M.Sc. DEGREE EXAMINATION,NOVEMBER 2019
II Year III Semester
Sample Survey Designs

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

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

Answer any **TEN** questions

1. What are the methods of collecting SRS?
2. Define probability proportional to size sampling
3. What is stratified random sampling?
4. Define sampling interval in systematic sampling
5. Give the expression for bias of regression estimator
6. Define mean square error
7. Define multistage sampling
8. State two stage sampling
9. Define cluster sampling
10. List any two advantages of cluster sampling.
11. What is a regression estimator?
12. Write the expression for bias of regression estimator.

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

Answer any **FIVE** questions

13. Find the variance of sample mean under SRSWR
14. Discuss the methods of selecting a unit under PPS sampling.
15. In stratified sampling , prove that for a fixed cost the variance of sample mean is minimum if n_i is proportional to $N_i S_i / \sqrt{c_i}$
16. Write a brief note on ratio-type estimator.
17. Derive the mean square error of regression estimator under SRSWOR.
18. Obtain an expression for optimum cluster size.
19. Describe the sources of non-sampling errors

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

Answer any **THREE** questions

20. Derive HORWITZ-THOMPSON estimator for variance.
21. Compare SRS and systematic sampling
22. Derive mean square error of ratio estimator under SRSWOR.
23. Derive mean and variance in the case of equal cluster sampling.
24. Explain Simmons randomized response model

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