M.Sc. DEGREE EXAMINATION,NOVEMBER 2019
II Year III Semester
Survival Analysis

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. Define random censoring.
2. What do you mean by hazard function?
3. Define log logistic distribution.
4. Define life time distribution.
5. Define survival function?
6. What do you mean by actuarial estimator?
7. What is the use of Ware tests?
8. Define Efron test.
9. Define semi parametric regression for failure rate.
10. Define PH assumptions?
11. Define life table.
12. Define ageing class.

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

Answer any **FIVE** questions

13. Explain about Bathtub failure rate.
14. Derive the failure rate for lognormal distribution.
15. Obtain the survival function using reduced sample method .
16. Describe about the Mantel - Haentzel Test.
17. Explain Extended Cox's model.
18. Describe about the Censoring mechanism and truncations.
19. Describe about IFR, IFRA, NBU and NBUE.

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

Answer any **THREE** questions

20. Explain about Mean and median residual life and their elementary properties.
21. Derive the MLE and confidence interval of failure rate for exponential distribution.
22. Explain Kaplan-Meier Estimator of life table estimation.
23. Describe about Gehan and log rank test in detail.
24. Describe Cox Proportional Hazard Model with several covariates.

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