Eastern University, Sri Lanka

Final Year First Semester Examination in Agriculture – 2015 (June) (2006/2007)

CC 4101: Experimental Techniques in Agriculture

External Degree

Answer ALL Questions

Time allowed: ~~01~~ 2 hour

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1. An experiment was conducted to test the effect of Gypsum application rates (G1, G2, G3 and G4) on Groundnut yield using Randomized Complete Block Design (RCBD) with five blocks. The recorded yield of Groundnut is given below.

	Groundnut yield (kg/plot)			
Block	G1	G2	G3	G4
1	1.25	1.35	1.58	1.65
2	1.03	1.60	1.68	1.89
3	1.05	1.56	1.56	1.12
4	1.31	1.68	1.49	1.87
5	1.24	2.01	1.68	1.59

   a. Perform the Analysis of Variance (ANOVA) for the above experiment.
   b. Interpret the results at 5 % significant level.
   c. Calculate the Coefficient of Variation (CV) for the above experiment.

2. Write short notes on the following:
   a. Principles of experimental design
   b. Advantages and disadvantages of Randomized Complete Block Design
   c. Importance of covariance analysis in agricultural research

3. A factorial experiment was arranged to study the effect of shade and variety on Ginger yield using Complete Block Design (CRD) with four replicates. Two shade levels (S1, S2) and three varieties (V1, V2, V3) were used in the experiment. Yield recorded from each plot is given below.

Yield (kg/plot)					
S1V1	S1V2	S1V3	S2V1	S2V2	S2V3
13.5	12.3	13.2	11.6	14.3	16.2
11.2	15.0	10.5	14.6	12.6	13.5
14.9	10.9	12.5	12.3	15.6	14.5
13.2	14.5	13.5	13.6	14.3	12.3

a. Perform the Analysis of Variance (ANOVA) for the above experiment.

b. Interpret the results at 5% significant level.

4. a. An experiment was conducted using Complete Block Design (CRD) with five treatments and four replicates. Means of the treatments are given below and the error mean square for the analysis was 3.69.

Treatment	Mean
T1	23.4
T2	28.0
T3	31.3
T4	36.4
T5	19.3

Calculate the Least Significant Difference and show that means are significantly different at 5% significant level.

b. Briefly discuss the problem data on agriculture research.