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4 SEM TDC ECOH (CBCS) C 10

2026

(May/June)

ECONOMICS

(Core)

Paper : C–10

(Introductory Econometrics)

Full Marks : 80
Pass Marks : 32

Time : 3 hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions/Choose the correct option : 1×8=8

(a) Econometrics is a combination of

(i) Economics and Statistics

(ii) Economics and Mathematics

(iii) Economics, Mathematics and Statistics

(iv) None of the above

(b) The term used to denote the characteristic of the population is known as

(i) parameter *(ii)* statistic

(iii) constant *(iv)* variable

(c) The term regression was first introduced by

(i) Ragnar Frisch (ii) Karl Pearson
(iii) Spearman (iv) Watson

(d) $E(UU') = ?$

(i) $\sigma_u^2 I$ (ii) σ_u^2
(iii) I (iv) σ^2

(e) The coefficients estimated in the presence of heteroscedasticity are not

(i) unbiased estimators
(ii) consistent estimators
(iii) efficient estimators
(iv) linear estimators

(f) Durbin-Watson d-test is used to detect

(i) multicollinearity
(ii) heteroscedasticity
(iii) autocorrelation
(iv) None of the above

(g) Omitting a relevant explanatory variable when running a regression

(i) never creates bias
(ii) sometimes creates bias
(iii) always creates bias
(iv) None of the above

(h) Multicollinearity is essentially a

(i) population phenomenon
(ii) sample phenomenon

(Continued)

(iii) Both (i) and (ii)
(iv) Either (i) or (ii)

2. Write short notes on any *four* of the following : 4×4=16

(a) Point estimation vs. interval estimation
(b) Testing of hypothesis
(c) The aims and methodology of econometrics
(d) Dummy variable trap
(e) R^2 and $\bar{R}^2$
(f) Forecasting

3. (a) Prove that OLS estimators are Blues in case of two-variable linear regression model. 12

Or

(b) Define the principle of ordinary least square. For the classical two-variable linear regression model $Y_i = \beta_1 + \beta_2 X_i + U_i$, derive the estimator of β_1 and β_2.

4. Explain the method of estimation of parameters of K-variable linear regression model. 11

Or

What do you mean by dummy variables? Explain the concept of dummy variables in regression model with the help of a suitable example. 3+8=11

(Turn Over)

5. Explain the problem of heteroscedasticity. Discuss the various tests to detect the problem of heteroscedasticity. 3+8=11

Or

What are the sources of autocorrelation? Discuss the remedial measures of autocorrelation. 4+7=11

6. Explain the concept of multicollinearity. Discuss the remedial measures to remove the problem of multicollinearity. 3+8=11

Or

Discuss the various tests to detect the problem of multicollinearity. What are the consequences of multicollinearity? 8+3=11

7. Define specification error. Suppose the true model is given by

$$Y_i = \beta_1 + \beta_2 X_{1i} + U_i$$

But for some reasons, if we include X_{2i} in the model, show the consequences. 3+8=11

Or

Explain the various tests for detecting specification errors. 11

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