ST.JOSEPH'S COLLEGEFORWOMEN (A),VISAKHAPATNAM

VII SEMESTER   STATISTICS   TIME: 4 Hrs/Week

ST 8204(3)   DESIGN AND ANALYSIS OF EXPERIMENTS

Max. Marks:100

SYLLABUS

Objectives:

CO1: To understand ANOVA, ANCOVA, fixed and random effect models

CO2: To understand the concepts of CRD, RBD, LSD and their missing plot techniques

CO3: To construct the multiple comparison tests and split plot design

CO4: To summarize the analysis of 2n and 32 factorial designs and able to test their

Significance

CO5: To Familiarize with total and partial confounding

CO6: To construct BIBD and PBIBD and to perform their analysis

Learning Outcomes:

LO1: Acquire theoretical foundations for design and analysis of experiments.

LO2: Able to apply ANCOVA technique.

LO3: Expertized in analysis of experiments and perform the data analysis using CRD,

RBD and LSD even in case of missing values and capable of testing the model adequacy.

LO4: Expertize in analyzing factorial designs and estimate factorial effects and test their significance. Experiment confounding techniques to real life problems.

LO5: Able to apply the Youden square design and intra block analysis for estimating

the Parameters of BIBD and PBIBD.

LO6: Expertized in applying different analysis of variance techniques in agricultural

business and industries.

COURSE:

UNIT I

Linear Model: Estimability of linear parametric functions; BLUE, Gauss-Markoff theorem; Generalized Gauss-Markoff theorem, ANOVA model, ANOVA for Two way and three-way classifications

UNIT II

ANCOVA: Introduction, Uses, assumptions and analysis technique for one way and two-way classifications.

UNIT III

Necessity of confounding, Types of confounding, complete and partial confounding in 2^n, 32 and 33 factorial designs, Analysis of confounded factorial designs, Fractional Replication

UNIT IV

Split Plot design. Incomplete Block Designs: Balanced Incomplete Block Design (BIBD) – parameters, relationships among its parameters, incidence matrix and its properties, Symmetric BIBD

UNIT V

Resolvable BIBD, Affine Resolvable BIBD, Intra Block analysis, complimentary BIBD, Residual BIBD, Dual BIBD, Derived BIBD.

Books Recommended

1. M.N. Das and N.C. Giri (1979), Design and Analysis of Experiments, Wiley, Eastern, Pvt. Ltd. New Delhi.

2. C.D. Montgomery (1976), Design and Analysis of Experiments, Wiley & Sons, New York

3. M.C. Chakravarthy, (1962), Mathematics of Design of Experiments, Asia Publishing House, Calcutta.