2025

M.Sc. 1st Semester Examination

ECONOMICS

Paper : ECOC401X0

(Statistics and Basic Econometrics)

Full Marks : 50 Time : Two Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Group - A

Answer any ***two*** questions : 2×2=4

1. Distinguish between point estimation and interval estimation. [CO2]

2. Define degrees of freedom in the context of statistical theory. [CO2]

3. Distinguish between type-I and type-II errors in the test of statistical hypothesis. [CO2]

4. Explain the assumption of non-stochastic regressor(s) in classical linear regression theory. [CO3]

P.T.O.

Answer any ***two*** questions : 4×2=8

5. Examine the view that if the sample size is not too small in comparison to the population size, a sample survey is better than the census survey, whatever be the size of the population. [CO1]

6. Find the sampling mean and sampling variance of the sample mean for a SRSWR drawn from a population with finite mean μ and finite variance σ^2. 2+2 [CO1]

7. Define frequency χ^2. Explain how it is used in testing the goodness of fit when the population is completely specified under the null hypothesis. 2+2 [CO2]

8. Find the maximum likelihood estimators of the parameters of a two variable classical linear regression model. [CO3]

Answer any ***one*** question : 8×1=8

9. Show that for a simple random sample with replacement (SRSWR), sample elements are identically and independently distributed; but for a simple random sample without replacement (SRSWOR), sample elements are identically but not independently distributed. 3+5 [CO1]

10. With the help of a suitable example discuss the principle of the two way analysis of variance (ANOVA). [CO2]

Group - B

Answer any ***two*** questions : 2×2=4

11. Explain with help of a flowchart the functions of Econometrics. [CO3]

12. Is multicollinearity a methodological problem? Explain. [CO4]

13. Explain the sources of autocorrelation. [CO4]

14. Explain the sources of heteroscedasticity. [CO4]

Answer any ***two*** questions : 4×2=8

15. Explain Durbin-Watson test. What are its limitations? 3+1 [CO4]

16. What do you mean by Dummy variable trap? Explain. [CO5]

17. How would you test heteroscedasticity? Explain. [CO4]

18. What are the consequences of autocorrelation? Explain. [CO4]

Answer any ***one*** question : 8×1=8

19. Derive the rank and order conditions for identification in a simultaneous equation system. [CO6]

20. Show that the OLSs estimators in a GLRM are BLUEs. [CO3]

Internal Assessment - 10 marks
