**ST. JOSEPH’S COLLEGE (AUTONOMOUS), BENGALURU -27**

Registration Number:

Date & Session13-12-2022 (9am)

**B.Sc (ECONOMICS)– III SEMESTER**

**SEMESTER EXAMINATION: OCTOBER 2022**

**(Examination conducted in December 2022)**

**ECS 3222 – BASIC ECONOMETRICS**

**Time: 2 Hours Max Marks: 60**

**This paper contains \_\_\_2\_\_\_ printed pages and \_\_3\_\_\_ parts**

 **Scientific calculators allowed**

**PART A**

**Answer any 10 questions 3X10=30**

1. What is a deterministic relationship?
2. Given the null hypothesis , what is value of the t- statistic given that and S.E of is 4.
3. Differentiate between one-tailed and two-tailed tests
4. For the estimated demand function

Find the price elasticity of demand with respect to quantity.

1. Discuss the distribution of a standard normal variable.
2. What is the full form of VIF and what does it help detect?
3. What is heteroskedasticity?
4. What are residual sums of squares? Calculate the residual sums of squares (RSS), given that Total Sums of Squares(TSS) =500 and Explained Sums of Squares (ESS) is 200.
5. When is an estimator BLUE?
6. For the following housing price model in lakhs of INR

Consider the following equation

 Where *Value of house i*= Price of an individual house in lakhs of INR

 *Distance from metroi=* Distance in miles from the metro station

Explain the meaning of the regression coefficients

1. What does it mean when your OLS estimates are unbiased?

**PART B**

 **Answer any 3 questions 3X5=15**

1. What are the consequences of autocorrelated error terms ?
2. Discuss the dummy variable trap.
3. For the following specification

*Marksi*= marks obtained by student i in a test

*Studyi*= hours spent studying by student i

R square is 0.74

 It went up to 0.78 when the variable phone number was added

How is this possible? Phone number is a nonsensical variable, the actual phone number of the student. What would be a better measure to use in this case? Why?

1. Given that the value of the explained sums of squares (ESS) is 960 and the residual sums of squares are 120 the number of coefficients estimated is 3 and the total number of observations is 25, what is value of the F Statistic, The critical F value is 2.93, would you accept the null hypothesis that the overall model is significant?

**PART C**

**Answer any 1 question 15x1=15**

1. Discuss the principle of OLS. For the following equation derive the OLS estimates of the following equation
2.

Given that the equation of the regression line is

=−2.6268*x*+1,129.2

Find the Durbin Watson Statistic for the following data

|  |  |
| --- | --- |
| X | Y |
| 10 | 1,100 |
| 20 | 1200 |
| 35 | 395 |
| 40 | 750 |
| 50 | 1215 |
| 45 | 1000 |