



K16U 0533

Reg. No. : .....

Name : .....

**IV Semester B.Sc. Degree (CCSS – Supple./Imp.) Examination, May 2016  
Complementary Course in Statistics for Maths/Comp.Sci. Core)  
4C04 STA : STATISTICAL INFERENCE  
(2013 and Earlier Admissions)**

Time : 3 Hours

Max.Weightage : 30

**Instruction : Use of calculators and tables are permitted.**

**PART – A**

Answer **any 10** questions (Weight **1 each**) :

1. Distinguish between statistical inference and result.
2. Define standard error. How it is different from standard deviation ?
3. Distinguish between estimator and estimate.
4. Define Fishers-t-Statistic.
5. State the difference between point estimation and interval estimation.
6. Define simple and composite hypothesis.
7. Define power of test and level of significance.
8. Define best critical region and most powerful test.
9. State the assumptions used in the application of t-distribution in testing.
10. Define non parametric test.
11. What is meant by testing of goodness of fit. (10×1=10)

**PART – B**

Answer **any six** questions (Weight **2 each**) :

12. Establish the relationship between  $t$ ,  $\chi^2$  and F distribution.
13. What are the desirable properties of a good estimator ?
14. Obtain  $(1 - \alpha)\%$  Confidence interval for the population proportion based on a sample of size 'n'.

P.T.O.



15. Explain Neymann-Pearson approach of testing of hypothesis.
16. If  $0.5 < \alpha$ , is the critical region for testing  $H_0 : \theta = 1$  against  $H_1 : \theta = 2$ , by means of single observed value of  $X$ , find power of the test.
17. Explain the procedure of paired-t-test.
18. Explain the procedure of testing equality of two population proportion.
19. What are application of F-distribution in testing ? Explain.
20. Obtain maximum likelihood estimate for the Poisson parameter  $\lambda$ . (6×2=12)

## PART - C

Answer **any two** questions (Weight **4 each**) :

21. Show that the sample variance is a consistent estimator of population variance been through it is biased.
22. Two random samples of 8 and 7 terms had the following observations  

|                  |   |    |    |    |    |    |   |    |    |
|------------------|---|----|----|----|----|----|---|----|----|
| <b>Sample I</b>  | : | 9  | 11 | 13 | 11 | 15 | 9 | 12 | 14 |
| <b>Sample II</b> | : | 10 | 12 | 10 | 14 | 9  | 8 | 10 |    |

Is the difference between the means significant.
23. Fit a poisson distribution and test goodhen of fit  

|          |   |     |    |    |   |   |   |
|----------|---|-----|----|----|---|---|---|
| <b>x</b> | : | 0   | 1  | 2  | 3 | 4 | 5 |
| <b>f</b> | : | 275 | 72 | 30 | 7 | 5 | 3 |
24. Explain the importance and application of normal distribution in large sample test theory. (2×4=8)