Permutations Ex 16.2 Q31

Total number of digits = 4.

∴ the largest possible number of trials to obtain the
correct code = $4 \times 3 \times 2 \times 1$ [∵ digits are not repeated]
              = 24

Permutations Ex 16.2 Q32

Total number of jobs = 3

∴ the number of ways to assined these job is to
three persons = $3 \times 2 \times 1$
             = 6

Permutations Ex 16.2 Q33

The given digits are 1, 2, 3 and 4. These digits can be repeated while forming the numbers. So, number of required four digit natural numbers can be found as follows.

Consider four digit natural numbers whose digit at thousandths place is 1.

Here, hundredths place can be filled in 4 ways. (Using the digits 1 or 2 or 3 or 4)

Similarly, tens place can be filled in 4 ways. (Using the digits 1 or 2 or 3 or 4)

Ones place can be filled in 4 ways. (Using the digits 1 or 2 or 3 or 4)

Number of four digit natural numbers whose digit at thousandths place is 1 = 4 × 4 × 4 = 64

Similarly, number of four digit natural numbers whose digit at thousandths place is 2 = 4 × 4 × 4 = 64

Now, consider four digit natural numbers whose digit at thousandths place is 4:
Here, if the digit at hundredths place is 1, then tens place can be filled in 4 ways and ones place can also be filled in 4 ways.

If the digit at hundredths place is 2, then tens place can be filled in 4 ways and ones place can also be filled in 4 ways.

If the digit at hundredths place is 3 and the digit at tens place is 1, then ones place can be filled in 4 ways.

If the digit at hundredths place is 3 and the digit at tens place is 2, then ones place can be filled only in 1 way so that the number formed is not exceeding 4321.

Number of four digit natural numbers not exceeding 4321 and digit at thousandths place is 3 = 4 × 4 + 4 × 4 + 4 + 1 = 37
Thus, required number of four digit natural numbers not exceeding 4321 is 64 + 64 + 64 + 37 = 229.

Permutations Ex 16.2 Q34
Total number of digits = 6

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

The digits cannot repeat in the six digits number.

∴ total number of six digit number are = $5 \times 5 \times 4 \times 3 \times 2 \times 1 = 600$

Now, the six digit number can be divided by 10, if its last digit is 0

∴ Total numbers which are divisible by 10 = $5 \times 4 \times 3 \times 2 \times 1 \times 1 = 120$

Permutations Ex 16.2 Q35
Total numbers of faces in each die = 6

∴ The total number of possible outcomes of three six faced die
$= 6 \times 6 \times 6$
$= 216$

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