Permutations Ex 16.2 Q26

First digit of six-digit numbers can be selected in 6 ways.

Second digit of six-digit numbers can be selected in 5 ways

Third digit of six-digit numbers can be selected in 4 ways.

Fourth digit of six-digit numbers can be selected in 3 ways.

Fifth digit of six-digit numbers can be selected in 2 ways.

Last digit of six-digit numbers can be selected in 1 ways.

Hence, total number of numbers = $6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$

Permutations Ex 16.2 Q27

We cannot have 0 at the first digit of six-digit numbers.

So, the first digit of six-digit numbers can be selected in 5 ways.

Now, 5 digits are left including 0. So, second digit of six-digit numbers can be selected in 5 ways.

Third digit of six-digit numbers can be selected in 4 ways.

Fourth digit of six-digit numbers can be selected in 3 ways.

Fifth digit of six-digit numbers can be selected in 2 ways.

Last digit of six-digit numbers can be selected in 1 ways.

Hence, total number of numbers = $5 \times 5 \times 4 \times 3 \times 2 \times 1 = 600$

Permutations Ex 16.2 Q28

Since the required numbers are greater than 5000.

∴ the thousand's place can be filled with any of two digits 5 or 9.

So, there are 2 ways of filling the thousand's place.

Since repetition of digits is not allowed, so the hundred's ten's and one's places can be filled in 4,3 and 2 ways respectively.

Hence, the required number of numbers = $2 \times 4 \times 3 \times 2 = 48$

Permutations Ex 16.2 Q29

Each serial number of the product consists of six components. First two are letters and remaining four are numbers.
So all the serial numbers will look as shown below.

| L | L | N | N | N | N |

For the first position of serial number we can have one of the 6 letters. As repetition is not allowed first position of serial number we can have one of the 5 letters. For the third position of serial number we can have one of the 10 numbers. Similarly for the remaining position we can have 9, 8 and 7 possible ways.

L	L	N	N	N	N
⇑	⇑	⇑	⇑	⇑	⇑
6	5	10	9	8	7

So the required number of serial number is
$6 \times 5 \times 10 \times 9 \times 8 \times 7$.

Permutations Ex 16.2 Q30
Total number of digits = 10
The digits is not repeats in a sequence of three digits.

∴ required number of sequences = $10 \times 9 \times 8 = 720$

∴ total number of unsuccessful attempts = $720 - 1 = 719$

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