 **ST. JOSEPH’S COLLEGE (AUTONOMOUS), BANGALORE-27**

DATE: 9-4-19

**M.A. ECONOMICS – IV SEMESTER**

**SEMESTER EXAMINATION: APRIL 2019**

**EC 0116: Advanced Econometrics**

Time-2 ½ hrs Max Marks-70

**This paper contains ONE printed pages and THREE parts**

**Supplementary candidates only**

**Attach the question paper to the answer booklet**

 **PART A Answer any TEN of the following 2 X10=20**

1. State the reasons for presence of lags in economics.
2. Explain the difference between an autoregressive and a distributed lag model.
3. What is simultaneous equation bias?
4. Mention the causes that lead to simultaneity bias.
5. State the order condition of identification.
6. What is spurious regression?
7. Define a non-stationary series.
8. Write the equation of a random walk model.
9. Give the meaning of the term ARIMA model.
10. What is a likelihood function?
11. Give an example of a problem where dummy dependent variable can be applied.
12. What advantages do panel data models have over cross sectional or time series models?

**PART B Answer any TWO of the following 10x 2 = 20**

1. Consider the following demand and supply functions

$q=a\_{1}+b\_{1}p+c\_{1}y+u\_{1}$ Demand function

$q=a\_{2}+b\_{2}p+c\_{2}R+u\_{2}$ Supply function

q is the quantity, p the price, y the income, R the rainfall and u1 and u2 are the error term. Here p and q are endogenous variable and y and R are exogenous variable. Write the equations in reduced form. Derive the structural form parameters from the reduced form parameters if possible. What is the name of this method?

1. Show that the random walk model without drift and the random walk with drift are non-stationary series. Also explain the difference between trend non stationary and difference non stationary?
2. Write a note on maximum likelihood method of estimation.

 **PART C Answer any TWO of the following** **15 X 2 = 30**

1. Check the rank and order condition of the following equations.

Consumption Function: $C\_{t}= β\_{1}+β\_{2} Y\_{t}- β\_{3} T\_{t}+ u\_{1t}$

Investment Function: $I\_{t}= α\_{0}+α\_{1} Y\_{t-1}+ u\_{2t}$

Taxation Function: $T\_{t}= γ\_{0}+γ\_{1} Y\_{t}+ u\_{3t}$

Income Identity: $ Y\_{t}= C\_{t}+ I\_{t}+ G\_{t} $

1. Discuss the Almon approach to distributed lag model. Explain why this model is better than the Koyck model.
2. Define ACF and PACF function. Discuss how ACF and PACF functions can be used to identify the orders of AR and MA terms in a time series model.