



(University of Choice)
MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)
MAIN CAMPUS

UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR

SECOND YEAR/FIRST YEAR FIRST (SUPP/SPECIAL)

FOR THE DEGREE
OF

BACHELOR OF SCIENCE IN GLOBAL HEALTH

COURSE CODE: NCG 115

COURSE TITLE: INTRODUCTION TO BIostatISTICS

DATE: 3/10/2022 TIME: 8. 00-11.00 A.M.

INSTRUCTIONS TO CANDIDATES

- (i) WRITE YOUR UNIVERSITY REGISTRATION NUMBER ON EVERY PIECE OF PAPER YOU USE.
- (ii) DO NOT WRITE YOUR NAME ON ANY PIECE OF PAPER YOU USE.
- (iii) THIS PAPER CONSISTS OF TWO (2) SECTIONS: HEADED SECTION I: TWENTY (20) MULTIPLE CHOICE QUESTIONS (MCQS) SECTION II: SAQs – EIGHT (8) QUESTIONS; SECTION III: LAQS - NINE (9) LONG ANSWER QUESTIONS
- (iv) ANSWER ALL QUESTIONS IN THE THREE (3) SECTIONS.
- (v) READ CAREFULLY THE ADDITIONAL INSTRUCTIONS PRECEDING EACH SECTION.

TIME: 3 HOURS

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 7 Printed Pages. Please Turn Over.

1. The major statistical indicators are:

- A. Mean
- B. Median
- C. Variance
- D. Standard deviation
- E. None of the above

2. The ranks of performance in an exam is recorded using the symbols 0, I, II, III, IV. Which of the choices below is correct for the. We say that the scale used is:

- A. Alphanumeric
- B. Numerical
- C. Ordinal
- D. Nominal

3. The median of a series of numerical values is:

- A. Equal to the average
- B. A graph or hart
- C. A number
- D. A frequency table

4. The median of a data set is:

- A. Equal to the average
- B. A graph or hart
- C. A number
- D. A frequency table

5. There are 21 values in a data set, to find the median, we ordered the series ascending and we use:

- A. The 11th value in the ordered series
- B. The mean between the 10th and 11th values
- C. The mean between the 11th and 12th values
- D. The 10th value in the ordered series

6. . For a Histogram chart the following statements are true:

- A. Each bar (class or column) is the same width
- B. The height of the bars is proportional to that class's absolute frequency (number of individuals in the class)
- C. The width of the bars (classes) is obtained by dividing the difference between the maximum and the minimum values in the series we represent to the number of desired classes D. We do not lose any information of the original data series by making such a chart
- D. None of the above

7. What is a frequency polygon?

- A. A statistical indicator that shows the scattering of a series of values
- B. A graph representing by a broken line the absolute frequencies of classes of a data series
- C. A graph that contains exactly the same information as the corresponding histogram
- D. A graph that contains less information than the corresponding histogram

8. The branch of statistics that deals with methods of collection, organizing and presentation of data is known as

- A. Comparative biostatistics
- B. Descriptive biostatistics
- C. Inferential biostatistics
- D. None of the above

9. The branch of statistics that deals with testing hypothesis, coming up with predictions using data collected is referred to as:

- A. Descriptive statistics
- B. Inferential statistics
- C. Sample statistic
- D. Both B and C

10. Variables whose values can be expressed numerically are known as:

- A. Absolute variables
- B. Quantitative variables
- C. Qualitative variables
- D. Nominal variables

11. Height of students in a class is?

- A. Discrete variable
- B. Continuous variable
- C. Absolute variable
- D. Quantitative variable

12. Which of the following statements best describes a frequency polygon:

- A. A statistical indicator that shows the scattering of a series of values
- B. A frequency distribution table
- C. A graph with exactly the same information as the corresponding histogram
- D. None of the above

13. What is the mode in the following data set (12, 5, 6, 12, 22, 11)

- A. 12
- B. 17
- C. 11.3
- D. 11

14. Which of the following is not a measure of variation

- A. Standard deviation
- B. Variance
- C. Median
- D. Range

15. One of the ways of presenting data is by use of a circle divided into parts proportional to frequency. What is the circle called?
- A. Frequency table
 - B. Histogram
 - C. Bar chart
 - D. Pie chart
16. Standard deviation is the square of:
- A. Mode
 - B. Variance
 - C. Margin of error
 - D. Median
17. Which of the following is a branch of statistics
- A. Numerical data
 - B. Levels of measurement in statistics
 - C. Inferential statistics
 - D. None of the above
18. Which of the following is a measure of central tendency
- A. Rate
 - B. Ratio
 - C. Interval
 - D. Median
19. Data can be summarized using the following
- A. Mean
 - B. Standard deviation
 - C. Variance
 - D. All the above
20. Levels of measurement include all the answers below except
- A. Standard deviation
 - B. Ordinal
 - C. Interval
 - D. Nominal

SECTION B: SHORT ANSWER QUESTIONS 40 MARKS

1. A total of 200 student took part in a survey conducted at MMUST to understand their experience with online learning. Data below represent the number of students that were randomly picked from various schools to participate in the survey

I.	School of nursing	40
II.	School of medicine	50
III.	School of education	60
IV.	School of Public Health	50

Answer the following question

what is a pie chart? (2 marks)

Use the above data to draw a pie chart indicating the proportion of students per school (8Marks)

2. Using the data set below, calculate
- Mean deviation (3 Marks)
 - Median (3 marks)
 - Range (3 Marks)

20 22 10 18 1 12 11 16 14 10

3. Define the following terms:
- Bivariate data (2 Marks)
 - Continuous variables (2 Marks)
 - Discrete variables (2 Marks)
 - Variable (2 Marks)
4. What is variance? (2 Marks)
- Explain how to calculate variance (5 Marks)
5. Briefly explain the advantages of frequency polygon over histogram (6Marks)

SECTION C: LONG ANSWER QUESTIONS (40 MARKS)

1. The following data was generated during a study. where one of the objectives was to determine the gender of students pursuing various programs in SONMAPS

Program	Female	Male
1. Global Health,	28	50
2. Nursing,	17	8
3. Occupational Safety Health	50	40
4. Medical social work	40	20
5. Paramedical sciences	25	20

Using the data above draw and clearly label a compound bar graph (20 marks)

2. Using the following data set 16,18,19,17,21,24,22,23, compute

- a) Standard deviation (15 Marks)
- b) Standard error (5 Marks)