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

UNIVERSITY EXAMINATION FOR DEGREE IN COMMUNITY HEALTH AND DEVELOPMENT

4TH YEAR 1ST   SEMESTER 2018/2019 ACADEMIC YEAR

KISII CAMPUS

COURSE CODE: SBI 3415

COURSE TITLE: BIOSTATISTICS II

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

DATE: **EXAM SESSION:**

TIME: 2 HOURS

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**

<h1 align="center">Q1. (COMPULSARY) 25 MARKS</h1>

a) **Distinguish between**

  i)   Student t-test and analysis of variance   (2mks)

  ii)   Qualitative and quantitative variables   (2mks)

  iii)   Pie chart and histogram   (2mks)

  iv)   Discrete and continuous variables   (2mks)

  v)   Arithmetic mean and working mean   (2mks)

b) i) What is a hypothesis?   (2mks)

    ii)   State two types of hypothesis   (2mks)

    iii)   Give seven procedures for test of hypothesis   (3mks)

c) i) List two examples of non-parametric test   (2mks)

ii). If the probability of a male winning a game in a community is 0.52.Find the probability that in a community of three, there is one woman winning if the community must win a game. (3mks)

<h2 align="center">Question 2   (15mks)</h2>

a) List three examples of measure of variation (3mks)

b) Give two examples of quartiles   (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 arithmetic mean (3mks)

<h2 align="center">Question 3   (15mks)</h2>

(a) Define null hypothesis   (3mks)

b) Write two examples of Null hypothesis   (2mks)

c) Ten measurements of a certain blood component are made by two instruments on 10 samples and the following results are obtained.

Samples No	1	2	3	4	5	6	7	8	9	10
1st instrument:	10	9	10	11	8	9	7	8	9	9
2nd instrument:	10	11	9	10	9	11	12	8	10	10

Was there any difference in measurement?   (10mks)

Question 4   (15mks)

a) State three characteristics of arithmetic mean   (3mks)
b) List two elements of variance   (2mks)
c) A total of 36 hypertensive individuals were split into groups of 18. Group 1 received a diuretic therapy while Group 2 received a diuretic therapy in combination with another antihypertensive agents. After one month, their diastolic blood pressures were measured and results summarized as follows. GRP1 MEAN = 117.0   sd=22, GRP2 MEAN = 93.0 sd=20; was there any significant effect of therapy?

                    (10mks)

Question 5   (15mks)

a) What is a chi-square test?   (2mks)
b) State three examples which a chi-square test can investigate the significance of association.   (3mks)
c) In a survey conducted with women on a certain controversial issue the following results were obtained. Do the responses of two women differ?   (10mks)

	Agree	Disagree	
Married	68	122	190
Unmarried	170	240	410
	238	362	600

Question 6   (15mks)

a) What is spearman's Rank correlation? (2mks)

b) Give the meaning of each letter used in the following formulas;

$$P = 1 - \frac{6\sum d^2_1}{n(n^2-1)}$$

(3mks)

c) The scores for nine students in physics and math are as follows;

Physics: 35   23   47   17   10   43   9   6   28

Math: 30   33   45   23   8   49   12   4   31

Compute the student's ranks in the two subjects and compute spearman's rank correlation

(10mks)