

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc (Statistics)
Semester: IV
Syllabus with Effect from: June-2013

Paper Code: PS04ESTA03	Total Credit: 4
Title Of Paper: Bioassays	

Unit	Description in Detail	Weightage (%)
I	Principles of planning an assay. Types of biological assays: Direct assays; Ratio estimators, asymptotic distributions; Fieller's theorem . Quantitative dose response relations: Indirect Assays; the dose response regressions; similarity; Assay validity; Monotony; Linearizing transformations; Essential non-linear relation; a response curve for vitamin B12; Homoscedasticity of variance.	25%
II	Parallel line Assays: Unsymmetric designs; Complete Analysis; Symmetric dose structure for parallel assays; complete analysis	25%
III	Slope ratio Assays Quantal responses; The use of quantal responses; minimal effective dose; median effective dose; Methods of estimation of parameters; Estimation of extreme quantiles; Doseallocation schemes; Polychotomous quantal response; Estimation of points on the quantal response function.	25%
IV	Estimation of safe doses Bayesian approach to bioassay.	25%

Basic Text & Reference Books:-

- Z. Govindarajulu (2000). Statistical Techniques in Bioassay, S. Kargar.
- D. J. Finney (1971). Statistical Method in Bioassay, Griffin.
- D. J. Finney (1971). Probit Analysis (3rd Ed.), Griffin.
- G. B. Weatherile (1966). Sequential Methods in Statistics, Methuen.

