III Semester Syllabus

B.A. / B.Sc. STATISTICS

INFERENITAL AND APPLIED STATISTICS

UNIT - I

Concepts: Population, Sample, Parameter, statistic, Sampling distribution, Standard error, convergence in Probability and convergence in distribution law of large numbers, central limit theorem (statements only). Student's t-distribution, F-distribution, χ^2 Distribution: Definitions properties, and their applications.

UNIT-II

Theory of estimation and Hypothesis: Estimation of a parameter, criteria of a good estimator - unbiasedness, consistency, efficiency, & sufficency and Binomial Poisson & Normal parameters estimate by MLE method. Confidence Intervals. Concepts of statistical hypotheses, null and alternative hypothesis, critical region, two types of errors, level of significance and power of a test. Examples in case of Binomial, Poisson and Normal distributions.

UNIT-III

Sample tests : t-test for single mean, difference of means and paired t-test. 2. confidence intervals for mean(s), Srandard deviation(s) and correlation coefficient(s). Test for goodness of fit and independence of attributes. F-test for equality of variances.

Non-parametric tests - their advantages and disadvantages, comparison with parametric tests. Measurement scale - nominal, ordinal, interval and ratio.

UNIT-IV

Time Series : Time Series and its components wih illutrations, additive, multiplicative models. Trends : Estimation of trend by free hand curve method, method of semi averages. Determination of trend by least sqares (Linear trend, parabolic trend only), moving averages method.

UNIT-V

Vital Statistics : Introduction, definition and uses of viral statistics, sources of vital statistics. Measures of different Mortality and Fertility rates. Measurement of population growth. Life tables: construction and uses of life tables.