SEMESTER-II

STATISTICS MAJOR

STAT-MD-CC2-2-Th **3 Credits**

(Descriptive StatisticsII &Probability II) **THEORY**

Bivariate data: Definition, scatter diagram, simple correlation, linear regression, principle of least squares, fitting of polynomial and exponential curves, correlation ratio, correlation index, intra-class correlation.

Rank correlation: Spearman'sand Kendall's measures. (15)

Analysis of Categorical Data: Contingency table, independence &association of attributes.(5)

Random Variables: Definition of discrete and continuous random variables, cumulative distribution function(c.d.f.)anditsproperties(withoutproof),probabilitymassfunction(p.m.f.)andprobability density function (p.d.f.). Expectation and Variance. Standard probability distributions: Discrete Uniform, Binomial, Poisson, and Normal. (25)

STAT-MD-CC2-2-P **1Credit**

(Descriptive Statistics II & Probability II) **PRACTICAL**

List of Suggested Practical

- Problems based on analysis of bivariate data.
- Problems based on measures of rank correlation.
- Problems based on analysis of categorical data.
- Finding expectation, variance from a given probability distribution.
- Fitting of binomial distributions for n and p=q=1/2.
- Fitting of binomial distributions forgiven n and p.
- Fitting of binomial distributions after computing mean and variance.
- Fitting of Poisson distributions for given value of mean.
- Fitting of Poisson distributions after computing mean.
- Application problems based on binomial distribution.
- Application problems based on Poisson distribution.
- Problems based on area property of normal distribution.
- To find the ordinate for a given area for normal distribution.

- Application based problems using normal distribution.
- Fitting of normal distribution when parameters are given.
- Fitting of normal distribution when parameters are not given.

ReferenceBooks:

- Goon,A.M.,Gupta,M.K.andDasgupta,B.:FundamentalsofStatistics,Vol.I,TheWorldPress, Kolkata.
- Goon,A.M.,Gupta,M.K.&Dasgupta,B.:AnOutlineofStatisticalTheory(Vol-1),WorldPress.
- Miller, Irwin and Miller, Marylees: John E. Freunds Mathematical Statistics withApplications, (7th Edn.), Pearson Education, Asia.
- Mood, A.M., Graybill,F.A. andBoes,D.C.:Introductiontothe Theoryof Statistics, 3rdEdn. (Reprint), Tata McGraw-Hill Pub. Co. Ltd.
- Tukey,J.W.:ExploratoryDataAnalysis,Addison-WesleyPublishingCo.
- Agresti,A.:Analysisof OrdinalCategoricalData,2ndEdition,Wiley.
- Freedman,D.,Pisani,R.andPurves,R.:Statistics,4thEdition,W.W.Norton&Company.
- Chung,K.L.:ElementaryProbabilityTheorywithStochasticProcess,Springer/Narosa.
- Feller,W.:AnIntroductiontoProbabilityTheory&itsApplications,JohnWiley.
- Parzen,E.:ModernProbabilityTheoryanditsApplications,JohnWiley.
- Uspensky,J.V.:IntroductiontoMathematicalProbability,McGrawHill.
- Cacoullos,T.:ExercisesinProbability,Narosa.
- Rahman,N.A.:PracticalExercisesinProbabilityandStatistics,Griffin.
- Ross,S.:AFirstCourseinProbability,PrenticeHall.
- Hogg,R.V.,Tanis,E.A.andRaoJ.M.:ProbabilityandStatisticalInference,SeventhEd,Pearson Education, New Delhi.
- Myer,P.L.:Introductory ProbabilityandStatisticalApplications,Oxford& IBHPublishing,New Delhi.
- Rohatgi, V. K. and Saleh,A.K. Md. E.:An Introduction to Probability and Statistics. 2ndEdn. (Reprint) John Wiley and Sons.
- Roychowdhury,S.,Bhattacharya,D.:StatisticsTheoryandPractice,U.N.Dhur&Sons.Pvt.Ltd.
- Gupta,S.C.,Kapoor,V.K.:FundamentalsofMathematicalStatistics,SultanChand& Sons