**B.Sc. DEGREE EXAMINATION, APRIL 2016.**

**II YEAR — III SEMESTER**

**Major Paper V — DISTRIBUTION THEORY - II**

**Time : 3 hours Max. Marks : 60**

**SECTION A — (10 × 1 = 10 marks)**

**Answer any *TEN* questions.**

1. Define exponential distribution.
2. Give the pdf of Beta Distribution.
3. Give the MGF normal distribution.
4. Obtain the variance of Pareto distribution.
5. Write down the MGF of chi-square distribution.
6. List out any two applications of chi-square distribution.
7. Define t- statistic.
8. Define F-statistic.
9. Give the joint p.d.f. of all nth- order statistics.
10. Write the p.d.f. of single order statistic.
11. Give any two applications of t-distribution.
12. Write the p.d.f. of Cauchy distribution.

**SECTION B — (5 × 4 = 20 marks)**

**Answer any *FIVE* questions.**

1. Prove the additive property of Gamma distribution.
2. Derive the m.g.f. of Weibull distribution.
3. Derive chi characteristic function of chi-square distribution.
4. What is the relationship between t and F distributions?
5. Describe the distribution of median and range of order statistics.
6. If  is a random sample from  show that  whereis the sample variance, is a distribution with  degrees of freedom.
7. Derive the mean and variance of logistic distribution.

**SECTION C — (3 × 10 = 30 marks)**

**Answer any *THREE* questions.**

1. In exponential distributions show that mean and standard deviation are equal.
2. Obtain the properties of logistic distribution.
3. Derive the pdf of chi-square distribution.
4. Bring out the relationship between and distribution.
5. Define order statistic. Obtain the density function of range with the density 

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