Reg. No…….. Name…… **19U442**

B. Sc. DEGREE END SEMESTER EXAMINATION - MARCH/APRIL 2019

SEMESTER – 4: STATISTICS (CORE COURSE FOR COMPUTER APPLICATION)

COURSE: 15U4CRCST5 – SAMPLE SURVEY ANALYSIS AND DESIGN OF EXPERIMENTS

(Common for Regular 2017 admission and improvement 2016/ supplementary 2016/2015 admission)

Time: Three Hours Max. Marks: 75

Use of scientific calculators and statistical tables are permitted

PART A

*Answer **all** questions. Each question carries **1** mark.*

1. Define random sampling.
2. What is sampling frame?
3. What is sampling unit?
4. Define probability sampling?
5. Define purposive sampling?
6. Define standard error.
7. What do you meant by local control in design of experiments?
8. What is experimental unit?
9. What is the model used in two way classified data?
10. Define a treatment contrast.

PART B

*Each question carries **3** marks. Maximum marks from this part is **15***

11. Differentiate between simple random sampling with replacement and without replacement.
12. What is finite population correction and sample fraction?
13. Explain the advantage of stratified sampling.
14. What factors are responsible for the size of a sample?
15. Explain lottery method for the selection of random samples.
16. What do you mean by design of experiments?
17. What are the merits of completely randomized designs?

PART C

*Each question carries **5** marks. Maximum marks from this part is **20***

18. What are the principal steps in sample survey?
19. Obtain an unbiased estimator of population total in SRSWOR and also find its variance.
20. Explain Latin square design.

21. Differentiate between sampling errors and non sampling errors
22. Signatures to a petition were collected on 688 sheets. Each sheet was provided with space for 50 signatures. A random sample of 50 was drawn and the numbers of signatures per sheet was counted is given below.

No.of signatures(yi) :	52	51	46	42	40	37	32	29	27	15	14	10	8
No.of sheets(ni) :	1	2	21	8	7	2	2	1	1	2	1	1	1

Estimate the total no. of signatures to the petition and calculate 95% confidence limits.

23. Data from a CRD to test the effectiveness of four treatments are as follows.
S.S due to treatments =26399.35, Total S.S=36344.75, Total observation =20,
Complete the ANOVA table and interpret the result.

PART D

*Each question carries **10** marks. Maximum marks from this part is **30***

24. Derive the expression for variance of the estimator of population mean under proportional allocation and Neyman allocation .
25. A population consist of 6 labours getting daily wages Rs. 13, 11,14,12,16, and 15. show that sample mean is an unbiased estimate of the population mean by considering samples of size 2 from this population (SRSWOR**).**
26. Describe the one way analysis of variance .
27. Describe the analysis of variance in Randomized block design.

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