KERALA AGRICULTURAL UNIVERSITY

B.Sc (Hons.) Ag.Degree Programme 2013 Admission

VIth Semester Final Examination- July-2016

Cat. No: Stat.3203 **Marks: 50**

Title: Design and Analysis of Experiments (1+1) **Time: 2 hours**

I. Fill in the blanks **(6 x 1=6)**

1. The appropriate design for pot culture experiment is _____
2. When all the factors are to be compared with equal precision then _____ design cannot be used.
3. The error degrees of freedom in RBD to compare 5 varieties with 4 blocks and with one missing observation _____.

State True or False

4. The number of main effects of a 3-square factorial experiment and 2-cube factorial experiment are equal.
5. An experiment was conducted on two varieties with 4 dates of sowing and 4 different spacing. This is symmetric factorial experiment.
6. Linear model for LSD (give the formula for)
7. **Match the following:** **(4 x 0.5=2)**

a) 2^5 Factorial Experiments	a) Binomial percentages
b) Angular Transformation	b) Concomitant variable
c) F test	c) Yate's procedure
d) ANCOVA	d) Comparison of several means

Define the following: **(2 x 1=2)**

8. Randomisation
9. Degrees of freedom

II Write short notes on any FIVE **(5 x 2=10)**

1. Compare the advantages and disadvantages of RBD and CRD .
2. Give the method of analysis if one observation in missing in a RBD with r blocks and v treatments.
3. Define simple,main and interaction effects.
4. Explain border effect and experimental error. How they are related?
5. What is testing of hypothesis?
6. Explain the application of 't' test.
7. What are the practical considerations in field experimentation?

III Explain any FIVE of the following **(5 x 4=20)**

1. Explain analysis of covariance in RBD.
2. Explain analysis of long term experiments
3. What is factorial experiment? Explain the analysis of a 2^3 factorial experiment.
4. Explain the basic principles of experimentation.
5. Describe the linear model used in one way, two way and three way designs. Based on the model explain the analysis of the designs used by each model.

6. Suggest suitable design along with the treatment combinations and breakup of the degrees of freedom for sources of variations
   i) to study the effects of two micro-nutrients Zn and Mg each at three levels on the yield of paddy crop.

   ii) A laboratory experiment for comparing five seed treatments on two paddy varieties to study the germination percentages.
7. What is a uniformity trial? Mention its uses. How will you determine the optimum plot sizes for various crops.

IV Write essay on ANY ONE **(1 x 10=10)**

1. Define Analysis of Variance. What are the assumptions on ANOVA.Discuss the transformations used when the assumptions are not met.
2. When will you recommend the strip plot design. Explain layout and analysis of this design. Make a comparison of this design with the split plot design.

****