B.Sc. DEGREE EXAMINATION, NOVEMBER 2015.

II YEAR — IV SEMESTER

Major Paper IV — THEORY OF ESTIMATION

Time : 3 hours Max. marks : 75

SECTION A — (10 × 2 = 20 marks)

Answer any *TEN* questions.

1. Define Chi-Square Variate.
2. Define Student’s *t* distribution.
3. Define Parameter Space.
4. Define Statistic.
5. Define MVUE.
6. State Cramer Rao inequality.
7. Mention any two methods of Estimation.
8. Define Likelihood Function.
9. Define interval estimation.
10. Define Confidante coefficient.
11. Define efficiency.
12. Define F Statistic.

SECTION B — (5 × 5 = 25 marks)

Answer any *FIVE* questions.

1. If X is Chi-Square Variate with n df., then Prove that for large n, 
2. Define unbiased estimator. Also Prove that T2 is a biased estimator for if T is an unbiased estimator for .
3. Explain and prove invariance property of consistent estimators.
4. State Neymann factorization theorem.
5. Obtain the MVB estimator for in moral population where  is known.
6. Explain Maximum Likelihood estimation in detail.
7. Explain significant Values of t in brief.

SECTION C — (3 10 = 30 marks)

Answer any THREE questions.

1. Obtain the Constants of t-distribution.
2. Explain the Sufficient Conditions for Consistency.
3. Prove Cramer -Rao Inequality.
4. Find the MLE estimators for (a) when  is known, (b)  when is known and (c) the Simultaneous estimation of  and .
5. Obtain % confidence interval for the parameters (a) Ө and (b) , of the normal distribution.