender (male or female) and by voting preference (Republican, Democrat, or Independent). Results are shown below.

Gender	Voting preference		
	Republican	Democrat	Independent
Male	200	150	50

<b>Female</b>	250	300	50
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Formulate and test the null hypothesis at 0.05 level of significance to determine if there is any association between gender and voting preference. (Critical  $X^2$  value at 0.05 = 5.991) (16 Marks)

**QUESTION FOUR (20 MARKS)**

a) Discuss the four measurement scales in statistics (12 mrks)

b) Define the following terms

- i. Hypothesis testing (2 Marks)
- ii. Geometric mean (2 Marks)
- iii. Frequency distribution (2 Marks)
- iv. Trimodal distribution (2 Marks)

**QUESTION FIVE (20 MARKS)**

a) Explain three roles of descriptive statistics in research (6 Marks)

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

<b>Student</b>	1	2	3	4	5	6	7	8	9	10	11
<b>X</b>	2	2	4	5	3	6	4	5	6	8	7
<b>Y</b>	2	3	4	4	5	5	6	7	8	9	8

Is there a statistically significant relationship between the scores on the two tests at 0.05 significance? (Critical  $r = 0.602$ ) (14 Marks)

**DCR**

**064**