B.Sc. DEGREE EXAMINATION,NOVEMBER 2018
III Year V Semester
Core Major - Paper IX
STATISTICAL INFERENCE - II

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

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

Answer any **TEN** questions

1. Define Null and alternative hypothesis.
2. Define power of the test.
3. Define uniformly most powerful test.
4. What is meant by power function?
5. Define Likelihood Ratio test.
6. State anyone property of Likelihood Ratio test.
7. Define Mann – Whitney U-Statistics
8. Define Sign test.
9. What is meant by Average Sample Number (ASN).
10. Define loss function.
11. Define critical region.
12. What is meant by Baye's risk?

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

Answer any **FIVE** questions

13. Define Type I and Type II error.
14. Explain about monotone likelihood ratio test property.
15. Obtain Likelihood Ratio test for the mean of a normal population with known variance.
16. Describe steps involved in Wilcoxon signed rank test.
17. State the properties of Sequential Probability Ratio Test.
18. Find the most powerful test to test $H_0 : \mu = \mu_0$ against $H_1 : \mu = \mu_1$ using a random sample of n observation from $N\left(\mu, \sigma^2\right)$)
19. Explain about Kolmogorov-Smirnov one sample test.

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

Answer any **THREE** questions

20. State and prove Neyman – Pearson Lemma.
21. A random sample of size n is available from normal distribution $N\left(\mu,\ \sigma^2\right)$ with σ^2 is known and obtain the UMP test for testing $H_0 :\ \mu = \mu_0$ against $H_1 :\ \mu \neq \mu_0$.
22. Construct Likelihood Ratio Test for the quality of Means of two normal Population.
23. a). Describe Median Test

    b). Describe Mann- Whitney Wilcoxon U- Test.
24. Describe the OC and ASN function of the SPRT, in case of Binomial distribution.

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