

Register Number:

**DATE: 22-04-2019**

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

B.Sc. STATISTICS - VI SEMESTER

SEMESTER EXAMINATION - APRIL 2019

**ST: 6117 – Applied Statistics**

**Time: 2½ hrs Max: 70 Marks**

This question paper has **TWO** printed pages and **THREE** parts

**PART – A**

**I Answer any FIVE of the following: 5 x 3 = 15**

1. Differentiate between Gross Domestic Product and Net Domestic Product
2. Write a note on randomized control studies
3. What is time series data? State the models used in time series
4. Write a note on Monte Carlo method of simulation
5. State the laws of supply and demand.
6. Define correlation and mention different types of correlation
7. Write down the formula for R2 and adjusted R2 with reference to regression analysis

**PART – B**

**II Answer any FIVE of the following: 5 x 7 = 35**

1. A) What is Lorenz curve? (2)

B) List out any three main functions of Central Statistical Office (3)

C) Mention various components of time series data (2)

1. A) Explain construction of receiver operating characteristic (ROC) curve? (4)

B) Differentiate between Sensitivity and Specificity. (3)

1. A) Explain construction of seasonal indices (order m=4) by method of simple averages (4)

B) List out any three advantages of simulation (3)

1. A) Explain generation random observations from Poisson distribution (4)

B) State Multiple Linear Regression Model and list out any three assumptions (3)

1. Explain Pigous’s method of determining demand curve from time series data (7)
2. A) Write a note residual analysis with reference to regression analysis (4)

B) Write a note Multicollinearity (3)

1. A) Write down the test statistic testing significance of regression model (2)

B) Explain forward method for selecting independent variables in regression analysis (5)

**PART – C**

**III Answer any TWO of the following: 2 x 10 = 20**

1. A) Explain income approach for estimation of national income (4)

 B) Write a note on clinical trials (4)

 C) What is odds ratio? (2)

1. A) Explain t-test for significance of regression coefficient (4)

B) Derive an expression for partial correlation between X1 and X3 by fixing X2 (3)

C) Write down an expression for least squares estimates of regression coefficient with reference to simple linear regression model (3)

1. A) Write a note on autocorrelation with reference to regression analysis (3)

 B) Write a note on Engel’s law and Engels curve (4)

 C) Explain Business cycle with neat diagram with reference to time series (3)