## Solution to Question No 3:

9 yellow, 4 magenta and 7 brown marbles, hence in total 20 marbles are given

### Q3.1 The probability that the first 4 marbles are yellow

out of 9 yellow marbles 4 are chosen and arranged, hence p(E1) is given as,

Using permutation and combinations,

### Q3.2 The probability that none of final 4 marbles is brown

Consider that last final 4 marble are either yellow or magenta or combination of both.

Using permutation and combinations,

### Q3.3 The probability that the first 3 marbles are of different colours

Choose distinct marbles with different colour and arrange them , then arrange remaining marbles

Using permutation and combinations,

### Q3.4 The probability that all same colour marbles are together

To keep all the same colour marbles together,

arrange 1st colour marble then arrange 2nd colour marble then arrange 3rd colour marble and then arrange them mutually, this is equivalent to favorable events

This can also be written as :

Since the selection is always 1, hence the permutation needs to be done,