

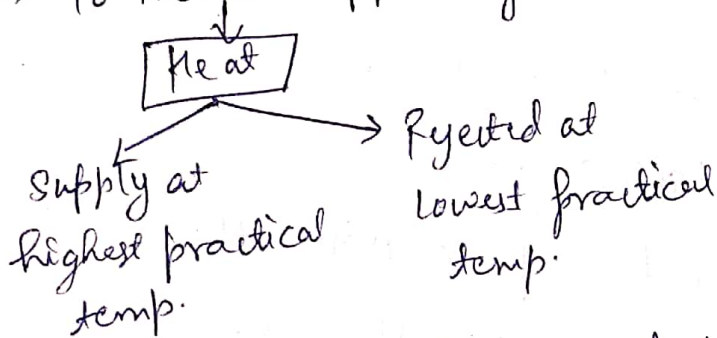
Section-3- Q.2. # M.H.D - Magneto-Hydro Dynamics principle.

outline

- Introduction
- principle
- M.H.D. - power cal.
- merits / Demerits
- Applications

Introduction:

- Convert heat energy directly into electrical energy without conventional electric generator.
- Heat engine - Heat taken up $\begin{cases} \rightarrow \text{Useful work} \\ \rightarrow \text{rejected} \end{cases}$
- To increase efficiency



- Faraday's law: when a conductor moves through a m.f. it creates an electric field \perp m.f. & the direction of movement of conductor.

principle: → The flow (motion) of the conducting plasma through a m.f. causes a voltage to be generated (& an associated current to flow) across the plasma, \perp to both the plasma flow & the m.f. acc. to Fleming's Right hand rule.

Section 3-a.3.

Q2 → Principal of OTEC.

Ocean Thermal Energy Conversion uses the ocean thermal gradient b/w cooler deep and warmer shallow or surface sea waters to run a heat engine and produce useful work, usually in the form of electricity. OTEC can operate with a very high capacity factor and so can operate in base load mode.