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 APRIL-2023
SEMESTER - VI
13USTCT6015 - 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. What is the need for Index of fit? Explain any one of the widely used Index.
3. Define residual. Classify the methods of constructing the residual plots.
4. Explain how the outliers are deleted while fitting a regression model.
5. Write the properties of least square estimators in a multiple regression model.
6. State the assumptions of the explanatory variables.
7. Discuss the transformations used to achieve linearity in the regression model.
8. Illustrate the plane of regression X_1 on X_2 and X_3 in Yule's notation.

Section C

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

9. Show that 1 - $R^2_{1.23}$ = (1 - r^2_{12})(1 - $r^2_{13.2}$)
10. In a linear regression model Y = β_0 + β_1 X + $\in$, compute the least square estimators β_0 and β_1
11. What is heteroscedasticity? Examine in detail the transformations used to remove it from the data.
12. Compute the standard error of the response variable in a multiple linear regression model.
13. Examine the various hypotheses tested in a linear regression model.

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