

Class Xi, Thermodynamics

Internal Energy: (U) $U = U_k + U_p$ — ①

U_k = Total KE (Trans. + rot + vibrational) of the constituent particles.

U_p = Total P.E. of the constituent particle

For an ideal gas in a system

U = Total KE of the molecules of gas present in the system — ②

$$U = \frac{f}{2} \mu RT$$
 — ③

f = degree of freedom of gas molecule, which depends upon atomicity of gas

①