TRIPURA UNIVERSITY

(A Central University)
Suryamaninagar-799022

Syllabus
OF

Statistics
(General & Major)

Semester – III

2014

Statistics General Course [3rd Semester]
Paper III (Theory)
Total marks: 50 (10 Internal Assessment and 40 Theory)　　　　　Time: 2 Hours.

Unit – I (Estimation)
Concept of point estimation. Requirement of a good estimator: Unbiasedness, Consistency, sufficiency and Efficiency. Elementary concept of MVUE and BLUE. Cramer-Rao inequality(without proof).

Maximum likelihood method of estimation and properties (Statement only).

Concepts of confidence interval and confidence coefficient. Exact confidence intervals under normal set-up for a single mean, single proportion, single variance and the difference of two means and
two proportions under normal setup.

Unit – II (Sample Survey)
Concepts of a finite population and of a sample. Need for sampling. Complete enumeration and sample surveys. Biases and Errors. probability and non-probability samplings.

Simple random sampling with and without replacement. Associated unbiased estimators of population total, mean and variance. Selection of a random sample. Stratified random sampling:
4

Problems of allocations. Estimation of population mean and population total. Linear Systematic sampling.

References:

1. Goon A.M., Gupta M. & Dasgupta B.(1997) : An Outline of Statistics (Vol 1), World Press
2. Goon A.M.,Gupta M.& Dasgupta B.(2001): Fundamentals of Statistics (Vol 1), World Press
3. Mood A.M., Graybill F. & Boes D.C.(1974) : An Introduction to the theory of Statistics (3rd ed.), McGraw Hill
4. Rohatgi V.K. (1984): An Introduction to Probability Theory and Mathematical Statistics, John Wiley
5. Goon A.M.,Gupta M.& Dasgupta B.(2001): Fundamentals of Statistics (Vol 2), World　Press
6. Cochran W.G. (1984): Sampling Techniques (3rd ed.), Wiley Eastern
7. Nagar A.L. & Das R.K. (1976): Basic Statistics
8. Mukhopadhyay P. (1999): Applied Statistics. New Central Book Agency Pvt. Ltd., Calcutta

Statistics General Course [3rdSemester]
Paper III (Practical)
[Using Spreadsheet, SPSS, R]

Total marks: 50 (10 Internal Assessment and 40 Practical)　　　　　Time: 2 Hours.

1. Drawing of random samples (with/without replacement) from a finite population.
2. Drawing of samples by Systematic random sampling.
3. Computation of Multiple linear regression, Multiple correlation coefficient & Partial correlation coefficient.
4. Estimation of Sample size, Sample mean & Sample Proportion in stratified random sampling under Proportional and optimum allocations.

Statistics Honours [3rd Semester]

Paper - III (Theory)
Total marks: 60 (12 Internal Assessment and 48 Theory)   Time: 2 Hours.

Unit – I (Sampling Distributions and Order Statistics)
Concepts of Random sampling, statistic and parameter. Sampling distribution of statistic and its Standard Error. Definitions, properties, derivations and applications of Chi-square, t and F statistics. Order statistics: Introduction. Exact sampling distributions of order statistics, extreme order statistics (continuous case). Distribution of sample median and sample range (continuous case).

4

Unit – II (Analysis of Multivariate Data and Scaling of Scores)
Multiple linear regression, Multiple correlation, some results relating to multiple regression and multiple correlation.
Partial correlation, some relations connecting partial regression and partial correlation coefficients.
Scaling of Scores on a Test: Z Score, Standard Score, Normalised Score, T-Score, Percentile Score.
Scaling of rankings in terms of normal probability curve.

References:

1. Goon A.M., Gupta M.K. & Dasgupta B. (1994): An Outline of Statistical Theory (Vol-1), World Press
2. Johnson, N.I. & Kotz S. (1970): Distributions in Statistics, John Wiley
3. Ross S.M. (1972): Introduction to Probability Models, Academic Press
4. Mood A.M., Graybill F. & Boes D.C. (1974): An Introduction to the Theory of Statistics (3rd ed), McGraw Hill
5. Rao C.R. (1952): Advanced Statistical Methods in Biometric Research, John Wiley
6. Hogg R.V. & Craig A.T. (1978): Introduction to Mathematical Statistics
7. Rohatgi V.K. (1984): An Introduction to Probability Theory & Mathematical Statistics, John Wiley
8. Stuart G & Ord J.K. (1991): Advanced Theory of Statistics (Vol 2), Charles Griffin
9. Goon A. M., Gupta M. K.and Dasgupta B. (1997): Fundamentals of Statistics (V-1), World Press
10. Bhattacharya GK & Johnson R. A. (1977): Concepts & Methods of Statistics, John Wiley

Statistics Honours [3rd Semester]

Paper - III (Practical)
[Using Spreadsheet, SPSS, R]

Total marks: 40 (8 Internal Assessment and 32 Practical)   Time: 2 Hours.
1. Computation of Multiple linear regression, Multiple correlation coefficient & Partial correlation coefficient.
2. Scaling of Scores on a Test: Z Score, Standard Score, Normalised Score, T Score, Percentile Score.
3. Pearson's chi-square test and goodness of fit.