B.Sc. DEGREE EXAMINATION,NOVEMBER 2019
II Year IV Semester
Mathematical Statistics - II

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

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

Answer any **TEN** questions

1. State any two properties of moment generating function.
2. Define probability density function.
3. What do you understand by Cramer - Rao inequality.
4. Define Estimator with illustration.
5. Differentiate between point estimation and interval estimation.
6. Define maximum likelihood estimation.
7. What do you understand by Type – I – error?
8. Define power of the test.
9. Write the pdf of t distribution with n d.f.
10. At what situation we prefer F- test.
11. Differentiate Statistic and Parameter.
12. List out any two properties of Maximum Likelihood estimators

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

Answer any **FIVE** questions

13. Discuss the properties of of F – distribution.
14. State and prove that Neyman Fisher Factorization theorem,
15. Obtain the Maximum Likelihood estimators of the parameters of a normal distribution.
16. State and prove Rao Blackwell theorem.
17. Describe method of moment estimation.
18. Explain type – I – error and Type – II – error with illustrations.
19. How will you test the independence of two attributes?

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

Answer any **THREE** questions

20. Derive the moment generating function of chi square distribution and hence derive the mean and variance.
21. Explain the method of maximum likelihood estimation.
22. State and prove Cramer – Rao inequlity.
23. Explain the following terms with illustrations
    a. One tail and two tail test
    b. Standard error and standard deviation
    c. Small sample and large sample
    d. Error level of significance at 1% and 5%.
    e. Confidence interval
24. Briefly explain goodness of fit for chi square test and contingency table

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