THIRD SEMESTER M.A. DEGREE (REGULAR) EXAMINATION NOVEMBER 2019

(CUCSS)

Economics

ECO 3C 12—BASIC ECONOMETRICS

(2015 Admissions)

Time : Three Hours Maximum : 36 Weightage

Part A

Answer **all** *questions.*
Each bunch of **four** *questions carries a weightage of* 1.

1. In the model $\Delta y = \beta \Delta x$ the parameter β stands for the :

    (a) Slope.   (b) Slope and Elasticity.

    (c) Elasticity.   (d) Growth rate.

2. The ratio of Total Sum of Squares and Explained Sum of Squares is :

    (a) Co-efficient of correlation.   (b) Co-efficient of determination.

    (c) Co-efficient of variation.   (d) Co-efficient of covariation.

3. If Z_1 and Z_2 are independently distributed χ^2 variables with k_1 and k_2 degrees of freedom then

    the variable, $\dfrac{Z_1 / k_1}{Z_2 / k_2}$ has :

    (a) t distribution.   (b) χ^2 distribution.

    (c) F distribution.   (d) Normal distribution.

4. The lowest significance level at which a null hypothesis can be rejected is :

    (a) F value.   (b) t value.

    (c) p-value.   (d) R square value.

5. Which of the following is not a formal method of detecting heteroscedasticity ?

    (a) Spearman's rank correlation test. (b) Park test.

    (c) Glejser test.   (d) Durbin's m test.

6. Which of the following theorem is utilised to justify the normality assumption of random variable in regression model ?

    (a) Euler's theorem.   (b) Chebyshev's theorem.

    (c) Gauss-Markov theorem.   (d) Central limit theorem.

7. The Runs test used to detect autocorrelation is :

    (a) Parametric test.   (b) Non-parametric test.

    (c) Equivalent test.   (d) Hypothesis test.

8. When one or more of the regressors are linear combinations of the other regressors, it is called :

    (a) Autocorrelation.   (b) Heteroscedastity.

    (c) Multicollinearity.   (d) Serial correlation.

9. Plotting the residuals against time is termed as the :

    (a) Time sequence plot.   (b) Box plot.

    (c) Scatter plot.   (d) Stem and leaf plot.

10. Which of the following tests is used to find the structural break in the data set ?

    (a) F test.   (b) Chow test.

    (c) Dickey-Fuller test.   (d) Granger causality test.

11. Which of the following models is used to regress on dummy dependent variable ?

    (a) The LPM model.   (b) The tobit model.

    (c) The logit model.   (d) All of the above.

12. As a rule of thumb, a variable is said to be highly collinear if the Variance Inflation Factor (VIF) is :

    (a) Exactly 10.   (b) Exceeds 10.

    (c) Less than 10.   (d) None of the above.

$(12 \times \frac{1}{4} = 3$ weightage$)$

Part B

Answer any **five** *questions.*
Each question carries a weightage of 1.

13. Explain various types of data structures used in applied econometric work.

14. State and explain the algebraic properties of OLS statistics.

15. Explain the Gauss-Markov assumptions for simple regression.

16. Write a note on the method of maximum likelihood.

17. Explain how to estimate growth rate using a specific regression model.

18. What is dummy variable ?

19. Explain the role of random term in an econometric model ? Explain.

20. What is correlation matrix ? Explain.

(5 × 1 = 5 weightage)

Part C

Answer any **eight** *questions.*
Each question carries a weightage of 2.

21. What are the consequences of specification error ? Explain

22. Examine the reason behind the normality assumption of random variable.

23. Distinguish between statistical significance and practical significance.

24. How will you interpret the simple and partial correlation coefficients in two variable case ?

25. Briefly explain second degree polynomial regression function.

26. Express the assumptions of Classical Liner Regression model in matrix form.

27. What are the assumptions behind the pattern of heteroscedasticity ? Explain.

28. Write a note on piece-wise linear regression.

29. Given the estimated saving function as $\hat{C} = 5000 + 0.75\,Y$. Find the value of investment multiplier.

30. Discuss the consequences of autocorrelation.

31. Explain the tests for incorrect functional form.

(8 × 2 = 16 weightage)
Turn over

Part D

Answer any **three** *questions.*
Each question carries a weightage of 4.

32. How to detect multicollinearity ? Explain.

33. Given the cross-section data relating to output Q, inputs Labour and capital. Fit a Cobb-Douglas production function by specifying the function as :

    $\log Q = \beta_0 + \beta_1 \log L + \beta_2 \log K + u$ and interpret the estimated co-efficients :

Log Q	:	2.56	2.71	2.77	2.89	3.14	3.18	3.22	3.30	3.37	3.40
Log L	:	2.08	2.30	2.40	2.56	2.64	2.77	2.83	2.89	3.00	3.14
Log K	:	1.61	2.08	2.30	2.40	2.56	2.77	2.89	3.09	3.22	3.09

34. State and prove Gauss Markov theorem.

35. What is Durbin-Watson test ? Explain its method and decision rules of Durbin-Watson d test.

36. Examine various types of specification errors.

(3 × 4 = 12 weightage)