M.Sc. DEGREE EXAMINATION,NOVEMBER 2018
I Year I Semester
Core Major -II
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. Show that the sample mean is a consistent estimator of population mean.
3. What do you mean by a sufficient statistic?
4. Express Poisson family with parameter $'\lambda'$ as a member of exponential family.
5. State the assumptions made in the method of moments estimation.
6. Give any two properties of maximum likelihood estimators.
7. Define confidence level.
8. What is meant by small and large samples in the case of interval estimation?
9. State Bayes' rule.
10. When is an estimator said to be a Bayesian estimator?
11. Define Consistent estimator.
12. What do you mean by completeness of an estimator?

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

Answer any **FIVE** questions

13. Prove that minimum variance unbiased estimator is unique.
14. State and prove Rao Blackwell theorem.
15. Explain the method of minimum chi-square estimation.
16. Obtain a large sample confidence interval for the parameter θ of the Poisson distribution.
17. Explain the different types of prior in Bayesian estimation.
18. Explain the steps involved in EM algorithm.
19. Explain minimax estimator with a suitable example.

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

Answer any **THREE** questions

20. Obtain Cramer-Rao inequality by clearly stating the conditions.

21. State and prove Lehmann Scheffe theorem.

22. Obtain MLE of the parameters of exponential distribution based on a random censored data.

23. Obtain confidence interval for the parameters of Normal distribution.

24. Obtain Bayes' estimator for the parameter θ of Poisson distribution, if the prior distribution is Gamma(α,β).

M.Sc. DEGREE EXAMINATION,NOVEMBER 2018
I Year I Semester
Core Major -II
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. Show that the sample mean is a consistent estimator of population mean.
3. What do you mean by a sufficient statistic?
4. Express Poisson family with parameter $'\lambda'$ as a member of exponential family.
5. State the assumptions made in the method of moments estimation.
6. Give any two properties of maximum likelihood estimators.
7. Define confidence level.
8. What is meant by small and large samples in the case of interval estimation?
9. State Bayes' rule.
10. When is an estimator said to be a Bayesian estimator?
11. Define Consistent estimator.
12. What do you mean by completeness of an estimator?

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

Answer any **FIVE** questions

13. Prove that minimum variance unbiased estimator is unique.
14. State and prove Rao Blackwell theorem.
15. Explain the method of minimum chi-square estimation.
16. Obtain a large sample confidence interval for the parameter θ of the Poisson distribution.
17. Explain the different types of prior in Bayesian estimation.
18. Explain the steps involved in EM algorithm.
19. Explain minimax estimator with a suitable example.

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

Answer any **THREE** questions

20. Obtain Cramer-Rao inequality by clearly stating the conditions.

21. State and prove Lehmann Scheffe theorem.

22. Obtain MLE of the parameters of exponential distribution based on a random censored data.

23. Obtain confidence interval for the parameters of Normal distribution.

24. Obtain Bayes' estimator for the parameter θ of Poisson distribution, if the prior distribution is Gamma(α,β).