Paper-I (ST-301)

Time: 3 Hours   M.M.:B. Sc: 40+10*
                                                                                                        B.A: 28+7*
                                                                                            * Internal Assessment

Elementary Inference

Note : There will be nine questions in all. Question No.1 will be compulsory covering whole of the syllabus and comprising 5 to 8 short answer type questions. Rest of the eight questions will be set from the four units uniformly i.e. two from each unit. The candidate will be required to attempt five questions in all selecting one question from each unit and the compulsory one. All the questions will carry equal marks except the compulsory question, the distribution of marks for which will be as follows:-
 B.Sc.8 marks and B.A. 6 marks.

UNIT-I

Statistical Estimation : Parameter and statistic, Basic concept of sampling distribution. Point and interval estimate of a parameter, concept of bias and standard error of an estimate. Standard errors of sample mean, sample proportion, standard deviation, Properties of a good estimator: Unbiasedness, Efficiency, Consistency and Sufficiency (definition and illustrations).

UNIT-II

Methods of Estimation : Method of moments, method of maximum likelihood and its properties (without proof). Estimation of parameters of Binomial, Poisson and Normal distributions

UNIT-III

Testing of Hypotheses : Null and alternative hypotheses. Simple and composite hypotheses, critical region, level of significance, one tailed and two tailed testing, Types of errors, BCR, Neyman- Pearson Lemma, Test of simple hypothesis against a simple alternative in case of Binomial, Poisson and Normal distributions.

UNIT-IV

Large Sample Tests : Testing of a single mean, single proportion, difference of two means and two proportions. Fisher's Z transformation. Determination of confidence interval for mean, variance and proportion.

Books recommended

S. No.	Title of Book	Name of author	Publisher
1.	Statistics:A Foundation For Analysis	Hughes A. & Grawoig D.	Addision Wesley
2.	A First Course on Parametric Inference	Kale B.K.	Narosa
3.	Introduction to Theory of Statistics	Mood A.M., Graybill F.A. & Boes D.C.	McGraw Hill
4.	Introduction to Mathematical Statistics	Hoel P.G.	Asia Pub. House
5.	Mathematical Statistics With Applications	Freund's J.E.	Prentice Hall
6.	Introduction to Mathematical Statistics	Hogg and Craig	Prentice Hall