Permutations Ex 16.2 Q1

Here the teacher is to perform two jobs.

(i) selecting a boy among 27 boys, and

(ii) selecting a girl among 14 girls.

The first of these can be performed in 27 ways and the second in 14 ways.

Therefore by the fundamental principle of multiplication, the required number of ways is

$27 \times 14 = 378$

Hence,the teacher can make the selection of a boy a girl in 378 ways.

Permutations Ex 16.2 Q2

Here the person is to perform three jobs.

(i) selecting a ball pen from 12 ball pens

(ii) selecting a fountain pen from 10 fountain pens, and

(iii) selecting a pencil from 5 pencils.

The first of these can be performed in 12 ways, the second in 10 ways and the third in 5 ways.

Therefore by the fundamental principle of multiplication, the required number of ways is

$12 \times 10 \times 5 = 600$

Hence, the person can make the selection of a fountain pen, ball pen and pencil in 600 ways.

Permutations Ex 16.2 Q3

From Goa to Bombay there are two roots; air and sea.

From Bombay to Delhi there are three routs; air rail and road.

Therefore by the fundamental principle of multiplication, the required number of ways are $2 \times 3 = 6$

Hence, total number of different kinds routes are 6.

Permutations Ex 16.2 Q4

The mint has to perform two jobs,

(i) selecting the number of days in the february month (there can be 28 days or 29 days), and

(ii) selecting the first day of february.

The first job can be compeleted in 2 ways the second can be performed in 7 ways by selecting any one of the seven days of a week.

Thus, the required number of plates $= 2 \times 7 = 14$

Hence, total number of calendars $= 7 \times 2 = 14$

Permutations Ex 16.2 Q4

Total number of letters = 7

Total number of letter boxes = 4.

$\therefore$ Total number of ways in which 7 letters be posted in 4 letter boxes

$= 4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4 = 4^7$

Permutations Ex 16.2 Q5

Total number of parcels = 4

Total number of post-offices = 5

Since a parcel can be sent to any one of the five post offices.

So, the required number of ways $= 5 \times 5 \times 5 \times 5$

$= 5^4$

$= 625$

Hence, total number of ways is 625.

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