IMPORTANT JEE-NEET FORMULAS

Thermodynamics Formula's

Topics	Formulas
Isothermal process	T = constant **dT = 0** **ΔT = 0**
Isochoric process	V = constant **dV = 0** **ΔV = 0**
Isobaric process	P = constant **dP = 0** **ΔP = 0**
Adiabatic process	**q = 0** or the heat exchange with surrounding is zero
Sign convention	When work is done on the system : **Positive** When work is done by the system :**Negative**
1st law of Thermodynamics	$\Delta U = (U_2 - U_1) = q + w$
2nd law of Thermodynamics	$\Delta S_{universe} = \Delta S_{system} + \Delta S_{surrounding} > 0$ This equation is for spontaneous process.
3rd law of Thermodynamics	$S - S_0 = k_B \ln\Omega$
Application of 1st Law of Thermodynamics	$\Delta U = \Delta Q + \Delta W$ $\Rightarrow \Delta W = -P\Delta V \quad (\because \Delta U = \Delta Q - P\Delta V)$