2/17

0406N366

Candidate's Seat No :________

Master of Science Sem.-4 Examination

508

Statistics

June 2022

Time : 2-00 Hours] **[Max. Marks : 50**

Instruction: All questions in **Section-I** carry equal marks.
Attempt any **Three** questions in **Section-I**.
Question 9 in **Section-II** is **COMPULSORY**.

Section-I

Q. 1 (A) Discuss k-variable linear regression model. Stating basic necessary assumptions obtain OLSE for the parameter involved in the model. [07]

(B) Discuss, how will you test normality in multiple regression model? [07]

Q. 2 What is multicollinearity? Discuss, how will you detect multicollinearity? [14]

Q. 3 What is heteroscedasticity? Discuss how grouping of observations creates heteroscedasticity? [14]

Q.4 (A) Discuss: (a) Park Test (b) Glejser Test [07]

(B) Discuss Breusch-Pagan-Godfrey (BPG) test. [07]

Q.5 (A) Define Autocorrelation. Explain different types of patterns & interpret them. [07]

(B) Why Autocorrelation occurs? State Reasons and Remedies. [07]

Q. 6 (A) State Methods of detecting Autocorrelation. Explain Durbin Watson Test. [07]

(B) State the limitations of LPM for Predicting Dichotomous Dependent Variables. [07]

Q.7 (A) When logistic regression is used? Explain the logit model. [07]

(B) Explain simultaneous equation models with an example of the Keynesian model of income determination. [07]

Q.8 (A) Explain the identification problem. [07]

(B) Explain the two-stage least square method (2SLS). [07]

Section-II

Q.9 Choose the appropriate answer. [08]

1. A regression model in which more than one independent variable is used to predict the dependent variable is called
   A. a simple linear regression model
   B. a multiple regression model
   C. an independent model
   D. none of the above
2. A term used to describe the case when the independent variables in a multiple regression model are correlated is
   A. regression
   B. correlation
   C. multicollinearity
   D. none of the above

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3. A measure of goodness of fit for the estimated regression equation is the
   A. multiple coefficient of determination
   B. mean square due to error
   C. mean square due to regression
   D. none of the above
4. Which of these is not a symptom of multicollinearity in a regression model
   A. High R^2 with few significant t ratios for coefficients
   B. High pair-wise correlations among regressors
   C. High R^2 and all partial correlation among regressors
   D. VIF of a variable is below 10
5. Hetroscedasticity is more likely a problem of
   A. Cross-section data
   B. Time series data
   C. Pooled data
   D. all of the above
6. The value of d statistics Lies between ________.
   A. [-1 , 1],
   B. [-4, 0],
   C. [0, 4],
   D. [-4, 4]
7. In Logistic Regression, $\frac{p_i}{(1-p_i)}$ is known as __________.
   A. Probability
   B. Odds Ratio
   C. Logit
   D. LPM
8. The first difference transformation to eliminate autocorrelation assumes $\rho =$ _____.
   A. -1
   B. 1
   C. > -1
   D. < 1