

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 -2023

SEMESTER - V

**20USTCT5011 - Regression Analysis**

Total Duration : 2 Hrs 30 Mins.

Total Marks : 60

**Section B**

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

1. State the properties of Multiple Correlation Coefficient.
2. Construct some useful Variance Stabilizing Transformations.
3. Estimate the predicted values and Standard Errors in Multiple Linear Regression.
4. Develop the assumptions about the Explanatory variable.
5. Illustrate PRESS residuals.
6. Explain the effects of outliers in Simple Linear regression Model.
7. Show that any standard deviation of order ' $p$ ' may be expressed in terms of a standard deviation of order  $(p - 1)$  and a partial correlation coefficient of order  $(p - 1)$
8. Estimate the value of  $\sigma^2$  in Simple Linear Regression Model.

**Section C**

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

9. Construct the formula for Multiple Correlation Coefficient.
10. Justify the transformation of variables to achieve linearity.
11. Estimate  $\beta_0$  and  $\beta_1$  from the Multiple Linear regression Model.
12. Formulate the parameter estimation and inference of the Generalized linear Model.
13. Employ the method of least squares to estimate the parameters of Simple Linear Regression Model.

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