TOPIC : LUMINESCENT SEMICONDUCTORS

- HJ Round , First to report phenomenon of electroluminescence from a diode, leading to the discovery of the light-emitting diode.
- A light-emitting diode (LED) is a semiconductor light source.
- When a LED is switched on ,the electrons are able to recombine with electron holes within the device, releasing energy in the form of photons,Leading to effect called electroluminescence
- The frequency, and color of emitted photons is characteristic of the semiconductor material and the color of the light is determined by the energy gap of the semiconductor .
- Different colors are achieved to make changes in the semiconductor composition of the chip.
- The role of the **gallium-indium-nitride** semiconductor material system extends to the development of white-light diodes.
- Other possible approaches to producing white light, utilizing a single device, are based on **phosphor** or **dye** wavelength converters or semiconductor wavelength converters.
- Soon light emitting diodes are expected to be the most efficient emitters available.

APPLICATIONS

- LED lighting in the aircraft cabin and on various traffic signals.
- Improvement in the efficiency of conversion of solar energy into electricity.
- Used as Commercial Available Markers for medical breakthroughs.
- LED panel light source used in an experiment on plant growth. These findings of such experiments may be used to **grow food in space** on long missions.