

**Eastern University, Sri Lanka**

**Final Year First Semester Examination in Agriculture 2005/2006**

**CSC 4101: Experimental Techniques in Agriculture**

Allowed time: Two hours

Answer all Questions

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1. Four plots of each of four potting composts (A-coarse, B- fine, C- coarse and additive, D-fine and additive) laid out in a Latin Square Design. The dry weight of plant material was recorded for each plot, the data gives below on plan as laid out in the bed.

D 19	C 15	A 14	B 20
C 21	A 15	B 16	D 22
B 19	D 17	C 21	A 23
A 20	B 20	D 22	C 29

- a) Perform analysis of variance for the above data.
- b) Write a short report on your conclusion.
- c) What is the co-efficient of variation of the above test?
2. a) Briefly explain the least significant difference (LSD) as a method to compare treatment means.
- b) Yield from an experiment with four levels of nitrogen and four rice varieties conducted during Maha 1996. Prominence was given to varietal selection.
- i) Suggest an experiment design for this study.
- ii) Give a field plan for the suggested design.
- iii) Give an outline of the analysis that you will perform.

3. The following table gives data on the effects on average rice straw height of the use of a growth regulator.

Application rate (mg/L) (x)	Straw height (cm) (y)
2	105
4	106
6	101
8	97
10	95
12	90
14	85
16	87

- Draw a scattered diagram of the data.
  - What does the scattered diagram suggest about the relationship between x and y.
  - Fit the linear regression line on your graph.
  - Test the significance of the simple linear regression at  $p = 0.05$ .
  - Compute the correlation co-efficient.
4. Discuss the techniques involved in minimizing experiment error in crop experimentation.