No. of Printed Pages : 3

REC–103

RESEARCH DEGREE PROGRAMME IN ECONOMICS (MPHILEC/PHDEC)

Term-End Examination

December, 2023

REC-103 : ECONOMETRIC METHODS

Time : 3 Hours *Maximum Marks : 100*

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

Section—A

Note : *Answer any* ***two*** *questions from this Section.* *20×2=40*

1. Specify a random walk model. Distinguish between the random walk model with drift and without drift. Show that both the models are non-stationary.

2. (a) Explain how F-test can be used to test for restrictions on parameters in a model.

(b) Can a similar test be carried out on the basis of R-squared (R^2) ?

(c) What is the logic behind adding some explanatory variables in a regression model ?

3. Bring out the underlying ideas behind profit model. How is profit model estimated ? Does R^2 apply to profit model ?

4. Consider the following simultaneous equation model.

$$Y_1 = \alpha y_2 + \beta_1 X_1 + \beta_2 X_2 + u_1$$

$$Y_2 = \alpha y_1 + \beta_3 X_3 + u_2$$

(a) Check the identification status of both the equations.

(b) Explain how the second equation can be estimated.

Section—B

Note : *Answer any* ***five*** *questions from this Section. All questions carry equal marks.*

5. Explain the steps to be followed in carrying out the chow test. Is there a better method to test for structural break ?

6. Discuss the random effects model of panel data. What are its advantages over fixed effect model ? How do we choose between random effect and fixed effect models ?

7. What are the consequences of heteroscedasticity ? How is it detected ? Briefly specify one remedial measure for heteroscedasticity.

8. What are the consequences of multicollinearity in a regression model ? Suggest some suitable measures to correct the problem of multicollinearity.

9. Specify an ARIMA model. How do you decide on the order of an ARIMA model ?

10. Specify a distributed lag model. Discuss its various forms.

11. Specify a multiple regression model in matrix form. Explain how GLS estimator can be used to take care of both autocorrelation and heteroscedasticity.

12. Write short notes on the following :
    (a) Concept of cointegration
    (b) Granger causality