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(Pages : 4)

Name.....

Reg. No.....

THIRD SEMESTER M.A. DEGREE EXAMINATION, DECEMBER 2015

(CUCSS)

Economics

ECO 3C 10—BASIC ECONOMETRICS

(2010 Admission onwards)

Time : Three Hours

Maximum : 36 Weightage

Part A

Answer all questions.

Each bunch of four questions carries a weightage of 1.

A. Multiple Choice :—

- 1 Estimation using OLS on autocorrelated data results in the parameters being estimated to be :
  - (a) Biased.
  - (b) Inconsistent.
  - (c) Inefficient.
  - (d) None of the above.
- 2 Profits of a firm depends upon the current sales and past period ( $t - 1$ ) sales of the firm. This is an example of :
  - (a) Distributed lag model.
  - (b) Autoregressive model.
  - (c) Linear programming model.
  - (d) None of the above.
- 3 In a regression equation,  $Y = \alpha + \beta X_i + U_i$ , the term  $U_i$  refers to :
  - (a) Independent variable.
  - (b) Random variable.
  - (c) Dependent variable.
  - (d) None of the above.
- 4 The overall significance of regression is tested using :
  - (a)  $f$ -test.
  - (b)  $\chi^2$  test.
  - (c)  $t$ -test.
  - (d) None of the above.

B. Multiple Choice :—

5 Dummy variables can :

- (a) Only take values 0 and 1.
- (b) Take any positive value.
- (c) Take any linear transformation of 0 and 1 such that  $C = a + b D_1$

where  $b \neq 0$  and  $D_1$  is either 0 or 1.

- (d) Take any integer value.

Turn over



6. The co-efficient of determination is also known as :
- (a)  $R^2$ . (b)  $r$ .  
 (c)  $f$ . (d)  $Z$ .
7. The model  $y = \beta_1 + \beta_2 + \log x + u$  is called :
- (a) Reciprocal model. (b) Logarithmic model.  
 (c) Semi-logarithmic model. (d) None of the above
8. The coefficient of correlation lies between :
- (a) 0 and 1. (b) - 1 and + 1.  
 (c) 0 and 2. (d) None of the above.

C. Fill in the blanks :—

9. \_\_\_\_\_ are a means of introducing qualitative regressors in regression models.
10. The overall goodness of fit of a regression model is measured by \_\_\_\_\_.
11. Farrar Glauber test is used to test the presence of \_\_\_\_\_.
12. The probability of accepting a false null hypothesis is called \_\_\_\_\_.

D. State True or False :—

13. Regression analysis necessarily implies causation of Y variables by X variables.
14. Dummy variable trap is a perfect situation of multicollinearity.
15. If both the intercept and the slope coefficient are the same in two regressions, it is the case coincident regression.
16. In statistics, when we do not reject a null hypothesis, we say that our finding is statistical significant.

(16 × ¼ = 4 weightag)

**Part B (Short Answer Questions)**

*Answer any ten question not exceeding one page each.*

17. Discuss the procedure for estimating the confidence interval of the parameters in a single variable linear regression model with the help of a statistic.
18. Distinguish between stochastic and deterministic models.
19. What is Multicollinearity ?
20. Estimate Koyck's distributed lag models.
21. Explain Reciprocal Transformation models.
22. What is coefficient of determination or the measure of goodness of fit ?



- 23 Discuss the methods adopted to detect the presence of heteroscedasticity.
- 24 The following results have been obtained from a sample of 10 observations on the value of sales (Y) of a firm and corresponding price (X).

$$\Sigma X = 319 \quad \Sigma Y = 527 \quad \Sigma XY = 19179$$

$$\Sigma X^2 = 12371 \quad \Sigma Y^2 = 31337 \quad n = 10$$

Estimate the regression line of sales on price and interpret the results.

- 25 State the desirable properties of an econometric model.
- 26 Explain constant elasticity model.
- 27 State the differences between time series and pooled data.
- 28 What is a dummy variable trap?
- 29 State the reasons for including a random variable "u" in econometric models.
- 30 Differentiate autoregressive and distributed lag models.

(10 × 2 = 20 weightage)

### Part C (Essay Questions)

Answer any **three** questions not exceeding three pages each.

- 31 The following data gives the production of coal and the number of wage earners of coal industry.

Output (million tones) y	Number of workers (000's) x
211	70
210	68
212	64
209	62
207	60
205	58
198	56
192	52
183	48
178	40

Estimate the production function (linear) of coal.

Turn over

- 32 Describe the tests and solutions of Autocorrelation.
- 33 State and prove Gauss Markov theorem.
- 34 Explain in detail the uses of dummy variables in regression models.
- 35 Discuss the Methodology of Econometrics.

(3 × 4 = 12 weights)