PD-003-1173005 Seat No. _____

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

June / July - 2018

MS - 305 : Statistics

(Applied Econometrics)

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 Econometrics.

(2) Define pooled data.

(3) If the assumption of CLRM, the disturbances are uncorrelated is violated then problem of _____ arises.

(4) In classical linear regression model, the disturbance $u_i \sim$ _____.

(5) The relation between F and R^2 is _____.

(6) In Ordinal Least Square estimation $Var - Cov\left(\hat{\beta}\right)$ is _____.

(7) State the relation between tolerance and VIF.

(8) If d is very close to _____, the greater the evidence of negative autocorrelation.

(9) Define Multicollinearity.

(10) In testing the overall significance of regression coefficients, if the value of R^2 is _____ then value of F-statistic is ipso facto.

2 Answer the following : (any **two**) **14**

(1) Discuss prediction using multiple regressions.

(2) Show that ridge estimator is bias estimator of β.

(3) Discuss the classical linear Regression Model.

3 Answer the following : **14**

(1) Explain Generalized least square method in CLRM.

(2) Discuss the Runs test in detection of autocorrelation.

OR

3 Answer the following : **14**

(1) Explain heteroscedasticity in classical linear regression model.

(2) Explain ordinary least square estimation in classical linear regression model.

4 Answer the following : (any **two**) **14**

(1) Show that $\hat{\beta}^{gls}$ is unbiased estimator of β. Find its variance.

(2) Explain Goldfeld-Quandt test in detection of heteroscedasticity.

(3) Explain OLS estimation in presence of heteroscedasticity.

5 Answer the following : (any **two**) **14**

(1) Discuss sources of multicollinearity.

(2) Explain the Durbin-Watson d-test in autocorrelation.

(3) Explain the terms Tolerance and Variance inflection factor in multicollinearity.

(4) Discuss types of multicollinearity and give its diagrammatical view.