POST-GRADUATE DEGREE PROGRAMME
Term End Examination — December, 2024
ECONOMICS
Paper-XIXB : ADVANCED ECONOMETRICS - II

Time : 2 hours]

[Full Marks : 50

Weightage of Marks : 80%

Special credit will be given accuracy and relevance in the answer. Marks will be deducted for spelling, untidy work and illegible handwriting. The weightage for each question has been indicated in the margin.

Use of scientific calculator is strictly prohibited.

1. Answer any *four* of the following questions : $2\frac{1}{2} \times 4 = 10$

   a) What is co-integration ?

   b) Define Error Corruption Model (ECM).

   c) What is an ARMA (p, q) model ?

   d) What is unit root ?

   e) What is Random Effect Model ?

   f) What is the difference between balanced panel and unbalanced panel ?

2. Answer any *four* of the following questions : $5 \times 4 = 20$

   a) Show that a random walk model with drift is a non-stationary process.

   b) What is autocorrelation ? Explain the Yule-Walker equation for different orders of autocorrelation. 2 + 3

   c) What are the parametric restrictions needed to ensure that an AR (1) process is stationary ?

   d) Explain the Hausman specification test in the context of panel data analysis. How does it help in choosing between fixed effects and random effects model ? 2 + 3

   e) What is meant by a Trend Stationary Process [TSP] and Difference Stationary Process [DSP] ?

   f) Outline the major steps involved in the application of the Box-Jenkins approach to forecasting.

3. Answer any *two* of the following questions :　　　　　$10 \times 2 = 20$

   a) What is panel data ? Specify the equation for a Fixed Effects model using the LSDV approach. Explain how the model is estimated and the interpretation of the coefficients.　　　　　$2 + 2 + 6$

   b) Explain the Vector Autoregressive (VAR) model, focusing on its reduced form. Discuss the major advantages and disadvantages of using a VAR model.　　　　　$6 + 4$

   c) i) What is time series ?

      ii) The trend line equation of time series with middle year 2007 is given by

      $Y = 95 + 3{\cdot}9\ t$

      Estimate a trend value for the year 2015. Also eliminate the trend assuming the actual value to be 125·2.

      iii) Mention the components of time series.　　　　　$2 + 5 + 3$

   d) Write short notes (any *two*) :　　　　　$5 \times 2 = 10$

      i) Augmented Dickey-Fuller Test

      ii) Engle-Granger Test

      iii) ARCH model

      iv) Correlogram.

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