$$K_{av} = \frac{3}{2} k_B T \quad \text{— (7)}$$

$$K_{av} \propto T \quad \Rightarrow T \uparrow, K_{av} \uparrow$$

* Value of Temp. of gas depends only on K_{av}.
* Eq (7) is relating the temp. which is a macroscopic parameter of gas with av. KE of gas molecule which is a microscopic property.

EXAMPLE: Calculate the translational kinetic energy of 3 mole of argon at 127°C.

Given: $k_B = 1.38 \times 10^{-23}$ J/K, $N_A = 6.022 \times 10^{23}$/mol.

Sol: $T = 127°C = (127 + 273)K = 400K$

$$K_{av} = \frac{3}{2} k_B T = \frac{3}{2} \times 1.38 \times 10^{23} \times 400^{200}$$

$$= 600 \times 1.38 \times 10^{23} \text{ J}$$