Permutations Ex 16.5 Q6

There are 6 letters in the word 'MUMBAI' out of which 2 are M's and the rest are all distinct.

Considering both M's together and treating as one letter we have 5 letters. These 5 letters can be arranged in 5! ways.

Hence, the total number of arrangement = 5!

$$= 5 \times 4 \times 3 \times 2 \times 1$$
$$= 120$$

Permutations Ex 16.5 Q7

Total number of digits are = 7

There are 4 odd digits 1,1,3,3 and 4 odd places (1,3,5,7)

So, odd digits can be arranged in odd places in $\dfrac{4!}{2!\,2!}$ ways

The remaining 3 even digits 2,2,4 can be arranged in 3 even places in $\dfrac{3!}{2!}$ ways.

Hence, the total number of Numbers $= \dfrac{4!}{2!\,2!} \times \dfrac{3!}{2!} = \dfrac{4 \times 3 \times 2!}{2!\,2!} \times \dfrac{3 \times 2!}{2!} = 18$

Permutations Ex 16.5 Q8

Total number of red flags = 4
Total number of white flags = 2
Total number of green flags = 3

We have to arrange 9 flags, out of which 4 are of red, 2 are white and 3 are green

So, total number of signals $= \dfrac{9!}{4!\,2!\,3!}$

$$= \dfrac{9 \times 8 \times 7 \times 6 \times 5 \times 4!}{4! \times 2 \times 3 \times 2} = 9 \times 4 \times 7 \times 5 = 1260$$

Hence, total number of signals = 1260.

Permutations Ex 16.5 Q9

Total number of digits = 4

Total number of 4 digit numbers $= \dfrac{4!}{2!}$

But, zero cannot be first digit of the four digit numbers.

$\therefore$ Total number of 3 digit numbers $= \dfrac{3!}{2!}$

$\therefore$ Total number of numbers $= \dfrac{4!}{2!} - \dfrac{3!}{2!} = \dfrac{4 \times 3 \times 2!}{2!} - \dfrac{(3 \times 2!)}{2!}$

$$= 12 - 3 = 9$$

Hence, total number of four digit numbers = 9

*********** END *********