THIRD SEMESTER M.A. DEGREE EXAMINATION, DECEMBER 2016

(CUCSS)

Applied Economics

Core VIII—ECONOMETRICS

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 What is meant by "heteroscedasticity" ?

   (a)   The variance of the errors is not constant.

   (b)   The variance of the dependent variable is not constant.

   (c)   The errors are not linearly independent of one another.

   (d)   The errors have non-zero mean.

2 The standard error of regression is :

   (a)   The square root of the variance of the error term.

   (b)   An estimate of the square root of the variance of the error term.

   (c)   The square root of the variance of the dependent variable.

   (d)   The square root of the variance of the predictions of the dependent variable.

3 Autocorrelated errors refers to :

   (a)   The error associated with one observation not being independent of the error associated with another observation.

   (b)   An explanatory variable observation not being independent of another observation's value of that same explanatory variable.

   (c)   An explanatory variable observation not being independent of observations on other explanatory variables.

   (d)   The error is correlated with an explanatory variable.

4 The dummy variable trap occurs when ?

   (a)   A dummy is not defined as zero *or* one.

   (b)   There is more than one type of category using dummies.

   (c)   The intercept is omitted.

   (d)   None of the above.   **Turn over**

B. Multiple Choice :

5 In large samples the MLE is :

(a) Unbiased.

(b) Efficient.

(c) Normally distributed.

(d) All of these.

6 In a simple linear regression model the slope coefficient measures :

(a) The elasticity of Y with respect to X.

(b) The change in Y which the model predicts for a unit change in X.

(c) The change in X which the model predicts for a unit change in Y.

(d) The value of Y for any given value of X.

7 The least squares estimator of the slope coefficient is unbiased means :

(a) The estimated slope co-efficient will always be equal to the true parameter value.

(b) The estimated slope co-efficient will get closer to the true parameter value as the size of the sample increases.

(c) The mean of the sampling distribution of the slope parameter is zero.

(d) If repeated samples of the same size are taken, on average their value will be equal to the true parameter.

8 Non-spherical errors refers to :

(a) Heteroskedasticity.

(b) Autocorrelated errors.

(c) Both (a) and (b).

(d) Expected value of the error not equal to zero.

C. Fill in the blanks :

9 _____ data are data on one or more variables collected at the same point in time, such as the census of population.

10 In the following model $Y = B_o + B_1 X$, B_1 is called the _____ parameter.

11 The point at which the regression line intersects the vertical axis on which the dependent variable is marked is called the _____

12 If an estimator provides a range of possible values for the unknown population parameters, it is called a _____ estimator.

D. State whether the following statements are True *or* False :-

13 In a stochastic model the relation between two variables is exact.

14 The random error term is the difference between the actual and predicted values of y.

15 Interval estimators provide a range of possible values for the unknown population parameters.

16 Dummy variables are a means of introducing qualitative regressors in regression models.

(16 x ¼ = 4 **weightage**)

Part B

Answer any **ten** *questions.*
Each question carries a **weightage** *of* 2.

17 What are the steps involved in the traditional methodology of econometrics ?

18 What is the difference between a deterministic variable and a stochastic variable? Illustrate using an example.

19 What is **heteroscedasticity** ? What are its consequences if **OLS** is used ?

20 What is **multicollenearity** ? Briefly describe how we can detect its presence ?

21 Why does serial correlation occur ?

22 Explain the Maximum Likelihood Method of estimation where the dependent variable is normally and independently distributed.

23 What is meant by BLUE ?

24 Find the dependent variable, independent variable, intercept co-efficient and slope co-efficient from the following regression line. What can you infer about the relationship between Y and X from this Model

$$Y_i = -0.25 + 0.75X_i.$$

25 What is meant by Toga' ? Describe the features of the **Logit** model.

26 What is a dummy variable ? What is meant by a dummy variable trap ?

27 Explain the estimation of a linear demand function using econometrics.

28 Briefly describe a log-linear demand function.

(10 x 2 = 20 **weightage**)

Part C

Answer any **three** *questions.*
Each question carries a weightage of 4.

29 What is meant my multicollinearity ? What are the consequences of using OLS in the presence of multicollinearity ?

30 What are the assumptions underlying the Classical Linear Regression Model ? What is meant by 'best linear unbiasedness' property of an estimator ?

31 Illustrate the traditional methodology of econometrics using a hypothetical example.

32 Explain the estimation of a linear production function and a Cobb-Douglass production function using econometrics.

33 How can we detect the presence of autocorrelation ? What are the remedial measures ?

(3 x 4 = 12 weightage)