B.Sc. DEGREE EXAMINATION,NOVEMBER 2019
III Year VI Semester
Sampling Techniques

Time : 3 Hours **Max.marks :60**

Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. What is meant by sampling frame?
2. How does a questionnaire differ from a schedule?
3. What is the use of pilot survey?
4. Define simple random sampling.
5. Mention the confidence limits for the population mean in simple random sampling.
6. State any two merits of stratified random sampling?
7. What are the advantages of systematic sampling?
8. What is proportional allocation?
9. Define linear systematic sampling. Give an illustration.
10. Define ratio estimator.
11. Define PPS Sampling.
12. Define systematic sampling

Section B $(5 \times 4 = 20)$ Marks

Answer any **FIVE** questions

13. Explain briefly about the steps involved in preparation of questionnaire.
14. In simple random sampling without replacement show that the sample means is an unbiased estimate of the population mean.
15. Prove that in stratified random sampling var $(\ \overline{y}_{st}) = \sum_{i=1}^{k} \left(\frac{1}{n_i} - \frac{1}{N_i}\right) P_i^2\ S_i^2$
16. Obtain the relative efficiency of systematic sampling as compared to simple random sampling without replacement.
17. In SRSWR, prove that $V(\overline{y}) = \left(\frac{N-1}{Nn}\right) S^2$
18. Mention the merits and demerits of systematic sampling.
19. Describe the Neyman allocation in stratified sampling.

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

Answer any **THREE** questions

20. Explain the various steps involved in planning a large scale sample survey.
21. Discuss the lottery and random number table methods of selecting a simple random sample.
22. With usual notations prove that var ($\overline{X}_{opt}$) $\leq$ var ($\overline{X}_{prop}$) $\leq$ var ($\overline{X}_{ran}$)
23. If the population is of a linear trend then show that
    var$(\overline{y}_{st}) \leq$ var$(\overline{y}_{sys}) \leq$ var$(\overline{y}_{rs})$
24. Obtain variance of the ratio estimator.

B.Sc. DEGREE EXAMINATION,NOVEMBER 2019
III Year VI Semester
Sampling Techniques

Time : 3 Hours **Max.marks :60**

Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. What is meant by sampling frame?
2. How does a questionnaire differ from a schedule?
3. What is the use of pilot survey?
4. Define simple random sampling.
5. Mention the confidence limits for the population mean in simple random sampling.
6. State any two merits of stratified random sampling?
7. What are the advantages of systematic sampling?
8. What is proportional allocation?
9. Define linear systematic sampling. Give an illustration.
10. Define ratio estimator.
11. Define PPS Sampling.
12. Define systematic sampling

Section B $(5 \times 4 = 20)$ Marks

Answer any **FIVE** questions

13. Explain briefly about the steps involved in preparation of questionnaire.
14. In simple random sampling without replacement show that the sample means is an unbiased estimate of the population mean.
15. Prove that in stratified random sampling var $(\ \overline{y}_{st}) = \sum_{i=1}^{k} \left(\frac{1}{n_i} - \frac{1}{N_i}\right) P_i^2\ S_i^2$
16. Obtain the relative efficiency of systematic sampling as compared to simple random sampling without replacement.
17. In SRSWR, prove that $V(\overline{y}) = \left(\frac{N-1}{Nn}\right) S^2$
18. Mention the merits and demerits of systematic sampling.
19. Describe the Neyman allocation in stratified sampling.

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

Answer any **THREE** questions

20. Explain the various steps involved in planning a large scale sample survey.
21. Discuss the lottery and random number table methods of selecting a simple random sample.
22. With usual notations prove that var ($\overline{X}_{opt}$) $\leq$ var ($\overline{X}_{prop}$) $\leq$ var ($\overline{X}_{ran}$)
23. If the population is of a linear trend then show that
    var$(\overline{y}_{st}) \leq$ var$(\overline{y}_{sys}) \leq$ var$(\overline{y}_{rs})$
24. Obtain variance of the ratio estimator.