KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF MASTER IN MEDICAL LABORATORY SCIENCES

HML 505: RESEARCH METHODS AND BIOSTATISTICS

DATE: Monday 26th March, 2012 **TIME:** 9.00 a.m. – 12.00 p.m.

INSTRUCTIONS

Answer any 3 questions. Each question carries 30 marks.

1. Discuss the research process from conceptualization to the empirical phase.

2. Describe the methods of data processing and presentation.

3. a) Distinguish between Type I and Type II error.

   b) Given the following data of haemoglobin values (g%) of 26 normal children, compute the following:

      i) Variance and standard deviation

      ii) 95% and 99% confidence limits to the mean

      iii) Coefficient of variation.

Data of haemoglobin values (g%) of 26 normal children

11.4	12.9	12.4	13.3	13.8
11.4	12.3	11.7	12.9	12.2
10.4	10.8	12.7	13.2	
11.6	12.0	12.2	14.2	
10.8	10.5	11.6	13.5	
12.2	11.2	12.6	13.0	

c) Outline the assumptions of the normal curve and explain how data can be transformed to fit the normal curve.

4. a) Describe the statistical tests appropriate for the following tests:

i) Tests of differences between 2 sample medians.

ii) Tests of differences between 2 sample means.

iii) Tests for homogeneity of variances.

iv) Tests for relationships between independent and dependent variables.

v) Tests of differences between means of k-selected samples.

vi) Tests of differences between medians of k-selected samples.

b) In a study of cerebrovascular diseases, patients from 3 socioeconomic backgrounds were thoroughly investigated. One characteristic measured was the diastolic blood pressure (mm/Hg). Test the hypothesis that the 3 groups do not differ with respect to this characteristic.

Group A	**Group B**	**Group C**
100	92	81
103	97	102
89	88	86
78	84	83
105	90	99
	95	

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