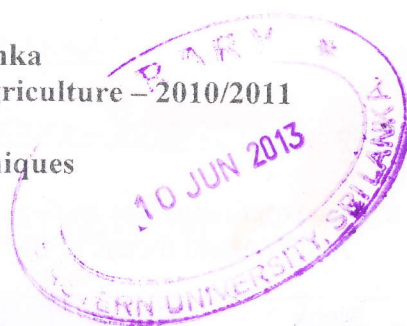


Eastern University, Sri Lanka
Final Year First Semester Examination in Agriculture – 2010/2011
(Dec/Jan 2012/2013)
CC 4101 Experimental Techniques



Answer ALL Questions

Time allowed: 02 Hours

- 1) An experiment was conducted to investigate the effect of different concentrations (mg/l) of hormone (H_1 , H_2 , H_3 and H_4) on yield of Tomato using RCBD with 5 blocks. The yield recorded from plots are given below

| Yield (kg/plot) recorded from the experiment | | | | |
|--|-------|-------|-------|-------|
| Block | H_1 | H_2 | H_3 | H_4 |
| 1 | 3.5 | 4.6 | 4.5 | 5.8 |
| 2 | 4.7 | 5.3 | 5.9 | 6.0 |
| 3 | 3.2 | 3.2 | 4.1 | 4.5 |
| 4 | 2.8 | 3.2 | 3.9 | 4.6 |
| 5 | 4.8 | 5.8 | 6.8 | 6.9 |

- i. Perform ANOVA for the above experiment
 - ii. Interpret the results
- 2) A field experiment was conducted to study the effect of weed density and variety on paddy yield. Three levels of weed density (W_1 , W_2 and W_3) and two varieties (V_1 and V_2) were used in the experiment. The results recorded from the experiment are given below

| The yield (kg/plot) recorded from the experiment | | | | | | |
|--|-----------|-----------|-----------|-----------|-----------|-----------|
| Block | $W_1 V_1$ | $W_1 V_2$ | $W_2 V_1$ | $W_2 V_2$ | $W_3 V_1$ | $W_3 V_2$ |
| 1 | 6.8 | 3.2 | 8.9 | 7.5 | 3.2 | 4.1 |
| 2 | 3.4 | 2.8 | 8.1 | 6.3 | 2.9 | 4.1 |
| 3 | 7.5 | 3.4 | 8.9 | 8.1 | 3.5 | 4.4 |

- i. Perform ANOVA for the above factorial experiment
- ii. Interpret the results

Please Turn Over

3) An experiment was analyzed using CRD with 7 treatments and 4 replicates. The ANOVA and means of the treatments are given below.

| Block | Df | SS | MS | F |
|-----------|----|-----------|---------|--------|
| Treatment | 6 | 5,587,174 | 931,196 | 9.83** |
| Error | 21 | 1,990,238 | 94,773 | |
| Total | 27 | 7,577,412 | | |

| Treatments | Mean |
|----------------|-------|
| T ₁ | 2,127 |
| T ₂ | 2,678 |
| T ₃ | 2,552 |
| T ₄ | 2,128 |
| T ₅ | 1,796 |
| T ₆ | 1,681 |
| T ₇ | 1,316 |

- i) Calculate the LSD and show what means are significantly different at 5% significant level.
- 4) Describe the different methods of transformation which are used to increase the precision of the results obtained in a field experiments.