

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 - VI

13USTCT6015 - Regression Analysis

Total Duration : 2 Hrs 30 Mins.

Total Marks : 60

**Section A**

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

1. With usual notations derive  $r_{12.3}$  and  $r_{31.2}$ .
2. Distinguish between  $R^2$  and  $adj R^2$ .
3. State the assumptions of simple linear regression model.
4. Write a note on studentized residual.
5. Explain the method of weighted least square.
6. Describe about data model in multiple linear regression model.
7. List the assumptions of explanatory variable.
8. Explain partial correlation and multiple correlation with suitable example.

**Section B**

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

9. With usual notations derive  $R_{1.23}$ .
10. Show that least square estimators for a simple linear regression are best linear unbiased estimators.
11. Define an outlier. Explain graphical procedure to detect outlier.
12. Show that in multiple linear regression model  $\hat{\beta} = (X'X)^{-1} X'Y$ .
13. Write the test procedure for testing the equality of regression coefficients.

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