End-Sem Examination 2017
Course Title: Econometrics
Course Code: PGECO2C003T
Time Duration : 3 Hours

Section A: Each part of this question carries 1.5 marks. 1.5*10=15

Note: Encircle the most appropriate answer

(1) Linear regression model is
(a) Linear in explanatory variables but may not be linear in parameters
(b) Nonlinear in parameters and must be linear in variables
(c) Linear in parameters and may not be linear in variables
(d) None of these

(2) The R^2 measures the percentage of the total variation in
(a) X explained by Y (b) Y explained by β
(c) Y explained by u (d) Y explained by regression model

(3) The estimated regression models having different number of explanatory variables are compared on the basis of
(a) R^2 statistic (b) Adjusted-R^2 statistic
(c) t-Statistic (d) None of these

(4) The standard error of an estimator is a measure of
(a) Population parameter (b) Precision of the estimator
(c) Power of the estimator (d) Confidence interval of the estimator

(5) Among all the tests of Heteroscedasticity, the most popular one is
(a) Goldfeld-Quandt test (b) Park test
(c) Glejser test (d) White test

(6) Which of the following is NOT a cause for model specification errors?
(a) Omitting a relevant variable (b) Including irrelevant variable
(c) Errors of measurement bias (d) Correct functional form

(7) ANCOVA models include regressors that are
(a) Only quantitative variables (b) Only qualitative variables
(c) Both a and b (d) Neither a nor b

(8) The Koyck model produces estimators that are
(a) Biased only (b) Asymptotically biased
(c) Both (a) and (b) (d) Unbiased

(9) In the context of a system of linear simultaneous equations
(a) The rank condition is both necessary and sufficient for identification of any particular equation.
(b) The rank condition is the necessary condition and order condition is sufficient for identification.
(c) The order condition is necessary for the rank condition to hold.
(d) Both (a) and (c)

(10) The ARIMA forecasting method is developed by
(a) Engle and Granger (b) Dickey and Fuller
(c) Box and Jenkins (d) Sims and Sargent

Section B: Short Answer type Questions. 8*5=40

Unit-I

(11) Prove that for a two variable linear regression model, $F=t^2$.

Or

What is the difference between one-tailed and two-tailed tests of significance? When do you prefer the former and why? Discuss it with an example.

Unit-II

(12) Suppose we increase the number of explanatory variable in a multiple regression model. What will happen to the values of R^2 and Adjusted- R^2 ? Discuss this situation with an economic example.

Or

Prove that the estimated regression coefficients for a linear regression equation with an intercept term are identical to those obtained for the same linear regression equation without an intercept term, but for which all variables are replaced by deviations from their mean values.

Unit-III

(13) Explain the theoretical consequences of multicollinearity problem.

Or

While estimating a regression model you found that the explanatory variable is measured with certain error. Specify such model. What are the consequences on the parameters?

Unit-IV

(14) What is interaction dummy? Specify a model with interaction dummy variable and interpret the coefficients of that model.

Or

Specify a partial adjustment model and show that such a model leads to a geometric lag formulation.

Unit-V

(15) What do you mean by Stationary Process? Explain how you would examine the stationarity of a time series by using Dickey Fuller Test.

Or

What is meant by Identification? Explain why identification problem arises in a simultaneous equations system?

Section C: Long Answer type Questions 15*3=45

Note: Attempt any three questions from this section

(16) State and explain the assumptions of CLRM. Prove that the least square estimators are BLUE under the given assumptions of CLRM.

(17) Consider the Cobb-Douglas production function given by $Y=AK^{\alpha}L^{\beta}e^{u}$. Derive OLS estimator for the parameters and interpret the model.

(18) What do you mean by Heteroscedasticity? Prove that under the presence of Heteroscedasticity the least square estimators are unbiased but inefficient.

(19) When do we use Linear Probability Model? What are the limitations of the linear probability model? Explains how these limitations are taken care of by the Logit model.

(20) What do you mean by Simultaneous Equation Model (SEM)? Prove that the application of OLS technique on SEM results biased and inconsistency of OLS estimators.