

Fall 2018 COT 3100 Section 1 Quiz #3 Chapter 6: Counting

Name: _____

Lab Section: 18(R9) 19(R10) 20(R11) 21(T2) 22(T3) 23(T4) 24(T5)

1) (5 pts) How many integers in between 1 and 9998 are divisible by either 99 or 101? (Note: for full credit you must work the answer out exactly and not leave it in an unsimplified form. Also, it's helpful to know that $99 \times 101 = 9999$.)

2) (10 pts) How many strings of four letters can be formed such that no two vowels are next to one another? (For the purposes of this question there are 26 possible letters, of which 5 are vowels.) Leave your answer as a sum of products, where each product is of multiple number(s) less than 100.

3) (5 pts) Jamal is going to watch a single show every night for the week (of 7 days). A valid schedule is a sequence of which shows he is going to watch. He only watches a baking show, a house hunting show and a singing show. (All three are on every night.) How many valid schedules are there where he watches 3 baking shows, 2 house hunting shows and 2 singing shows? (Examples of two valid schedules are BHSBHSB and BBBHHSS. B = Baking, H = House, S = Singing.)

4) (5 pts) Pam argued that the answer to the previous question is 3^7 because in each of 7 days, Jeremy has three choices of which show to watch. Prove that Pam's argument is incorrect by either showing a schedule that should have been counted that wasn't, a schedule that was double counted, or a schedule that was counted that should not have been.