305843

D 30881

(Pages : 4)

Name..............................

Reg. No..............................

THIRD SEMESTER M.A. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2022

(CBCSS)

Econometrics

ECM 3C 09—ECONOMETRIC THEORY—II

(2020 Admission onwards)

Time : Three Hours

Maximum : 30 Weightage

Part A

Answer **all** *questions.*

Each bunch of 5 questions carries a weightage of 1.

1. If OLS is applied separately to each equation that is part of a simultaneous system, the resulting estimates will be :
   - (a) Unbiased and consistent.
   - (b) Biased but consistent.
   - (c) Biased and inconsistent.
   - (d) It is impossible to apply OLS to equations that are part of a simultaneous system.
2. Which of the following distribution is underlying the probit model ?
   - (a) Logistic Distribution.
   - (b) Chi-Square.
   - (c) Cumulative Standard Normal Distribution.
   - (d) F Distribution.
3. Which of the following are advantages of the use of panel data over pure cross-sectional or pure time-series modelling ?
   - (i) The use of panel data can increase the number of degrees of freedom and therefore the power of tests.
   - (ii) The use of panel data allows the average value of the dependent variable to vary either cross-sectionally or over time or both.
   - (iii) The use of panel data enables the researcher allows the estimated relationship between the independent and dependent variables to vary either cross-sectionally or over time or both.

   (a) (i) only. (b) (i) and (ii) only.

   (c) (ii) only. (d) (i), (ii), and (iii)

Turn over

4. The fixed effects panel model is also sometimes known as :

   (a) A seemingly unrelated regression model.

   (b) The least squares dummy variables approach.

   (c) The random effects model.

   (d) Heteroscedasticity and autocorrelation consistent.

5. If the regression model includes not only the current but also the lagged values of the explanatory variables, it is called a ————.

   (a) Autoregressive model.
   (b) Distributed Lag Model.

   (c) Simultaneous Equation model.
   (d) None of the above.

6. ———— is used when the dependent variable's error terms are correlated with the independent variables.

   (a) OLS.
   (b) ILS.

   (c) 2SLS.
   (d) IV.

7. ———— is a large-sample test of first-order serial correlation in autoregressive models.

   (a) Durbin h statistic.
   (b) Instrument variable.

   (c) Granger Test.
   (d) None of the above.

8. The rank condition is :

   (a) A necessary and sufficient condition for identification.

   (b) A necessary but not sufficient condition for identification.

   (c) A sufficient but not necessary condition for identification.

   (d) A condition that is neither necessary nor sufficient for identification.

9. ———— is standard ordinary least squares (OLS) regression without any cross-sectional or time effects.

   (a) Classical Linear Regression.
   (b) ARIMA.

   (c) Pooled regression.
   (d) ARMA.

10. ———— is a sub-type of logistic regression where the Y-category is ordered with more than two categories

    (a) A logit model.
    (b) A multinomial logit.

    (c) A tobit model.
    (d) An ordered logit model.

11. ———— assumes that the relationship between the explanatory variables and the dependent variable is the same for all cross-sections and time points.

    (a) LSDV model.
    (b) Logit Model.

    (c) Constant co-efficient Model.
    (d) Probit model.

12. ———— are used to control for confounding and measurement error in observational studies.

    (a) OLS. (b) ILS.

    (c) 2SLS. (d) Instrument Variables.

13. ———— method is used to describe the relationship between a non-negative dependent variable Yi and one or more independent variables Xi.

    (a) Censored Tobit Model. (b) Logit Model.

    (c) Constant co-efficient Model. (d) Probit model.

14. Autoregressive distributed lag models include :

    (a) Current and lagged values of the error term.

    (b) Lags of the dependent variable, and lagged values of additional predictor variables.

    (c) Current and lagged values of the residuals.

    (d) Lags and leads of the dependent variable.

15. ———— exclude one of the binary variables for the time periods when an intercept is present in the equations.

    (a) HAC standard errors. (b) Clustered standard errors.

    (c) Time fixed effect regression model. (d) None of the above.

(15 × 1/5 = 3 weightage)

Part B (Very Short Answer Questions)

Answer any **five.**

Each question carries 1 *weightage.*

16. What do you mean by the Simultaneous equation bias?

17. Define a Recursive model.

18. Consider the following system of equations.

$$Y_1 = \alpha_0 + \alpha_1 Y_2 + \alpha_3 Y_3 + \alpha_4 X_1 + \alpha_5 X_2 + u_1$$
$$Y_2 = \beta_0 + \beta_1 Y_3 + \beta_2 Y_1 + \beta_3 X_2 + u_2$$
$$Y_3 = \gamma_0 + \gamma_1 X_1 + \gamma_2 X_2 + \gamma_3 X_3 + u_3$$

According to the order condition, state whether the second equation is Unidentified, just identified or Over-identified

19. What kind of lag is Koyck lag?

20. Define Panel data.

21. What is LSDV model ?

22. When should logistic regression be used ?

23. What is Ordinal Logistic Regression ?

(5 × 1 = 5 weightage)

Part C (Short Answer Questions)

Answer any **seven.**
Each question carries 2 weightage.

24. State the main reasons for the occurrence of lags in economic model.

25. What are Logit models ?

26. What is the significance of Recursive models ?

27. Examine the salient features of the partial adjustment model.

28. What are the assumptions and properties of the Indirect Least Squares (ILS) method ?

29. When does the relevance of Instrumental variable estimation arise in regression analysis ?

30. Bring out the salient features of a constant co-efficients model.

31. Briefly explain the Adaptive expectation model.

32. Describe the Tobit model.

33. Describe the problems of Simultaneity. How does it cause ?

(7 × 2 = 14 Weightage)

Part D (Essay Questions)

Answer any **two.**
Each question carries 4 weightage.

34. Explain in detail the steps involved in the 2SLS.

35. Explain the properties of random effects model.

36. Identify whether the second equations in the following simultaneous equation model using rank condition :

$$D = a_0 + a_1 P_1 + a_2 P_2 + a_3 Y + a_4 t + u$$
$$S = b_0 + b_1 P_1 + b_2 P_2 + b_3 C + b_4 t + w$$
$$D = S$$

37. Explain in detail the salient features of the Probit model.

(2 × 4 = 8 weightage)