



Register Number:

DATE:

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE-27
M.SC. INBIG DATA ANALYTICS– III SEMESTER
SEMESTER EXAMINATION: OCTOBER 2019
BDA 3418: INTRODUCTION TO ECONOMETRICS AND FINANCE

Time-2 ½ hrs

ANSWER ANY SEVEN OF THE FOLLOWING

Max Marks-70

10X 7 = 70

1. Check for rank and order condition for each one of the following equations.

$$Y_{1t} = \beta_{10} + \beta_{12}Y_{2t} + \beta_{13}Y_{3t} + \gamma_{11}X_{1t} + u_{1t}$$

$$Y_{2t} = \beta_{20} + \beta_{23}Y_{3t} + \gamma_{21}X_{1t} + \gamma_{22}X_{2t} + u_{2t}$$

$$Y_{3t} = \beta_{30} + \beta_{31}Y_{1t} + \gamma_{31}X_{1t} + \gamma_{32}X_{2t} + u_{3t}$$

$$Y_{4t} = \beta_{40} + \beta_{41}Y_{1t} + \beta_{42}Y_{2t} + \gamma_{43}X_{3t} + u_{4t}$$

2. Consider the following demand and supply model
 $q = a_1 + b_1p + c_1y + u_1$ Demand function
 $q = a_2 + b_2p + c_2R + u_2$ Supply function
q is the quantity, p the price, y the income, R the rainfall and u_1 and u_2 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 equations from the reduced form parameters if possible. What is the name of this method?
3. How will you test presence of endogeneity? Explain the instrumental variable method of estimation.
4. Show that the random walk model and the random walk with drift are non-stationary model. Also explain the difference between trend non stationary and difference non stationary?
5. Explain the graphical and non-graphical ways of deciding non-stationary models and the order of AR and MA.
6. What is autocorrelation? How will you detect presence of autocorrelation? Explain.
7. Write a short note on cointegration and error correction model.
8. What are panel data? In this context explain the fixed effect model in panel data regression.
9. Explain briefly the ARCH model of estimation.
10. Consider a law that imposes a fine usage of plastic hoardings. Assume this is introduced in the year 2017 in the state of Karnataka. Assume no such laws exist in neighboring states of Tamil Nadu and Kerela. You had data on plastic usage for these three states from 2014 through 2019.
 - a. Set up a simple model to test for the impact of the ban using panel data
 - b. What is the advantage of panel data?