1 Digital Personal Data Protection Rules, 2025

The rules will help in the effective implementation of **Data Protection Act, 2023**. GDPR (**General Data Protection Regulation**) is the EU counterpart of this act.

Features

- Focuses on the management of digital personal data in and from India.
- The act will be implemented in a **staggered manner** to enable companies have sufficient time to implement the provisions.
- The act is valid for both companies **within and outside** the country that are dealing with the data of Indian citizens.
- Clear **informed consent** must be obtained by companies stating what will be done with the data collected from the person. In this purpose for which the data is used must be explicitly mentioned . This will enable individuals understand how their data is used clearly.
- If any **data breach** is happening ,it need to be immediately conveyed to the data privacy authorities within 72 hours.
- **Large-scale Data Fiduciaries** like e-commerce sites have to delete personal data after three years, unless specific permission is taken.
- The new law creates consent managers who are intermediaries between users and companies.
- A new category called **Significant Data Fiduciaries** is appointed by the central government based on the volume of data processed, sensitivity of the personal data handled.
- **Cross-border data transfer** is permitted with adequate safety measures undertaken by the companies.
- Verifiable **parental consent** is essential for children under the age of 18.

Note: UPSC can ask questions about the specific provisions in the new rules. It is advisable to go through above provisions for prelims as well as mains perspective.

2 Uranium Enrichment

Uranium that is naturally found is not capable of initiating a proper nuclear reaction. Enrichment helps in making naturally mined uranium capable of initiating a chain reaction.

Why enrichment is needed?

- The concentration of U-235 is less than 2% and nearly 99% is U-238.
- Uranium oxide which is the outcome of uranium mining and processing contains two types (or isotopes) of uranium: U- 235 and U-238.
- Natural wetland is known for its floating gardens ("rad"),which is used for cultivating vegetables and flowers.
- Higher concentration of U-235 is needed for initiating a chain reaction. The enrichment process is done with the help of centrifuge.

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What is a Centrifuge?

- A centrifuge is a device that helps in increasing the concentration of U-235 in naturally mined uranium oxide.
- Uranium in its gaseous form of uranium hexafluoride. is used in a centrifuge.
- The difference in weight is primarily utilised in a centrifuge.

3 Pangong lake

It is an endorheic lake located in Ladakh. It is located in both India and China.

Key features of Pangong Lake

Himalayan Marmot

- It is a boomerang-shaped, landlocked saltwater lake.
- This is home to the Kiang, a Tibetan wild ass and the Marmot.
- Bar-headed geese, Brahminy ducks, black necked cranes and seagulls are common birds. This region is an annual breeding site for many birds.
- Lake changes its colour appearing blue, grey-green, and red at varied points in time.

Tibetan wild ass- Kiang

Endorheic lake

- A lake which has no outside outlet and is closed.
- Since there is no outside drainage due to the high evaporation rate the salinity of water is very high. (e.g., Great Salt Lake).
- Caspian sea is the world's largest endorheic lake. It is bordered by Russia, Azerbaijan, Iran, Turkmenistan and Kazakhstan. Volga river is the main source of water to Caspian sea.

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4 Masai Tribe

The Maasai community is located in East Africa, spanning southern Kenya and northern Tanzania along the Great Rift Valley, including regions like Narok and the Serengeti.

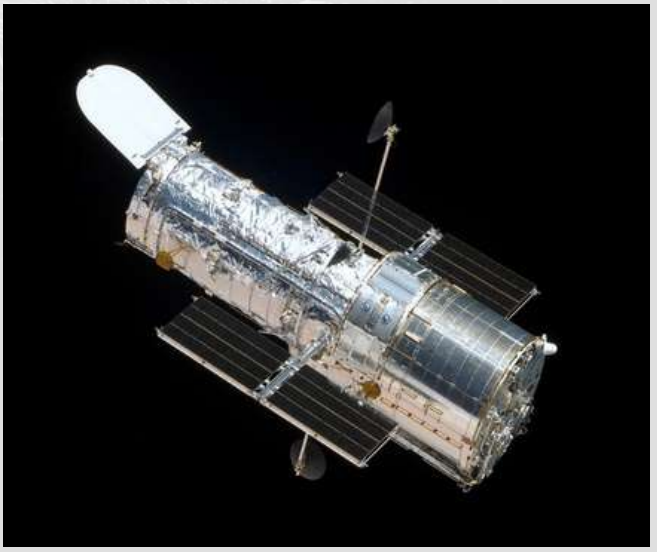
What makes them important ?

- Semi-nomadic pastoralists, relying on cattle and goat grazing for sustenance.
- They speak the Maa language.
- Are inhabitants of the savanna climatic regions in Africa.

5 Space telescopes in India

A telescope is an optical instrument designed to make distant, faint objects appear closer using lenses, mirrors, or a combination of both.

They can be classifies as space based telescopes as well as ground based telescopes.



Hubble of NASA is an example of space based.

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Why ground based telescopes cannot be placed at all locations?

Atmospheric distortions and light pollution is the major challenge associated with ground based telescopes. So ground based telescopes are mostly located in places with less external interference like Ladakh.

Space telescopes of India & the world

Ground based	1. **Devasthal Optical Telescope** - Aryabhata Research Institute of observational sciences, Nainital. 2. **Indian Astronomical Observatory** - Ladakh 3. Shaped Antenna measurement of the background **Radio Spectrum 3 (SARAS) telescope** in Dandiganahalli Lake, Karnataka. 4. **Mount Abu InfraRed Observatory (MIRO)** - Rajasthan
Space based (Indian)	1. **Astrosat** - ISRO- Sun observation.
Space based (World)	1. **Hubble** - NASA & ESA - observes the cosmos in UV visible and near-IR, from the LEO. 2. **Chandra** - NASA - detects X-ray emissions from very hot regions of the universe. 3. **James Webb** -NASA + ESA+ CSA- Observes the cosmos in infrared. 4. **Spitzer** - NASA- Observe hidden celestial objects. 5. **Planck** - ESA- Study the Cosmic Microwave Background. 6. **Gaia** -ESA- Milky Way mapping. 7. **Fermi** - NASA- Gamma rays detection. 8. **TESS**- NASA-Exoplanet discovery. 9. **EUCLID** - ESA-dark matter and dark energy exploration.