

**MOUNT KENYA**



**UNIVERSITY**

**UNIVERSITY EXAMINATIONS 2011/2012**  
**SCHOOL OF PURE AND APPLIED SCIENCES**  
**DEPARTMENT OF NATURAL SCIENCES**  
**REGULAR**

**UNIT CODE: AGR 321    UNIT TITLE: AGRICULTURAL STATISTICS**

**APRIL 2012**

**MAIN EXAMS**

**TIME: 2 HOURS**

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**INSTRUCTIONS: ANSWER QUESTION ONE IN SECTION A AND ANY TWO QUESTIONS IN SECTION B**

**SECTION A**

1. Given the following data set: 10, 9, 8, 7, 6, 5, 4, 3 and 2

Determine: (30marks)

- (a) Minimum
- (b) Maximum
- (c) Range
- (d) Median
- (e) Mode
- (f) Degrees of freedom
- (g) Mean
- (h) Variance
- (i) Standard deviation
- (j) Standard error of the mean  $S_{\bar{x}} = \frac{S}{\sqrt{n}}$

**SECTION B**

2. Explain the following: (20marks)
  - (a) Standard normal distribution
  - (b) The t test
  - (c)  $X^2$  (chi-square) test
3. Describe sampling methods used for research work (20marks)
4. Sample data is used to estimate population parameter. How would you select unbiased sample for this purpose/end? (20marks)
5. Explain the following (20marks)
  - (a) Regression and correlation analysis
  - (b) Outlier data
  - (c) Spurious (falsified) correlation

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**SPECIAL/SUPPLEMENTARY EXAMS**

**TIME: 2 HOURS**

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**INSTRUCTIONS: ANSWER QUESTION ONE IN SECTION A AND ANY TWO QUESTIONS IN SECTION B**

**SECTION A**

1. Given the heights of five randomly selected bean plants in cm: 10, 7, 6, 8, 9

Determine: (30marks)

- (a) Minimum
- (b) Maximum
- (c) Range
- (d) Median
- (e) Mean
- (f) Mean deviation
- (g) Variance
- (h) Standard deviation
- (i) Degrees of freedom

**SECTION B**

2. Explain the following (20marks)

- (a) Random numbers

- (b) Standard normal distribution
  - (c) t distribution
3. Describe the following (20marks)
- (a) Random numbers
  - (b) Simple random sampling method
  - (c) Stratified sampling method
4. Distinguish between (20marks)
- (a) Progression analysis and correlation analysis
  - (b) Outlier data and spurious correlation
5. Explain the following: (20marks)
- (a) Time series data
  - (b) Cross section data
  - (c) Nominal/categorical data