CSCE 222: Discrete Structures for Computing
Section 502 & 503
Fall 2020

YOUR NAME HERE

Homework 5

Due: 25 October (Sunday) before 11:59 p.m. on Gradescope.
You must show your work in order to receive credit.

Aggie Honor Statement: On my honor as an Aggie, I have neither given nor received any unauthorized aid on any portion of the academic work included in this assignment.

Checklist: Did you...
1. abide by the Aggie Honor Code?
2. solve all problems?
3. start a new page for each problem?
4. show your work clearly?
5. type your solution?
6. submit PDF files to Gradescope?

Problem 1.
In the state of Texas during the years 1984 and 1985, all license plate identifiers were formed using either three uppercase English letters (except that O and I were not used) followed by three digits, or by three digits followed by three letters (except O and I). How many distinct license plates were possible using this policy?

Problem 2.
A deck of cards with a Joker card contains 53 distinct cards. Suppose you have an unlimited supply of these decks. One by one, you select a new deck, shuffle it, and deal out a hand of 4 cards, repeating this process until you obtain a card you have previously encountered. What is the maximum number of hands dealt before you stop the process?

Problem 3.
How many ways are there for twelve Aggies and seven t-sips to stand in line so that no two t-sips stand next to each other?

Problem 4.
12 women and 18 men are on the faculty in the Computer Science department at Wattsamata U.
a. How many ways are there to select a committee of 6 members of the department if at least two women must be on the committee?
b. How many ways are there to select a committee of 6 members of the department if at least 3 men and two women must be on the committee?

Problem 5. Bonus:
Using a generalized counting argument as in section 6.5 of your text, determine how many positive integers less that 10,000,000 have a sum of digits equal to 12.