

M.A. Examination, 2018
Semester-IV
Economics
Course – XV (Group-A) (Special paper)
(Econometrics-II)

Time: Three Hours

Full Marks: 40

Questions are of value as indicated in the margin
Answer question number **1** and *any two* from the rest

1. Examine whether the following statements are True, False or uncertain and give brief explanation (*any three*): 3×4=12
 - (a) The PACF is useful for distinguishing between an AR (p) process and an ARMA (p, q) process.
 - (b) The random walk model represents a stationary stochastic process.
 - (c) The ECM reconciles the short run behavior of an economic variable with its long run behavior.
 - (d) Panel data can be used to deal with heterogeneity among the cross-sectional units.
2. (a) Define the ACF.
 - (b) Show that for any AR model that is stationary, the ACF will decay geometrically to zero.
 - (c) Discuss the characteristic shapes of the PACF for (i) a MA process and (ii) an AR process. 1+7+6=14
3. (a) Distinguish between
 - (i) In sample forecasting and out of sample forecasting.
 - (ii) One step ahead forecasting and Multi step ahead forecasting.(b) Consider a MA (3) process:
$$y_t = \mu + \theta_1 u_{t-1} + \theta_2 u_{t-2} + \theta_3 u_{t-3} + u_t$$
Show that for this process, all forecasts four or more steps ahead collapse to the intercept.
 - (c) How do you determine the accuracy of a forecasting model? 3+6+5=14
4. (a) Define an ARIMA process.
 - (b) Discuss the steps involved in Box-Jenkins (BJ) methodology for ARIMA model selection.
 - (c) Discuss Engle's procedure of examining the presence of ARCH (p) effects in time series data. 2+8+4=14
5. (a) Discuss the constant Coefficients Model of panel data regression.
 - (b) What are its main limitations?
 - (c) How does the Fixed Effect Model differ from the constant Coefficients Model?
 - (d) Discuss the Random Effects Model of panel data regression and point out its advantages over the Fixed Effects Model. 2+2+5+5=14