

(Undergraduate End Semester -VI Examination of the A.Y. 2020 - 21)

(Honours)

Subject Name.: Economics

Course ID: 61611

Course Code: (SH/ECO/601/C-13)

Course Title: Introductory Econometrics

Full Marks: 40

Time: 2 Hours

- 1. Answer any five of the following: 5X2=10**
- a. In the equation $y = \beta_0 + \beta_1 X_1 + u$, what β_0 stand for? Explain with an example. (1+1)
 - b. Distinguish between a parameter and an estimate.
 - c. Define a Dummy Variable.
 - d. What are the desirable properties of an econometric model?
 - e. What is meant by autocorrelation?
 - f. What is Homoskedasticity?
 - g. What do you mean by Multicollinearity?
- 2. Answer any four of the following: 4X5=20**
- a. Mention few uses of Dummy variable in regression analysis. 5
 - b. In a two-variable Classical Linear Regression Model, show that the least square estimators of the parameters are unbiased. 5
 - c. Compute the value of coefficient of determination (R^2) in a Classical Linear Regression Model. 5
 - d. What are the assumptions made regarding the effort term in a Classical Linear Regression Model? What happens to the OLS estimator if Homoskedasticity assumption is violated?
(3+2)
 - e. From the following data of 20 pairs of observations on X and Y estimate ' α ' and ' β '. Also write the equation of estimated regression line.
 $\sum X_i = 228, \quad \sum Y_i = 3121, \quad \sum X_i Y_i = 38927, \quad \sum X_i^2 = 3204,$
 $\sum x_i y_i = 3347.60, \quad \sum x_i^2 = 604.80, \quad \sum y_i^2 = 19837$ (2+2+1)
 - f. Prove that the estimated regression line $\hat{Y} = \hat{\alpha} + \hat{\beta}X$ passes through the point of the means (\bar{X}, \bar{Y}) . 10
- 3. Answer any one of the following 1X10=10**
- a. A sample of 20 observations corresponding to the regression model $Y_i = \alpha + \beta X_i + U_i$ given the following data:
 $\sum Y = 21.9, \quad \sum (Y - \bar{Y})^2 = 86.9, \quad \sum (X - \bar{X})(Y - \bar{Y}) = 106.4, \quad \sum X = 186.2, \quad \sum (X - \bar{X})^2 = 215.4$
Estimate α, β and calculate estimates of variance of your estimates. Estimate the conditional mean value of Y corresponding to a value of X fixed at X=10. (4+4+2)
 - b. Describe the Durbin-Watson 'd' statistic.

