School of Liberal Education
Master of Arts in Economics
Mid Term Examination - May 2024

Duration : 90 Minutes
Max Marks : 50

Sem II - K1PN204T - Econometrics

<u>General Instructions</u>
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1) Show that the regression line passes through the mean of X and Y. — K2 (2)

2) Prove that $E(u_i|X_i) = 0.$ — K1 (3)

3) Prove that the mean value of estimated Y is equal to the mean value of actual Y. — K2 (4)

4) Explain the probability distribution of disturbances ui. — K2 (6)

5) Elaborate the test of significance approach in hypothesis testing. — K3 (6)

6) Consider the following formulations of the two-variable PRF: Model I: Yi = β1 + β2Xi + ui. Model II: Yi = α1 + α2(Xi − X̄) + ui. A. Find the estimators of β1 and α1. Are they identical? Are their variances identical? B. Find the estimators of β2 and α2. Are they identical? Are their variances identical? — K3 (9)

7) Illustrate the regression on standarized variables with the help of suitable estimators formula. — K4 (8)

8) Explain all the numerical properties of OLS method with the help of derivation. — K4 (12)

OR

Explain the Gauss-Markov theorem with respect to the OLS method. — K4 (12)