"Investing in Africa's Future"

COLLEGE OF SOCIAL SCIENCES, THEOLOGY, HUMANITIES AND EDUCATION

HES 223 INTRODUCTION TO QUANTITATIVE TECHNIQUES

END OF FIRST SEMESTER EXAMINATIONS

NOVEMBER/DECEMBER 2017

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DURATION: 3 HRS

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

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NB: PLEASE DO NOT TAKE FROM THE EXAMINATION ROOM THE HANDOUT ON FORMULAE AND STATISTICSL TABLES

Question One

Explain **THREE** ways statistics has been used to mislead and to misinform.

Question Two

(a) Compare the advantages and disadvantages of using the arithmetic mean and the median as measures of central tendency. **(5 marks)**
(b) Explain why the standard deviation is the most preferred measure of dispersion in comparison to any other measure of dispersion. **(5 marks)**
(c) Examine the steps you would follow in constructing a histogram. **(10 marks)**

Question Three

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

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

Question Four

Give your understanding of the following scales of measurement.
(a) The nominal scale **(5 marks)**
(b) The ordinal scale **(5 marks)**
(c) The interval scale **(5 marks)**
(d) The ratio scale **(5 marks)**

Question Five

(a) 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:

(i) Between 90 and 114 kg **(2 marks)**
(ii) Between 95 and 110 kg **(2 marks)**

(iii) Between 80 and 110 kg **(2marks)**
(iv) Greater than 70 kg **(2 marks)**
(v)

(b) Assume a coin is flipped **FOUR (4)** times, what is the probability of getting **ZERO (0)** heads and the probability of getting **TWO (2)** heads? **(10 marks)**

Question Six

Explain how a sample is drawn using the simple random method for data that is in the form of a list.

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Question Seven

(a) Explain the three assumptions in the Analysis of Variance (ANOVA). **(4 marks)**
(b) Give your understanding of the terms 'Within Sample Variance' and 'Between Sample Variance'. **(4 marks)**
(c) Explain the ANOVA procedure **(12 marks)**

END OF QUESTION PAPER