23P255 (Pages: 2) Name: .....

Reg.No: .....

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2024

(CBCSS - PG)

(Regular/Supplementary/Improvement)

CC19P MST2 C08 / CC22P MST2 C08 - SAMPLING THEORY

(Statistics)

(2019 Admission onwards)

Time : 3 Hours Maximum : 30 Weightage

Part-A

Answer any ***four*** questions. Each question carries 2 weightage.

1. Define SRSWR and SRSWOR. Explain it with the help of an example.
2. State and prove any two properties of SRS.
3. Explain Systematic Sampling. What are the advantages of systematic sampling?
4. Define regression estimator.
5. Explain Lahiri's method of PPSWR.
6. What is unordered estimator? Give an example.
7. Explain cluster sampling with unequal clusters.

(4 × 2 = 8 Weightage)

Part-B

Answer any ***four*** questions. Each question carries 3 weightage.

8. Explain the principal steps involved in a sample survey.
9. Explain the method of determining the sample size in SRSWOR.
10. Explain the methods of allocations in stratified sampling and find efficiency of variances.
11. Define ratio estimator. Derive its first approximation to the relative bias of ratio estimator in SRSWOR.
12. Describe Desraj ordered estimator. Derive Desraj ordered estimator for population mean.
13. Derive the efficiency of cluster sampling where clusters are of equal size with SRSWOR.
14. What is Multi-Phase Sampling? How it differ from Multistage Sampling.

(4 × 3 = 12 Weightage)

Part-C

Answer any ***two*** questions. Each question carries 5 weightage.

15. What do you mean by systematic sampling? Derive the variance of sample mean in case of systematic sampling in terms of intra class correlation coefficient.

16. Give any three estimators of population mean in cluster sampling where clusters are of unequal size and discuss their properties.

17. Define ratio estimator. Stating the regularity conditions establish the optimum property of ratio estimator.

18. What is cluster sampling? Discuss the estimation of population mean in case of equal clusters and comparison with SRS.

(2 × 5 = 10 Weightage)

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