LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.A. & B.COM. DEGREE EXAMINATION – ECONOMICS & COMMERCE

FOURTH SEMESTER – APRIL 2016

ST 4207 - ECONOMETRICS

Date: 27-04-2016   Dept. No.   Max. : 100 Marks
Time: 09:00-12:00

Section –A

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

1. Define Econometrics.

2. What is dependent Variable?

3. Define intercept and slope.

4. What are the assumptions of linear regression model.

5. Prove that $R^2 = r^2$

6. What do you understand by serial correlation?

7. Define Multicollinearity.

8. Define dummy variable trap.

9. What is Bench mark category?

10. Write the advantage of Glejser test.

Section –B

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

11. Explain the specification of model in Econometrics.

12. Write short notes on limitation and scope of Econometrics.

13. Derive the formula of $\hat{\beta}_0$ and $\hat{\beta}_1$ with OLS method for the model $Y = \beta_0 + \beta_1 X + u_i$

14. Obtain best linear unbiased estimator for Regression coefficient in multiple regression model.

15. Explain any one method to detect Multicollinearity.

16. From the following data estimate d statistic and test for correlation e_t : 0.8, 2.1, -2.0, -3.1, 1.6, 3.5, 0.5, 1.0, 2.5, -1.6, -1.1

Y	10	5	8	6	3
X_1	5	3	4	4	2
X_2	2	6	3	5	7

(given $d_L = 1.45$ and $d_U = 1.65$)

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

18. What are the sources for the problem of heteroscedasticity?

Section – C

Answer any two questions   (2 x 20= 40)

19. State and prove Gauss Markov theorem.

20. The following table gives data on sales (Y) and advertisement expenditure (X)

Y	15	14	10	9	8	17	13	12	16	18
X	9	8	7	6	4	10	7	6	12	14

    i.   Estimate the function $Y = \beta_0 + \beta_1 X + u_i$

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

    iii.   Find the value of Y if X is 15

21. Given the following data

X	1	4	3	5	6	7	8	9	8	7	5	11	12	3	7
Y	2	3	2	4	7	8	9	8	6	5	4	10	11	2	5

Test the problem of Heteroscedasticity with the help of Goldfeld – Quandt test.

22. Fit a linear regression model for the given data by using the dummy variables

(Bench mark category = M.Stat)

Test Score	3	6	4	5	6	4	7	4	2	8
Qualification	M.Sc.	M.Stat	M.Tech	M.Stat	M.Sc	M.Tech	M.Sc	M.Stat	M.Tech	M.Sc

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