CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

SECOND YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN NURSING (UPGRADING)

NURU 229: BIOSTATISTICS

STREAMS: Y2S2   **TIME: 2 HOURS**

DAY/DATE: THURSDAY 7/12/2017   **11.30 A.M - 1.30 P.M.**

INSTRUCTIONS:
- Answer all the questions in Section I and TWO Questions in Section II
- Use of calculators and statistical tables is allowed
- Do not write anything on the question paper.

SECTION 1: [30 MARKS]
1. (a) Describe the stages in sampling process.   [6 Marks]
    (b) Outline the characteristics of a good questionnaire   [4 Marks]
    (c) Outline the rules to be observed when selecting a sample.   [2 Marks]

2. Discuss three non-parametric test, giving their parametric counterpart.   [6 Marks]

3. An experiment was carried out to determine the weight of new born babies in Chuka General Hospital. A sample of 50 new born babies was selected and the sample mean weight was obtained as 3500 grams. The population variance is known to be 225 grams. Construct a 95% and 99% confidence interval for the population mean.   [6 Marks]

4. A given drug is expected to develop resistant in a population on a ration 1:1. However, when 400 individuals were randomly sampled from this population, 250 individuals were found to have developed resistant. Was this result consistent with expected ratios at 5% probability level?   [6 Marks]

SECTION II: [40 MARKS]
5. The following data set represent sales of new drug by salesmen employed by a pharmaceutical firm. Using data the provided data, calculate the mean, mode, median, standard deviation coefficient of variation and Pearson measure of skewness. Comment of PSK and CV obtained.
    [20 Marks]

Number of sales	0-5	6-11	12-17	18-2	24-29	30-35

| Number of salesmen | 2 | 18 | 38 | 56 | 44 | 28 |

6. (a) The following data was obtained from a hospital before and after undergoing reorganization on the job satisfaction of its employees.

Employees	1	2	3	4	5	6	7	8
Scores before	80	72	75	84	78	86	70	90
Scores after change	89	80	81	88	81	90	78	88

Determine if the reorganization has brought about change in job satisfaction is at $\alpha = 0.05$

[8 Marks]

(b) Using the following data fit a regression model and obtain a correlation coefficient.

[12 Marks]

x	1	3	4	6	8	9	11
y	7	14	16	34	40	45	61

7. 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 measurements are significantly different at 5% significance level. [20 Marks]

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