IMPORTANT JEE-NEET FORMULAS

Gaseous State Formula

Topics	Formulas
Temperature Scale	$\frac{C-0}{100-0}=\frac{K-273}{373-273}=\frac{F-32}{212-32}$ $=\frac{R-R(0)}{R(100)-R(0)}$
Boyle's Law and Measurement of pressure	$At\ constant\ temperature,$ $V \propto \frac{1}{P}$ $P_1V_1 = P_2V_2$
Charles Law	At constant pressure, $V \propto T\ Or\ \frac{V_1}{T_1}=\frac{V_2}{T_2}$
Gay-Lussac's Law	At constant Volume, $P \propto T\ \ \frac{P_1}{T_1}=\frac{P_2}{T_2}$ Temp on absolute Scale
Ideal gas Equation	$PV = nRT$ $PV=\frac{w}{m}RT\ or\ P=\frac{d}{m}RT\ or\ Pm = dRT$
Daltons Law of Partial Pressure:	$P_1=\frac{n_1RT}{V}, P_2=\frac{n_2RT}{V}$ Total Pressure=$P_1+P_2+\cdots$ $Partial\ pressure = Mole\ fraction \times Total\ Pressure$
Average Molecular mass of gaseous mixture	$M_{mix}=\frac{Total\ mass\ of\ mixture}{Total\ no.of\ moles\ in\ mixture}$ $=\frac{n_1M_1+n_2M_2+n_3M_3}{n_1+n_2+n_3}$
Graham's Law	Rate of Diffusion $r \propto \frac{1}{\sqrt{d}}$; d= density of gas $\frac{r_1}{r_2}=\frac{\sqrt{d_2}}{\sqrt{d_1}}=\frac{\sqrt{M_2}}{\sqrt{M_1}}=\sqrt{\frac{V.D_2}{V.D_1}}$
Van der Waal's Equation	$\left(P+\frac{an^2}{v^2}\right)(v-nb)=nRT$

Root mean Square speed	$$U_{rms} = \sqrt{\frac{3RT}{M}}$$ Molar mass be in kg/mole
Average speed	$$U_{avg} = U_1 + U_2 + U_3 + \cdots U_N$$ $$U_{avg} = \sqrt{\frac{8RT}{\pi M}} = \sqrt{\frac{8KT}{\pi m}}$$ K is Boltzmann Constant
Most Probable Speed	$$U_{MPS} = \sqrt{\frac{2RT}{M}} = \sqrt{\frac{2KT}{m}}$$