Binomial Theorem - Class XI

Related Questions with Solutions

Questions

Quetion: 01

If $(1 + x)^n = C_0 + C_1x + C_2x^2 + ... + C_nx^n$, then the value of $C_0 + 2C_1 + 3C_2 + ... + (n + 1) C_n$ is-

A. $2^n(n + 1)$

B. $2^{n-1}(n + 1)$

C. $2^{n-1}(n + 2)$

D. $2^n(n + 2)$

Solutions

Solution: 01

$$\sum_{r=0}^{n}(r+1)^nC_r$$

$$= \sum_{r=1}^{n} r^nC_r + \sum_{r=0}^{n} {}^nC_r$$

$$= n\sum_{r=1}^{n-1} C_{r-1} + 2^n$$

$= n.2^{n-1} + 2^n$

Correct Options

Answer:01

Correct Options: C