Binomial Theorem - Class XI

Related Questions with Solutions

Questions

Quetion: 01

In the expansion of $\left(x^3 - \frac{1}{x^2}\right)^{15}$ the constant term is

A. $^{15}C_9$

B. o

C. – $^{15}C_9$

D. 1

Solutions

Solution: 01

Let [r + 1]th term be the constant term in the expansion of $\left(x^3 - \frac{1}{x^2}\right)^{15}$

$\therefore \quad T_{r+1} = {}^{15}C_r \left(x^3\right)^{15-r} \left(-\frac{1}{x^2}\right)^r$ is independent of x

or $T_{r+1} = {}^{15}C_r X^{45-5r}[-1]^r$ is independent of x

$\Rightarrow$ $45 - 5r = 0$

$\Rightarrow \quad r = 9$

Thus, the nth term is independent of x and is given by

$T_{10} = {}^{15}C_9[-1]^9 = - {}^{15}C_9$

Correct Options

Answer:01

Correct Options: C