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Register No. :

Name of the Candidate :

B.Sc. DEGREE EXAMINATION, 2011

(DOUBLE DEGREE)

(STATISTICS)

(PART – III -- PAPER–III)

730. STATISTICAL INFERENCE

December)

Maximum: 100 Marks

(Time: 3 Hours

SECTION –A

(8×5=40)

Answer any EIGHT questions

1. Explain the method of moments.
2. State the properties of maximum likelihood estimation.
3. Distinguish between point estimation and interval estimator.
4. Explain the application of t-test for confidence interval.
5. Define (i) Critical region and (ii) power of a test.
6. Explain the Likelihood Ratio Criterion.
7. Discuss the role of standard error in testing of significance.
8. Explain the procedure for testing the sample correlation coefficient.
9. Distinguish between parametric and non-parametric tests.
10. Discuss the application of theory of run in non-parametric test.

SECTION – B

Answer any THREE questions

(3×20=60)

11. a) Describe the characteristics of an estimator with illustrative examples.  
b) Establish Cramer-Rao inequality and explain its importance.
12. a) Explain the concept of confidence interval and confidence limits with an example.  
b) Obtain 100 (1-a ) % confidence limits, for large samples, for the parameter  $\lambda$  of the Poisson distribution.

13. a) State and prove Weyman pearson lemma.  
b) If  $x \geq 1$  is the critical region for testing  $H_0: q = 2$  against  $H_1: q = 1$ , on the basis of the single observation from the population  $f(x; q) = q \exp(-qx); 0 \leq x < \infty$ , find the values of type I and type II errors.
14. a) Explain the Lord for independence of attributes and goodness of fit.  
b) A certain stimulus administered to each of one 12 patients resulted in the following increase of blood pressure : 5, 2, 8, -1, 3, 0, -2, 1, 5, 0, 4, 6 can it be concluded that the stimulus will, in general, be accompanied by an increase in blood pressure?
15. a) Explain the procedure of run test for two sample problem.  
b) Describe the application of Mann-Whitney test in non-parametric methods.
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