45152

M.Sc. DEGREE EXAMINATION, APRIL 2018.

Statistics

FOURTH SEMESTER

Paper II — ECONOMETRICS

Time : Three hours | Maximum : 75 marks

(No additional sheet will be supplied)

PART A — (5 × 3 = 15 marks)

Answer any FIVE questions.

Each question carries 3 marks.

Each answer should not exceed 1 page.

1. Discuss the scope and limitations of econometrics.

2. Show that the maximum likelihood estimator and OLS estimator of β are the same for general linear model.

3. Explain the specification errors.

4. What is meant by structural change?

5. Describe Park-test for testing heteroscedasticity.

6. Describe Durbin-Watson test for testing the existence of auto correlations.

7. Describe a geometric distributed lag model.

8. Explain indirect least square estimation methods.

PART B — (4 × 15 = 60 marks)

Answer ALL questions.

Each question carries 15 marks.

Each answer should not exceed 6 pages.

9. (a) Define general linear stating the assumptions clearly and obtain OLS estimates of the parameters.

(b) Develop a test procedure for testing the general hypothesis $R\beta = r$. Explain testing the significance of a subset of coefficients.

Or

10. (a) Explain a method of estimation of general linear model subject to a set of linear restrictions.

(b) Discuss the interval forecasts when the X variables are :

(i) uncertain

(ii) known with certainty.

11. (a) What are dummy variables? Explain their usage in testing for structural change.

(b) Describe a method of testing the equality of two regression equations.

Or

12. (a) Discuss the effects of misspecification of explanatory variables in the case of exclusion of relevant variables.

(b) Explain the use of dummy variables and how these are useful in seasonal adjustment.

13. (a) Discuss the sources of auto-correlation. Explain the consequence of auto-correlation in econometrics. Explain Goldfield-Quandt test in this context.

(b) Explain the Aitken's generalised least squares and estimate the parameters.

Or

14. (a) Explain Cochran Orcutt iterative method for estimation of a simple linear model under the presence of autocorrelation.

(b) What is the nature of heteroscedasticity? Explain the method of weighted least squares with a suitable example.

15. (a) Explain Koyck scheme and Almon's procedure.

(b) Explain the partial adjustment process. Discuss its applications.

Or

16. (a) Explain clearly the identification problems in econometrics. Establish rank and order conditions for identification.

(b) Show that 3 SLS estimates are more efficient than 2 SLS estimates.