

19P262

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Name.....

Reg. No.....

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2020

(CUCSS - PG)

CC19P MST2 C06 - DESIGN AND ANALYSIS OF EXPERIMENTS

(Statistics)

(2019 Admission - Regular)

Time: Three Hours

Maximum: 30 Weightage

Part A

Answer any *four* questions. Each question carries 2 weightage.

1. Distinguish between fixed effects and random effects model.
2. If a single observation is missing in Latin square design estimate the missing value.
3. State and prove any two important parametric relations in Balanced Incomplete Block Design.
4. How various blocks are formed in Lattice design?
5. Write a short note on strip plot design.
6. Explain the concept of fractional factorial.
7. What do you mean by orthogonality?

(4 x 2 = 8 Weightage)

Part B

Answer any *four* questions. Each question carries 3 weightage.

8. Explain in detail the three basic principles of design.
9. Describe the analysis of Randomized Block Design with a single concomitant variable.
10. Construct a BIBD with $v = 16, b = 20, k = 4, r = 5$ and $\lambda = 1$.
11. Describe the analysis of partially balanced incomplete block design with two associate classes.
12. Construct a 2^5 factorial design with factors A, B, C, D and E confounded in four blocks by selecting ADE and BCE as the confounded effects.
13. Discuss the concept of fractional replication. Explain how you would perform the analysis of variance in such a case by an appropriate illustration.
14. Distinguish between first and second order response surface designs.

(4 x 3 = 12 Weightage)

Part C

Answer any *two* questions. Each question carries 5 weightage.

15. Explain the analysis of a two way classified data with unequal number of observations per cell.
16. Distinguish between intra-block and inter-block analysis of Balanced Incomplete Block Design.
17. Explain the analysis of a 3^2 factorial experiment with r replications.
18. Write down the complete analysis of second order response surface designs.

(2 x 5 = 10 Weightage)
