



Date: 04-11-2017

Dept. No.

Max. : 100 Marks

Time: 09:00-12:00

Section - A

Answer ALL the Questions (10 x 2 = 20 marks)

- 1) State the areas of applications of Sampling Techniques.
- 2) Define Sampling Frame.
- 3) State the different types of selection of a sample in a random manner.
- 4) What do you mean by SRSWOR?
- 5) Define Stratum with an example.
- 6) State the merits of stratified random sampling.
- 7) Define Systematic sampling.
- 8) State the situation in which Systematic sampling, is used.
- 9) Define Ratio estimator.
- 10) State the uses of linear regression estimate.

Section - B

Answer any FIVE Questions

(5 x 8 = 40 marks)

- 11) Explain about the principal advantages of sampling when compared with complete enumeration method.
- 12) Explain a procedure for selecting a simple random sample.
- 13) Explain about the bias of the Ratio estimate.
- 14) Explain the concept of regression estimate.
- 15) Describe the procedure of Stratified random sampling.
- 16) Explain about the merits and demerits of systematic sampling.
- 17) Discuss the concept of circular systematic sampling.
- 18) Explain the terms (i) Proportional Allocation
(ii) Optimum Allocation

Section - C

Answer any TWO Questions

(2 x 20 = 40 marks)

- 19) A) Explain about the principal steps involved in a sample survey. (12 marks)
B) Discuss about Sampling and Non- Sampling Errors. (8 marks)
- 20) Derive the variance of the mean from a simple random sample

$$\bar{Y} = \frac{S^2}{n} \left(\frac{N-n}{n} \right)$$

- 21) A) Describe the procedure of systematic sampling and write its mean and variance. (12 marks)
B) In SRSWOR, show that the sample mean square is an unbiased estimate of the population mean square. (8 Marks)

- 22) If the population consists of linear trend, then prove that

$$Var(\bar{y}_{st}) \leq Var(\bar{y}_{sys}) \leq Var(\bar{y}_R)$$
