

**RESEARCH DEGREE PROGRAMME IN
ECONOMICS**

Term-End Examination

December, 2017

00245

REC-003 : ECONOMETRIC METHODS

Time : 3 hours

Maximum Marks : 100

Note : Answer questions from each section as directed.

SECTION A

Answer any two questions from this section.

2×20=40

1. Consider the following demand-supply model for money :

$$M^d = \alpha_0 + \alpha_1 Y_t + \alpha_2 R_t + \alpha_3 P_t + u_{1t}$$

$$M^s = \beta_0 + \beta_1 Y_t + u_{2t}$$

where M = money, P = price and R = rate of interest.

Assume that R and P are predetermined.

- (a) Is the demand function identified ?
- (b) Is the supply function identified ?
- (c) Which method would you use to estimate the parameters of the supply function ?

2. What is meant by Heteroscedasticity ? What are its effects on the following ?
- (a) OLS estimators and their variances
 - (b) Confidence intervals
 - (c) Use of t-test of significance
3. Explain the underlying idea behind the linear probability model. What are the problems encountered in this model ? Explain how the logit model takes care of these problems.
4. Consider the Cobb-Douglas production function :

$$Y = A K^{\alpha} L^{\beta}$$

Explain how the above can be estimated by OLS method. State your assumptions and derive estimators for the parameters.

SECTION B

Answer any **five** questions from this section.

5×12=60

5. Show how you would use GLS method to deal with the problems of heteroscedasticity and autocorrelation.

6. Suppose you are given the model

$$Y_t = \phi Y_{t-1} + \beta X_t + u_t.$$

Explain the estimation procedure you would follow.

7. Derive the coefficient of determination (R^2) for a two-variable regression model. Interpret the coefficient of determination by a diagram.

8. Write down the steps for formulation and estimation of a fixed-effect panel data model.

9. Prove that for the regression model

$$Y_i = \alpha + \beta X_i + \varepsilon_i,$$

the OLS estimators are BLUE.

10. Explain various methods of estimating ρ in the AR(1) scheme.

11. Write short notes on any **two** of the following :

- (a) ADF Test
- (b) Chow Test
- (c) Cointegration

