

## Exemplar Problems

### Permutation and Combination

**9. Find the number of permutations of  $n$  distinct things taken  $r$  together, in which 3 particular things must occur together.**

**Solution:**

Permutations of  $n$  distinct things taken  $r$  together  $= {}^n C_r$

And when 3 particular things must occur together, we get,

$$= {}^{n-3} C_{r-3}$$

$$= {}^{n-3} C_{r-3} \times (r-2)! \times 3!$$