## Disco I Worksheet #2 September 7, 1998- Professor Broughton

Name:\_\_\_\_\_

Box #:\_\_\_\_\_

- 1. The symmetric group
  - 1. Write out all possible "shu- es" or permutations for  $S_3$  the symmetric group on three symbols. Write down the list notation and the disjoint cycle notation for each one.

2. Based on number 4 determine the number of 4-shu– es and 5-shu– es, i.e., ...nd the cardinalities of  $S_4$  and  $S_5$ 

3. Look up the de...nition of adjacency in the text. Find the number of adjacencies in  $S_3;\,S_4$  and  $S_5.$ 

4. What is the probability that a deck of 3, 4 or 5 cards will have an adjacency.