

(STA N 4306-1)

B.Sc (MSCS, DSCS) Degree (CBCS) Examinations, JULY -2022

IV SEMESTER

SAMPLING TECHNIQUES &amp; DESIGN OF EXPERIMENTS

TIME :3.00 Hours

Maximum : 60 Marks

**SECTION-A**I. Answer any **FIVE** from the following questions

5X4=20M

1. In SRSWOR, show that sample mean is an unbiased estimate of population mean.
2. What are the methods are selected SRS..
3. Write a short notes on cost function.
4. Explain systematic sampling.
5. Write A Short Note On ANOVA and its assumptions.
6. Explain the concept of Gauss-Mark off linear model.
7. Explain missing plot techniques in RBD..
8. Write advantages &disadvantages of CRD..
9. Explain the Yates procedure.
10. Write the interaction effects in  $2^2$  Experimental Design.

**SECTION -B**II. Answer **ALL** the following questions

5X8=40M

11(a) Show that  $E(S^2)=S^2$ .

(OR)

(b) Derive the formula of variance of sample mean is SRSWOR.

12(a) Explain stratified random sampling with proportional and optimum allocation.

(OR)

(b) Define systematic sampling .write its merits &amp;demerits

13(a) Explain the ANOVA for one way classification.

(OR)

(b) Explain statistical analysis for CRD.

14.(a) Derive the relative efficiency of RBD over CRD.

(OR)

(b)Derive the efficiency of LSD over RBD

15.(a) Explain the statistical analysis of  $2^3$  Experimental design.

(OR)

(b) Explain the statistical analysis of  $2^2$  Experimental design.