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BSCSTC 355

Credit Based VI Semester B.Sc. Degree Examination, September 2022
(2020-21 and Earlier Batches)
STATISTICS (Paper – VII)
Statistical Inference – II

Time : 3 Hours

Max. Marks : 80

Instructions : 1) A **single** booklet containing **40 pages** will be issued.
2) **No additional** sheets will be issued.

PART– A

1. Answer **any ten** of the following : **(2×10=20)**
- Briefly explain sequential probability ratio test procedure.
 - Mention any two advantages of sequential probability ratio test.
 - State any two limitations of non parametric tests.
 - Define the term analysis of variance.
 - State Cochran's theorem.
 - Define the term treatments and experimental unit in analysis of variance.
 - Define C.R.D.
 - Give any two applications of C.R.D.
 - Mention any two limitations of L.S.D.
 - Write down the formula for finding one missing value in R.B.D.
 - Define the term contrast in factorial experiment.
 - State any two advantages of factorial experiment.

PART– B

- Answer **any five** of the following : **(6×5=30)**
- Derive the SPRTTP for testing $H_0 : P = P_0$ against $H_1 : P = P_1 (>P_0)$ where P is the probability of success in a Bernoulli trial.
 - Explain run test for testing the randomness of a sample.

P.T.O.



4. Explain randomization and local control in design of experiment.
5. Explain the procedure of testing the equality of any two treatment effects in R.B.D.
6. Derive the expression for the expected value of treatment sum of squares in C.R.D.
7. Derive the expression for one missing value in a Latin square design.
8. What are factorial experiments ? Mention their disadvantages.
9. Explain Yates method of computing factorial effect totals in 2^3 factorial experiment.

PART– C

Answer **any three** of the following :

(10×3=30)

10. Construct SPRT for testing $H_0 : \sigma = \sigma_0$ against $H_1 : \sigma = \sigma_1 (> \sigma_0)$ in sampling from $N(\mu, \sigma^2)$, μ is known. Also derive the equations of acceptance line and rejection line.
 11. Describe the median test. Derive the null distribution of the test statistic. Also give its large sample approximation.
 12. Give the complete analysis of Latin square design.
 13. Give the complete analysis of a 2^2 factorial experiment carried out in R.B.D.
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