

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS
**EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN
NURSING UPGRADING**
NURU 272: BIOSTATISTICS**STREAMS: BSC NURSING UPGRADING Y2S2****TIME: 2 HOURS****DAY/DATE: WEDNESDAY 4/12/2019****8.30 A.M – 10.30 A.M****INSTRUCTIONS****Answer all the questions in section 1 and two questions in section II****Use of calculators and statistics tables is allowed****Do not write on the question paper****SECTION 1 (30 MARKS)****QUESTION ONE : ANSWER ALL QUESTIONS**

- (a) Outline the characteristics of a good questionnaire. [4 marks]
- (b) Outline the rules to be observed when selecting a sample. [2 marks]
- (c) Explain the importance biostatistics in nursing . [3 marks]
- (d) Discuss the various sources of data. [4 marks]

QUESTION TWO

A laboratory technician claims that it is faster to detect a given pathogen using kit A than kit B. To test the claim eight technicians of proven ability assigned each to the two kits and the time taken to detect the disease was recorded as follows;

Technician	1	1	2	4	5	6	7	8
Kit A	26	38	40	22	32	38	36	46
Kit B	34	44	34	28	28	42	34	48

At a 5% level of significance, determine if the technician claim is valid. [6 marks]

QUESTION THREE

Explain the fundamentals components that characterize every experimental design.[6 marks]

QUESTION FOUR

A given drug is expected to develop resistance in a population on a ratio of 1:1. However when 400 individuals were randomly sample from this population, 250 individuals were found to have developed resistance was this finding consistent with expected ratios at 5% probability level.

[5 marks]

SECTION II (40 MARKS)

QUESTION FIVE (20 MARKS)

The following data set gives the results from patients receiving four different treatments for a certain disease. The patients were blocked according to their age.

Block /treatment	Treatment 1	Treatment 2	Treatment 3	Treatment 4
Block 1	8	12	21	16
Block 2	9	13	22	15
Block 3	7	10	18	14
Block 4	6	11	15	15

Perform analyze of variance and test if the four treatment are significance different at 5% significance level.

QUESTION SIX (30 MARKS)

Using the following data set calculate the mean, mode median, standard deviation, coefficient of variance and Pearson measure of Skewness of successive sale of a given pharmaceutical firm.

Number of sales	0-4	5-9	10-14	15-19	20-24	25-29
Number of salesmen	4	24	44	62	50	34

QUESTION SEVEN (20 MARKS)

(a) The following data are measurements of the heparin cofactor II (HCII) to plasma protein ratios in a group of patients at baseline and five months after haemodialysis.

Patient	1	2	3	4	5	6	7	8
Before	2.11	1.85	1.82	1.75	1.54	1.52	1.49	1.44
After	2.15	2.11	1.93	1.83	1.9	1.56	1.44	1.43

Using an appropriate non parametric procedure, at 5% significance level test if the two measurements are not significantly different. [7 marks]

(b) Using the following data fit a regression model. [7 marks]

X	0	1	2	3	4
Y	3	5	10	12	15

(c) A nursing lecturer decides to give a multiples choice test consisting of 8 questions each with 4 possible answers one of which is correct. A student who feels that his chances of passing the test are very slim decides to guess in all the eight questions. What is the probability that the student scored correctly on at least 7 questions. [6 marks]
