



A Constituent College of Kenyatta University

**UNIVERSITY EXAMINATIONS 2011/2012 ACADEMIC YEAR**

**2<sup>ND</sup> YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF  
EDUCATION ARTS**

**COURSE CODE/TITLE: AGE 200: STATISTICS & CARTOGRAPHY**

**END OF SEMESTER I**

**DURATION: 3 HRS**

**DAY/TIME: MONDAY 8.00AM – 11.00AM**

**DATE : 24.11.2011-H4**

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**INSTRUCTIONS**

**Answer question ONE and any other TWO questions**

**Question One**

- a) Explain the term probability. **(2marks)**
- b) State the laws of addition and multiplication in probability theory. **(4marks)**
- c) With examples, distinguish between empirical and priori probabilities. **(9marks)**
- d) Distinguish the following:
  - i) Elementary events **(3marks)**
  - ii) Mutually Exclusive events **(3marks)**
  - iii) Surrogates **(3marks)**
- e) Calculate the scale of an aerial photograph where the ground is flat and mountainous given H as 1000m, h as 50m and f as 100mm. **(6marks)**

**Question Two**

- a) Describe three methods of scale change on maps. **(6marks)**

b) Explain any five elements of a base map considered in the compilation of a thematic map. **(10marks)**

c) Discuss advantages of aerial photographs over ground photographs. **(4marks)**

### **Question Three**

a) Explain three aspects considered in the categorization of maps. **(6marks)**

b) Explain any four sources of data used in mapping. **(8marks)**

c) Describe the central limit theorem. **(6marks)**

### **Question Four**

a) With an example in each, distinguish between a null hypothesis and an alternative hypothesis. **(6marks)**

b) Discuss three factors that determine selection of a statistical test. **(9marks)**

c) Outline the steps in hypothesis testing for a T-Test. **(5marks)**

### **Question Five**

a) Distinguish three types of probability distributions. **(6marks)**

b) Given an urn containing four red and six yellow marbles, find the probability of obtaining two red and two yellow marbles if four marbles are drawn one after the other. **(8marks)**

c) What is the probability of scoring ten or more with a throw of two dice. **(6marks)**