EE 605-A / CS 505-A: Probability and Stochastic Processes I

Stevens Institute of Technology

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Instructor: Dr. Dilip Krishnaswamy

Homework 4 - 200 points

1) Derive the mean and variance of a discrete random variable $X \sim Bernoulli(p)$
2) Derive the mean and variance of a discrete random variable $X \sim Binomial(n, p)$
3) Derive the mean and variance of a discrete random variable $X \sim Geometric(p)$
4) Derive the mean and variance of a discrete random variable $X \sim Pascal(m,p)$
5) Derive the mean and variance of a discrete random variable $X \sim Poisson(\lambda)$

From Chapter 3, section 3.3 on End of chapter problems, please solve

6) Problem 7a
7) Problem 7c
8) Problem 7d
9) Problem 7e
10) Problem 10

Each problem is worth 20 points.