



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF HEALTH SCIENCES**

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE**

**PUBLIC HEALTH/COMMUNITY HEALTH AND DEVELOPMENT**

**3<sup>RD</sup> YEAR 1<sup>ST</sup> SEMESTER 2024/2025 ACADEMIC YEAR**

**MAIN CAMPUS**

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**COURSE CODE:**

**SBB 1409**

**COURSE TITLE:**

**BIOSTATISTICS 11**

**EXAM VENUE:ZOOLAB**

**STREAM: BSc Public/ Comm. Hlth & Dev**

**DATE:7/1/25**

**EXAM SESSION: 14-16.00 HRS**

**TIME: 2.00 HOURS**

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**Instructions:**

- 1. Answer all the questions in Section A and 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.**

## QUESTIONS

**Q1. a) Distinguish the following as used in Biostatistics using examples.**

- i. Simple and composite hypotheses. (1mk)
- ii. Type I and type II errors. (2mks)
- iii. Significance levels and confidence limits. (1mk)
- iv. One tailed and two tailed tests (2mks)
- v. Independent and dependent variables (2mks)
- vi. Parametric and Non-Parametric tests (1mk)
- vii. Point and interval Estimators. (1mk)
- viii. Null and Alternate hypothesis. (2mks)

b. State any **two** properties of a good Estimator of population parameters (2mks).

c. The following refers to the mass in graphs of proteins

In 6 food types. Determine the standard

J	K	L	M	N	O
40	30	50	80	90	70

A company providing test kits claims that the mean life of the kits is 1570 hrs. the mean life of a sample of 200 kits are found to be 16hrs with a standard deviation of 150hrs. determine for the company at 1% significance and level whether the claim of mean of 1570hrs life is valid and acceptable (6mks).

**Q2. The data below relates to consumption of quality of a food nutrient and consequent body mass in grams by 5 patients.**

Patient	A	B	C	D	E
Body mass (ga)	30	18	39	41	52
Nutrient (Units)	6	3	7	8	10

**Required: -**

- a) Regression Equation representing the relationship between the variables (10mks)
- b) Standard Error of the equation in (2a) (5mks)
- c) Calculate the mass when units of Nutrients consumed is 5 (3mks)
- d) Advice accordingly based on the results of the relationship (2mks)

**Q3. a)** State any **three** applications of Poisson Distributors (6mks)

b) The number of telephone calls coming into a medical referral facility between 9.00am and 10.00am is a random variable with parameter 5. The number of calls coming to the exchange between 11.00am and 2.00pm is similarly a Poisson variate with parameter 3. If the 2 periods are statistically independent, find the probability that more than 8 calls come into the exchange from 9.00am to 2.00pm (14mks)

**Q4. The table below represents the relationship between calories of a foodstuff consumed by 6 students and their scores in Biostatistics Exam.**

Student	E	F	G	H	I	J
Calories	20	29	14	31	11	25
Scores	50	68	30	72	25	60

Required

- Scatter diagram to represent the relationship between the variables. (6mks)
- Pearson correlation coefficient between the 2 variables (12mks)
- Advice students accordingly based on the relationship. (2mks)

**Q5. Given the frequency distribution:**

Life span hours	No of cells (+)
1600 – 1799	25
1800 – 1999	32
2000 – 2199	46
2200 – 2399	58
2400 – 2599	40
2600 – 2799	30
2800 - 2999	7

**Required:**

- Mean,
- median and
- standard deviation (20mks)