



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**SCHOOL OF HEALTH SCIENCES**  
**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN**  
**COMMUNITY DEVELOPMENT AND PUBLIC HEALTH**  
**3<sup>RD</sup> YEAR 2<sup>ND</sup> SEMESTER 2016/2017 ACADEMIC YEAR**  
**KISUMU CAMPUS**

---

**COURSE CODE: SBI 3326**

**COURSE TITLE: BIostatISTICS I**

**EXAM VENUE: STREAM: (BSc. CD & PH)**

**DATE: EXAM SESSION:**

**TIME:**

---

**Instructions:**

- 1. Answer all the questions in Section A and ANY other 2 questions in Section B.**
- 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.**

**SECTION A: Answer ALL questions in this section (30 marks)**

1. Define the following
  - a. Biostatistics (2 marks)
  - b. Population (2 marks)
  - c. Inference (2 marks)
  - d. Variables (2 marks)
2. Distinguish between
  - a. Discrete and continuous variables (2 marks)
  - b. Mean and median (2 marks)
  - c. Event and trial (2 marks)
  - d. Nominal and ordinal scale (2 marks)
3. Give two (2) methods in descriptive statistics through which you can
  - a. Organize your data (2 marks)
  - b. Summarize your data (2 marks)
4. Using an example, explain the degrees of freedom concept (3 marks)
5. List two (2) examples of discrete probability distributions and two (2) examples of continuous probability distributions (4 marks)
6. In a certain class in JOOUST, consisting of 80 ladies and 60 gents, it is observed that 42 ladies and 25 gents wear eyeglasses. If a student is picked at random from this class;
  - a. What is the probability that the student wears eyeglasses (1 mark)
  - b. What is the probability of the joint occurrence of the events of wearing eyeglasses and being a boy? (2 marks)

**SECTION B: Answer any 2 Questions in this section (40 marks each)**

1.
  - a. Define probability (2 marks)
  - b. Differentiate between an experiment and a sample space (4 marks)
  - c. In a large survey of 100,000 births in Nyanza province, it was observed that the incidence rate of sepsis deaths was 572 per 100,000 births. In a random sample of 92 births from this population. What is the probability that:
    - i. No fatal case is observed (3 marks)

- ii. Only one (1) fatal case is observed (3 marks)
- iii. There were two or more fatal cases (5 marks)
- iv. Calculate the mean and the standard deviation (3 marks)

2.

- a. List the steps you would follow when constructing a frequency distribution table (5 marks)
- b. The following are weights (in Kilograms) of patients who visited Bondo sub-county hospital reporting acute respiratory illness in the month of April, 2016.

99	56	72	66	78	102	88	65	58	62
48	75	68	72	85	57	97	69	59	70
86	91	74	63	59	51	66	52	60	46
73	52	49	67	75	88	92	90	80	79
43	87	82	52	63	68	104	101	41	82
87	90	71	60	72	49	55	76	96	77

- i. What is the number of intervals (2 marks)
- ii. What is the width of the intervals (2 marks)
- iii. Construct a frequency distribution table (4 marks)
- iv. Calculate the mean, median, mode and Standard deviation (7 marks)

3.

- a. List four (4) properties of the normal distribution (4 marks)
- b. Differentiate between
  - i. A right skewed and left skewed distribution using a sketch (2 marks)
  - ii. Arithmetic mean and geometric mean (2 marks)
  - iii. Binomial and poisson probability distributions (2 marks)
- c. Fourteen (14) patients visiting Dr. Patel's clinic reported the following systolic blood pressure levels

121 100 89 140 115 112 121  
132 108 115 119 105 135 113

Calculate the mean, mode, median, variance, and the range (7 marks)

d. State three (3) properties of the median (3 marks)

4.

a. Differentiate between descriptive and inferential statistics (4 marks)

b. In a study conducted on 9,732 primary school children living along the shores of lake Victoria in 2014, it was observed that 3591 children were infected by schistosomes, 2759 were not infected and the remaining children did not submit their specimens for testing.

i. How many children did not submit their specimens (2 marks)

ii. List three (3) ways of presenting the above data (3 marks)

iii. Present the data using two (2) of the listed ways in part ii above (8 marks)

iv. Which of the three (3) ways of presentation mentioned in part ii above do you find most informative? Why? (3 marks)