MASTER OF ARTS EXAMINATION, 2018

1ST YEAR, 2ND SEMSESTER

ECONOMICS

Econometrics II (Old)

Answer any one question from each group

Group A

1. (i) Consider the following simultaneous equation system with M equations, M endogenous variables and K predetermined variables as:

$$Y_{1t} = \beta_{12}Y_{2t} + \beta_{13}Y_{3t} + ... + \beta_{1M}Y_{Mt} + \gamma_{11}X_{1t} + \gamma_{12}X_{2t} + \gamma_{13}X_{3t} + ... + \gamma_{1K}X_{Kt} + u_{1t}$$

$$Y_{2t} = \beta_{21}Y_{1t} + \beta_{23}Y_{3t} + ... + \beta_{2M}Y_{Mt} + \gamma_{21}X_{1t} + \gamma_{22}X_{2t} + \gamma_{23}X_{3t} + ... + \gamma_{2k}X_{Kt} + u_{1t}$$

: : :

$$Y_{Mt} = \beta_{M1}Y_{1t} + \beta_{M2}Y_{2t} + \beta_{M3}Y_{3t} + ... + \beta_{2M-1}Y_{M-1t} + \gamma_{M1}X_{1t} + \gamma_{M2}X_{2t} + \gamma_{M3}X_{3t} + ... + \gamma_{MK}X_{Kt} + u_{1t}$$

where Y1, Y2 ,....,YM are endogenous variables, X1,X2,.....,Xk are predetermined variables, and u1,u2,..., uM are random variables.

   a. Represent the above simultaneous equation system in a matrix form.

   b. Derive the reduced form of the model.

   c. Explain the Generalized least square method of estimation and obtain the least square estimator of the above model.   [1+2+4]

(ii)   Check the sufficient condition for the identification for the following relationships.

$$y_1 = 3y_2 - 2x_1 + x_2 + u_1$$

$$y_2 = y_3 + x_3 + u_2$$

$$y_3 = y_1 - y_2 - 2x_3 + u_3$$

[3]

(iii)   Discuss how two stage least square (2SLS) method can be used to estimate the structural coefficients of a simultaneous equation system.   [5]

2. (i) True or False. Justify your Answer.

Panel method of estimation is better than a pooled regression method. [7]

(ii) Consider a suitable model and discuss the random effect method of estimating the coefficients. [8]

Group B

3. (a)Distinguish between ARMA (q, p) and ARIMA (q,d,p) highlighting their basic properties.

(b) Discuss Box Jenkins methodology of time series model building highlighting its uses.

7 +8 =15

4. (a) What do you mean by unit rot test? Why do we carry out such test ?
   (b) Discuss one such unit root test procedure.

5+10=15