M. A. DEGREE EXAMINATION, APRIL 2024
BRANCH III – ECONOMICS
FOURTH SEMESTER

COURSE   : CORE
PAPER   : ECONOMETRIC METHODS II
SUBJECT CODE : 19EC/PC/EC44
TIME   : 3 HOURS   MAX. MARKS: 100

SECTION – A
ANSWER ANY FIVE QUESTIONS. EACH ANSWER NOT TO EXCEED 300 WORDS
(5 X 8 =40)

1. Brief the various methods for detecting Autocorrelation.

2. Discuss the limitations of Linear Probability Model.

3. Illustrate the four outcomes possible in the application of Granger Causality test.

4. Explain the Unit Root test of Stationarity.

5. Outline the Probit Model employed for the estimation of Qualitative Response models.

6. Write short notes on the following:

    a. Auto Regressive Process (AR). (2 marks)

    b. Moving Average Process (MA). (2 marks)

    c. Auto Regressive Moving Average Process (ARMA). (2 marks)

    d. Auto Regressive Integrated Moving Average Process (ARIMA). (2 marks)

7. Explain the concept of Simultaneous Equation Bias.

SECTION – B
ANSWER ANY THREE QUESTIONS. EACH ANSWER NOT TO EXCEED 1200 WORDS.   **(3 x 20 = 60)**

8. Discuss the theoretical and practical consequences of Multicollinearity and show that the precision of an estimator falls when there is multicollinearity.

9. Discuss the identifiability state of the following model using both structural and reduced forms:
$y_1 = 4y_2 - 3x_1 + u_1.$
$y_2 = 2y_3 + 2x_3 + u_2.$
$y_3 = 2y_1 - 3y_2 - x_2 - x_3 + u_3.$

10. Critically examine the Koyck's Transformation in the estimation of a distributed lag model.

11. Elucidate the key concepts in Time Series Econometrics.

12. From a household budget survey of 1980 of the Dutch Central Bureau of Statistics, J. S. Cramer obtained the following logit model based on a sample of 2820 households. The purpose of the logit model was to determine car ownership as a function of (logarithm of) income. Car ownership is a dichotomous dummy variable:

$\widehat{L_i} = -2.77231 + 0.347582 \ \ln \ Income$
$t = \quad$ (- 3.35) $\qquad$ (4.05)
χ^2 (1 df) $= 16.681 \qquad$ p value $= 0.0000$

where, ln Li is the estimated logit and ln Income is the logarithm of income.

   a. Interpret the estimated Logit equation. (5 marks)

   b. From the estimated logit model, how would you obtain the expression for the probability of car ownership? (6 marks)

   a. What is the probability that a household with an income of 20,000 will own a car? And, at an income level of 25,000? (6 marks)

   b. What is the rate of change of probability at the income level of 20,000? (3 marks)

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