Habib University
Course Code: MATH 402
Course Title: Applied Stochastic Processes
Instructor's name: Dr. M. Shahid Shaikh
Examination: Assignment #2B Given: 10 November 2023
Total Marks: 100 Due: 20 November 2023

Instructions:

1. Please type the answers or write neatly in hand.
2. Upload your PDF (if you write in hand, scan and convert to PDF) file to Canvas.
4. No late submission will be accepted.

I. Solve the following end-of-chapter problems from the 3rd edition of Leon-Garcia.

Problem 9.34
A server handles queries that arrive according to a Poisson process with a rate of 10 queries per minute.What is the probability that no queries go unanswered if the server is unavailable for 20 seconds?

Problem 9.35
Customers deposit \$1 in a vending machine according to a Poisson process with rate λ The machine issues an item with probability p. Find the PMF for the number of items dispensed in time t.

II. Solve the following end-of-chapter problems from the 2nd edition of Bertsekas & Tsitsiklis.
Problem 6.8
During rush hour, from 8 AM to 9 AM, traffic accidents occur according to a Poisson process with a rate of 5 accidents per hour. Between 9 AM and 11 AM, they occur as an independent Poisson process with a rate of 3 accidents per hour. What is the PMF of the total number of accidents between 8 AM and 11 AM?