Saturn

Prelims – *General Science*

Why in news?

Astronomers have discovered 128 new moons around Saturn, increasing its total count to 274 moons.

- Saturn is the ***second-largest planet*** in the solar system.
- **Position**- 6th planet from the Sun.
- **Type**- Gas giant.
- It is surrounded by a beautiful ring system.
- **Size** - With an equatorial diameter of about 74,897 miles (120,500 kilometers), Saturn is 9 times wider than Earth.
- **Distance** - Saturn is 9.5 Astronomical Units (AU) away from the Sun.

  One astronomical unit (abbreviated as AU), is the distance from the Sun to Earth.

- **Mass**- 95 times the mass of Earth.
- **Composition**- Mostly hydrogen and helium, similar to Jupiter.
- **Density**- The ***least dense planet*** in the Solar System (it could float in water).
- **Orbit & Rotation -** One day on Saturn takes only ***10.7 hours***.
- **Orbital Period**- Takes **29.5 Earth years** to complete one orbit around the Sun.
- **Moon system of Saturn**
  - **Total Moons**- 274 (after the recent discovery of 128 new moons).
  - **Largest Moon**- Titan (2,159 miles across).
  - **Other Major Moons**- Enceladus is known for its subsurface ocean and icy plumes.
  - Many newly discovered moons are small (as tiny as 2 miles across) and follow irregular, retrograde orbits.
- **Discovery - Observation in 2023** - Conducted using the *Canada-France-Hawaii Telescope* at **Mauna Kea, Hawaii**.
- **Tracking Technique**- Scientists observed patches of space near Saturn and tracked the motion of small moon-like objects over time.
- **Characteristics of the new moons**
  - All are irregular moons – meaning they have highly inclined orbits and travel backward (retrograde motion).
  - Some moons are as small as 2 miles across.
  - The discovery suggests these moons are remnants of cosmic collisions that happened 100 million years ago.

- The ***International Astronomical Union (IAU)*** has officially ratified the newly identified moons.

International Astronomical Union
• **Established in** – 1919. • **Mission**- Promote and safeguard astronomy through research, education, and international cooperation. • **Headquarters** - Paris, France. • **Governance** - **General Assembly (Every 3 years)** defines long-term policy - **Executive Committee** implements decisions - **IAU Officers & Secretariat** handle day-to-day operations • ***India is an active member in IAU.***

Reference

Indian Express| Newly discovered moons of Saturn

