



AFRICA
UNIVERSITY
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"Investing in Africa's Future"

**COLLEGE OF SOCIAL SCIENCES, THEOLOGY HUMANITIES
AND EDUCATION
DEPARTMENT OF SOCIAL SCIENCES**

**HES 223 INTRODUCTION TO QUANTITATIVE METHODS IN
ENVIRONMENTAL STUDIES**

END OF FIRST SEMESTER EXAMINATIONS

NOVEMBER/DECEMBER 2018

LECTURER: G. R. CHIMONYO

DURATION: THREE HOURS

INSTRUCTIONS

1. Do NOT write your name on the answer sheet
2. Use answer sheets provided
3. Answer any **THREE (3)** questions
4. Read and understand all questions and instructions before your answer
5. Where necessary, illustrate your answers with sketches, figures and diagrams
6. Each question is marked out of 20 marks
7. Take note of mark distribution in each question
8. Begin your answer for each question on a new page
9. Credit is given to neat presentation of answers

Question One

- Compare the advantages and disadvantages of using the arithmetic mean and the median as measures of central tendency.
- Explain why the standard deviation is the most preferred measure of dispersion to any other measure of dispersion.
- Explain the steps you would follow in constructing a histogram.

Question Two

Table 1 shows the weights of female students at a certain university in Africa.

TABLE 1: Weights of female students at a university in Africa

68	52	49	56	69
74	41	59	79	81
42	57	60	88	87
47	65	55	68	65
50	78	61	90	85
65	66	72	63	95

- Computer the arithmetic mean, median and mode for the data set.
- Compute the mean and standard deviation of the data set.
- Comment on the use of the measures of central tendency and dispersion for a data set such as this.

Question Three

Give your understanding of the following scales of measurement:

- The nominal scale
- The ordinal scale
- The interval scale
- The ratio scale

Question Four

- The breaking strength of a material is normally distributed with a mean of 90kgs and a standard deviation of 20kgs. What is the probability that a piece of this material will have a breaking strength of:
 - Between 90 and 114 kg
 - Between 95 and 110 kg
 - Between 80 and 110 kg
 - Greater than 70 kg
- Explain what is meant by:
 - Theoretical probability

ii. Empirical probability

Question Five

- a) If two events are said to be mutually exclusive, show how you would combine their probabilities
- b) Show how you would combine probabilities of two events that are independent

Question Six

Examine four ways in which statistics has been used to mislead and to misrepresent information.

END OF QUESTION PAPER