

## Permutation and Combination - Class XI

### Past Year JEE Questions

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#### Questions

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##### Question: 01

The number of ways in which 5 boys and 3 girls can be seated on a round table if a particular boy  $B_1$  and a particular girl  $G_1$  never sit adjacent to each other, is :

- A.  $5 \times 6!$
- B.  $6 \times 6!$
- C.  $7!$
- D.  $5 \times 7!$

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#### Solutions

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##### Solution: 01

##### Explanation

Number of ways = Total - when  $B_1$  and  $G_1$  sit together

Total ways to seat 8 people on round table =  $(8 - 1)! = 7!$

When  $B_1$  and  $G_1$  sit together then assume  $B_1$  and  $G_1$  are one people, so total 7 people are there and among  $B_1$  and  $G_1$  they can sit  $2!$  ways.

So total no of ways when  $B_1$  and  $G_1$  sit together  
=  $(7 - 1)! \times 2! = 6! \times 2!$

Number of ways =  $7! - 6! \times 2! = 6! \times (7 - 2) = 5 \times 6!$