

# KERALA AGRICULTURAL UNIVERSITY

B.Tech (Agrl.Engg) 2012 Admission

V<sup>th</sup> Semester Final Examination- January -20145

Cat. No: Stat.3501

Title: Statistics (1+1)

Marks: 80

Time: 3 hours

## I. Choose the correct answer

( 10 x 1 = 10 )

- Choose the distribution in which the mean and variance are the same
  - Binomial
  - Poisson
  - Normal
  - Exponential
- An experiment is conducted by throwing a fair die twice. What is the probability that the sum of the numbers in two throws is 6 ?
  - 5 / 6
  - 4 / 36
  - 5 / 36
  - 6 / 36
- The best measure to compare the variability of two series of data which differ in their units of measurement is
  - Range
  - Mean Deviation
  - Standard Deviation
  - Coefficient of Variation
- The sampling technique in which each and every unit of the population has an equal Probability of being selected to the sample is known as
  - Simple Random Sampling
  - Stratified Sampling
  - Systematic Sampling
  - Cluster Sampling
- Choose the correct answer  
The correlation coefficient
  - has no limits
  - can be less than 1
  - can be more than 1
  - varies between -1 and +1
- The relationship between correlation coefficient ( r ) and the two regression coefficients ( b<sub>1</sub> and b<sub>2</sub> ) is given by
  - $r = b_1 + b_2$
  - $r = \sqrt{b_1 b_2}$
  - $r = b_1 \cdot b_2$
  - $r = (b_1 \cdot b_2)^2$
- The number of degrees of freedom in a 3 x 3 contingency table is
  - 8
  - 4
  - 3
  - 1
- Which among the following is a variable control chart
  - Mean chart
  - p - chart
  - C - chart
  - np chart
- Repetition of each treatment on several experimental units in an experiment is known as
  - Rndomisation
  - Replication
  - Local Control
  - none of the above
- The means of two independent samples with unknown population variances is tested using
  - Z - test
  - Student's t - test
  - F - test
  - paired t - test

**II. Write short notes on ANY TEN**

**( 10 X 3 = 30 )**

1. Frequency Distribution
2. Measures of Dispersion
3. Skewness and Kurtosis
4. Definitions of Probability
5. Binomial Distribution
6. Estimation of hazard rate
7. Linear regression
8. Standard error
9. Testing of Hypothesis
10. Chi-square test
11. Principles of Experimental Designs
12. Statistical Quality Control

**III. Write short essays on ANY SIX of the following**

**( 6 x 5 = 30 )**

1. Measures of central tendency
2. Addition and Multiplication theorems of Probability and their applications
3. Importance and significance of Sampling with special reference to Simple Random Sampling
4. Correlation and regression citing suitable examples.
5. Least square method of fitting a straight line to a bivariate data set.
6. Large sample test and its applications.
7. Analysis of Variance and its uses.
8. Need and utility of Statistical Quality Control in industry.

**IV. Write essay on ANY ONE.**

**( 1 X 10 = 10 )**

1. List out the distinctive features of Binomial, Poisson and Normal distributions. Why does normal distribution occupy the most honourable position in Statistics. Draw a rough sketch of its probability density function. Give an account of the properties of normal distribution.
2. Explain the concept of statistical significance. Give the procedure for testing a Statistical Hypothesis. Explain any two tests based on Student's - t distribution.