M.Sc DEGREE EXAMINATION,APRIL 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. Give the definition of simple random sampling with replacement and write the estimate of
   population total and mean.
2. Define inclusion probability.
3. In pps sampling with replacement obtain the unbiased estimator of the population total.
4. Mention the different methods of selecting sample in stratified sampling.
5. Define linear systematic sampling.
6. Define unbiased ratio estimator.
7. Define difference estimator.
8. What is multistage sampling? Give example.
9. Distinguish between cluster sampling and stratified sampling.
10. What are the sources of non-sampling error?
11. Define product estimator.
12. What is Simmons randomized response model?

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

Answer any **FIVE** questions

13. S.T. the sample mean in srswor is a better estimator of population mean than the sample mean in srswr.
14. Explain Neyman allocation of the total sample size to sample.
15. Obtain the bias of ratio estimator.
16. Explain two stage sampling.
17. Explain Warner's model.
18. Show that the product estimator is a biased estimator of the population total. Also obtain its bias.
19. Write short notes on optimum cluster size.

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

Answer any **THREE** questions

20. What is Horvitz-Thompson estimator? Show that it is unbiased estimator of the population total and also derive the standard error of the Horvitz-Thompson estimator.
21. Suppose the population consists of linear trend then show that
    Vst : Vsy : Vsr = 1 : n : n2
22. Compare regression estimator with ratio estimator and mean per unit estimator.
23. Obtain the estimators of mean and its variance in equal cluster sampling.
24. Explain adaptive sampling and Snowball sampling procedures.

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