

Combinations Ex 17.2 Q1

No of players = 15

No of players to be selected = 11

Number of combinations

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

$$= \frac{15!}{11! \ 4!} = \frac{15 \times 14 \times 13 \times 12}{4 \times 3 \times 2}$$

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

$$\Rightarrow \frac{25!}{5! \cdot 20!} \times \frac{10}{3! \cdot 7!} = \frac{25 \times 24 \times 23 \times 22 \times 21 \times 10 \times 9 \times 8}{5 \times 4 \times 3 \times 2 \times 3 \times 2}$$

= 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 ${}^{7}\mathrm{C_{3}} = 35$ ways.

Combinations Ex 17.2 Q4

No of players = 16

No of players to be selected = 11

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

$$= \frac{16!}{11! \ 5!} = \frac{16 \times 15 \times 14 \times 13 \times 12}{5 \times 4 \times 3 \times 2} = 4368$$

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

 \therefore Required number of ways

$$= {}^{14}C_{9}$$

$$= \frac{14!}{9! \ 5!} = \frac{14 \times 13 \times 12 \times 11 \times 10}{5 \times 4 \times 3 \times 2}$$

= 2002

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

$$={}^{14}C_{11}=\frac{14!}{11!\,3!}=\frac{14\!\times\!13\!\times\!12}{3\!\times\!2}$$

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