SPHEREx Telescope

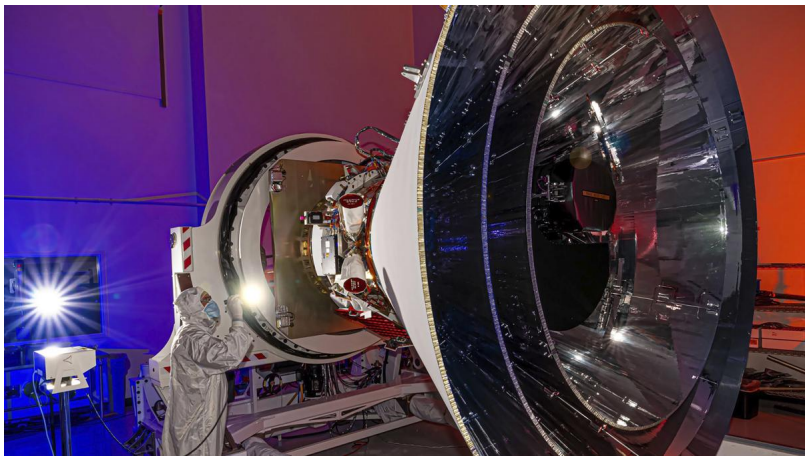
Why in news?

A new telescope SPHEREx is set to launch on February 27, 2025.

- **SPHEREx** – Spectro-Photometer for the History of the Universe, Epoch of Reionization and Ices Explorer.
- It is an *infrared telescope* designed to take spectroscopic images.
- **Launch agency** – NASA.
- **Objective** – To *map the whole sky*, covering 1 billion galaxies, 100 million stars, and 10,000 asteroids.

> ***Spectroscopy*** *is the separation of light into its component colors (or wavelengths) to reveal information about the chemical content, temperature and motion of planets, comets, stars, interstellar gas and galaxies.*

- **Working** – SPHEREx *divides cosmic light into 96 distinct spectral bands* and will generate 8 million new spectroscopic images of life-bearing molecules.



- **Usage** – Spectroscopic images will be able to tell us about the
  - **Formation of the universe** – Growth of all galaxies across cosmic history
  - **Cosmic inflation** – Rapid expansion of the universe after the Big Bang
  - **Biogenic molecules** – Location of water & life-forming molecules in our own galaxy.

> ***Biogenic molecules*** *are organic compounds essential for life, such as water (H_2O), carbon dioxide (CO_2), and methanol (CH_3OH).*

- **Significance** – It complements high-resolution telescopes like James Webb and Hubble, which focus on small sky patches.

Reference

The Hindu | SPHEREx Telescope

SHANKAR IAS PARLIAMENT
Information is Empowering