

given $\mu = 3 \text{ mole}$

$$\text{Total KE} = N k_{av}$$

$$(\because N = \mu N_A)$$

$$\checkmark \text{ Total Translational KE} = N k_{av}$$

$$= \mu N_A k_{av}$$

$$= 3 \times 6.022 \times 10^{23} \times 600 \times 1.38 \times 10^{-23}$$

$$= 14958.6 \text{ J}$$

$$= 14.96 \times 10^3 \text{ J}$$

Internal energy
of ideal gas



$$U = \mu N_A k_{av}$$

$$U = \mu N_A \left(\frac{3}{2} k_B T \right)$$

$$U = \frac{3}{2} \mu (N_A k_B) T$$

$$\underline{\underline{U = \frac{3}{2} \mu R T}}$$