

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 - II

23PBSCT2004 - Sampling & Sample Size Determination

Total Duration : 2 Hrs. 30 Mins.

Total Marks : 60

Section B

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

1. Describe in detail Probability proportional to size sampling.
2. Explain Regression estimator and give its variance .
3. Compute the optimum cluster size in cluster sampling.
4. Explain source of non-sampling errors.
5. Illustrate linear systematic sampling with example and give its variance of sample mean.
6. Compute unbiased ratio type estimator and almost unbiased ratio type estimator.
7. Explain two stage sampling units of equal size.
8. Distinguish between Warner's model and Simmons randomized response mode.

Section C

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

9. Under SRSWOR, show that sample mean is an unbiased estimator of population mean and compute the variance of sample mean .
10. Compute the comparison of systematic sampling, stratified random sampling and Simple random sampling without replacement (SRSWOR) in presence of linear trend.
11. Determine the bias and mean squared error of ratio estimator of population mean under SRSWOR.
12. Evaluate the estimate of mean per element and its variance under cluster sampling.

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

13. Examine in detail the procedures of Adaptive sampling and Snowball sampling with examples.
