

TB 145220 B

Reg. No :.....

Name :.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, OCTOBER 2016

SEMESTER V COMPUTER APPLICATIONS

CA5DOE- DESIGN OF EXPERIMENTS

Time : Three Hours

Maximum Marks : 80

PART A (Short Answer Questions)

I. Answer all questions (Each question carries 1 mark)

1. Define BLUE
2. State Gauss Markov theorem
3. Define experimental error
4. Mention the characteristics of a good experimental design.
5. Define treatment in an experiment.
6. Define estimability of a parametric function.
7. Give the linear model for analyzing a one way classified data with unequal number of observations.
8. If the data in a Latin square design is displayed in " m" rows . What is the degrees of freedom of error sum of squares?
9. Explain local control.
10. What is a symmetrical factorial experiment?

(10x1=10)

PART B (Brief Answer Questions)

II. Answer any Eight questions . (Each question carries 2 marks)

11. Explain the role of replication in an experiment.
12. Give the expression for estimating one missing observation in RBD.
13. Define estimation space and error space of a linear model.
14. Explain the model for analysing a two way classified data with multiple and equal number of observations per cell.
15. Explain the assumptions used in ANOVA.
16. Mention the disadvantages of LSD.
17. Discuss the efficiency of LSD over RBD.
18. What are main effects and interaction effects?
19. Derive a set of necessary and sufficient conditions for the estimability of a parametric function.
20. Enumerate the advantages of RBD over CRD.
21. Let A and B be two factors each at two levels . Give expression for the interaction effect of factor A and factor B .
22. What are the advantages of factorial experiments?

(8x2= 16)

PART C (Descriptive/ Short Answer Questions)

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. Explain the role of randomisation in the process of experimentation.
25. Develop the ANOVA of a completely randomised design.
26. What is the need of missing plot technique in experiments?
27. Explain the concept of Analysis of variance.
28. Explain the model for analysing a factorial experiment with 2 factors each at 2 levels.
29. Develop the ANOVA of a Randomised block design.
30. Explain the local control measure adopted in RBD.
31. Explain the terms sum of squares and degrees of freedom. **(6x4=24)**

PART D(Long Essay)

IV. Answer any Two questions (Each question carries 15 marks)

32. Derive the Analysis of variance of LSD .
33. What are the principles of experimentation? Explain how these principles are utilized in RBD.
34. Explain the various steps for the analysis of LSD with 'k' treatments and with one observation missing.
35. Develop the ANOVA of a 2ⁿ factorial experiment explaining the simple effect. **(2x15=30)**