B.Sc. DEGREE EXAMINATION,APRIL 2020
III Year V Semester
Statistical Inference - II

Time : 3 Hours **Max.marks :60**

Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. Define two Types of Error.
2. What is simple and composite Hypothesis?
3. Define one parameter exponential family.
4. Define uniformly most powerful test.
5. Define Likelihood Ratio Test.
6. Write the Properties of LR test.
7. Explain Median Test.
8. What is Non parametric test?
9. Define Loss function.
10. Write a short note on OC function.
11. Define Average Sample Number (ASN).
12. Define Risk function.

Section B $(5 \times 4 = 20)$ Marks

Answer any **FIVE** questions

13. Write a short note on Most Powerful Test.
14. Explain Power function and Power curve.
15. Derive LRT for the mean of a normal population.
16. Describe Kolmogorov-Smirnov one sample test.
17. Write a note on Basic ideas on decision theory.
18. Describe the Mann-Whitney U test procedure.
19. Write the steps involved in solving testing statistical hypothesis.

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. State and Prove Neyman-Pearson Lemma.
21. Consider a random sample of size n from N(θ,1)distribution. Show that UMP test does not exists for testing $H_0 : \theta = \theta_0$ against $H_1 : \theta \neq \theta_0$.
22. Develop a Likelihood ratio test of $H_0 : \sigma_2 = \sigma_0^2$ against $H_0 : \sigma_2 \neq \sigma_0^2$ in the case of a Normal distribution with known mean μ.
23. Describe the steps involved in Sign test and Wilcoxon Signed Rank test.
24. Explain about Sequential Probability ratio test in detail.