4 SEM TDC ECOH (CBCS) C 10

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(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. Choose the correct answer :   1×8=8

   (a) The probability of Type 1 error is

      (i) degree of freedom

      (ii) standard error

      (iii) level of significance

      (iv) None of the above

(2)

(b) The term 'Regression' was introduced by

   (i) Ragnar Frisch

   (ii) Sir Francis Galton

   (iii) Karl Pearson

   (iv) Both (i) and (ii)

   (v) None of the above

(c) $E(uu') = ?$

   (i) $\sigma_u^2 I$

   (ii) $\sigma_u^2 A'$

   (iii) I

   (iv) None of the above

(d) Dummy variable can

   (i) take any value between 0–100

   (ii) take any value between 10–100

   (iii) only take value 0 and 1

   (iv) only take positive values

(3)

(e) Multicollinearity is essentially a

   (i) sample phenomenon

   (ii) population phenomenon

   (iii) Either (i) or (ii)

   (iv) Both (i) and (ii)

   (v) None of the above

(f) In case of multicollinearity problem

   (i) R^2 is high but few t-test ratios are significant

   (ii) R^2 is low but t-test ratios are significant

   (iii) R^2 is high with high t-test ratio

   (iv) R^2 is low with low t-test ratio

   (v) None of the above

(g) The coefficient of determination value lies between

   (i) −1 and +1

   (ii) −1 and 0

   (iii) 0 and +1

   (iv) None of the above

(h) ANOVA model consists of

   (i) quantitative explanatory variables

   (ii) qualitative explanatory variables

   (iii) both quantitative and qualitative explanatory variables

   (iv) None of the above

2. Write short notes on any *four* of the following (**within 150 words** each) : $4 \times 4 = 16$

(a) Type I and Type II errors

(b) R-bar square ($\bar{R}^2$)

(c) Perfect multicollinearity v/s imperfect multicollinearity

(d) Errors in variable

(e) The stochastic error term

3. (a) What do you mean by econometrics? Distinguish between mathematical economics and econometrics. Explain the nature and scope of econometrics.
        $2+4+6=12$

         (Continued)

Or

(b) What is null and positive hypothesis? What are the steps involved in hypothesis testing? Discuss with the help of an example. $4+8=12$

4. (a) "Under the assumptions of the classical linear regression model, the OLS is BLUE." Prove the statement. What is the difference between the stochastic error term and the residual u_i? $7+4=11$

Or

(b) What is Gauss-Markov theorem? Discuss the main assumptions of the OLS. $3+8=11$

5. (a) Analyse the main consequences of heteroscedasticity. Discuss the remedial measures to remove the problem of heteroscedasticity. $5+6=11$

         (Turn Over)

Or

(b) Define different methods to detect the problem of heteroscedasticity.   11

6. (a) What do you mean by autocorrelation? Explain the Durbin-Watson test to detect the problem of autocorrelation. Mention few limitations of the Durbin-Watson test.   3+6+2=11

Or

(b) Discuss the main effects of the autocorrelation problem. How do you remove/solve the problem of autocorrelation? Suggest some measures of the problem.   5+6=11

7. (a) Define specification error. Discuss the main types of specification errors. What are the methods to solve the problem of specification error?   2+4+5=11

Or

(b) What do you mean by errors in variables? Discuss the various tests to detect the problem of specification error. Write two main consequences of omitting relevant variables.   2+5+4=11

★ ★ ★