

**FOURTH SEMESTER M.A. DEGREE EXAMINATION, APRIL 2024**  
**(Regular/Improvement/Supplementary)**

**ECONOMICS**  
**FECO4E02 – ADVANCED ECONOMETRICS**

**Time: 3 Hours**

**Maximum Weightage: 30**

**Part A: Multiple choice questions. Answer *all* questions. Each carries  $1/5$  weightage.**

1. Which among the following is an example of an MA process?  
a)  $Y_t = \beta_0 + \beta_1 X_t + \gamma_1 Y_{t-1} + \gamma_2 Y_{t-2} + u_t$                       b)  $Y_t = \beta_0 + \beta_1 X_t + \gamma_1 Y_{t-1} + u_t$   
c)  $Y_t = \theta + \beta_1 Y_{t-1} + \beta_0 u_t + \beta_1 u_{t-1}$                       d)  $Y_t = \mu + \beta_0 u_t + \beta_1 u_{t-1}$
2. The error correction mechanism was first used by .....  
a) Sargan              b) Granger              c) Tobin              d) Almon
3. Which are the tests that can be applied to determine whether a time series is Trend Stationary or Difference Stationary?  
a) Durbin h test                      b) Dicky Fuller and Augmented Dicky Fuller Test  
c) Phillips–Perron (PP) test                      d) None of the above)
4. Variables exhibiting wide swings followed by a period of comparative tranquility can be modeled by .....  
a) VAR models                      b) ARIMA or ARMA models  
c) ARCH or GARCH models                      d) Logit models
5. Which among the following is not a qualitative response regression model?  
a) LPM Model                      b) Probit Model  
c) Tobit model                      d) SUR model
6. In VAR models all variables are .....  
a) Random              b) Endogenous              c) Exogenous              d) Standardized
7. Dummy variables can take values .....  
a) One              b) Zero              c) Either one or Zero              d) Between one and Zero
8. Which among the following is *true* as far as VAR models are concerned?  
a) VAR models do not use prior information  
b) VAR models are less suitable for policy analysis  
c) Variables included in the model are strictly stationary  
d) All the above
9. Box Jenkins methodology is associated with .....  
a) ARIMA process                      b) Financial time series  
c) Distributed lag models                      d) Simultaneity among a set of variables

**(P.T.O.)**

10. If a model includes two lagged values of the regressand as regressor, the model is called:
  - a) AR (I) process
  - b) AR (2) process
  - c) MA (I) process
  - d) MA (2) process
  
11. First order autoregressive model can be estimated using .....
  - a) OLS
  - b) 2SLS
  - c) Instrumental Variable
  - d) Indirect least square method
  
12. Which of the following model can be used for examining a censored data on regressand?
  - a) LPM
  - b) Partial adjustment model
  - c) Tobit model
  - d) Probit model
  
13. Through reduced for equations we can estimate the .....
  - a) Direct effect
  - b) Indirect effect
  - c) Both direct and indirect effect
  - d) None of the above
  
14. Which among the following is true?
  - a) In simple linear regression model, the slope coefficient measures the percentage change in the regressand for a percentage change in regressor.
  - b) In Linear Probability Model, the slope coefficient measures the change in the value of the regressand as the result of a unit change in the value of a regressor.
  - c) The probit model is based on a cumulative logistic function.
  - d) In the logit model the slope coefficient of a variable gives the change in the log of the odds associated with a unit change in that variable.
  
15. Adaptive expectations model is popularized by .....
  - a) Milton Friedman
  - b) J. Muth
  - c) Leamer
  - d) Granger

**(15 × 1/5 = 3 weightage)**

**Part B: Answer any *five* questions. Each carries *one* weightage.**

16. Write a note on Odds ratio.
17. Explain why there exists time lags in economic variables.
18. What is meant by spurious regression?
19. Write a note on Tobit model.
20. Comment on Durbin h test.
21. Define instrumental variable.
22. Explain a recursive model.
23. Differentiate between AR and MA models.

**(5 × 1 = 5 weightage)**

**Part C: Answer any seven questions. Each carries two weightage.**

24. Compare logit and probit models.
25. Discuss the Almon approach to distributed lag models.
26. Give an account on the panel data regression models.
27. Explain the rank and order conditions of identification.
28. What is meant by unit roots?
29. Write a note on Box Jenkins methodology.
30. Comment on the method of indirect least squares.
31. Explain the Dickey Fuller and Augmented Dickey Fuller tests.
32. Write a note on VAR models.
33. Comment on the ARCH and GARCH models.

(7 × 2 = 14 weightage)

**Part D: Answer any two questions. Each carries four weightage.**

34. Given the following Logit model on the household's willingness to pay for solid waste management (SWM) system.

$$\begin{aligned} \ln O_{WP} &= -1.0512 - .0094Age - 3.0755Sex - .0862edu + .0004hhincome + .6102hhsiz \\ p \text{ value} &= \quad 0.725 \quad \quad 0.823 \quad \quad 0.039 \quad \quad 0.229 \quad \quad 0.191 \quad \quad 0.008 \end{aligned}$$

Where  $\ln O_{WP}$  is log odds of willingness to pay for a solid waste management system,  $Age$  is the age of the head of the family,  $edu$  is the education (in years of schooling) of head of the family,  $hhincome$  is the household income and  $hhsiz$  is the size of the household.

- a) Interpret the various coefficients in terms of their effects on willingness to pay for a SWM system.
  - b) Which coefficients are statistically significant at 5% and 1% level?
35. What do you mean by distributed lag models? Explain the Koyck approach to distributed lag models.
  36. Examine the Identifiability of the following model using rank and order rules.

$$\begin{aligned} C &= \alpha_0 + \alpha_1 Y_t + \alpha_2 C_{t-1} + u_t \\ I &= \beta_0 + \beta_1 Y_t + \beta_2 Y_{t-1} + \beta_3 r_3 + v_t \\ Y_t &= c_t + I_t \end{aligned}$$

37. What is meant by a stationary or non-stationary process? Explain the method for estimating a non-stationary single equation model.

(2 × 4 = 8 weightage)