

Question -

In the binomial expansion of $(a - b)^n$, $n \geq 5$ the sum of the 5th and 6th terms is zero. Then, a/b equals

(2001, 1M)

(a) $\frac{n-5}{6}$ (b) $\frac{n-4}{5}$ (c) $\frac{5}{n-4}$ (d) $\frac{6}{n-5}$

Ans - B

Solution -

$$\text{Given, } T_5 + T_6 = 0$$

$$\Rightarrow {}^n C_4 a^{n-4} b^4 - {}^n C_5 a^{n-5} b^5 = 0$$

$$\Rightarrow {}^n C_4 a^{n-4} b^4 = {}^n C_5 a^{n-5} b^5 \Rightarrow \frac{a}{b} = \frac{{}^n C_5}{{}^n C_4} = \frac{n-4}{5}$$