

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN  
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)

Chromepet, Chennai — 600 044.

B.Sc. END SEMESTER EXAMINATIONS NOVEMBER-2022

SEMESTER - II

**20USTCT2003 - Distribution Theory-I**

Total Duration : 2 Hrs 30 Mins.

Total Marks : 60

### Section A

Answer any **SIX** questions ( $6 \times 5 = 30$  Marks)

1. Compute mean and variance of discrete uniform distribution using moment generating function
2. Find first two moments about origin of binomial distribution.
3. Compute reproductive property of independent Poisson variates.
4. Show that,  $\beta_1 = \frac{(1+q)^2}{rq}$  where  $x \sim$  negative binomial distribution.
5. Interpret the lack of memory of geometric distribution.
6. Write a note on Multinomial Distribution.
7. Show that, the median of the normal distribution is mean.
8. Justify, the normal distribution is symmetric.

### Section B

Answer any **THREE** questions ( $3 \times 10 = 30$  Marks)

9. Describe the recurrence relation for the moments of binomial distribution.
10. Compute characteristic function and Cumulants of Poisson distribution.
11. Justify the Poisson distribution as a limiting case of the negative binomial distribution.
12. Compute factorial moments of hyper-geometric distribution.
13. Explain Normal distribution as a limiting form of Binomial distribution.

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