B.Sc. DEGREE EXAMINATION,NOVEMBER 2019
II Year III Semester
Distribution Theory - II

Time : 3 Hours   **Max.marks :60**

Section A $(10 \times 1 = 10)$ Marks

Answer any **TEN** questions

1. Define the pdf of Gamma disribution.
2. Write the mgf of Exponential Distribution.
3. State the pdf of Beta Distribution of second Kind.
4. Write the pdf of Lognormal Distribution.
5. Define the pdf of Pareto distribution.
6. State the pdf of two parameter Weibull distribution.
7. Write the mean and variance of chi-square distribution.
8. State the distribution of sample mean and sample variance of Normal distribution.
9. What is a sampling distribution?
10. State the relationship between t and F distribution.
11. Define Order Statistics.
12. State the pdf of $x_{(1)}$ for a random sample from $f_x(x) = \lambda e^{-\lambda x}; x > 0$.

Section B $(5 \times 4 = 20)$ Marks

Answer any **FIVE** questions

13. State and prove lack of memory property of Exponential Distribution.
14. Obtain the characteristic functions of Cauchy distribution.
15. Derive mean and variance of Weibull distribution.
16. Obtain the characteristic functions of Logistic Distribution.
17. State and prove the additive property of chi-square distribution.
18. Derive the mode of F - distribution.
19. Find the cdf of $x_{(n)}$ for a random sample of sign n from exponential distribution.

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. If X_1 and X_2 are two independant chi-square variates then show that $\frac{X_1}{X_2}$ is a Beta variate of second kind.

21. Derive mean and variance of Laplace Distribution.

22. Obtain the limiting form of chi - square distribution.

23. Derive the pdf of F - distribution.

24. Derive the JOINT probability density function of the rth and s^{th} order statistics of a random sample of size n from a continuous distribution.

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