M.Sc DEGREE EXAMINATION,APRIL 2019
I Year II Semester
Biostatistical Inference - II

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. Define power of the test.
2. Define uniformly most powerful test.
3. Define Unbiased test.
4. What is meant by power function?
5. Define similar test.
6. What is meant by locally most powerful test.
7. State anyone property of Likelihood Ratio test.
8. Define Sequential probability ratio test.
9. Define Median test.
10. Define Sign test.
11. What is meant by Average Sample Number (ASN).
12. Define critical region.

Section B $(5 \times 5 = 25)$ Marks

Answer any **FIVE** questions

13. Explain Type I and Type II error with example.
14. Derive the Uniformly Most Powerful Unbiased (UMPU) test for one parameter exponential family for H_o: $\theta=\theta_0$ vs H_A: $\theta\neq\theta_0$.
15. Explain Locally most powerful test with example.
16. Obtain Likelihood Ratio test for the mean of a normal population.
17. Explain about Kolmogorov-Smirnov one sample 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. Describe steps involved in Friedman test.

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

Answer any **THREE** questions

20. State and prove Neyman – Pearson fundamental 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 the uniformly most powerful similar test for one parameter exponential family for H_o: $\theta_1 \leq \theta \leq \theta_2$ versus H_A: $\theta < \theta_1$.
23. Construct Likelihood Ratio Test for the quality of Means of two normal Population.
24. a). Explain the following Kruskal-Wallis test
    b). Explain the following Mann- Whitney Wilcoxon U- Test.

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