M.Sc. DEGREE EXAMINATION,NOVEMBER 2019
I Year I Semester
Statistical Inference - I

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

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

Answer any **TEN** questions

1. Define point estimation.
2. What do you mean by MVUE?
3. What is sufficient statistic?
4. Define invariance.
5. State Lehmann –Scheffe theorem
6. Give any two properties of MLE
7. What is censoring?
8. Define random censoring.
9. Define confidence coefficient.
10. Write the 100(1-α)% confidence interval for difference between two sample means for large samples.
11. List any two types of prior distribution.
12. What is Baye's estimator?

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

Answer any **FIVE** questions

13. Prove that the sample mean from N(μ, σ^2)is consistent for μ
14. Prove that the minimum variance unbiased estimator is unique
15. Describe briefly about completeness and boundedly complete of a statistic
16. If $X_1, X_2, .., X_n$ be independent random observations on a random variable X whose distribution is B(1,θ), 0 < θ <1, the prove that $T = \sum X_i$ is sufficient for θ and complete
17. Estimate the parameter of one parameter exponential distribution by MLE
18. Explain briefly about method of minimum chi square
19. Obtain 100(1-α)% confidence interval for ratio of two variances

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

Answer any **THREE** questions

20. State and prove Cramer Rao inequality

21. State and prove Rao-Blackwell theorem

22. Explain type I and type II censoring with examples

23. Obtain the confidence interval for Poisson distribution with parameter θ.

24. Find the posterior distribution of μ from $N(\mu, \sigma^2)$ where σ^2 is known

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