



# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

## M.A. DEGREE EXAMINATION – ECONOMICS

THIRD SEMESTER – APRIL 2017

### EC 3813 - MODERN ECONOMETRICS

Date: 24-04-2017  
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

#### PART A

Answer any FIVE of the following questions:-

[ 5x4=20 marks]

1. What is meant by parameter stability?
2. What is the relevance of  $R^2$  in testing the significance of multiple regression coefficients?
3. State the limitations of Linear Probability Model.
4. Highlight the importance of Random Effects approach in panel data estimations.
5. Write a note on 'Cointegration'.
6. Differentiate trend-stationary and difference stationary processes.
7. Distinguish between DF test and ADF test.

#### PART B

Answer any FOUR of the following questions:-

[4X10=40 marks]

8. Outline the procedure for testing 'Linear Equality Restrictions'.
9. Explain the mechanics of Chow test.
10. Discuss MWD test in choosing between Linear and Log linear regression models.
11. Outline the CUSUM test as an appropriate method for testing multiple breaks in a time series data.
12. Discuss the possibilities in Fixed Effects approach to the estimation of panel data models.
13. Explain the properties of Integrated series.
14. Briefly explain the ARCH and GARCH models in measuring volatility in financial time series.

#### PART C

Answer any TWO of the following questions:-

[ 2X20=40 marks]

15. From the sample of 209 firms, the following regression results were obtained:

$$\log(\widehat{\text{salary}})_i = 4.32 + 0.280 \log(\text{sales})_i + 0.0174 \text{roe}_i + 0.00024 \text{ros}_i$$
$$se = (0.32)(0.035)(0.0041) \quad (0.00054)$$
$$R^2 = 0.283$$

Where, salary = salary of CEO

sales = annual sales of the firm

roe = return on equity in percent

ros = return on firm's stock

(figures in parentheses are the estimated standard errors)

- a) Interpret the preceding regression taking into account any prior expectations that you may have about the signs of the various coefficients. (5 marks)
- b) Which of the coefficients are individually statistically significant at 5 percent level? (hint: alpha at 5% for d:f = 1.96). (8 marks)
- c) What is the overall significance of the regression? Which test do you use and why? (hint: alpha at 5% for ndf and ddf = 2.60) (4 marks)

d) Can you interpret the coefficients of  $\rho_e$  and  $\rho_{os}$  as elasticity coefficients? Why or why not?  
(3 marks)

16. Compare and contrast LOGIT and PROBIT models employed for estimating Quality Response Models.

17. Examine the basic concepts of Time series econometrics.

18. Describe the following models:

a) Auto Regressive Process (1). (3 marks)

b) Moving Average Process (1). (3marks)

c) Auto Regressive Moving Average Process (1,1). (4 marks)

d) Auto Regressive Integrated Moving Average Process. (10 marks)

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