Mid-West University
Examinations Management Office
End Semester Examination 2081

Bachelor level/ B. Sc. /5th Semester   Full Marks: 60

Time: 3 hours   Pass Marks:30

Subject: Statistical Inference - II (STA451)

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. 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 Rs.5 cost Rs.4. Find EVPI.

2. 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 $P_0=0.0195$

3. What are the basic steps of Kolmogorov-Smirnov test for one sample case?

4. 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 $P_0= 0.089$

OR

   Explain about the basic steps of Kruskal-Wallis H- Test

Group - B

Short answer questions (Attempt all)   [6x4 = 24]

5. Find the sequential probability ratio test for testing $H_0 : P=1/3$ against $H_1 : P=2/3$ in sampling from Bernoulli distribution $B(1,p)$ given that $\alpha = 0.05$ $\beta =0.02$ and $n = 20$

6. Illustrate briefly Bayesian Estimation.

7. Give the SPRT for testing $H_0 : \theta=\theta_0$ against $H_1 : \theta=\theta_1$ in sampling form a normal density function

   $$f(x,y) = \frac{1}{\sigma \sqrt{2\pi}} e^{-1/2\sigma^2} (x-\mu)^2 \quad -\infty<x<\infty$$

   Where σ is known. Also obtain its O.C.

8. What are the application of χ^2–distribution.

9. Write about Harwitz criterion.

10. What are the difference between parametric and non-parametric test?

OR

   What is decision tree?

Group - C

Very short answer questions (Attempt all).   [6x2 = 12]

11. What are the two application of sing test?

12. Illustrate Bayesion inference.
13. Define salvage value.
14. Define Maximin Criterion
15. Define run test.
16. What do you mean by regret table?

The End