Permutations Ex 16.2 Q11

Since there are 7 flags of different colours, therefore, first flag can be selected in 7 ways.

Now, the second flag can be selected from any one of the remaining flags in 6 ways.

Hence, by the fundamental principle of multiplication, the number of flag is $7 \times 6 = 42$

Permutations Ex 16.2 Q12

A boy can be selected from the first team in 6 ways, and from the second in 5 ways.

so, number of single matches between the boys of two teams $= 6 \times 5 = 30$.

similarly, the number of single matches between the girls of two teams $= 4 \times 3 = 12$.
so, total number of matches $= 30 + 12 = 42$.

Permutations Ex 16.2 Q13

Clearly, the total number of ways to select first three prizes is equal to the 3 students from 12 students.

$\therefore$ number of ways to select the three prizes

$= 12 \times 11 \times 10$

$= 1320$

Permutations Ex 16.2 Q14

There are 3 ways to choose the first form and corresponding to each such way there are 5 ways of selecting the common difference.

So, required number of A.P.'s

$= 3 \times 5$

$= 15$

Permutations Ex 16.2 Q15

Clearly the number of ways to appoint one principal, one vice-principal and the teacher- incharge is equal to the number of ways to select the three teachers from the 36 teachers.

$\therefore$ Number of ways to appointed 3 teachers $= 36 \times 35 \times 34 = 42840$

Hence, the number of ways to appoint one principal, one vice-principal and the teacher-incharge is equal to 42840.

Permutations Ex 16.2 Q16

We have to form all possible 3-digit numbers with distinct digits.

we cannot have 0 at the hundred's place. so, the hundred's place can be filled with any of the 9 digits 1,2,3,4....,9.

so, there are 9 ways of filling the hundred's place.

Now, 9 digits are left including 0, so, ten's place can be filled with any of the remaining 9 digits in 9 ways. now, the unit's place can be filled which in any of the remaining 8 digits. so, there are 8 ways of filling the unit's place.

Hence, the total number of required numbers $= 9 \times 9 \times 8 = 648$

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