M.Sc. DEGREE EXAMINATION,NOVEMBER 2019
I Year I Semester
Probability and Distributions

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. Write the cumulative density function of two parameter gamma distribution.
2. Define Cauchy distribution.
3. What is memoryless property?
4. What is covariance function?
5. Define conditional expectation.
6. State the mean of bivariate Binomial distribution.
7. Define bivariate Poisson distribution.
8. What is chi-square statistic?
9. Give some applications of F-statistic.
10. State Central limit theorem.
11. What do you mean by convergence in distribution?
12. Define convergence almost surely.

Section B $(5 \times 5 = 25)$ Marks

Answer any **FIVE** questions

13. Find the mean and variance of negative Binomial distribution.
14. Derive the mgf of Hyper geometric distribution.
15. State and prove independence of functions of several random variables.
16. Describe the multivariate Normal distribution along with its characteristics.
17. Derive Chi-Square distribution.
18. Derive t-distribution.
19. Write briefly about convergence in probability and convergence in rth mean.

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

Answer any **THREE** questions

20. What is multinomial distribution? Also obtain its mean and variance.
21. Explain covariance , correlation and moments of several random vairables.
22. Derive the mean and variance of bivariate Poisson distribution.
23. Derive F-distribution.
24. State and prove Lindberg-levy central limit theorem.

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