ICS 6D **Due: Friday, May 22, 2015, 2:00PM**

Homework 7, Part I

Instructor: Sandy Irani Section 9.5

Homework 7 will be given in two parts. The second part will be posted on Monday, May 18. Both parts are due on Friday, May 22, at 2PM. Please submit your solutions to both parts stapled together in one submission. It will be graded as one assignment.

Leave your answer for the questions below as an arithmetic expression, including factorials and the $P(n, k)$ or $\binom{n}{k}$ notation. You do not have to compute a final numeric value.

1. How many ways are there to permute the letters in each of the following words:
   (a) NUMBER
   (b) DISCRETE
   (c) SUBSTES
2. Twelve employees of a company are being assigned to offices. There are four offices and each is large enough for three people. How many ways are there to assign employees to offices?
3. 20 different comic books will be distributed to five kids.
   (a) How many ways are there to distribute the comic books if there are no restrictions on how many go to each kid other than the fact that all 20 will be given out?
   (b) How many ways are there to distribute the comic books if they are divided evenly so that 4 go to each kid?
4. A family has four daughters. Their home has three bedrooms for the girls. Two of the bedrooms are only big enough for one girl. The other bedroom is will have two girls. How many ways are there to assign the girls to bedrooms?
5. A camp offers 4 different activities for an elective: archery, hiking, crafts and swimming. The capacity in each activity is limited so that at most 35 kids can do archery, 20 can do hiking, 25 can do crafts and 20 can do swimming. There are 100 kids in the camp. How many ways are there to assign the kids to the activities?
6. How many numbers greater than 3,000,000 can be formed from permutations of 1, 2, 2, 4, 6, 6, 6?
7. How many ways are there to deal hands from a standard playing deck to four players if
   (a) Each player gets exactly 13 cards.
   (b) Each player gets seven cards and the rest of the cards remain in the deck?