**THERMODYNAMICS**

(1)W =pV (2) U=q+w

(3) (q at constant volume =U) and (q at constant pressure= H)

(4) H= U+pV (5) taken for only gas molecule

(6) Entropy ( =q/t) [s = 2.303 nR (v2/v1) or (T2/T1) for isothermal reversible process and multiply specific heat when others are calculated ]

(7)G = H-TS (gibbs helmholtz equation)

(8) If G, =o mean equilibrium, if S is (+) and G is (-) mean spontaneous process, and vice versa. If H is (-) means exothermic

(9) G=-RT ln K ( -2.303 RT log K) K is equilibrium constant

(10) W= 2.303nRT log (v1/v2) (for isothermal) and PV=constant also

(11) W= (Cv)( t)= (nR/-1) (t) for adiabatic reversible expansion

(12) adiabatic process follow poison law( PV 𝛄 = constant)

(13) (P1/P2) 𝛄-1 =(V2/V1) 𝛄-1

(14) 𝛄= 1,66, 1.40, 1.33 for mono, di ,tri atomic gas

(15) all enthalpy is calculated via (product – reactant) except bond energy [NOTE : take enthalpy of oxygen as 0]

(16) ionization energy= 57.5 – given heat