



GRETSA UNIVERSITY - THIKA

UNIVERSITY EXAMINATIONS January-April 2025 SEMESTER

DIPLOMA IN PUBLIC HEALTH

COURSE CODE: DIPH 020

COURSE TITLE: BASIC MATHEMATICS AND STATISTICS

DATE:

TIME:

INSTRUCTIONS TO CANDIDATES

1. SECTION A IS **COMPULSORY**.
2. SECTION B: ANSWER ANY OTHER **THREE** QUESTIONS.
3. **DO NOT** WRITE ANYTHING ON THIS QUESTION PAPER AS IT WILL BE AN EXAM IRREGULARITY.
4. ALL ROUGH WORK SHOULD BE AT THE BACK OF YOUR ANSWER BOOKLET AND CROSSED OUT.

CAUTION: *All exam rooms are under CCTV surveillance during the examination period.*

SECTION A: COMPULSORY

PART I: MULTIPLE CHOICES QUESTIONS

[ONE MARK EACH]

1. Which of following is an advantage of median?
 - A. Not affected by outliers
 - B. Can be used to make comparisons
 - C. Uniquely defined
 - D. All of the above
2. Which of the following is not a factor to consider when making data presentation?
 - A. Source of data
 - B. Target audience
 - C. Use/purpose
 - D. Competency of presenter
3. Which of the following is not a measure of variability?
 - A. Decile
 - B. Range
 - C. Mean deviation
 - D. Quartile deviation
4. Which of these terms best describe this distribution 1, 4, 5, 5, 6, 8 ,9, 10, 10, 12, 18
 - A. Unimodal
 - B. Categorical
 - C. Bimodal
 - D. Heterogenous
5. If the highest value is 100 and the lowest value is 55 and the number of desired classes are 5. What is the class width?
 - A. 45
 - B. 15
 - C. 9
 - D. 20

PART II: SHORT ANSWER QUESTIONS: ANSWER ALL QUESTIONS IN THIS SECTION

1. Define the following terminologies as used in statistics

[5 marks]

- i. Population
 - ii. Sample
 - iii. Health statistics.
 - iv. Variable
 - v. Data set
2. Briefly explain any three measures of dispersion/variation [6 marks]
 3. Use the data below to calculate mean, median. [4 marks]
230, 640, 296, 435, 306, 520, 340, 620, 410, 320
 4. Clearly show the difference between primary and secondary data [4 marks]
 5. Highlight any four functions of statistics. [4 marks]
 6. Giving relevant examples, explain the following types of variables [2 marks]
 - i. Qualitative variables
 - ii. Quantitative variables

SECTION B: ANSWER ANY TWO QUESTIONS [40 MARKS]

Question one.

The following data shows the amount of time (in hours) that 80 college students devoted to leisure activities during a typical school week.

23, 24, 18, 14, 20, 24, 24, 26, 23, 21, 16, 15, 19, 20, 22, 14, 13, 20, 19, 27, 29, 22, 38, 28, 34, 32, 23, 19, 21, 31, 16, 28, 19, 18, 12, 27, 15, 21, 25, 16, 30, 17, 22, 29, 29, 18, 25, 20, 16, 11, 17, 12, 15, 24, 25, 21, 22, 17, 18, 15, 21, 20, 23, 18, 17, 15, 16, 26, 23, 22, 11, 16, 18, 20, 23, 19, 17, 15, 20, 10.

Use the data above to prepare:

- i. Grouped frequency distribution table [10 marks]
- ii. Use the table prepared in question (i) above to calculate median and standard deviation [10 marks]

Question two.

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes.

- a. Discuss five advantages and five disadvantages of using questionnaire as a method of primary data collection [10 marks]
- b. Discuss 5 advantages of using secondary sources of data in statistics [10 marks]

Question three

The following are masses of 30 students measured in kilograms.

Mass (kg)	10-19	20-29	30-39	40-49	50-59	60-69
No. of women	5	6	8	2	6	3

Calculate;

- i. mean [4 marks]
- ii. median [5 marks]
- iii. variance [4 marks]
- iv. standard deviation [3 marks]
- v. outline two characteristics of the median [4 marks]

Question four

- a. Explain the two main types of sampling [2 marks]
- b. Describe any five factors which may force researcher to adopt sampling when collecting data as opposed to using the entire population. [10 marks]
- c. Describe any four scales of measurement [8 marks]