

**Model Question Paper**  
**Second Semester MSc Degree Examination**  
**Statistics with Specialization in Data Analytics**  
(2020 Admission onwards)

**STSD 223 STATISTICAL MODELING**

Time 3 hours

Max: 75 marks

**Part- A**

(Answer any **FIVE** questions, each carries **3** marks)

1. What do you mean by a statistical model?
2. Give the assumptions of simple linear regression model.
3. Define autocorrelation. Give its impact of this on estimators.
4. What is a generalized linear model?
5. Explain PRESS statistic.
6. What are outliers? Explain.
7. Explain multicollinearity.
8. Show that the least squares estimator of vector of regression parameters is unbiased.
9. What are dose response models? Give an example.
10. What are log-linear models?

**Part-B**

(Answer any **THREE** questions, each carries **12** marks)

11. Give OLS estimates of parameters in a simple linear regression model. Give its properties.
12. Explain the testing of significance of simple linear regression model.
13. Explain in detail the Analysis of Variance in a multiple linear regression model.
14. What are Heteroscedastic disturbances? How do you treat it?
15. Explain how residuals are useful in checking model assumptions in a multiple linear regression model.
16. Describe outliers and ways of tackling them.

**Part-C**

(Answer any **TWO** questions, each carries **12** marks)

17. Explain the analysis of variance involved in a polynomial regression model.
18. Describe stepwise regression method? How they are useful?
19. Explain in detail the inference methods involved in logistic regression model.
20. Explain the analysis of log linear models for categorical variables.

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