

Mid-West University
Examinations Management Office

End Semester Examinations 2081

Bachelor level/ B. Sc./ 5th Semester

Time: 3 hours

Subject: Statistical Inference – II (STAT451)

Full Marks: 60

Pass Marks: 30

Candidates are required to give their answer in their own words as far as Practicable. The figures in the margin indicate full marks.

Group –A

Long answer questions (Attempt all)

[4x6 = 24]

1. What are the basic steps of Kolmogorov-Smirnov test for one sample case.
2. The following are the yield data of 10 plots under two treatments X and Y .

X	46	45	32	42	39	48	49	30	51	34
Y	44	40	59	47	55	50	47	71	43	55

Use median test to test effectiveness of two treatments $P_0 = 0.089$

3. A newspaper boy estimates the probability of the demand for a news magazine as follows

Demand	1	2	3	4
Probability	0.4	0.3	0.2	0.1

A copy of magazine sells for 5 cost Rs4. Find EVPI and take decision on the basis of EMV criterion.

4. The data of percentage of broken groundnut pods recorded from an experiments are given below:
9.8, 10.4, 11.5, 10.4, 8.5, 8.0, 10.5, 7.5, 8.8, 9.2. Test the hypothesis that the percentage of broken pods has the median 8. Use sign test. $P_0 = 0.0195$

OR

Find the sequential probability ratio test for testing $H_0: P = \frac{1}{3}$ against $H_1: P = \frac{2}{3}$ in sampling from Bernoulli distribution $B(1, p)$ given that $\alpha = 0.05$ $\beta = 0.02$ and $n = 20$ Where σ is known. Also obtain its O.C. function and A.S.N function

Group - B

Short answer questions (Attempt all)

[6x4 = 24]

5. Write down the difference between parametric and non-parametric test.
6. Discuss on the application of χ^2 –distribution.
7. Explain the concept of decision tree.
8. Write down the basic steps of Kruskal-Wallis H-Test.
9. Describe the decision making procedure under uncertainty.
10. Define sequential probability ratio test (SPRT)

OR

What are the basic steps for Laplace Criterion?

Group - C

Very Short answer question (Attempt all)

[6x2 = 12]

11. What do you understand by salvage value?
12. Write down the steps of run test.
13. Define sequential analysis.
14. Give the example of payoff table and regret table.
15. What do you understand by posterior distribution?
16. Write about Harwitz criterion.

The End