## Combinations Ex 17.2 Q1

No of players = 15
No of players to be selected = 11

Number of combinations

$= {}^{15}C_{11}$

$= \frac{15!}{11!\ 4!} = \frac{15\times14\times13\times12}{4\times3\times2}$

$= 1365$ ways

## Combinations Ex 17.2 Q2

Total boy = 25
Total girls = 10

Party of 8 to be made from 25 boy and 10 girls, selecting 5 boy and 3 girls

$\Rightarrow$ ${}^{25}C_5$ and ${}^{10}C_3$

$= {}^{25}C_5 \times {}^{10}C_3$

Now, ${}^{25}C_5 = \frac{n!}{r!(n-r)!}$

$\Rightarrow \frac{25!}{5!\ 20!}\times\frac{10}{3!\ 7!} = \frac{25\times24\times23\times22\times21\times10\times9\times8}{5\times4\times3\times2\times3\times2}$

$= 6375600$

## Combinations Ex 17.2 Q3

Out of 9 courses 2 are compulsory. So students can choose from 7 courses only. Also out of 5 courses that students need to choose, 2are compulsory.
So they have to choose 3 courses out of 7 courses. This can be done ${}^{7}C_3 = 35$ ways.

## Combinations Ex 17.2 Q4

No of players = 16
No of players to be selected = 11

$\therefore$ No of combination = ${}^{16}C_{11}$

$= \frac{16!}{11!\ 5!} = \frac{16\times15\times14\times13\times12}{5\times4\times3\times2} = 4368$

(i) Include 2 particular players
$\rightarrow$ Now we have to select 9 more out of remaining 14

$\therefore$ Required number of ways

$= {}^{14}C_9$

$= \frac{14!}{9!\ 5!} = \frac{14\times13\times12\times11\times10}{5\times4\times3\times2}$

$= 2002$

(ii) Exclude 2 particular players $\rightarrow$ now we have to select 11 players out of 14 players

$= {}^{14}C_{11} = \frac{14!}{11!\ 3!} = \frac{14\times13\times12}{3\times2}$

$= 364$

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