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Register Number:

DATE:

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

B.Sc. STATISTICS - VI SEMESTER

SEMESTER EXAMINATION - APRIL 2020

**ST: 6117 – APPLIED STATISTICS**

**Time: 2½ hrs Max: 70 Marks**

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

**SECTION – A**

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

1. Write a note on national sample survey organization
2. Differentiate between prospective studies and retrospective studies
3. What are the components of time series data? Explain any one in detail.
4. Write a note on Monte Carlo method of simulation
5. State the laws of supply and demand.
6. Define multivariate data and give example.
7. Write a note on coefficient of determination

**SECTION – B**

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

1. A) Write a note on income inequality and explain any one measure in detail (5)

B) Explain business cycle with reference to time series data with a neat diagram (2)

1. A) Differentiate between Sensitivity and Specificity (4)

B) Write a note on receiver operating characteristic (ROC) curve. (3)

1. A) Explain construction of seasonal indices by method of ratio to moving averages (4)

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

1. A) Explain generation random observations from Exponential distribution (3)

B) State simple linear regression model with usual notations and list out any three assumptions (4)

ST-6117-A-20

1. A) Define residual with reference to regression analysis. Explain any two residual plots (4)

B) What is autocorrelation? (3)

1. A) Write down multiple linear regression model in matrix form with usual notations and also write down least square estimate of regression coefficient (3)

B) Explain backward method for selecting independent variables in regression analysis (4)

1. Explain Pigous’s method of determining demand curve from time series data (7)

**SECTION – C**

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

1. A) Explain any one method of estimation of national income (4)

B) Explain four phases in clinical trials (6)

1. A) Write a note on different types of correlation (4)

B) Find partial correlation coefficient between X1 and X3 by fixing X2 (6)

1. A) Write a note on consequence of presence of multicollinearity with reference to regression analysis (4)

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

C) What is odds ratio? (2)

ST-6117-A-20