LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – STATISTICS

FOURTH SEMESTER – APRIL 2014

ST 4207 - ECONOMETRICS

Date : 01/04/2014   Dept. No.   Max. : 100 Marks
Time : 01:00-04:00

Section –A

Answer all the questions   **(10 x 2 = 20)**

1. Define independent and dependent variable.
2. Define error component.
3. What do you understand by R^2
4. State any two properties of OLS estimator.
5. Give the formula for Durbin –Watson'd' statistic.
6. What is meant by dummy variables?
7. What is multicollinearity in regression models?
8. What is the bench mark category?
9. Define specification bias.
10. Give the functional form of Glejser Test.

Section –B

Answer any five questions   **(5 x 8 = 40)**

11. What are the limitations in econometrics?

12. Explain specification of the model in econometrics.

13. State and prove Gauss Markov theorem

14. Find Durbin Watson d-statistic for the following data

    e_t : 0.11, 3.4, -0.7, 4.5, -5.5,6.9, 0.9,1.9, 5.6, -5.8, -3.9

15. Discuss the types of heteroscedasticity.

16. Describe the remedial measure to eliminate the effects of multicollinarity

17. Explain the uses of dummy variables.

18.   Find the value of R^2 for following data

Y	20	8	13	5	9
X1	9	7	4	6	3
X2	8	6	5	4	7

Answer any two questions   **(2 x 20= 40)**

19. Derive the expression for $\hat{\beta}_1$ and $\hat{\beta}_2$ with two explanatory variables in multiple regression model.

20. Consider the following data

X	50	49	45	67	78	89	90	91	56	58	77	40	38
Y	80	87	77	93	67	78	89	81	80	73	65	69	41

        i.   Estimate the function Y on X

        ii.   Test the significance of the parameters at 5% level of significance.

        iii.   Find the value of Y if X is 100

21. Test the problem of heteroscedasticity using Goldfeld –Quandt test for the following data

X	1	4	8	9	10	4	5	7	8	3	9	7	6	4	3
Y	6	4	5	2	9	5	7	3	6	5	10	5	9	8	3

22. Fit a linear regression model for the given data by using the dummy variables
(Bench mark category = M.Sc)

Aptitude score	10	9	12	7	6	8	11	5	10
Education qualification	M.Stat	M.A.	M.Sc	MSc	M.Stat	M.A.	M.Stat	M.Sc	M.A.