LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – **STATISTICS**

SIXTH SEMESTER – **APRIL 2022**

UST 6501 – DESIGN AND ANALYSIS OF EXPERIMENTS

Date: 15-06-2022 Dept. No. Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

Part - A

Answer ALL Questions **(10 x 2 = 20 Marks)**

1. Define orthogonal contrasts.
2. Give the fixed effect model.
3. Mention the principles of experimentation.
4. Expand ANCOVA. Briefly explain it.
5. What is the null hypothesis of CRD?
6. Give an example of a LSD design with five treatment effects.
7. What are the factors of a 2^2 design?
8. Define Total confounding.
9. Define incidence matrix of BIBD.
10. What are the parameters of BIBD?

Part - B

Answer Any FIVE Questions **(5 x 8 = 40 Marks)**

11. Define Random Effect Model and Mixed Effect Model.
12. Give the layout for a One-way classification.
13. Derive the efficiency of RBD relative to CRD.
14. Give the test procedure for testing a pair of means by Tukey's test.
15. What are the advantages of RBD?
16. Give the statistical analysis of 2^3 partially confounded experiment.
17. Derive the Intra Block analysis of BIBD.
18. What are the steps involved in the analysis of CRD.

Part - C

Answer Any TWO Questions **(2 x 20 = 40 Marks)**

19. a) State and prove Fisher's Inequality in BIBD.
    b) Give the difference between Total and Partial Confounding.
20. What are the steps involved in Two - Way Analysis?
21. Explain the missing plot technique for LSD.
22. Give the statistical analysis of 3^2 factorial experiment.

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