Allowed time: Two hours

Answer **all** questions.

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1. A maize breeder desired to compare the grain yield (kg / plot) of six maize hybrids (V1, V2, V3, V4, V5 and V6). A Randomized Complete Block Design with four replications was used. The following grain yields were recorded.

Blocks	Treatments					
	V1	V2	V3	V4	V5	V6
I	10	12	7	8	12	8
II	15	11	6	10	11	5
III	15	11	7	10	12	6
IV	10	10	8	8	9	9

a. ·Perform the analysis of variance for the above data.

b. Interpret your results at $P = 0.05$.

c. Compute the relative efficiency of the Randomized Complete Block Design (RCBD) compared with Completely Randomized Design (CRD) and comment on your result.

2. a. Briefly explain positive, negative and zero correlations with illustrations.

b. In an experiment the following values related to independent variable (X) and dependent variable (Y) were collected.

$$\sum x = 640 \qquad \sum x^2 = 225 \qquad \sum y = 704 \qquad \sum y^2 = 414 \qquad \sum xy = 132 \qquad n = 32$$

Using the above data,

i. Find the regression equation.

ii. Test the significance of regression coefficient.

iii. Compute the correlation coefficient and comment on the relationship.

3. Write short notes on the following:

a. Soil heterogeneity.

b. Mean comparison techniques in agricultural researches.

4. a. Briefly explain the guidelines to assign the factors to the main plot and subplot in a Split Plot Design.

b. Critically comment on the following statements.

i. Coefficient of Variation (CV) is considered as a good index of the reliability of an experiment.

ii. Blocking is one of the simplest w .ys to minimize experimental error in experimentation.