

B. Sc. DEGREE (C.B.C.S.S.) EXAMINATION, OCTOBER 2016**SEMESTER V - B. Sc. COMPUTER APPLICATIONS****CA5DE - DESIGN OF EXPERIMENTS****Time: Three Hours****Maximum Marks: 80****PART A****I. Answer all questions. Each question carries 1 mark.**

1. State Gauss Markov theorem.
2. Define BLUE.
3. Define Completely Randomized Design.
4. Give the linear model for analyzing a two way classified data with unequal number of observations.
5. Define critical difference.
6. Define block in an experiment.
7. Explain local control.
8. Explain a stochastic linear model.
9. Mention the characteristics of a good experimental design.
10. What is a factorial experiment?

(10x1=10)**PART B****II. Answer any eight questions. Each question carries 2 marks.**

11. Explain the assumptions used in ANOVA.
12. Explain the need of randomisation in an experiment.
13. Explain the disadvantages of a Latin Square Design.
14. Give the expression for estimating one missing observation in LSD.
15. Explain missing plot technique.
16. Discuss estimability of a parametric function.
17. Let A and B be two factors each at two levels. Give expressions for the main effects of factor A and factor B.
18. What are the disadvantages of CRD?
19. Discuss the efficiency of RBD over CRD.
20. What is a Randomised Block Design?
21. Explain the analysis of CRD.
22. Derive a set of necessary and sufficient conditions for the estimability of a parametric function.

(8x2= 16)**PART C****III. Answer any six questions. Each question carries 4 marks.**

23. Develop the analysis of a two way classified data with 'r' observations per cell.
24. Give the analysis of a factorial experiment with two factors each at two levels.

25. Distinguish between RBD and LSD.
26. Explain the concept of analysis of variance.
27. Develop the ANOVA for one way classified data with unequal number of observations per cell, stating clearly the assumptions.
28. Explain experimental error. Explain its significance in analysis of variance.
29. Explain how the efficiency of an experiment can be increased by increasing the replications.
30. Develop the ANOVA of RBD.
31. Discuss the efficiency of LSD over RBD.

(6x4=24)

PART D

IV. Answer any two questions. Each question carries 15 marks.

32. Develop the ANOVA of LSD .
33. Develop the procedure for testing the hypothesis based on a linear model stating clearly the assumptions.
34. Explain how do you estimate a missing observation in RBD. Develop the ANOVA.
35. Develop the ANOVA of a 2^3 factorial experiment laid out in RBD.

(2x15=30)