

D 52501

(Pages : 4)

Name.....

Reg. No.....

THIRD SEMESTER M.A. DEGREE EXAMINATION, DECEMBER 2018

(CUCSS—PG)

Economics

ECO 3C 12—BASIC ECONOMETRICS

(2015 Syllabus Year)

Time : Three Hours

Maximum : 36 Weightage

Part A

Answer all questions.

Each bunch of four questions carries a weightage of ¼.

1. In a semi-log model of type $\log Y_i = \beta X_i$ the co-efficient β stands for the :

- (a) Slope. (b) Slope and Elasticity.
(c) Elasticity. (d) Growth rate.

2. Simple correlation coefficient of [X, Y] is defined as :

- (a) $\text{Cov} [X, Y]$. (b) $\frac{\text{Cov} [X, Y]}{s.d [X] \times s.d [[Y]]}$.
(c) $\frac{\text{Cov} [X, Y]}{\text{Var X} \times \text{Var Y}}$. (d) $\frac{\text{Var} [X] \cdot \text{Var} [Y]}{s.d [X] \times s.d [[Y]]}$

3. In statistics the reliability of an estimate is measured by its :

- (a) Standard error. (b) Student t value.
(c) F value. (d) p -value.

4. The Jarque-Bera test of normality is based on :

- (a) Skewness. (b) Kurtosis.
(c) Skewness and Kurtosis. (d) Variance.

Turn over

5. Which of the following is a multi-collinearity diagnostic ?
- (a) Condition Index. (b) Park test.
(c) Glejser tes. (d) Durbin's m test.
6. Regression models containing an admixture of quantitative and qualitative variables are called :
- (a) ANOVA models. (b) ANCOVA models.
(c) Parallel regressions. (d) Coincident regressions.
7. The Structural break in a data set is tested by :
- (a) Runs test. (b) Lagrange multiplier test.
(c) Chow test. (d) Von-Neumann ratio test.
8. Dropping a variable from a model may lead to what is called :
- (a) Specification error. (b) Sampling error.
(c) Measurement error. (d) Standard error.
9. In the k -variable case, the main diagonal elements in the simple correlation matrix are all :
- (a) Zero. (b) One.
(c) Less than One. (d) More than one.
10. The likelihood ratio test is related to :
- (a) Maximum likelihood method. (b) Ordinary least squares method.
(c) Likelihood method. (d) Generalised least squares method.
11. The test to find out whether the error term follows a normal distribution is the :
- (a) F-test. (b) Error test.
(c) Normality test. (d) t - test.
12. 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.

Part B

Answer any five questions.

Each question carries a weightage of 1.

13. Distinguish between t -value and p -value.
14. Is $Y_i = \alpha + \beta^2 X^2 + u$ linear regression model? Why?
15. Distinguish between estimate and estimator with example.
16. Examine the slope and elasticity coefficient of the model : $y = \alpha + \frac{\beta}{x}$.
17. Explain the role of disturbance term in an econometric model? Explain.
18. What is dummy variable trap? How do we avoid the trap?
19. Explain the concept of power of the test.
20. Distinguish between simple and composite hypothesis.

(5 × 1 = 5 weightage)

Part C

Answer any eight questions.

Each question carries a weightage of 2.

21. Discuss how decision about rejecting null hypothesis is taken.
22. Discuss Durbin's two step method of estimating ρ .
23. State the properties of F distribution.
24. Write a note on the Maximum Likelihood Estimator.
25. Explain the concept of omitted variable bias.
26. Briefly explain the steps involved in testing a statistical hypothesis.
27. Discuss the sources of multicollinearity.
28. What do you mean by independently and identically distributed random variable? Explain.
29. Examine regression analysis in the light of ANOVA.
30. Given the estimated saving function as $S = -510 + 0.15 Y$. Find the value of investment multiplier.
31. Discuss the methods of detecting heteroscedasticity.

(8 × 2 = 16 weightage)

Turn over

Part D

Answer any three questions.

Each question carries a weightage of 4.

32. State and prove Gauss Markov theorem.
33. Explain the cases of violation of the assumptions of Classical Regression Model.
34. From the following data set relating to Consumption, C and income, Y estimate the marginal propensity to save using a linear regression model assuming that $Y = C + S$ where S is aggregate saving.

Consumption (in million rupees) : 20 22 25 32 38 40 41 42 45 45

Income (in million rupees) : 28 30 32 38 40 44 45 47 52 64

35. State and explain the assumptions of classical linear regression model in matrix notation.
36. Examine the general tests used to detect autocorrelation.

(3 × 4 = 12 weightage)

C 31489

(Pages : 4)

Name.....

Reg. No.....

THIRD SEMESTER M.A. DEGREE EXAMINATION, DECEMBER 2017

(CUCSS)

Economics

ECO 3C 12—BASIC ECONOMETRICS

(2015 Admissions)

Time : Three Hours

Maximum : 36 Weightage

Part A

Answer all questions.

Each question carries ¼ weightage.

1. In a double log model of type the co-efficient β stands for the :
 - (a) Slope.
 - (b) Slope and Elasticity.
 - (c) Elasticity.
 - (d) Slope, not Elasticity.
2. Which of the following is used to detect specification errors ?
 - (a) The Park test.
 - (b) Ramsey's RESET test.
 - (c) Chow test.
 - (d) The Runs test.
3. What is the meaning of the term 'heteroscedasticity' ?
 - (a) The variance of the errors is not constant.
 - (b) The variance of the dependent variable is not constant.
 - (c) The errors are not linearly independent of one another.
 - (d) The errors have non-zero mean.
4. When a linear function is fitted to non-linear data set it will result in ?
 - (a) Specification error.
 - (b) Sampling error.
 - (c) Measurement error.
 - (d) None of the above.
5. What will be the properties of the OLS estimator in the presence of multi collinearity ?
 - (a) It will be consistent, unbiased but not efficient.
 - (b) It will be consistent and unbiased and efficient.
 - (c) It will be consistent but not unbiased.
 - (d) It will be consistent.

Turn over

6. If the mean and variance of time series do not vary systematically overtime it is called :
- (a) Stationary. (b) Random.
(c) Non-stationary. (d) Non-Random.
7. Which one of the following is not an example of mis-specification of functional form ?
- (a) Using a linear specification when a double-logarithmic model would be more appropriate.
(b) Modelling y as a function of x when infact it scales as a function of x^2 .
(c) Modelling y as a function of x when infact it scales as a function of $\frac{1}{x}$.
(d) Excluding a relevant variable from a linear regression model.
8. The meaning of linearity in regression theory is that it is :
- (a) Linear in variables. (b) Linear in variables non-linear in parameters.
(c) Linear in parameters. (d) Linear in variables and parameters.
9. What would be the consequences of OLS estimator if heteroscedasticity is present in a regressive model but ignored ?
- (a) It will be biased. (b) It will be consistent.
(c) It will be inefficient. (d) All of (a), (b) and (c) will be true.
10. Which of the following model 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.
11. The number of independent values assigned to a statistical distribution is called :
- (a) Degrees of freedom. (b) Goodness of fit.
(c) Trial and error. (d) None of the above.
12. If a Durbin–Watson statistic takes a value close to zero, what will be the value of first order auto correlation co-efficient ?
- (a) Close to zero. (b) Close to +1.
(c) Close to -1. (d) Close to either ± 1 .

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

Part B

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

13. What does multiple correlation co-efficient measure ?
14. Examine the law of large numbers.
15. What are the consequences of multicollinearity ?
16. Explain the concept of omitted variable bias.
17. Explain the concept of confidence interval for population mean.
18. What do you mean by dummy variable trap ? How to overcome the trap ?
19. Explain Durbin–Watson statistic.
20. Convert the model $y = ax^b$ to model that is linear in parameters.

(5 × 1 = 5 weightage)

Part C

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

21. What are the sources of specification errors ? Explain.
22. Explain the structural form, reduced form and final form of an econometric model.
23. What is the role of disturbance term in an econometric model ? Explain.
24. Show that OLS estimate is a BLUE.
25. Explain the consequence of omitting a relevant variable in a regression model.
26. Examine regression analysis in the light of ANOVA.
27. What do you mean by serial correlation ? Explain.
28. Discuss the methods of detecting heteroscedasticity.
29. How do you detect multicollinearity ?
30. Explain Gauss–Markov theorem.
31. Explain the procedure of restricted least squares in two variable case.

(8 × 2 = 16 weightage)

Turn over

Part D

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

32. Given a data set relating to output per hectare and labour employed for a particular crop,

Yield	112	115	121	123	142	154	162	154	155	162
Labour (measured in hours of work)	360	450	250	360	254	450	310	345	425	496

estimate the yield as a function of labour and compute the marginal productivity of labour.

33. State and explain the assumptions behind the method of least squares.
34. Discuss various functional forms of regression models.
35. Derive the normal equations of least squares for simple linear model.
36. The average rainfall in a particular locality over a period of 10 years is reported below. Estimate the equation for linear trend line and interpret the result :

Period	1	2	3	4	5	6	7	8	9	10
Rain fall (in cm)	180	185	180	182	181	178	179	180	175	180

(3 × 4 = 12 weightage)