

QP CODE: 26801755



Reg No :

Name :

INTEGRATED M.Sc. DEGREE EXAMINATION, APRIL 2026

Eight Semester

INTEGRATED M.Sc. BASIC SCIENCES-STATISTICS

CORE - IST8CR01 - STATISTICAL INFERENCE II

2020 Admission Onwards

A6EB0E25

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. Define alternative hypothesis.
2. Define Type I and type II error.
3. State MP Test.
4. What is Unbiased test?
5. Briefly explain UMP test.
6. Find the SPRT for testing $H_0 : \mu = 1$ vs $H_1 : \mu = 2$ when X follows $N(\mu, 1)$ at strength $\alpha = \beta = 0.01$.
7. Define ASN Curve.
8. Write drawbacks of NP test.
9. Define Mann-Whitney U test.
10. State Kruskal wallis one way analysis of variance.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. a) What is NP classification?
b) What are the applications of NP lemma?
12. What you mean by UMP Test. Give examples.
13. Briefly explain pitman family.





14. a) Define Confidence sets.
b) State UMAU & UMAU Confidence sets.
15. Explain the stages for SPRT.
16. Obtain the OC function of SPRT of strength (α, β) for testing $H_0 : \lambda = \lambda_0$ vs $H_1 : \lambda = \lambda_1$ based on observations from $P(\lambda)$.
17. Explain Kolmogorov Smirnov one sample test.
18. Explain Median Test.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. Show that Cauchy distribution with parameter θ do not have MLR Property.
20. State and Prove the properties of Likelihood Ratio test.
21. What do you mean by Sequential analysis. Briefly explain the procedure for Sequential Analysis.
22. Explain Chi-square test for independence.

(2×5=10 weightage)

