

Semester – IV

PROBABILITY AND STATISTICS-II

Course No. MM-CP-405
Duration of Examination: 3 hrs

Maximum Marks: 100
(a) External Exam: 80
(b) Internal Exam: 20

Unit I

The Limiting distribution, Stochastic convergence, limiting moment generating functions, the central limit theorem, some theorems on limiting distributions, interval estimation and random intervals, confidence intervals for means , confidence intervals for difference of means, confidence interval for variances.

Unit II

Point estimation, A sufficient statistic for a parameter, Fisher Neymann Criterion, Factorization theorem, Rao-Blackwell theorem, Completeness and uniqueness, Complete sufficient statistic, Best statistic, the exponential class of probability density functions.

Unit III

Further topics in point estimation, The Rao-Crammer inequality ,Efficient estimators, Consistent estimators, Maximum likelihood estimation of parameters. Relation between maximum likelihood estimators and sufficient estimators.

Unit IV

Statistical hypothesis, examples and definitions, certain best tests, Neyman-Pearson theorem, uniformly most powerful tests, likelihood ratio tests. Chi-square tests.

Books Recommended

- 1 Hogg and Craig : An Introduction to the Mathematical Statistics
- 2 Mood and Grayball : An Introduction to the Mathematical Statistics

References:

1. C.R.Rao : Linear Statistical Inference and its Applications
2. V.K.Rohatyi : An Introduction to Probability and Statistics.