

Roll.No.

20USTCT3005

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.Statistics - END SEMESTER EXAMINATIONS - NOVEMBER 2025
SEMESTER - III

20USTCT3005 - Distribution Theory-II

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

Section B

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

1. Explain the properties of the Gamma distribution.
2. Derive the mean and variance of the Weibull distribution.
3. Discuss the important properties of the Chi-Square distribution.
4. Write short notes on the applications of Student's t distribution.
5. Derive the Mean and Variable of Exponential distribution.
6. Derive the distribution of h^{th} and i^{th} order statistics.
7. Discuss the interrelationship between t, F and Chi-Square distributions.
8. Explain the distribution of median and range in order statistics.

Section C

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

9. Derive the Moment Generating Function (M.G.F) of the Beta distribution and state its properties.
10. Derive the Moment Generating Function (M.G.F) log normal distribution. Compute mean & variance.
11. Derive the sampling distribution of the sample mean and variance from a normal population.
12. Derive the probability density function of the F distribution and explain its applications.
13. Derive the joint distribution of the r^{th} and s^{th} order statistics and explain with examples.
