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 - III

20PBSCT3009 - Survival Analysis

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

Section B

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

1. Explain the different methods to estimate the survival function.
2. Apply the MLE for Weibull distribution when the data are censored.
3. Examine Kaplan - Meier estimate with a suitable illustration and also describe the procedure for prediction of the life estimator.
4. Explain the different types of Non-parametric procedures to test the equality of two survival functions.
5. (a) Describe Semi-Parametric Regression with an example.
   (b) Also state the PH assumptions.
6. Distinguish between point estimation and interval estimation.
7. Derive an expression for survival function and hazard rate for Exponential and Gamma distribution.
8. Justify Nelson-Aalen estimator of the Hazard Rate.

Section C

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

9. (a) Establish the relationship between Mean and Median Residual life time.
   (b) Describe in detail Bath Tub failure rate.
10. Discuss the Procedure for Prediction of Accelerate failure time model with Cox-Snell residuals.
11. (a) Explain life table method in detail.
    (b) Examine Reduced Sample method using actuarial estimate.
12. Justify Various Non-parametric tests in survival analysis.

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

13. Examine in detail the estimation of failure rate for regression model using Cox Proportion hazards Model.

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