



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2010/2011

**FIRST SEMESTER EXAMINATION FOR THE DEGREE OF DOCTOR OF
PHILOSOPHY IN EARLY CHILDHOOD STUDIES**

ECE 604: ADVANCED STATISTICS

DATE: Monday, 29th November, 2010

TIME: 2.00 p.m. – 5.00 p.m.

INSTRUCTIONS:

Attempt any **THREE** questions.

1. Explain the following statements by use of examples.
 - 1) Statistical Hypothesis
 - 2) Test of hypothesis
 - 3) Null hypothesis
 - 4) Statistical proof
 - 5) Estimation
2. a) State a hypothesis and assume the following:
 - 1) Alpha; a t-value; degree of freedom and a critical statistic.
 - 2) Test for both one-sided and two-sided t-values
3. Ten students obtained the following grades in Maths and English.

Maths: 12, 10, 9, 8, 7, 7, 6, 5, 4, 2

English: 7, 3, 8, 5, 7, 12, 10, 9, 13, 11

 - a) Calculate the product- moment correlation

b) Comment on the size of the obtained correlation (p87)

4. The following marks were obtained from two classes taught in two methods.

a) Method one: 86, 87, 92, 80, 84

b) Method two: 89, 89, 90, 84, 88

Use the following formula to find if there is a significant difference between the two teaching methods:

$$t = \frac{\overline{X1} - \overline{X2}}{\sqrt{s_p^2 \left(\frac{1}{N1} + \frac{1}{N2} \right)}}$$

5. What test would you use to test the differences between three groups from a gaussian distribution?

a) State the hypothesis you want to test

b) Assume the necessary statistics and make your conclusion