

# KERALA AGRICULTURAL UNIVERSITY

B.Tech (Food.Engg) 2012 Admission  
V<sup>th</sup> Semester Final Examination- January-2015

Cat. No: Basc.3110  
Title: Statistics (1+1)

Marks: 80.00  
Time: 3 hours

**I Fill up the blanks /Choose the correct answer /Define** (10 x 1=10)

- Sum of the deviations about arithmetic mean is  
a) Zero b) Minimum c) Maximum d) None
- The probability of all possible outcomes of a random experiment is always equal to  
a) Infinity b) Zero c) One d) None of the above
- Power of a test is related to  
a) type I error b) type II error c) type I and II errors both d) None of the above
- The lines of regression intersect at the point  
a) (0,0) b) (1,1) c) (X,Y) d)  $(\bar{X}, \bar{Y})$
- Statistical quality control takes care of the variation due to \_\_\_\_\_ causes
- The number of independent values in a set of values is known as \_\_\_\_\_
- The value of an estimator is called as \_\_\_\_\_
- For a normal distribution  $N(\mu, \sigma^2)$  the standard error of the sample mean  $\bar{X}$  is \_\_\_\_\_
- Define statistic
- Define sample space

**II Write short notes on any TEN questions** (10 x 3=30)

- Define arithmetic mean
- What is meant by skewness
- Give addition and multiplication theorems of probability
- Define coefficient of variation
- Define two types of errors
- What is scatter diagram
- How do you define an experimental unit
- What is meant by randomisation in an experimental design
- Define C chart
- What are regression equations
- What is analysis of variance and where it is used
- Find the GM of 20,45,23,60

**III Write short notes on any SIX questions**

(6 x 5=30)

1. Give the important properties of normal distribution
2. Differentiate between correlation and regression
3. Explain stratified random sampling
4. The number of employees in two branches ,say A and B of a company are 80 and 65 respectively .Average salary of the employees in branch A is Rs. 875 per month and in B is Rs. 1260 per month. Give the formula and calculate the combined average salary of the two branches
5. A random sample of 900 items is taken from a normal population whose mean and the variance are 4. Can the sample with mean 4.5 be regarded as truly random one at 5% level of significance
6. Distinguish between univariate and bivariate data
7. Explain the procedure of constructing  $\bar{X}$  -chart
8. Explain RBD

**IV Write an essay on any ONE**

(1 x 10=10)

1. The three samples below have been obtained from normal populations with equal variances .Test the hypothesis at 5% level that the population means are equal

8	7	12
10	5	9
7	10	13
14	9	12
11	9	14

2. Describe how you would test the hypothesis of equality of two normal populations. State the assumptions made

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