

M.A. Examination, 2014

Semester – I

Economics

Paper – II

(Econometrics-I)

Time: 3 Hours

Full Marks: 40

Questions are of value as indicated in the margin.

Answer **any four** questions.

1. (a) Write down the assumptions of the Classical Linear Regression Model (CLRM) stating clearly the meanings of all the symbols. 5
(b) Derive the OLSE of the vector of the β -parameters in the Model in (a) above. 5
2. In the context of the CLRM,
(a) Find BLUE of an arbitrary linear combination of the β -parameters. 7
(b) Obtain BLUE of the sum of the β -parameters. 3
3. In the context of the CLRM,
(a) Show that Total Sum of Squares is equal to the sum of Explained Sum of Squares and Residual Sum of Squares. 5
(b) Obtain the relation between the explained variable and the explanatory variables when R^2 equals to 1. 5
4. In the context of the CLRM,
(a) What do you mean by the test of the significance of some particular explanatory variable? 3
(b) Describe a suitable procedure for the test in (a) above, starting from appropriate assumption regarding the distributions of the disturbance terms. 7
5. (a) What is meant by heteroscedasticity? 3
(b) Explain the consequences of heteroscedasticity by an illustration. 7
6. (a) Describe Weighted Least Squares method in the context of heteroscedasticity. 6
(b) In the context of heteroscedasticity, explain how one proceeds to estimate the parameters when the variances of the disturbance terms are unknown, with two examples. 4
7. (a) When do we say that the disturbances are auto correlated? 2
(b) What is meant by the Autoregressive Process of order 1? 3
(c) Describe Durbin-Watson test. 5

P.T.O.

8. Write short notes on *any two* of the following:

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- (a) Consequences of severe Multicollinearity.
 - (b) Dummy variable Trap.
 - (c) Effect of increase in number of explanatory variables on R^2 .
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