Second Law of Thermodynamics :-

* Kelvin-Planck Statement :-

No process is possible whose result is the absorption of heat from a reservoir and the complete conversion of the heat to work.

* Clausius statement :-

No process is possible whose result is the transfer of heat from a colder object to a hotter object.

The carnot engine :-
has 4 processes :- ① Isothermal expansion.

② Adiabatic expansion

③ Isothermal compression

④ Adiabatic compression .

Carnot Theorem :-

Efficiency of all reversible engines working between two given reservoirs is the reservoirs is the same :- regardless of the working substance employed.

$$\eta = 1 - \frac{T_2}{T_1}$$

Entropy :- is related to "random ness" .

$$\Delta S = \frac{\Delta Q}{T}$$, $$S_f - S_i = \int_{T_i}^{t_2} \frac{\Delta Q}{T}$$

↳ Irreversible Process.

In an adiabatic process, the ΔS entropy change is zero.