$\binom{n}{0} + 2\binom{n}{1} + 2^2\binom{n}{2} + \ldots\ldots + 2^n\binom{n}{n}$ is equal to

A) 2^n

B) 0

C) 3^n

D) None of these

Sol- (C)

$$(1+x)^n = {}^nC_0 + x.{}^nC_1 + x^2.{}^nC_2 + \ldots\ldots + x^n.{}^nC_n$$

Put x = 2 $\Rightarrow 3^n = {}^nC_0 + 2.{}^nC_1 + 2^2.{}^nC_2 + 2^3.{}^nC_3 + \ldots\ldots + 2^n.{}^nC_n$