KFUPM	Term 172	Date: 20/3/2018
Mathematics & Statistics	AS 483	Duration: 25 minutes
	Quiz# 5	
Name:	ID #:	Section:

Q1: The number of claims in a period has a geometric distribution with mean 4. The amount of each claim X follows $Pr(X = x) = 0.25$; $x = 1, 2, 3, 4$: The number of claims and the claim amounts are independent. S is the aggregate claim amount in the period.

Calculate $F_S(3)$:

Q2: You own a fancy light bulb factory. Your workforce is a bit clumsy they keep dropping boxes of light bulbs. The boxes have varying numbers of light bulbs in them, and when dropped, the entire box is destroyed. You are given:

(i) Expected number of boxes dropped per month : 50
(ii) Variance of the number of boxes dropped per month: 100
(iii) Expected value per box: 200
(iv)Variance of the value per box: 400

You pay your employees a bonus if the value of light bulbs destroyed in a month is less than 8000.

Assuming independence and using the normal approximation, calculate the Probability that you will pay your employees a bonus next month.

Q3: For an insurance:
(i) The number of losses per year has a Poisson distribution with _ = 10:
(ii) Loss amounts are uniformly distributed on (0; 10):
(iii) Loss amounts and the number of losses are mutually independent.
(iv) There is an ordinary deductible of 4 per loss.

Calculate the variance of aggregate payments in a year.