

EE 381, Homework 4 – Part 2

Name, I.D. #, and Date: _____

Instructions: Attempt each problem. Submit this part of homework 4 with additional parts of homework 4 on 4/11/18 before homework review.

- 1.) The average strawberry has approximately 200 seeds. A very patient student selected a random sample of 10 strawberries and found a sample mean of 185.2 seeds with a standard deviation of 10. At the 0.05 level of significance, can it be concluded that the mean is less than 200? (N.B. Because of the small sample size and the use of a sample standard deviation you will use the t-distribution with degrees of freedom $n - 1$.)

- 2.) The average 1 – ounce chocolate chip cookie contains 110 calories. A random sample of 15 different brands of 1 – ounce chocolate chip cookies resulted in the following calorie amounts.

100 125 150 160 185 125 155 145 160 100 150 140 135 120 110

At the 0.01 level of significance, is there sufficient evidence that the average calorie content is greater than 110 calories? ? (N.B. Because of the small sample size and the use of a sample standard deviation you will use the t-distribution with degrees of freedom $n - 1$. Further, you'll need the formula for the sample standard deviation.)

- 3.) The random variable X is Poisson distributed with parameter λ . Determine the moment generating function for X . Use the moment generating function you obtained to determine both the mean and standard deviation of X .