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HEA-003-1173005

Seat No. _____

M. Sc. (Statistics) (Sem. III) (CBCS) Examination

November / December – 2017

MS-305 : Applied Electronics

Faculty Code : 003

Subject Code : 1173005

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :** (1) Attempt all questions.
(2) Each question carries equal marks.

1 Answer the following : (any seven) 14

- (1) Define Multicollinearity.
- (2) Define Econometrics.
- (3) If the assumption of CLRM, the disturbances are uncorrected is violated then problem of _____ arises.
- (4) In classical linear regression model, the disturbance $u_i \sim$ _____
- (5) In testing the overall significance of regression coefficients, if the value of R^2 is _____ then value of F-statistic is ipso facto.
- (6) Define pooled data.
- (7) The relation between F and R^2 is _____
- (8) In Ordinal Least Square estimation $\text{Var-Cov}(\hat{\beta})$ is _____
- (9) If d is very close to _____, the greater the evidence of negative autocorrelation.
- (10) State the relation between tolerance and VIF.

- 2** Answer the following : (any **two**) **14**
- (a) Explain heteroscedasticity in classical linear regression model.
 - (b) Show that ridge estimator is bias estimator of β .
 - (c) Discuss the Runs test in detection of autocorrelation.

- 3** Answer the following : **14**
- (a) Explain Generalized least square method in CLRM.
 - (b) Explain ordinary least square estimation in classical linear regression model.

OR

- 3** Answer the following : **14**
- (a) Discuss the classical linear Regression Model.
 - (b) Discuss prediction using multiple regressions.

- 4** Answer the following : (any **two**) **14**
- (a) Explain the Durbin-Watson d-test in autocorrelation.
 - (b) Discuss sources of multicollinearity.
 - (c) Explain OLS estimation in presence of heteroscedasticity.

- 5** Answer the following : (any **two**) **14**
- (a) Explain Goldfeld-Quandt test in detection of heteroscedasticity.
 - (b) Show that $\hat{\beta}^{gls}$ is unbiased estimator of β . Find its variance.
 - (c) Discuss types of multicollinearity and give its diagrammatical view.
 - (d) Explain the terms Tolerance and Variance inflation factor in multicollinearity.