# B.Sc. DEGREE EXAMINATION,APRIL 2020
## I Year II Semester
## Distribution Theory-I

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

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

Answer any **TEN** questions

1. Define Bernoulli distribution
2. Write the characteristic function of Binomial distribution
3. State the conditions under which Binomial distribution tends to Poisson distribution
4. Give the mode of Poisson distribution
5. If X is a Poisson variate such that P(X=2)=9P(X=4)+90P(X=6). Find the mean
6. State the conditions under which Negative Binomial distribution tends to Poisson distribution
7. If $X_1$ and $X_2$ follows Geometric distribution then what is the conditional distribution of $X_1$ given $X_1+X_2$
8. State the conditions under which Hypergeometric distribution tends to binomial distribution
9. Define Multinomial distribution
10. Write the skewness and kurtosis of Normal distribution
11. State the reproductive property of Normal distribution
12. What are the points of inflexion of Normal distribution

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

Answer any **FIVE** questions

13. State and prove the additive property of Binomial distribution
14. Give four applications of Poisson distribution
15. Obtain the moment generating function of Negative Binomial distribution
16. Obtain the mean of Hypergeometric distribution
17. Give any four properties of Normal distribution
18. Obtain mean deviation about mean of continuous uniform distribution
19. Obtain the moment generating function of Poisson distribution

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

Answer any **THREE** questions

20. Derive mean and variance of Binomial distribution
21. Obtain the recurrence relationship for the moments of Poisson distribution
22. State and prove the lack of memory property of Geometric distribution
23. If $X_i \sim$ B(n,$p_i$) and $X_j \sim$ B(n,$p_j$) obtain the correlation between $X_i$ and $X_j$
24. Obtain the moment generating function of Normal distribution and hence find mean and variance

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