

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 86
(For candidates admitted during the academic year 2015– 16)
SUBJECT CODE: 15EC/PE/AE14

M. A. DEGREE EXAMINATION, APRIL 2017
BRANCH III – ECONOMICS
FOURTH SEMESTER

COURSE : ELECTIVE
PAPER : ADVANCED ECONOMETRICS
TIME : 3 HOURS **MAX. MARKS: 100**

SECTION – A

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

1. Consider the following estimated demand function for domestically produced automobiles:

$$\begin{array}{ccccccc} \hat{D}_x & = & 1584 & - & 12P_x & - & 18P_m & + & 0.6Y \\ SE & & (320) & & (3) & & (2) & & (0.1) \\ & & & & & & & & R^2 = 0.88 \\ & & & & & & & & n = 30 \end{array}$$

where D_x = demand for domestically produced cars

P_x = price of domestically produced cars
 P_m = price of imported cars
 Y = disposable income

Interpret the above estimated function and perform t tests on the coefficients.

2. What are the reasons for lag in econometric models? Explain what role it plays in empirical testing of economic theories with the help an example.
 3. What is a latent variable? Find the value of the latent variable when $P(Y = 1|X) = 0.695$.
 4. Use order condition and rank condition to check if the following system of equation is underidentified, overidentified or exactly identified.

$$\begin{array}{l} C_t = b_0 + b_1Y_t + u \\ I_t = a_0 + a_1Y_{t-1} + b_2r_t + v \\ Y_t = C_t + I_t + G_t \end{array}$$

Where the notations have their usual meanings.

5. What are the steps involved in Granger causality test? What are the limitations of the test?
 6. Explain the Unit Root Test procedure.
 7. The following results were obtained from a sample of 12 firms on their output Y , labour input X_2 and capital input X_3 :

$$\begin{array}{l} \sum Y = 753, \sum X_2 = 643, \sum X_3 = 106, \sum Y^2 = 48139, \sum X_2^2 = 34843, \\ \sum X_3^2 = 976, \sum X_2Y = 40830, \sum X_3Y = 6796, \sum X_2X_3 = 5779 \end{array}$$

Fit the model $Y_i = \beta_0 + \beta_1X_{1i} + \beta_2X_{2i} + u_i$

SECTION – B

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

8. State and prove the Gauss-Markov Theorem.
9. Explain Dynamic Econometric Models.
10. What is simultaneous equation bias? Explain the simultaneous equation bias and its consequences with the help of the following model:

$$C_t = a_0 + a_1 Y_t + u_t$$
$$Y_t = C_t + I_t$$

Where C_t is consumption at time t,

Y_t is income at time t,

I_t is investment at time t.

11. Consider the variable Y_i such that $Y_i = 1$, if a family owns a house, 0 otherwise. Y_i depends on X_i , income. What happens if you apply OLS in this case? Develop a logit model and explain how you will estimate it.
12. Explain Box-Jenkins (ARIMA) Methodology.
