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

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

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

Answer any **TEN** questions

1. Define the rejection region of the test.
2. Define simple hypothesis with an example.
3. When a test is said to be unbiased?
4. Write the structure for one parameter exponential family.
5. Define unbiasedness of a test function.
6. Give examples for similar test.
7. Define uniformly most powerful test.
8. What is meant by likelihood ratio test?
9. When a test is said to be non-parametric?
10. Under what conditions Median test can be applied.
11. Define SPRT.
12. Mention the properties of LR test.

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

Answer any **FIVE** questions

13. Discuss monotone likelihood ratio test.
14. Write short notes on unbiased test.
15. Write down the construction of the LMP test.
16. Discuss in detail operating characteristic function.
17. Explain Friedman test with an example.
18. Obtain LRT for binomial distribution.
19. Write short notes on average sample number.

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

Answer any **THREE** questions

20. State and prove Neyman Pearson fundamental lemma.
21. Obtain UMPU test for one parameter exponential family (Ho: $\theta$=$\theta$0 versus $H_1$: $\theta \neq \theta_0$).
22. Find locally most powerful test for testing H: $\mu = \mu_0$ against K: H: $\mu \neq \mu_0$ using a random sample of n observations from normal distributions, with $\sigma^2$ known.
23. Derive likelihood ratio test for normal distributions.
24. Explain Kolmogorov-Smirnov test for one sample.

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