JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF AGRICULTURAL AND FOOD SCIENCES

THIRD YEAR FIRST SEMESTER UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURAL EDUCATION AND EXTENSION

2022/2023 ACADEMIC YEAR

REGULAR

COURSE CODE: SBI: 3316. **STREAM: BSc. AGED**

COURSE TITLE: Biostatistics 1 **Date:**

Instructions:

Answer ALL questions in Section A and ANY other TWO questions in Section B.
Answers to Questions must be written in the Answer Booklets
Candidates must hand in their answer booklets to the invigilator while in the examination room.

SECTION A: [30 Marks]: Answer ALL questions in this section

1. Define the following terms
   a) Probability [2 Marks]
   b) Variance [2 Marks]
   c) Mean [2 Marks
2. Differentiate between the following
   a) Inferential and descriptive statistics [4 Marks]
   b) Sample and population [4 Marks]
3. Discuss the following statistical processes.
   a)Data presentation [3 Marks]
   b) Data analysis [3 Marks]
4. Outline any three measures of dispersion. [3 Marks]
5. Construct a data frequency table for the following data set and calculate the arithmetic mean. 25, 22, 27, 22, 23, 24, 26, 24, 22, 26, 24 [3 Marks]

6. Assume that an advertising agency employs 100 accountant trainees, of whom 60 are female, and 40 are male. Of these trainees, 24 females and 16 males are single. If an employee is picked at random from the 100 employees. Find the probability that:
   a) He/she is single. [2 Marks]

b) An employee picked at random is single given that the employee is male [2 Marks]

B: [40 Marks]. Answer Any TWO Questions in this section

7. The following results were obtained in an agricultural experiment to determine the optimum fertilizer quantity that can yield a maximum output yield.

Fertilizer (Kg)	60 – 62	63 – 65	66 – 68	69 -71	72 - 74
Yield rate	5	18	42	27	8

a). Construct a bar graph for the data above. [6 Marks]

b). Compute the variance and standard deviation for the data. [14 Marks]

8. The table below shows the results of a study on 102 students at JOOUST Siaya Campus in which the SBI 3316 Lecturer examined the association between the absence of students and passing exams for her class during the first semester.

	Most classes attended	Few classes attended	Total
Passed exams	33	19	52
Failed exams	39	11	50
Total	72	30	102

a) Find the probability that a randomly selected student failed his/her exams [5 Marks]
b) Find the probability that a randomly selected student has passed and attended few classes. [5 Marks]
c) Find the probability that a randomly selected student has passed exams **OR** is always present in class. [5 Marks]
d) Identify the following measures as qualitative or quantitative. [5 Marks]
   i. Marital status of all sampled respondents in a market survey study.
   ii. The ages of thirty randomly selected Nurses at Aga Khan hospital.
   iii. Colour of vehicles parked in the university compound.
   iv. The political party affiliation of twenty members of the County Assembly of Nakuru.
   v. Gender of the first ten students admitted in INSEFOOD PhD Programme at JOOUST.

9. The table below gives the frequency distribution of the number of bags of millet harvested each season during the past fifty seasons at KALRO-Kakamega on-station research plots.

Number of bags	10 - 12	13 - 15	16 – 18	19 - 21
Number of days	4	12	20	14

a) i. Draw a Histogram to illustrate this data.
   ii. What does it tell you about the data?

b) The ration of standard deviation to the mean is called the coefficient of variation. Find this ratio. [6 Marks]

c) Outline any three measures of central tendency in statistics. [4 Marks]