

What will be the average value of energy for a monoatomic gas in thermal equilibrium at temperature T ?

A $\frac{3}{2}k_B T$

B $k_B T$

C $\frac{2}{3}k_B T$

D $\frac{1}{2}k_B T$

We know that average value of a gas in thermal equilibrium at temperature ' T ' is:-

$$\Rightarrow \left(\frac{f}{2}\right) k_B T \quad ; \text{ where 'f' = degree of freedom}$$

For monoatomic gas, $f = 3$

$$\therefore \boxed{KE = \frac{3}{2} k_B T}$$