

(a) Isobaric Process:  $p = \text{const}$  ;  $T_f \neq T_i$

$$U_f \neq U_i$$

$$\Delta U = U_f - U_i \quad ; \quad \Delta W = p \cdot \Delta V = p \cdot (V_f - V_i)$$

by Eq (1)  $\Delta Q = (U_f - U_i) + p(V_f - V_i)$  — (2)

(b) Isochoric Process:  $V = \text{const}$  ,  $\Delta V = 0$

$$\Delta W = 0$$

by 1st Law  $\Rightarrow \Delta Q = \Delta U$  — (3)

i.e In case of isochoric process, whole of the heat taken by the system is used to change its internal energy.

(c) Isothermal Process:  $T = \text{constant}$

$$T_f = T_i \Rightarrow U_f = U_i \Rightarrow \Delta U = U_f - U_i = 0$$