

## Model Question Paper

Fourth Semester M.Sc Degree Examination (CSS)

### ST4E01 - ECONOMETRIC METHODS

Time: 3 hours

Total Weights: 30

#### Part A

*(Answer any five questions. Weightage 1 for each question.)*

1. Define price elasticity of demand. Give the conditions for a normal demand function.
2. For the linear homogenous production function  $x = \frac{2Hab - Aa^2 - Bb^2}{Ca + Db}$  show that the average and marginal products of the factors depend only on the ratio of the factors.
3. In the linear regression model obtain an unbiased estimator of the variance  $\sigma^2$  of the disturbance term.
4. What are stochastic regressors? Explain the consequences.
5. Describe Von-Neumann Ratio test for autocorrelation.
6. Discuss step-wise regression.
7. Explain FIML method of estimation.
8. Consider the model.

$$b_{11}y_1 + b_{12}y_2 + c_{11}x_1 + c_{12}x_2 = u_1$$

$$b_{21}y_1 + b_{22}y_2 + c_{21}x_1 + c_{22}x_2 = u_2$$

Investigate if the equations are identifiable. Is the model identified when the apriori restrictions  $c_{12} = 0$  and  $c_{21} = 0$  are given?

#### Part B

*(Answer any five questions. Weightage 2 for each question.)*

9. Define elasticity of substitution with reference to a production function. show that for the production function  $Y = AX_1^\alpha X_2^\beta$  with  $\alpha + \beta = 1$  the elasticity of substitution is unity.
10. Distinguish between i) Economic model and econometric model ii) endogenous and exogenous variables iii) model and reduced form of a model. Giving suitable examples.

11. Define a general linear regression model and state the assumptions. Obtain the OLS estimates of the parameters.
12. What is meant by heteroscedasticity? Explain a method of estimation when it is present.
13. Examine the consequences of the presence of errors in variables while estimating the parameters of a structural equation.
14. Explain logistic regression.
15. Explain the ILS method of estimation.
16. Explain “instrumental variable” technique of estimation.

### Part C

*(Answer any three questions. Weightage 5 for each question.)*

17. Discuss the Leontief input-output model. Mention its applications.
18. In the linear regression model  $y = \alpha + \beta x + u$  obtain the best linear unbiased estimators of  $\alpha$  and  $\beta$ . Also obtain their standard errors.
19. What is autocorrelation? What are its consequences? Describe a test for autocorrelation.
20. What is meant by multicollinearity? Indicate its consequences. Discuss Farrar-Glabuer test.
21. Explain what is meant by identification. Obtain a necessary and sufficient condition for identification.
22. Describe the 2SLS method of estimation. State the asymptotic properties of the estimates obtained by this method.