



K25P 1811

Reg. No. :

Name :

II Semester M.A. Degree (C.B.C.S.S. – O.B.E. – Reg./Supple./Imp.)
Examination, April 2025
(2023 and 2024 Admissions)
ECONOMICS/DEVELOPMENT ECONOMICS/APPLIED ECONOMICS
MAECO02C09/MAACO02C09/MADCO02C09 : Basic Econometrics

Time : 3 Hours

Max. Marks : 60

SECTION – I

Short Answer Questions (Any 5). (5×3=15)

1. What is multicollinearity in regression analysis ? How does it affect OLS estimates ?
2. What is meant by “violation of OLS assumptions” in multiple regression ? Provide one example.
3. State and explain the order condition for identification in simultaneous equation models.
4. Why do we use ANCOVA instead of ANOVA in some cases ?
5. What is the difference between R^2 and Adjusted R^2 in multiple regression ?
6. What are the consequences of heteroscedasticity in OLS regression ?

SECTION – II

Short Essay Questions (Any 3). (3×6=18)

7. Explain the importance of testing for omitted variable bias in a regression model. How can this bias be detected ?
8. Describe the consequences and remedies of autocorrelation in OLS.
9. Compare the Two-Stage Least Squares (2SLS) and Three-Stage Least Squares (3SLS) estimation methods.
10. List the key Gauss-Markov assumptions necessary for the OLS estimator to be BLUE (Best Linear Unbiased Estimator).
11. Explain Instrumental Variable Estimation.

P.T.O.



SECTION – III

Essay Questions (Any 3).

(3×9=27)

12. Write an essay on Dummy Variable Regression Model.
13. A researcher runs a multiple regression model but notices that the standard errors of coefficients are large, and the R^2 is very high.
- What could be the reason for these issues ? 3
 - What are the consequences of this problem for OLS estimation ? 3
 - Suggest two ways to handle this problem. 3
14. State the BLUE Properties of OLS estimators.
15. Consider a simultaneous equation system :
- $$Q_d = \alpha_0 + \alpha_1 P + \alpha_2 Y + u_1$$
- $$Q_s = \beta_0 + \beta_1 P + u_2$$
- where Q_d and Q_s represent demand and supply, P is price, and Y is income.
- Identify the endogenous and exogenous variables. 3
 - Explain whether the demand equation is identified using the rank condition. 3
 - Suggest a method to estimate the identified equation. 3
16. Suppose you have a dataset of 10 observations used to estimate the following simple linear regression model.
- $$Y_i = \beta_0 + \beta_1 X_i + \varepsilon_i$$
- You are given the following summary statistics.
- $\sum_{(i=1)}^{10} X_i = 50$
 - $\sum_{(i=1)}^{10} Y_i = 80$
 - $\sum_{(i=1)}^{10} X_i^2 = 340$
 - $\sum_{(i=1)}^{10} X_i Y_i = 500$
 - The estimated variance of the residuals is $S^2 = 4$.
- Answer the following :
- Calculate the OLS estimates of β_0 and β_1 . 3
 - Compute the standard error of β_1 . 2
 - Test the null hypothesis $H_0 : \beta_1 = 0$ versus $H_1 : \beta_1 \neq 0$ at the 5% significance level. 2
 - Construct a 95% confidence interval for β_1 . 2