B.Sc. DEGREE EXAMINATION,APRIL 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. What is sampling distribution?
2. Define moment generating function of Chi-square Distribution.
3. Differentiate between an estimator and estimate.
4. Define point estimation.
5. What do you understand by confidence interval?
6. Define the two types of errors in testing of hypotheses.
7. Define null and alternative hypothesis.
8. Define critical region.
9. Write the pdf of chi square distribution with n d.f.
10. At what situation we prefer chi- square goodness of fit test.
11. Define standard error.
12. What is power of the test?

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

Answer any **FIVE** questions

13. State the assumptions of t – test and state its applications.
14. Give in brief method of moments for estimating the population parameters.
15. Define the following:
    a) Consistency b) Unbiasedness c) Efficiency d) Sufficiency
16. What properties of estimators are being usually held by maximum likelihood estimators?
17. State and prove Rao Blackwell theorem.
18. Describe the inter relationship between t, F and Chi-square distributions.
19. How will you test the independence of two attributes?

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

Answer any **THREE** questions

20. Derive the probability function of F – distribution.
21. State and prove Cramer – Rao inequlity.
22. Derive the Maximum likelihood Estimators of $N(\mu, \sigma^2)$ distribution.
23. Explain the large sample test for two sample proportions and state the confidence interval for the difference of proportions.
24. Derive the t test for means of two independent normal population.

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