

DESIGN OF EXPERIMENTS

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 x 2 = 20)

- 1 Define 'Analysis of Variance'.
- 2 What are the assumptions of F-test in ANOVA?
- 3 What are experimental errors?
- 4 Write down the layout of (m x m) LSD.
- 5 Define 'elementary contrast'.
- 6 Define main effect and interaction in a 2^2 factorial experiment.
- 7 What is meant by partial confounding?
- 8 Write down one of the basic principles of a good design.
- 9 Mention the importance of analysis of covariance.
- 10 Write down the adjusted treatment means of analysis of covariance.

SECTION - B (25 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 5 = 25)

- 11 a Define one way classification and also its mathematical model.
OR
b Briefly explain mathematical model of two-way classification.
- 12 a . Discuss the advantages of CRD.
OR
b Explain the procedure of obtaining the ' estimate of one missing observation in LSD.
- 13 a Discuss the main effects of 2^3 - factorial design.
OR
b Write the set of orthogonal contrasts for main effects and interactions in 2 factorial.
- 14 a State the disadvantages of confounding in factorial experiments.
OR
b Describe the analysis of partially confounded in 2^3 factorial experiment.
- 15 a Describe the purpose of the technique in analysis of covariance.
OR
b Discuss the analysis of covariance for RBD.

SECTION - C (30 Marks)

Answer any THREE Questions

* ALL Questions Carry EQUAL Marks (3 x 10 = 30)

- 16 Explain ANOVA table for one - way classification.
- 17 State the mathematical model assumed in LSD and explain the analysing the variance table used for analysing the result of such an experimental design.
- 18 Derive statistical analysis of 2^2 - design.
- 19 Describe the 2^3 - factorial experiment with complete confounding.
- 20 . Discuss the analysis of covariance with one concomitant variable for a one way layout.