

COT 3100 Quiz #3: Counting, Probability (11/16/2022)

Last Name: _____ **First Name:** _____

Circle Recitation: 8:30 am 10:30 am 11:30 am 12:30 pm 3:30 pm 4:30 pm 7:30 pm

Directions: Please leave your answers in factorials, combinations and powers as necessary. When possible, reduce answers to the most simple form. (IE, fractions should have a numerator and denominator with a gcd of 1.)

1) (5 pts) How many permutations are there of the letters in the word, WIRELESSCHARGER?

2) (5 pts) How many permutations are there of the letters in the word, WIRELESSCHARGER that don't have any consecutive vowels?

3) (5 pts) A ladder integer is one which has some digits in ascending order, followed by some digits in descending order. For example, 25798710 is a ladder integer. Note that the maximum digit in a ladder integer must be unique, the first digit can not be 0, and the maximum digit can NOT be the first or last digit in the number. How many ladder integers have a maximum digit of 9?

4) (5 pts) A box has 10 green candies, 20 blue candies and 30 red candies. Jasmine selects 2 candies from the box (without replacement). What is the probability both candies are green? Please answer with a fraction reduced to lowest terms.

5) (5 pts) It rains 20% of the time. Given that it rains, Melanie is late to school 30% of the time. Given that it doesn't rain, she is late to school 10% of the time. What percentage of the time is Melanie late to school?
