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(Pages : 5)

Name.....

Reg. No.....

**THIRD SEMESTER M.A. DEGREE [REGULAR/SUPPLEMENTARY]
EXAMINATION, NOVEMBER 2025**

(CBCSS)

Econometrics

ECM3C09—ECONOMETRIC THEORY—II

(2020 Admission onwards)

Time : Three Hours

Maximum : 30 Weightage

Part A (Multiple Choice Question)*Answer all questions.**Each question carries 1/5 weightage.*

1. Data collected for the same set of companies over 10 years is an example of :
 - (a) Pooled data.
 - (b) Panel data.
 - (c) Cross section data.
 - (d) Time series data.
2. The large sample test of the first-order serial correlation in the autoregressive model is :
 - (a) Durbin- Watson d test.
 - (b) Durbin t -test
 - (c) Durbin Watson h test.
 - (d) Durbin F test.
3. In the Linear probability model :
 - (a) The errors are homoscedastic.
 - (b) The errors are heteroscedastic.
 - (c) The errors are normally distributed.
 - (d) The errors are equal to zero.
4. Which of the following is the best method to estimate the Koyck model ?
 - (a) MLE method.
 - (b) OLS technique.
 - (c) GLS method.
 - (d) Instrumental variable method.

Turn over

5. Two- way fixed effect model is where ?
- (a) The intercept is fixed over subjects but not over time.
 - (b) The intercept is fixed over time but not over subjects.
 - (c) The intercept is fixed over both time and subjects.
 - (d) The intercept is variant over both time and subject.
6. Simultaneous equation bias refers to :
- (a) The error terms are biased positively in small samples.
 - (b) The bias of the researcher towards using the model.
 - (c) The bias in the estimated parameters that disappears when the sample size becomes large.
 - (d) The bias in the estimated parameters that do not disappear even when the sample size becomes large.
7. The endogenous variable is also known as :
- (a) Regressor.
 - (b) Regressand.
 - (c) Independent variable.
 - (d) Parameter.
8. In the simultaneous equation model, there must be more than one :
- (a) Endogenous variable.
 - (b) Exogenous model.
 - (c) Parameters to be identified.
 - (d) Equations to be estimated.
9. There is no unique way of estimating the parameters of simultaneous equation models if the model is :
- (a) Under-identified.
 - (b) Over identified.
 - (c) Either (a) or (b)
 - (d) Exactly identified.
10. The ILS estimators are :
- (a) Unbiased in small samples.
 - (b) Biased in large samples.
 - (c) BLUE in small samples and large samples.
 - (d) Asymptotically efficient.

11. The utility index // in the probit model is also known as :
- (a) Critical index.
 - (b) Threshold index.
 - (c) Cumulative distributive function.
 - (d) Latent variable.
12. Data set where each subject has the same number of observations is called :
- (a) Short panel.
 - (b) Long panel.
 - (c) Balanced panel.
 - (d) Unbalanced panel.
13. A simultaneous equation model is said to be under-identified if :
- (a) The structural coefficient cannot be estimated.
 - (b) Unique numerical values of the structural parameters can be obtained.
 - (c) A unique solution of all the structural co-efficients is not possible.
 - (d) More than one numerical value can be obtained for some of the parameters of the structural equations.
14. In the Linear Probability model, R^2 is :
- (a) Not very helpful in judging the goodness of fit of the model.
 - (b) Calculated as raw R^2 .
 - (c) It gives the true model.
 - (d) Both (b) and (c).
15. A censored sample is the same as a truncated sample. This statement is :
- (a) True.
 - (b) False.
 - (c) Depends on censorship.
 - (d) Depends on truncation.

(15 × 1/5 = 3 weightage)

Turn over

Part B (Very Short Answer Questions)

*Answer any **five** questions.*

Each question carries a weightage of 1.

16. What is Panel data ?
17. Explain the Constant co-efficient model.
18. What is mean lag ?
19. Write a short note on the Probit model.
20. State the properties of 2 SLS ?
21. State Durbin h test
22. What do you mean by the dummy variable ?
23. Explain specification error.

(5 × 1 = 5 weightage)

Part C (Short Answer Questions)

*Answer any **seven** questions.*

Each question carries a weightage of 2.

24. Describe the Koyck's approach to the distributive lag models.
25. List out the advantages of panel data over cross section or time series data.
26. Elucidate the Pooled OLS regression model.
27. Explain how you will estimate the parameters in Almon's polynomial distributive lag model.
28. Derive the reduced form equation for the simple Keynesian model represented by the following equations :

$$C_t = \beta_0 + \beta_1 Y_t + U_t$$

$$Y_t = C_t + I_t.$$

29. Describe the nature of the simultaneous equation model with an example
30. State the rules of rank and order condition for identification.
31. Explain the Linear Probability model.
32. State the properties of various estimators in panel regression models.
33. Distinguish between autoregressive and distributive lag models.

(7 × 2 = 14 weightage)

Part D (Long Essay Questions)

*Answer any **two** questions.*

Each question carries a weightage of 4.

34. Let a model consist of the following equations :

$$y_1 = 3y_2 - 2x_1 + x_2 + u_i$$

$$y_2 = y_3 + x_3 + u_2$$

$$y_3 = y_1 - y_2 - 2x_3 + u_3$$

Establish for each equation whether it is exactly identified, over-identified or under-identified

35. Explain simultaneous equation bias. What are different methods to solve simultaneous equation bias ?
36. State and explain the assumptions and properties of Indirect least squares (ILS). Describe the different steps involved in using this method.
37. Discuss the Logit model. How do you estimate the Logit model ?

(2 × 4 = 8 weightage)