

D 91204

(Pages : 4)



THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2020

(CCSS)

M.A. Economics

ECO 3C 10—BASIC ECONOMETRICS

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

Part A

Answer all questions.

Each question carries 1 mark.

Multiple Choice Questions :

1. If a sample survey of 100 households conducted in a particular village, annually for five years, the data so called will be :
 - a) Time series data.
 - b) Cross-section data.
 - c) Panel data.
 - d) Pooled time series-cross-section data.
2. In a multiple linear regression with 4 independent variables, the overall regression's significance is to be tested. Which test would be used ?
 - a) Z test.
 - b) F test.
 - c) Chi-square test.
 - d) 't' test.
3. If multicollinearity is perfect in a regression model then the regression coefficients of the explanatory variables are :
 - a) Determinate.
 - b) Indeterminate.
 - c) Infinite values.
 - d) Small negative values.
4. The co-efficient of determination, r^2 shows :
 - a) Proportion of the variation in the dependent variable Y is explained by the independent variable X.
 - b) Proportion of the variation in the dependent variable X is explained by the independent variable Y.
 - c) Proportion of the variation in the dependent variable u_i is explained by the independent variable X.
 - d) Both (a) and (c).

Turn over

5. Koyck's approach to econometric analysis deals with relationships involving :
- Lagged explanatory variables.
 - Qualitative explanatory variables.
 - Exponential explanatory variables.
 - None of the above.
6. What is u_i ?
- Error term.
 - Disturbance term.
 - Both (a) and (b) are correct.
 - Both (a) and (b) are wrong.
7. An unbiased estimator is an estimator whose sampling distribution has :
- Mean equal to the true parameter value being estimated.
 - Mean equal to the actual value of the parameter estimate.
 - A zero variance.
 - None of the above.
8. The OLS estimator is not used for all estimating situations because :
- It is sometimes difficult to calculate.
 - It doesn't always minimize R-squared.
 - It doesn't always have a good-looking sampling distribution.
 - Sometimes other estimators have better looking sampling distributions.
9. Suppose you have a random sample of 100 observations on a variable x which is distributed normally with mean 14 and variance 8. The sample average, $\bar{x}$, is 15, and the sample variance is 7. Then the mean of the sampling distribution of $\bar{x}$ is :
- 15 and its variance is 7.
 - 15 and its variance is 0.07.
 - 14 and its variance is 8.
 - 14 and its variance is 0.08.

10. Specification refers to choice of :

- a) Test statistic.
- b) Estimating procedure.
- c) Functional form and explanatory variables.
- d) None of these.

(10 × 1 = 10 marks)

Part B (Very Short Answer Questions)

Answer any five questions.

Each question carries 2 marks.

Answer in one or two sentences each.

- 11. List the important stages in econometric model building ?
- 12. What is least square principle ?
- 13. Distinguish between Population regression function and Sample regression Function.
- 14. Justify the use of random error term in a regression model.
- 15. What is a dummy variable trap ?
- 16. Explain Von-Neumann ratio test for autocorrelation.
- 17. What do you mean by lagged variable ?
- 18. What do you mean by auxiliary regression ?

(5 × 2 = 10 marks)

Part C (Short Answer Questions)

Answer any eight questions.

Each question carries 5 marks.

- 19. Explain the stages in econometric model building.
- 20. Explain Gauss-Markov theorem.
- 21. Distinguish between structural form model and reduced form model.
- 22. Explain any two methods to overcome the problem of Heteroscedasticity.
- 23. Explain Durbin-Watson test for Autocorrelation.

Turn over

24. Explain the uses of dummy variable in Econometrics.
25. Briefly explain the major limitations of Econometrics.
26. How will you compare two regressions using the dummy variable approach?
27. The relationship between two variables, Y and X is as follows:

$Y = \alpha + \beta X + U_i$. The data set consists of 6 observations and is as follows:

Y	:	8	4	0	6	4	2
X	:	2	2	2	4	4	4

- (i) Using OLS regression, obtain estimates of α and β .
- (ii) What is the coefficient of determination (R^2) of regression?
28. Explain Multicollinearity.
29. Let $\hat{\beta}_{yx}$ and $\hat{\beta}_{xy}$ represent the slopes in the regression of Y on X and X on Y respectively, show that

$$\hat{\beta}_{yx}\hat{\beta}_{xy} = r^2$$

Where r is the co-efficient of correlation between X and Y.

30. Distinguish between homoscedasticity and heteroscedasticity.

(8 × 5 = 40 marks)

Part D (Essay Type Questions)

Answer any two questions.

Each question carries 10 marks.

31. From the following table, estimate the regression equation of $Y = a + bX_1 + cX_2 + U$ and interpret the results:

Y	:	20	30	35	40	45
X_1	:	10	15	10	20	20
X_2	:	5	10	15	10	20

32. Explain how you will estimate the parameters in an Almon's polynomial distributed lag model.
33. Briefly discuss about the role of Lagged models in Economics.
34. What are the assumptions of Classical Linear Regression Model?

(2 × 10 = 20 marks)