Khrystian Clark

CS-225: Discrete Structures in CS

Homework 8, Part 1

Exercise Set 9.2: Problem # 32.c, #33.c (Please ignore the suppositions made on parts a) and b)), #34(Please change the situation to having 8 seats and 8 people sitting around the table), #39.(b, d)   
Exercise Set 9.5: Problem  #20.(a, b, c)

**Set 9.2:**

32. c) AL[GOR]ITHM. This creates 7 character spaces or opportunities.

Therefore 7! [ans]

33. c) [1,2] [3,4] [5,6] are the pairs of couples, where 1,3,and 5 are the older members of each pair, therefore they are staying on the left. Which leaves the pairs as written [immutable]

[ans]

34. There are 8 people at the table seated and rotated order is the same.

[ans] For n amount of people you have (n-1)! Permutations

39.

b) Using Theorem 9.2.3:

d) Choose a combination of 6 letters out of 9 total to choose from. The first two are OR

[OR] \_ \_ \_ \_ now there are four spaces to place letters.

9-2=7 [2 letters are already being used, OR], so 7=n

**Set 9.5:**

20.

a) MILLIMICRON = 11 letters to arrange

M=2, I=3, L=2, C=1, R=1, O=1, N=1

b) MILLIMICRON with M at beginning and N at end.

M=1, I=3, L=2, C=1, R=1, O=1, N=0

11-2 = 9 spaces to be filled by the leftover letters.

c) MILLIMICRON → MILLIMI[CR][ON] creates 9 elements.

M=2, L=2, I=3