



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – STATISTICS

FIFTH SEMESTER – NOVEMBER 2017

ST 5405 - ECONOMETRIC METHODS

Date: 15-11-2017
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

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 is the purpose of adjusted R^2 ?
5. What is auto correlation?
6. Define Multicollinearity.
7. What is dummy variable?
8. What is bench mark category?
9. Define Lag variable.
10. Write the formula for Mean absolute percentage error.

Section –B

Answer any five questions

(5 x 8 = 40)

11. Define econometrics and write short notes on role of Econometrics.
12. Write short notes on application of Econometrics.

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

13. Explain multicollinearity and also explain the consequences of perfect multicollinearity
14. Explain the various problems involving construction of multiple regression models.
15. Find the value of R^2 for following data
16. Explain and illustrate the Durbin-Watson test to detect autocorrelation.
17. Explain the use of a dummy variable in an interactive form. Illustrate in an example

18. Consider the model with the following observations on X and Y

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

The estimated model is $\hat{Y} = 1.933 + 0.194X$; Examine the existence of heteroscedasticity using Spearman's rank correlation test.

Section – C

Answer any two questions

(2 x 20= 40)

19. Consider the following data

Advertisement expenditure(x)	15	19	17	13	16	18	19	16	20	23	15	15	17
Sales(y)	11	16	22	14	17	18	19	26	28	25	15	16	25

- i. Estimate the function Sales on Advertisement expenditure
- ii. Test the significance of the parameters at 5 % level of significance.
- iii. Find the value of y if x is 25.

20. Derive best linear unbiased estimator for Regression coefficient in multiple regression models.

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

Aptitude Score	6	7	9	13	5	11	12
Education qualification	MSc	M.BA	M.Com	MSc	MBA	MSc	M.Com

22. Explain the procedure for testing the significance of the regression coefficient and testing the hypothesis for over all fitness of the model using ANOVA.

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