

M.A. Examination, 2019
Semester-IV
Economics
Course: OP-14 (Optional)
(Advanced Econometrics-II)

Time: 3 Hours

Full marks: 40

Questions are of value as indicated in the margin

Answer question number 1

4×4=16

1. Examine whether the following statements are True, False or uncertain and give brief explanation (*any four*)
 - (a) The random walk model represents a stationary stochastic process.
 - (b) Effects of shocks in a trend stationary series are permanent while the effects of shocks to a difference stationary process are temporary.
 - (c) Co-integrating regression retains the variables in levels but only in linear combinations that are stationary.
 - (d) In a VAR model, when the variables are non-stationary but co-integrated, one may use the Vector Error Correction Model (VECM).
 - (e) If there are k variables in a VAR system, a total of k^k impulse response functions could be generated.
 - (f) In the Fixed Effects Model, within group estimator (WGE) can take care of the problem of multi-co-linearity and loss of degrees of freedom.

Answer question no. 2 or question no. 3

2.
 - (a) What is the auto-correlation function (ACF)?
 - (b) What is the Partial Auto-Correlation Function (PACF)?
 - (c) Consider an autoregressive process of order 1 and derive the correlogram of the same.
 - (d) Show that an autoregressive process has infinite memory.

2+2+4+4=12

or

3.
 - (a) What is meant by the 'spurious regression'.
 - (b) What is the error correction mechanism (ECM)? Explain how the ECM reconciles the short run behavior of an economic variable with its long run behavior.

P.T.O.

(2)

(c) Consider the following equations:

$$GDP_t = \alpha_1 + \sum_{i=1}^n \alpha_i M_{t-i} + \sum_{j=1}^m \beta_j GDP_{t-j} + \varepsilon_{1t}$$

$$M_t = \alpha_2 + \sum_{i=1}^n \alpha_i M_{t-i} + \sum_{j=1}^m \delta_j GDP_{t-j} + \varepsilon_{2t}$$

Where ε_{1t} and ε_{2t} are uncorrelated white noise error term.

Explain the steps involved in examining whether GDP (Granger) causes M.

2+4+4+2=12

(d) Is Granger-causality necessarily transitive?

Answer question no. 4 or question no. 5

4. (a) Explain the features of the Constant Coefficient Model (CCM). What is its main limitations?
- (b) Discuss the Fixed Effects Model (FEM) of Panel Data regression with suitable examples.
- (c) What is the difference between one way and two way fixed effects models?
- (d) Discuss the steps involved in the test that is performed to choose between the CCM and the FEM.

3+3+2+4=12

or

5. (a) Discuss the Random Effect Model (REM) of Panel Data regression and point out how it differs from the Fixed Effect Model (FFM).
- (b) How would you choose between the REM and FEM for application to a particular problem?

6+6=12
