

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.Biostatistics - END SEMESTER EXAMINATIONS - APRIL 2025

SEMESTER - IV

23PBSCT4010 - Survival Analysis

Total Duration : 2 Hrs. 30 Mins.

Total Marks : 60

Section B

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

1. Define the following: IFR,IFRA,NBUE and HNBUE.
2. Explain Nelson-Aalen estimator with an example.
3. Prepare a table of nonparametric methods indicating its functions.
4. Explain semi-parametric regression for failure rate.
5. Describe log normal distributions and obtain its MLE.
6. Explain reduced sample method and actuarial estimator in estimation of survival function.
7. Explain Mantel-Haentzel test for survival function.
8. Analyse the effect of several risk for extended Cox's model .

Section C

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

9. Explain DMRL and bathtub failure rate.
10. Apply the accelerated failure time model to Weibull distribution.
11. Determine non-parametric survival function using Kaplan-Meier estimator.
12. Compare Gehan test and log rank test with an suitable example.

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

13. Explain time-to-event methods to analyze the effect of several risk factor on covariates using Cox's proportional hazard model.
