M.Sc DEGREE EXAMINATION,APRIL 2019
I Year II Semester
Applied Regression Analysis

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. What is meant by regression analysis?
2. List the assumptions made about the explanatory variables.
3. Describe multiple linear regression models.
4. Distinguish between R^2 and adjusted R^2.
5. Define autocorrelation.
6. Explain Cook's statistics.
7. Define multicollinearity.
8. What do you mean by heteroscedasticity?
9. Give an example for nonlinear regression model.
10. What are the limitations of nonlinear regression model?
11. Write the test statistic for Durbin Watson test.
12. Give an example for Dummy variable in regression analysis.

Section B $(5 \times 5 = 25)$ Marks

Answer any **FIVE** questions

13. Write a note on predictive interval of new observation for simple linear regression model.
14. Obtain the estimate of error variance in multiple linear regression model.
15. Explain variance stabilizing transform to linearize the regression model.
16. Discuss the effects of multicollinearity.
17. Explain steepest Descent procedure.
18. Discuss the test procedure for testing the slope and intercept of simple linear regression model.
19. Write a note on weighted least squares.

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. Obtain the least square estimators of simple linear regression model.
21. State and prove Gauss Markov theorem.
22. Write a note on scaling residuals.
23. Explain forward selection and backward elimination procedures.
24. Explain Marquardt's compromise iterative procedure for estimating the parameters of nonlinear regression model.

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