

PERMUTATIONS AND COMBINATIONS - Class XI

Past Year JEE Questions

Questions

Question: 01

If ${}^n C_r$ denotes the number of combination of n things taken r at a time, then the expression ${}^n C_{r+1} + {}^n C_{r-1} + 2 \times {}^n C_r$ equals

- A. ${}^{n+1} C_{r+1}$
- B. ${}^{n+1} C_r$
- C. ${}^{n+1} C_{r+1}$
- D. ${}^{n+1} C_r$

Solutions

Solution: 01

Explanation

Arrange it this way,

$${}^n C_{r+1} + 2 \cdot {}^n C_r + {}^n C_{r-1}$$

$$= {}^n C_{r+1} + {}^n C_r + {}^n C_r + {}^n C_{r-1}$$

[Now use the rule,

$${}^n C_r + {}^n C_{r-1} = {}^{n+1} C_r]$$

$$= {}^{n+1} C_{r+1} + {}^{n+1} C_r$$

$$= {}^{n+2} C_{r+1}$$