

17 OCT 2014

Eastern University, Sri Lanka
Final Year First Semester Examination in Agriculture – 2011/2012
(January - 2014)
CC 4101: Experimental Techniques in Agriculture

Answer ALL Questions
Time allowed: 02 Hours

- 1) An experiment was conducted to study the performance of four tomato varieties ($V_1, V_2, V_3,$ and V_4) using Randomized Complete Block Design (RCBD). The data recorded (kg/plot) from the experiment are given below

Yield (kg/plot) recorded from the experiment

| Block | V_1 | V_2 | V_3 | V_4 |
|-------|-------|-------|-------|-------|
| 1 | 3.25 | 4.95 | 2.57 | 6.45 |
| 2 | 4.24 | 5.85 | 1.95 | 6.11 |
| 3 | 4.51 | 6.95 | 2.15 | 5.98 |
| 4 | 5.25 | 5.85 | 3.89 | 8.15 |
| 5 | 2.56 | 4.45 | 2.15 | 4.15 |

- i. Perform ANOVA for the above data
 - ii. Perform Least Significant Difference (LSD) test for above data
 - iii. Interpret the results at 5% significant level
- 2) Performance of four food rations (A, B, C and D) on body weight gain of a cattle breed was investigated using Latin Square Design. The body weight gains (kg) recorded after certain time period is given below.

| Row | Column1 | Column2 | Column3 | Column4 |
|-----|---------|---------|---------|---------|
| 1 | 24 (B) | 44 (A) | 40 (C) | 24 (D) |
| 2 | 23 (D) | 37 (C) | 32 (B) | 35 (A) |
| 3 | 31 (A) | 30 (B) | 26 (D) | 33 (C) |
| 4 | 37 (C) | 31 (D) | 44 (A) | 30 (B) |

(The letters in the parentheses are treatment codes)

- i. Perform ANOVA for the above data
- ii. Interpret the results at 5% significant level
- iii. Calculate Coefficient of Variation (CV)

Please turn over

3) Write short notes on the following:

- a) Randomization with suitable examples
- b) Square root transformation
- c) Importance of ANOCOVA (Analysis of Covariance) in Agriculture Researches

4) A field experiment was conducted to study the effect of hormone and varieties on tomato yield using RCBD with 4 blocks. Two levels of hormone (H_1 and H_2) and two different varieties (V_1 and V_2) were used in the experiment. The data recorded from the experiment are given below.

| Block | Yield (kg/plot) | | | |
|-------|-----------------|-----------|-----------|-----------|
| | $H_1 V_1$ | $H_1 V_2$ | $H_2 V_1$ | $H_2 V_2$ |
| 1 | 12 | 19 | 29 | 32 |
| 2 | 15 | 22 | 27 | 35 |
| 3 | 14 | 23 | 33 | 38 |
| 4 | 13 | 21 | 30 | 37 |

- i. Complete the ANOVA table for the above experiment
- ii. Interpret the results at 5% significant level