

**2022/TDC(CBCS)/EVEN/SEM/
ECOHCC-403T/506**

TDC (CBCS) Even Semester Exam., 2022

ECONOMICS

(Honours)

(4th Semester)

Course No. : ECOHCC-403T

(Introductory Econometrics)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

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

SECTION—A

Answer any ten of the following questions :

2×10=20

- 1. Define econometrics.**
- 2. State first two steps of an econometric analysis.**
- 3. State any two limitations of econometrics.**
- 4. Define test statistic.**

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5. State any two properties of chi-squared distribution. /
6. Define power of a test.
7. State the relationship between correlation coefficient and coefficient of determination.
8. What does the value $r^2 = 1$ imply?
9. State Gauss-Markov theorem in the context of a two-variable linear regression model.
10. Is adjusted R^2 a better measure of regression than R^2 ? Justify.
11. Define a linear regression model.
12. Define dummy variable.
13. Define multicollinearity.
14. Give any two examples where heteroscedasticity is likely to be present.
15. Which assumption of classical linear regression model is violated under autocorrelation?

SECTION—B

Answer any five questions of the following :

10×5=50

16. Explain nature and scope of econometrics.
17. In what sense econometrics is different from mathematical economics and statistics? Explain with reasons and suitable economic illustrations.
18. Distinguish between null hypothesis and alternative hypothesis. Outline the procedure of hypothesis testing related to population mean in case of small samples. 4+6=10
19. Distinguish between type I error and type II error. The mean weekly sales of soap bars in departmental stores was 146.3 bars per store. After an advertising campaign, the mean weekly sales in 22 stores for a typical week increased to 153.7 and showed a standard deviation of 17.2. Was the advertising campaign successful? Test at 5% level of significance. 4+6=10
20. Obtain the OLS estimators of the parameters of a two-variable linear regression model.

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21. Derive the value of standard error of the slope coefficient of a two-variable linear regression model.

05+5=10

22. Distinguish between individual and joint testing of hypothesis in the context of a multiple linear regression model. Establish the relationship between R^2 and F statistic and also throw light on the significance of this relationship in econometric studies.

4+6=10

23. What is multiple regression? How does it differ from simple regression? State the assumptions that are necessary for estimating the parameters in a multiple linear regression model.

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2+2+6=10

24. Distinguish between perfect multicollinearity and imperfect multicollinearity. Is it possible to estimate unknown parameters of a multiple regression model if there is perfect multicollinearity? If not, why?

4+6=10

25. Explain how Durbin-Watson test helps to detect the presence of autocorrelation in data. State the steps underlying this test. Point out its limitations.

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3+5+2=10

Interpretation of the results of the Durbin-Watson test

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