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PG/IIS/ECO/201/25

M.A./M.Sc. 2nd Semester Examination, 2025

ECONOMICS

(Statistics and Basic Econometrics)

PAPER — ECO-201

Full Marks : 50

Time : 2 hours

Answer all questions

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

GROUP—A

Answer any two questions : 2×2

1. Distinguish between independence and non-correlation of two random variables.

(Turn Over)

(2)

2. Distinguish between point estimation and interval estimation.
3. Define level of significance in the context of test of hypothesis.
4. Formulate the null and alternative hypotheses for testing the proposition that average marks of female students is five less than the double of that of male students. Also formulate the test statistics when the population variances are known.

1 + 1

Answer any two questions :

4 × 2

5. Show that the sampling method is, in general, better than the census method.
6. Briefly explain how you will estimate the confidence interval of the population mean when the population variance is unknown.

7. Define analysis of variance (ANOVA). Explain how it is used for comparing means of more than one population.
8. Describe briefly the effects of omitting a relevant explanatory variable in the classical linear regression model.

Answer any one question : 8×1

9. Briefly explain the maximum likelihood estimation method. Find the maximum likelihood estimators of the parameters of the simple linear regression model. $3 + 5$
10. Define frequency χ^2 . Explain how it is used for testing the goodness of fit (i) when the population is completely specified under the null hypothesis and (ii) when the population is incompletely specified under the null hypothesis. $2 + 3 + 3$

(4)

GROUP-B

Answer any two of the following : 2×2

11. What are the major consequences of Heteroscedasticity – Explain.
12. State and explain the sources of Multicollinearity.
13. Explain Dummy Variable Trap.
14. How to solve the Heteroscedasticity Problem—Explain.

Answer any two of the following : 4×2

15. What are the limitations of DW test ? In this respect present the Theil-Nagar correction to it. 2×2
16. Explain the Durbin 'h' test.

(5)

17. State and prove the consequences of Multicollinearity. Explain Klein's test. 3 + 1

18. Explain two tests of Heteroscedasticity.

Answer any one of the following : 8 × 1

19. Stating the assumptions prove that the OLS estimators in a general linear regression model are BLUE. 2 + 6

20. What do you mean by least square bias ? Explain the problem of identification. How would you solve it ? 2 + 2 + 4

[Internal Assessment — 10 Marks]

