

[JEE (Main)-2014]

283a. For the reaction $\text{SO}_{2(g)} + \frac{1}{2}\text{O}_{2(g)} \rightleftharpoons \text{SO}_{3(g)}$, if $K_p = K_c(RT)^x$ where the symbols have usual meaning then the value of x is (assuming ideality)

(1) -1

(2) $-\frac{1}{2}$

(3) $\frac{1}{2}$

(4) 1

Q. We know $K_p = K_c (RT)^{\Delta n_g}$

Here $\Delta n_g = 1 - 1 - \frac{1}{2} = -\frac{1}{2}$

So, $\alpha = -\frac{1}{2}$.