

Statistics - IV
Statistical Inference.
Important Questions

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UNIT-I

- 1Q) State and prove NP-lemma.
- 2Q) Obtain most powerful critical region for testing $H_0: P = P_0$ v/s $H_1: P = P_1$, (or) $H_0: \theta = \theta_0$ v/s $H_1: \theta = \theta_1$, in Binomial distribution.
- 3Q) Construct most powerful critical region for testing $H_0: \lambda = \lambda_0$ v/s $H_1: \lambda = \lambda_1$, (or) $H_0: \theta = \theta_0$ v/s $H_1: \theta = \theta_1$, in poisson distribution.
- 4Q) Obtain MP critical region for testing $H_0: \theta = \theta_0$ v/s $H_1: \theta = \theta_1$, for exponential distribution.
- 5Q) For testing $H_0: \mu = \mu_0$ v/s $H_1: \mu = \mu_1$, find the most powerful critical region in normal distribution.
- 6Q) Problems on Type I and Type II Error for known and unknown probability functions.
- 7Q) Definitions: (i) simple, composite, Null and alternative Hypothesis
(ii) Critical Region, Most powerful critical region, MP critical test
(iii) Types of errors, level of significance, power of test,
(iv) one tailed & two tailed test.
(v) Test function, Randomised & non-Randomised tests.

- 10) Write the procedure for testing the Hypothesis.
- 20) Explain the procedure for testing single mean for large samples.
- 30) For large sample write the procedure for testing the significance of two means.
- 40) Large sample test procedure for two standard deviations.
- 50) Test procedure for testing single proportion.
- 60) Test procedure for testing two proportions.
- 70) Define z-transformation and its applications.
- 80) Explain the test procedure for testing the significance of single correlation coefficient.
- 90) Test procedure for testing the two correlation coefficients.
- 100) Define Order Statistics and write the statements of distribution of order statistics.

UNIT - III

- 10) Write the test procedure for testing single mean for small samples.
- 20) Sample sample test procedure for equality of two means.
- 30) Explain procedure for paired t-test.
- 40) Test procedure for equality of two variances (F-test).

- 50) χ^2 test for independence of attributes
- 50) χ^2 test for goodness of fit.
- 70) Derive χ^2 for 12×22 contingency table.
- 80) χ^2 test for single variance.
- 90) Yates correction formula.

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UNIT - IV

- 10) Write the test procedure for testing two independent samples using Wald Wolfowitz Run test
- 20) Test procedure for independent samples using Mann-Whitney U-test
- 30) Test procedure for testing two independent samples using median-test.
- 40) Define Run and explain the procedure for testing the randomness
- 50) Define NP tests and write its advantages & disadvantages. Difference between non-parametric & parametric.
- 60) Define measurements of scale (nominal, ordinal, ratio, interval).
- 70) Procedure for testing paired samples using sign-test.
- 80) Procedure for testing paired samples using Wilcoxon signed Rank Test.

- a) Test procedure for sign test for single sample.
- 10) Wilcoxon sign-Rank test procedure for single sample.
- 11) Central limit theorem

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