$$= \sqrt{\frac{900 \times 1.38 \times 3.011 \times 10^3}{16}}$$

$$= \frac{30}{4}\sqrt{1.38 \times 3.011 \times 10^3}$$

$$= \frac{30}{4}\sqrt{4.155 \times 10^3} = \frac{30}{4}\sqrt{41.55 \times 10^2}$$

$$= \frac{30}{4} \times 6.45 \times 10 = 388.75 \text{ m/s}.$$

Average Translational KE of a gas molecule :

$$P = \frac{1}{3}\frac{mN}{V}.\bar{v}^2$$

$$3PV = (m\bar{v}^2)N$$

$$3\mu RT = (m\bar{v}^2)\mu N_A$$

$$3\left(\frac{R}{N_A}\right)T = m\bar{v}^2$$

$$3k_BT = m\bar{v}^2$$

$$\frac{3}{2}k_BT = \frac{1}{2}m\bar{v}^2$$

μ = No. of moles of gas

$\frac{R}{N_A} = k_B$

$\frac{1}{2}m\bar{v}^2 = K_{av}$ = Av. KE of a gas molecule