SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN (AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.
B.Sc. END SEMESTER EXAMINATION APRIL/NOV - 2021
SEMESTER - V
13USTCT5009 **&** UST/CT/5009 - **Statistical Inference - II**

Total Duration : 3 Hrs		**Total Marks : 75**	
MCQ	: 30 Mins	MCQ	: 15
Descriptive	: 2 Hrs.30 Mins	Descriptive	: 60

Section B

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. If $x \geq 1$ is the critical region for testing H_0:θ=2 against H_1:θ=1 on the basis of single observation from the population $f(x, \theta) = \theta e^{-\theta x}$, $x \geq 0$. Obtain the values of type -1 and type -2 errors.
2. Explain (i) Simple and composite hypothesis (ii) Type I and II error (iii) Critical region.
3. Construct the LR test for the mean of a normal population.
4. Obtain test the independence of attributes.
5. Describe the median test.
6. Describe the test od significance for single mean.
7. Describe (i) Loss Functions (ii) Risk Functions.
8. Find the Bayes estimator of λ when samples from Poisson distribution under conjugate prior.

Section C

Answer any **THREE** questions $(3 \times 10 = 30$ Marks)

9. State and Prove Neyman-Pearson Lemma.
10. Given random sample X_i,(i=1,2,. . . n) from the distribution with PDF $f(x, \theta) = \theta e^{-\theta x}$, $x>0$ show that there is no UMP test for testing H_0: $\theta = \theta_0$against H_1: $\theta \neq \theta_0$
11. Find the LR test for testing the variance of a normal population.
12. Describe (i) Sign test (ii) Mann-whitney u test.
13. SPRT – 4 marks, OC function – 3 marks and ASN function – 3 marks.