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**REC-103**

# RESEARCH DEGREE PROGRAMME IN ECONOMICS

## Term-End Examination

00183 **December, 2018**

## REC-103 : ECONOMETRIC METHODS

*Time : 3 hours* *Maximum Marks : 100*

***Note :*** *Answer questions from each section as directed.*

## SECTION A

*Answer any **two** questions from this section.* *2×20=40*

**1.** Consider the multiple regression model $Y = X\beta + U$ with classical assumptions.

(a) Derive estimators for $\beta$.

(b) Show that OLS estimators for $\beta$ are Best Linear Unbiased Estimators (BLUE).

**2.** What is meant by unit root problem ? How is it detected ?

3. Bring out the underlying ideas behind the logit model. Outline the steps that you would follow in estimation of a logit model.

4. Consider a panel data model. Point out the assumptions that are made in fixed effects and random effects models. How do you decide on choice between both the models ?

## SECTION B

*Answer any **five** questions from this section.* *5×12=60*

**5.** What is meant by multicollinearity ? How do you detect it ? Spell out the remedial measures for the multicollinearity problem.

**6.** Explain the use of dummy variable in a regression model. Formulate a problem and explain the concept of dummy variable trap.

**7.** Specify the random walk models. What are its implications ?

**8.** Derive $R^2$ for a simple regression model. Specify its range. Interpret its value.

**9.** Why is heteroscedasticity a problem in a dataset ? Specify the steps you would take to remove the problem.

**10.** Explain the order and rank conditions in a simultaneous equation model.

**11.** Explain the structure of an AR model and an MA model. How are they related ?

**12.** Write short notes on any ***two*** of the following :

(a) RESET Test

(b) Co-integration

(c) Errors in Variables