

# Thermodynamics

Date: - 27/1/22  
Page: - 1

The branch of physics which deals with the study of transformation of heat energy into other forms of energy and vice-versa.

\* Adiabatic Wall :- It is an insulating wall (can be movable) between two thermodynamic systems that does not allow flow of energy or (heat) from one system to another system.

\* Diathermic wall :-

It is a conducting wall between two thermodynamic systems that allows energy flow or (heat) from one system to another system.

\* Thermodynamical system :-

An assembly of an extremely large number of particles whose state can be expressed in terms of pressure, volume & temperature, is called thermodynamic system.

# Thermodynamical system

page: - 2.

- ↓ ↓ ↓
- (1) open system    (2) closed system    (3) isolated system

(1) open system :- It exchanges both energy and matter with surroundings.

(2) closed system :- It exchanges only energy (not matter) with surroundings.

(3) isolated system :- It exchanges neither energy nor matter with surroundings.

\* Work Done :-

$$W = P \times \Delta V$$

where  $P$  = pressure &  $\Delta V$  = change in volume.

\* work done by the thermodynamic system is taken as positive as volume increases.

Negative  $\rightarrow$  as volume decreases.

Internal Energy (U) :- The total energy possessed by any system due to molecular motion & molecular configuration, is called its internal energy.

\* Internal energy of the thermodynamical system depends on temperature. It is the characteristic property of the state of the system.