Quiz 7

Student: SID: Tue 3/12/19

True/False - No explanation needed. (2pts)

- 1. For any two random variables X and Y, E(X + Y) = E(X) + E(Y) holds if and only if X and Y are independent. True/False
- 2. If n is large and p is relatively small, the Poisson distribution with intensity $\lambda = np$ can be used to approximate the binomial distribution X_n . True/False

Problems - Need justification. No justification means zero!

1. You decide to play the lottery over and over until you win some prize. Each time you play the lottery, the probability that you win a prize is 0.01. Let X be the number of times that you play the lottery and do not win any prize. Identify the name of the distribution of X and find P(X = 10). (5pts)

2. The midterm exam 3 of Math 10B course consists of 10 true/false questions, each worth 2 points. For each question, If you give a wrong answer, you will get -1 point. Also, if you don't answer and leave it as a blank, then you will get 0 point. The probability that Ramanujan answers a true/false question correctly is 0.6, the probability that he leave it as a blank is 0.2, and the probability that she answers a question wrong is 0.2. What is his expected score on the midterm? (5pts)