

ST. JOSEPH'S COLLEGE (AUTONOMOUS), BANGALORE-27
B.Sc. ECONOMICS -V SEMESTER
MID-SEMESTER TEST – AUGUST 2019
ECS 5118: BASIC ECONOMETRICS

13.8.2019

Time: 1 Hour

Max. Marks: 30

This question paper has 1 printed page and 2 parts.

Part – A

I Answer any 5 of the following [5x 3 = 15]

1. What is the deterministic part of a regression equation? Explain with an example.
2. In a regression model with 2 explanatory variables, X and Z, how is the interpretation of the coefficient on X different from a model with only X as the explanatory variable?
3. What is the difference between an estimator and an estimate? Explain in the context of simple regression model given underlying population regression line $\beta_0 + \beta_1 X_i$
4. $R^2 = \frac{\text{Explanatory Sum of Squares (ESS)}}{\text{Total Sum of Squares}}$ (TSS). Explain the need for Adjusted-R² over and above R²
5. For a regression model with one explanatory variable, a model gives an R² of 0.9. The scatter of points should lie close to the estimated regression line. Can we indicate with the given R² if the line has positive or negative slope? Explain.
6. Use an example to describe a joint or a compound test? Why doesn't a "t-test" suffice?

Part – B

II. Answer any 1 of the following [1x 15 = 15]

1. What does it mean if an estimator is unbiased? In a simple linear equation with one explanatory variable: $Y = \beta_0 + \beta_1 X + u$ show that the OLS estimator $\beta_1 = \frac{\sum_i^n (Y_i - \bar{Y})(X_i - \bar{X})}{\sum_i^n (X_i - \bar{X})^2}$ is unbiased?
2. Derive the OLS estimator of the model without any intercept term ($Y = \beta_1 X + u$). Show the function you would minimize and the subsequent steps.
