ST.JOSEPH'S COLLEGEFORWOMEN (A),VISAKHAPATNAM VII SEMESTER STATISTICS TIME: 4 Hrs/Week ST 7203(3) SAMPLING TECHNIQUES-II Max. Marks:100 SYLLABUS

OBJECTIVES:

- 1. The sampling techniques deals with the ways and methods that should be used to draw samples to obtain the optimum results, i.e., the maximum information about the characteristics of the population with the available sources at our disposal in terms of time, money and manpower to obtain the best possible estimates of the population parameters
- 2. This paper throw light on understanding the variability between group and within group through Analysis of Variance

COURSE LEARNING OUTCOMES : The students shall get

- 1) Introduced to various statistical sampling schemes such as simple, stratified and systematic sampling.
- 2) Knowledge about comparing various sampling techniques.
- 3) Use appropriate experimental designs to analyze the experimental data.

COURSE:

UNIT I

Concept of population and sample, complete enumeration versus sampling, sampling and non-sampling errors. Types of sampling: non-probability and probability sampling, basic principle of sample survey, simple random sampling with and without replacement, definition and procedure of selecting a sample, estimates of: population mean, total and proportion, variances of these estimates, estimates of their variances and sample size determination.

UNIT II

Stratified random sampling: Technique, estimates of population mean and total, variances of these estimates, proportional and optimum allocations and their comparison with SRS. Practical difficulties in allocation, estimation of gain in

precision, post stratification and its performance. Systematic Sampling: Technique, estimates of population mean and total, variances of these estimates (N= nxk). Comparison of systematic sampling with SRS and stratified sampling in the presence of linear trend and corrections.

UNIT III

Introduction to Ratio and regression methods of estimation, first approximation to the population mean and total (for SRS of large size), variances of these estimates and estimates of these variances, variances in terms of correlation coefficient for regression method of estimation and their comparison with SRS. Cluster sampling (equal clusters only) estimation of population mean and its variance, comparison (with and without randomly formed clusters). Relative efficiency of cluster sampling with SRS in terms of intra class correlation. Concept of sub sampling.

UNIT IV

Present official statistical system in India, Methods of collection of official statistics, their reliability and limitations. Role of Ministry of Statistics & Program Implementation (MoSPI), Central Statistical Office (CSO), National Sample Survey Office (NSSO), and National Statistical Commission. Government of India's Principal publications containing data on the topics such as population, industry and finance.

BOOKS SUGGESTED

- 1. Cochran W.G. (1984): Sampling Techniques (3rd Ed.), Wiley Eastern.
- 2. Sukhatme, P.V., Sukhatme, B.V. Sukhatme, S. Asok, C. (1984). Sampling Theories of Survey With Application, IOWA State University Press and Indian Society of Agricultural Statistics
- 3. Murthy M.N. (1977): Sampling Theory & Statistical Methods, Statistical Pub. Society, Calcutta.

- 4. Des Raj and Chandhok P. (1998): Sample Survey Theory, Narosa Publishing House.
- 5. Goon A.M., Gupta M.K. and Dasgupta B. (2001): Fundamentals of Statistics (Vol.2), World Press.