Suppose a string of *n* bits is sent across a lossy link. In how many ways can 2 bit errors occur ? When *n=3*, list the possible set of bit error patterns.

How many 3 digit numbers can you make using the digits 1, 2 and 3 without repetition ? How many 2 digit numbers can you make using the digits 1, 2, 3 and 4 without repetition ?

From a group of 8 professors and 9 students and admissions committee consisting of 5 professors and 3 students is to be formed. How many different committees are possible ?

How many ways can 12 people be seated in a row if:

(i)   There are no restrictions on the seating arrangement ?
(ii)   Two of the people A and B refuse to sit together ?
(iii)   Two of the people A and B must sit together ?

Consider an array *x* of integers with *k* elements, where each element has a *distinct* integer value between 1 and *n* inclusive and the array is sorted in increasing order i.e. $x[1]< x[2]<x[3]$ …. When *k=2* how many such sorted arrays are possible ?