



**MAASAI MARA UNIVERSITY**  
**REGULAR UNIVERSITY EXAMINATIONS**  
**2021/ 2022 ACADEMIC YEAR**

**THIRD YEAR FIRST SEMESTER**  
**SAHSSCI.**  
**, CRIMINOLOGY, CMD AND SOCIAL WORS.**

**COURSE CODE: BHM 3106**  
**COURSE TITLE: STATISTICAL DATA ANALYSIS.**

**DATE: 4<sup>TH</sup> March, 2022**

**TIME: 0830-1030**

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**INSTRUCTIONS TO CANDIDATES**

**Answer Question ONE and any other TWO questions**

*This paper consists of FOUR printed pages. Please turn over.*

**QUESTION ONE (30 MARKS)**

- a. Define the following terms as used in statistics; (5marks)
- i. Discrete random Variable
  - ii. Raw data
  - iii. Quantitative data
  - iv. Qualitative data
  - v. positively Skewed data

- b. Simplify each of the following expressions into log  $N$ . Determine the value of  $N$   
 $\text{Log } 250 + \log 2 - \log 5$  (4marks)

- c. The mean of 200 observations was recorded as 50. It was discovered that two observations were wrongly read as 92 and 8 instead of 192 and 88. Calculate the correct mean. (4marks)

- d. Given the following price-quantity data of a certain food item with price quoted in Ksh per Kg and production Tons

Year	2010	2011	2012	2013	2014	2015
Price	150	160	170	180	175	200
production	500	550	480	600	650	610

Construct

- i. The price index for each year taking price of 2010 as base (4marks)
  - ii. The quantity index for each year taking price of 2010 as base (4marks)
- e. The table below shows the weights, in kilograms, of 250 boys in a cumulative form..

Weight(kg)	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79
cumulative	10	30	70	115	160	215	240	250

- i. Deconstruct the cumulative frequency table and form a frequency distribution table (3marks)
  - ii. State the modal class interval (1mark)
- f. List and briefly explain the methods of data collection (4marks)

**QUESTION TWO (20 MARKS)**

- a) Define the terms (2marks)
- i. Statistics

ii. Index Numbers

b) The table below shows the marks scored by 80 students in a test.

Masss scored	1-10	11-20	21-29	30-59	60- 79	81-90	91-100
No.of students	10	9	12	16	20	6	7

Estimate:

- a. Median mark (4marks)
- b. Quartile deviation (6marks)

c) The data below represents masses of participants in an in service course.

Mass of participants	60-65	65-70	70-75	75-80	80-85
frequency	5	18	42	27	8

Using 72.5 as a working mean:

- a. Find the mean of the data (4mks)
- b. Find the variance of the data (4mks)

**QUESTION THREE (20 MARKS)**

- a. Explain the importance of index numbers (4marks)
- b. Explain the characteristic of geometric mean as a measure of central tendency (demerits and limitation) (4marks)

c. Given the following the data

X	1	2	3	4	5	6
y	8	10.1	12.4	14	16.1	18

- i. Fit a regression line of y on x (4marks)
  - ii. Estimate the value of y when x is 10 (2marks)
- d. Using the data in 2(c) above state the modal class and obtain the mode (4marks)

- e. Suppose that electricity bill is partly constant as well as dependent on the consumption units C as given by  $A = 200 + 15C$ . Find the amount due when the monthly consumption is 41 units. (2marks)

**QUESTION FOUR (20 MARKS)**

- a. Define the term Skewness (2marks)
- b. Use the data below to compute:
- i. The Karl Pearson's first coefficient of skewness. (4marks)
- ii. The Karl Pearson's second coefficient of skewness. (4marks)

No. of goals	1	2	3	4	5	6
No. of matches	4	3	1	1	2	2

- iii. Comment on how the data is distributed (2marks)
- c. Without using tables or calculator, find the value of t in  $\log_8(t+6) - \log_8(t-3) = \frac{2}{3}$  (4marks)
- d. Solve the equation  $2\log x - 3\log 2 + \log 32 = 2$  (4marks)