



QP CODE: 25050810



25050810

Reg No :

Name :

MSc DEGREE (CSS) EXAMINATION DECEMBER 2025

First Semester

MSC Data Analytics

Core Courses - ST050103 - REGRESSION ANALYSIS

2020 Admission Onwards

731F7B83

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. Without derivation give the confidence interval of slope in SLR model.
2. What is the significance of coefficient of determination in SLR model?
3. Write the matrix form of multilinear regression model.
4. Give the motivation for Adjusted R^2 and its definition.
5. Draw the ANOVA table for testing the significance of regression coefficients in multiple linear regression model.
6. Write any two examples for variance stabilizing transformation.
7. Define leverage.
8. What are polynomial regression models?
9. What you mean by non-linear regression?
10. Describe link function in a general linear model.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. List the major steps in regression analysis.
12. Briefly describe the method of least square estimation and give the least square estimates of intercept and slope coefficients in simple linear regression.
13. What are the properties of least square estimators in Simple Linear Regression model?
14. Estimate the value of σ^2 in the Multiple Linear Regression model.





15. What the properties of least squares estimators in multilinear regression model? Explain.
16. How multicollinearity can be diagnosed? Explain any two methods.
17. Write a short note on Box-Cox transformation method.
18. Write a short note on logistic regression.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Give the decomposition of overall variation in the data as well the ANOVA test procedure for testing the for significance of regression coefficients in simple linear regression model.
20. Give the ANOVA test for significance of regression coefficients in multiple linear regression model and obtain its $100(1-\alpha)\%$ confidence interval.
21. Write a short note on the three model building methods.
22. Obtain the prediction and estimation with the generalized linear model and interpret them.

(2×5=10 weightage)

