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M1335

Second Semester M.Sc. Degree Examination, May 2007
STATISTICS
Paper – 2.3 : Design and Analysis of Experiments

Time: 3 Hours

Max. Marks: 70

*Instructions: Answer any 5 questions, without omitting any Unit.
All questions carry equal marks.*

UNIT – I

- I. a) What do you mean by linear parametric function ? Give an example. When do you say it is estimable ? Illustrate it through an example.
b) Describe Gauss-Markoff set up through an example.
- II. a) State and prove Gauss-Markoff theorem.
b) What is a linear hypothesis ? How do you test it ?

UNIT – II

- III. a) What are the basic principles of experimentation ? Describe which of them are employed in the construction of a RBD.
b) Starting with the model to be used, describe the analysis of a two-way classified data.
- IV. a) What is a Graeco-Latin square ? Describe the analysis of a Graeco-Latin square.
b) What are the advantages of RBD over CRD ? Derive the efficiency of RBD over CRD.

UNIT – III

- V. a) What are factorial experiments ? Describe the analysis of a 2^n factorial experiment.
b) Distinguish between symmetrical and asymmetrical factorial experiments.
- VI. a) What is fractional factorial ? Explain how you use the Yate's algorithm for the analysis of such a design.
b) What do you mean by confounding ? Describe the need for confounding in factorial experiments.

P.T.O.

UNIT - IV

- VII. a) Describe split-plot design. How do you analyse it ?
b) What is balanced incomplete block design ? Give an example.
- VIII. a) Using an appropriate model, describe intra-block analysis of a BIBD.
b) What is strip-plot design ? How do you analyse it ?

UNIT - V

- IX. a) Describe the analysis of covariance in a LSD.
b) Write short notes on connectedness and orthogonality of designs.
- X. a) Describe an optimality criteria for experimental design.
b) Describe a procedure for estimation of residual effects in a design.
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