R-19

Code:4311/R

Faculty of Science

B.Sc (Statistics) II-Year, CBCS-IV Semester

Regular Examinations –June/July, 2022

PAPER-IV: Statistical Inference

Time: 3 Hours Max Marks: 80

Section –A

I. Answer any eight of the following (8X4=32 Marks)

1. Define Null and Alternate Hypothesis.
2. Write the statement of Neyman's Factorization theorem.
3. Obtain the best critical region for testing $\mathbf{H_0 : \lambda = \lambda_0}$ against $\mathbf{H_1 : \lambda = \lambda_1}$ for the Poisson population.
4. Explain the procedure for testing the hypothesis in large samples.
5. Explain test for Single Mean in large samples.
6. Define Order Statistics-Write their distributions.
7. Explain $\chi^{2\ test}$ for goodness of fit.
8. Explain F-test for equality of population variances.
9. Explain paired t- test.
10. Explain measurement scales in detail.
11. Explain sign test in one sample and two samples.
12. 25 heads are observed of 37 throws of a coin. Test whether the coin is unbiased if the total runs are 13.

Section –B

II Answer the following questions. (4X12= 48 Marks)

13. (a) State and prove Neyman Pearson Lemma for testing simple null hypothesis against a simple alternative hypothesis.

(OR)

(b) If p be the probability of success getting head in a single toss the test H_o: p = ½ against H_1: p = 3/4. The coin is tossed five times and H_o is rejected if more than 3 heads are obtained. Find the probability of Type-I and Type-II errors.

14. (a) Explain the large sample test procedure for testing the difference of two population proportions.

(OR)

(b) Explain the test procedure for testing the difference between standard deviations for large samples.

15. (a) Write the procedure in detail for testing the hypothesis in difference Of means for small samples.

(OR)

(b) State the conditions for the validity of chi-square test and explain χ^2 test For independence of attributes

16. (a) Explain Mann-Whitney U-test.

(OR)

(b) Explain the procedure of Wald Wolfowitz Run test and also explain the Median test.

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