

**FACULTY OF SCIENCE**

Code No. 7116

**B.Sc. IV-Semester (CBCS) Examination, May / June 2018****Subject: Statistics****Paper – IV  
Inference****Time: 3 Hours****PART – A (5x4 = 20 Marks)  
[Short Answer Type]****Max.Marks: 80****Note: Answer any five of the following questions.**

- 1 Explain two types of error in testing of hypothesis.
- 2 Explain about non-randomized test.
- 3 Describe the large sample test procedure for difference of standard deviations.
- 4 Explain Fisher's Z-transformation for population correlation coefficient.
- 5 Explain the  $\chi^2$  (Chi-square) test for goodness of Fit.
- 6 Explain about F-test for equality of population variances.
- 7 Discuss advantages and disadvantages of non-parametric tests.
- 8 Describe nominal, ordinal, interval and ratio scales.

**PART – B (4x15 = 60 Marks)  
[Essay Answer Type]****Note: Answer all questions from the following.**

- 9 a) State and prove Neyman's Pearson Lemma.  
**OR**  
b) Let  $P$  be the probability that a coin will fall head in a single toss in order to test  $H_0: p = \frac{1}{2}$  against  $H_1: p = \frac{3}{4}$ . The coin is tossed 5 times and  $H_0$  is rejected if more than 3 heads are obtained. Find the probability of Type I Error and power of the test.
- 10 a) i) Describe the test of significance of difference of proportions for large samples.  
ii) Data on days to maturity were recorded in two varieties of a pulse crop. Determine whether two means are significantly different.

	n	Mean	Variance
Variety A	60	60	8.20
Variety B	65	65	11.13

**OR**

- b) i) Define order statistics and state their distributions.  
ii) Explain run test procedure and its purpose for two sample case.



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11 a) Describe the  $\chi^2$ -test for independence of attributes and  $\chi^2$ -test for specified variance.

OR

b) Explain:

- i) t – test for difference of means
- ii) t – test for specified mean.

12 a) i) Explain the Median Test procedure.  
ii) Describe test procedure for Wilcoxon-Mann-Whitney U test.

OR

- b) i) Explain Wilcoxon – Signed Rank Test for paired samples.  
ii) Describe the test procedure for sign test.

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