

Branch - STATISTICS

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 What is meant by Design of experiment?
- 2 Define ANOVA.
- 3 How efficiency of a design is calculated?
- 4 Sketch the layout of LSD.
- 5 Gives the treatment combinations of 2^3 factorial experiments.
- 6 What is contrast?
- 7 Define orthogonality given by F-Yates.
- 8 State the types of confounding.
- 9 On what situation, Split - plot design can be adopted.
- 10 When a BIBD is said to be symmetric?

SECTION - B 125 Marks)

Answer ALL Questions

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

- 11 a With a mathematic model, describe one-way classification in ANOVA.
OR
b State Cochran's theorem - and give the assumptions for ANOVA test.
- 12 a Give brief note about advantages and disadvantages of CRD.
- OR
b How to estimate the efficiency of RBD relative to CRD.
- 13 a With an example, explain factorial experiment.
OR
b Explain main effects and interaction effects of 2^3 factorial experiment.
- 14 a Delineate about confounding and its types with an example.
OR
b Give the key block of 2^5 factorial experiment with confounded effects ABCD and BCE.
- 15 a ' Detail about BIBD and prove the Fisher's inequality.
OR
b State the advantages of split-Plot design.

SECTION - C (30 Marks)

Answer any **THREE** Questions

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

- 16 Describe its way classification using statistical analysis with ANOVA table.
- 17 Give the analysis of one missing observation in RBD.
- 18 Explain the statistical Analysis of 2^2 design of FE with its signification.
- 19 Using partial confounding, describe 2^3 factorial experiment.
- 20 Describe the analysis of co-ordination with one concomitant variable.