



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY  
SCHOOL OF HEALTH SCIENCES**

**UNIVERSITY EXAMINATION FOR DEGREE IN COMMUNITY HEALTH AND  
DEVELOPMENT**

**3RD YEAR 2<sup>ND</sup> SEMESTER 2019 ACADEMIC YEAR**

**KISII CAMPUS**

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**COURSE CODE: SBI 3226**

**COURSE TITLE: BIOSTATISTICS 1**

**EXAM VENUE: STREAM: (Degree. Comm Hlth & Dev)**

**DATE: EXAM SESSION:**

**TIME: 2 HOURS**

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**Instructions:**

- 1. The paper has 6 questions (Question one is compulsory and students are asked to answer any three from the remaining questions).**
- 2. Candidates are advised not to write on the question paper**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**

**QUESTION 1 (COMPULSORY) 15 Marks**

- a) Name three examples of central tendency (3mks)
- b) Differentiate between a statistic and a parameter (2mks)
- c) Distinguish between:
  - i) Student t –test and analysis of variance (2mks)
  - ii) Sample size and population. (2mks)
  - iii) Histogram and frequency polygon. (2mks)
  - iv) Discrete and continuous variables (2mks)
  - v) Arithmetic mean and working mean (2mks)

**QUESTION 2: (15 marks)**

- a) List three examples of measures of variation (3mks)
- b) Give two examples of statistics. (2mks)
- c) The following are weights of students in kilograms:  
65 72 66 69 72 67 68 73  
66 64 74 67 65 69 63 70  
67 74 60 70 67 71 70 68  
74 67 69 64 70 67 72 69  
63 69 67 70 67 66 70 71  
75 71 64 67 76 71 77 73  
69 75 71 75 64 62 67 66  
66 70 73 71 67 69 71 68
  - i) Construct a frequency distribution table using Sturge’s rule (7mks)
  - ii) Calculate the median (3mks)

**QUESTION 3: (15 marks)**

- a) List two examples of non-parametric test (2mks)
- b) If the probability of a male birth in a community is 0.48. Find the probability that in a family of three:
  - i) All children will be male. (2mks)
  - ii) Two of the children will be male (3mks)
  - iii) Atleast one child will be male (3mks)
  - iv) No child will be male (2mks)

**QUESTION 4: (15marks):**

a) What is a hypothesis? (2mks)

b) State five procedures for test of hypothesis (5mks)

c) The following data represents dose levels of some drugs. Calculate the root mean square in administering drugs. (8 marks)

18 15 11 9 12 14 14 13 19 12

18 17 11 12 13 18 14 11 10 13

18 12 12 11 14 18 13 11 11 14

19 12 11 10 14 18 13 12 11 12

**QUESTION 5: (15 marks)**

a) What is kurtosis? (1mk)

b) Sketch a graph to show different types of kurtosis (3mks)

c) The table below show weight in kilograms of patients under age of 25 years:

Class	6-8	9-10	12-14	15-17	18-25
Frequency	3	4	9	13	12

Calculate:

i) The standard error (5mks)

ii) variance (3mks)

d) The following data shows a number of counts done by a watchman during a visit of care takers at the hospital;

2, 8, 7, 6, 9, 1, 3, 5, 6.

By calculation, show the counts that occupy the lower quartile. (3mks)

**QUESTION 6: (15 marks)**

a) State three ways of data presentation (3mks)

b) Give two functions of replication as used in biostatistics. (2mks)

c) The study of a litter in nature reveals that 17 off springs 14 were females and 3 were males: What conclusion can we draw from this evidence? (10mks)