SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.
M.Sc.(Bio-Statistics) END SEMESTER EXAMINATIONS NOVEMBER - 2023
SEMESTER - I
20PBSCT1002 - Statistical Inference - I

Total Duration : 2 Hrs. 30 Mins. Total Marks : 60

Section B

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. Define unbiasedness and consistency of an estimator with suitable example.
2. Explain censored data.
3. Compute confidence interval for mean of N$(\mu, \sigma^2), \sigma$ known.
4. Explain prior distribution and conjugate prior distribution.
5. State and Prove Rao-Blackwell Theorem.
6. Compute maximum likelihood estimator of P when X_1,X_2,...,X_n $\sim b(n, p)$
7. Describe interval estimation.
8. Distinguish between Baye's interval estimation and interval estimation.

Section C

I - Answer any **TWO** questions $(2 \times 10 = 20$ Marks)

9. State and Prove Cramer Rao lower bound.
10. State and Prove Lehmann-Scheffe Theorem.
11. Explain the method of minimum chi square.
12. Compute 100 (1-α)% confidence interval for the parameter θ of the distribution $dF(x) = \theta\ e^{-\theta x}\ 0 < x < \infty$

II - Compulsory question $(1 \times 10 = 10$ Marks)

13. Let $X \sim b(n, p)$ and L(p,$\delta(x)) = \{p\text{-}\delta(x)\}^2$. Let be the prior pdf of p. Compute Baye's estimator

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