



AJEENKYA

D Y PATIL UNIVERSITY

End Term Examination (December 2019)

School: School of Engineering

Program: BTECH IT(DS)

Course: Inferential Statistics and Optimization Techniques.

Course Code: CSC338

Semester: V

Max Marks: 30

Duration (mins): 60 Min

- Note- 1. Figures to the right indicates full marks
2. Attempt any three questions.

- Q1) a) Explain Statistical inference and types of hypothesis. (5)
b) Explain statistical errors with the help of example. (5)
- Q2) a) Difference between Null hypothesis and alternate hypothesis. (2)
b) maximize $5x_1 + 6x_2$ subject to
 $x_1 + x_2 \leq 10$
 $x_1 - x_2 \geq 3$
 $5x_1 + 4x_2 \leq 35$ $x_1 \geq 0, x_2 \geq 0$
Solve this linear program graphically. (8)
- Q3) a) Explain properties of good estimator. (2)
b) Define Bayes inference. (2)
c) List and explain steps of hypothesis testing. (6)
- Q4) c) Describe critical region and level of significance. (5)
d) Explain formulation of Linear Programming. (5)
- 5) a) Analyze importance of type I and type II errors. (2)
b) A company audit reveals that 4% of dept budgets contain errors. A program is developed to analyze budgets and in a test identifies errors in 98% of budgets with errors and 5% of those without. If a budget is marked by the program as possibly having an error, what is the probability that the budget does have an error? (8)

***** ALL THE BEST*****