COMMISSION FOR SCIENTIFIC AND TECHNICAL TERMINOLOGY (CSTT)

- It was established in October 1961 with an objective to standardise scientific and technical terminology in Indian languages to ensure uniformity and clarity in communication.

- CSTT regularly publishes bilingual, trilingual, and multilingual glossaries, definitional dictionaries, and monographs.

- Additionally, it brings out quarterly journals like **'Vigyan Garima Sindhu'** and **'Gyan Garima Sindhu'**.

- CSTT also focuses on the publication of university-level textbooks in Indian languages, collaborating with Granth Academies, textbook boards, and publication cells across the country.

- Its efforts extend to the publication of administrative and departmental glossaries used widely by government departments, institutions, research labs, and public sector units.

The 'Shabd' Glossary Platform:

- The CSTT has launched an online platform called '**Shabd**', available at https://shabd.education.gov.in, which serves as a central repository for technical and scientific terms in Indian languages.

- This data server hosts all the glossaries compiled by CSTT in a digital, searchable format.

- Other institutions or agencies that prepare dictionaries can also upload their works to this platform, making it a one-stop solution for accessing standardized terminology.

- Users can search terms based on language, subject, and dictionary type, and provide feedback on the existing terminology.

- This dynamic platform aims to create a unified resource for technical terms across various disciplines.

The Process of Term Standardization:

- The terminologies on the 'Shabd' platform are prepared by Expert Advisory Committees consisting of subject matter experts, linguists, and language specialists.

- These committees identify equivalent terms in Indian languages for specific subject areas.

- Once finalized, these terminologies are used by institutions like Granth Academies, NCERT, NTA, AICTE, and various textbook boards.

- The platform currently offers terms derived from several reference materials, including definitional dictionaries and glossaries compiled by CSTT over the years.

- The 'Shabd' portal, launched in March 2024, has already received significant attention, with 1,36,968 hits from users across India and the world.

- This indicates growing interest in accessing and utilising standardized technical terms in Indian languages.

- **Terms & Disciplines Covered:**
  - As of now, the portal contains around **322 glossaries** comprising **21,84,050 headwords**. These terms span multiple disciplines, including:
    - Humanities
    - Social Sciences
    - Medical Sciences
    - Engineering
    - Agricultural Sciences
  - In addition, more than **60 subjects** are covered, such as **Journalism, Public Administration, Chemistry, Botany, Zoology, Psychology, Physics, Economics, Ayurveda, Mathematics, Civil and Electrical Engineering, Computer Science, Political Science, Agriculture, Transport, Geology, Cell Biology, Forestry, and more**.

- **Future Plans:**
  - Moving forward, CSTT plans to integrate **Artificial Intelligence** (AI) and other digital technologies to accelerate the development of standardized terminology.
  - This will ensure that Indian languages continue to evolve with advancements in education and technology.

THE GREAT STUPA OF SANCHI

What is a Stupa?

- **Meaning:** In Buddhism, a stupa is a mound-like or hemispherical structure containing relics (typically the remains of Buddha and other Buddhist monks or nuns) that is used as a place of meditation.

- **Origin:** Stupas were pre-Buddhist burial mounds in ancient India. They had no religious significance and were simply memorials that were less elaborate and conspicuous than they are today.

- **Structure:**

  o
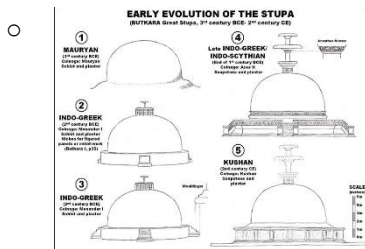
    - **Development:**

      o **Expansion under Ashoka (250 BCE):** According to Buddhist tradition, Emperor Ashoka recovered the relics of the Buddha from the earlier stupas and erected 84,000 stupas to distribute the relics across India.

  o **Decorated stupas (from 125 BCE):** Stupas were soon to be richly decorated with sculptural reliefs. **For example,** Bharhut (115 BCE), Bodh Gaya (60 BCE), Mathura (125–60 BCE), Sanchi (for the elevation of the toranas), etc.

  o **Development in Gandhara (3rd century BCE - 5th century CE):** Since Buddhism spread to Central Asia, China, Korea and Japan through Gandhara, the stylistic evolution of the Gandharan stupa was very influential.

- **Significance:** It is thought that the **temple** in the shape of a truncated pyramid may have derived from the design of the stepped stupas that developed in Gandhara. The Mahabodhi Temple in Bodh Gaya is one such example.
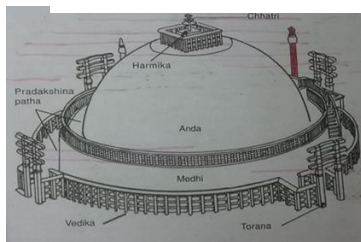
The Great Stupa of Sanchi:

  o Commissioned in the **3rd century BCE by Emperor Ashoka**, it is the oldest stone structure in India and is considered one of the best-preserved groups of Buddhist

o monuments in the country.

o It was built over the relics of Buddha and his two disciples - **Sariputra and Maudgalyayan.**

o The most recent construction in Sanchi can be dated to as late as the 12th century CE, after which the site was abandoned.

o British General Henry **Taylor** rediscovered the Sanchi Stupa in **1818** and Alexander Cunningham led the first formal survey and excavations at Sanchi in 1851.

o The site was restored to its present condition by ASI director-general John Marshall in the 1910s with funding from the begums of nearby Bhopal.

o It was designated as a **UNESCO World Heritage Site in 1989.**

Location: It is located on a hilltop at Sanchi Town in Raisen District of the State of **Madhya Pradesh**.

- **Significance:** It provides a broad and instructive field for researching the origins, development, and decline of Buddhist art and architecture in India.

SAARTHI APP

- It is a reference application **designed to assist businesses** in creating their own customised buyer-side apps.

- It supports network participants in building buyer apps with **multilingual features.**

- The app initially supports **Hindi, English, Marathi, Bangla and Tamil**, with plans to scale up to all 22 languages provided by Bhashini.

- **Features:** It includes **real-time translation, transliteration**, and voice recognition allow businesses to expand market reach, enabling companies to tap into new regions and increase customer acquisition.

What is Bhashini?

- It is India's **Artificial Intelligence** (AI)-led **language translation platform.**

- It seeks to enable easy **access to the internet and digital services** in Indian languages, including voice-based access, and help the creation of content in Indian languages.

- It aims to make Artificial Intelligence and Natural Language Processing (NLP) resources available in the public domain to **be used by -- Indian MSMEs**, **startups and individual innovators.**

- This will help developers to offer all Indians easy access to the internet and digital services in their native languages.

- This online platform also has a separate 'Bhasadaan' section which allows individuals to contribute to multiple crowdsourcing initiatives and is also accessible via respective Android and iOS apps.

WHAT ARE TROPICAL FORESTS?

A new study has revealed that ozone pollution is significantly hindering the growth of tropical forests, leading to a loss of nearly 300 million tonnes of carbon each year.

- Tropical forests are rich ecosystems located in **tropical zones surrounding the equator**.

- They make up **six per cent of Earth's land surface area.**

- They have a **dense upper canopy of broad-leafed trees.**

- These forests are known for supporting a wide variety of plant and animal life and have **nutrient-poor soils with rapid decomposition.**

- **More than 50 per cent** of land-based plant and animal species on Earth can be found in tropical

- They encompass both tropical deciduous forests and tropical rainforests.
    - **Tropical rainforests** occur in regions of the tropics where **temperatures** are **always high** and where **rainfall exceeds** about **1,800 to**

2,500 mm (about 70 to 100 inches) annually and **occurs fairly evenly throughout the year.**

o **Similar hot climates** in which annual rainfall lies between about 800 and 1,800 mm and in which a **pronounced season of low** rainfall occurs typically support **tropical deciduous forests.**

- The nations with the most tropical forest area are **Brazil, the Democratic Republic of the Congo,** Indonesia, Peru and Columbia, in that order.

  o Cameroon, the Central African Republic, Bolivia, Ecuador, Guyana, Gabon, the Republic of Congo, Malaysia, Laos, Myanmar, Papua New Guinea, India, Suriname, Venezuela, and Mexico also have vast areas of rainforest.

- **Brazil**is home to about a **third of the planet's remaining tropical rainforests**, including two-thirds of the **Amazon rainforest**.

- Tropical forests play a critical part in the planet's water cycle and are **crucial carbon sinks**, **storing about a quarter of all terrestrial carbon on Earth.**

WHAT IS SOFTWARE-AS-A-SERVICE (SAAS)?

AI-powered Software as a Service (SaaS) platforms are changing industries by improving efficiency and driving innovation.

- **SaaS** is a **cloud-based method** of delivering software where **users subscribe to access applications on the Internet rather than purchasing them outright.**

- The software is located on **external servers rather than on servers located in-house.**

- SaaS vendors host services and applications for customers to access on-demand.

- These services are available to end-users over the internet, so the **end-users do not need to install any software on their devices to access these services.**

- Common SaaS examples include email, calendaring and cloud-based collaborative tools like Slack.

- This model operates similarly to streaming services, offering flexible, subscription-based access from any compatible device.

- By hosting the software in the cloud, SaaS provides a complete solution that **enhances accessibility and convenience**, allowing users to connect and use these apps on a pay-as-you-go basis.

- The SaaS model **shifts the burden of maintaining and hosting the software to the SaaS provider.**

- This shift results in substantial benefits, such as **consistent maintenance, robust security, and guaranteeing that the software remains continuously accessible and current.**

- This setup allows businesses to focus on their core activities without worrying about the technical complexities of software management.

SUBARNAREKHA RIVER

- It is one of the longest **east-flowing interstate rivers.**
- 'Subarnarekha' means **'Streak of Gold.'** The river is known as the **storehouse of gold.**
- It flows through the states of **Jharkhand, West Bengal and Odisha.**
- **Course**:
  - **Origin**: It rises near Nagri village in the **Ranchi District of Jharkhand** at an elevation of 600 m.
  - It flows east through a copper-mining region and **leaves the Chota Nagpur plateau by the Hundru waterfall.**
  - Continuing eastward, it flows across **West Bengal**
  - It runs through some major industrial towns and cities, i.e., Jamshedpur, Chaibasa, Ranchi and Bhadrak, before joining the Bay of Bengal at Kirtania port in Odisha.

- The **basin is bounded** on the northwest by the **Chota Nagpur Plateau**, in the southwest by the **Brahmani Basin**, in the south by the **Burhabalanga Basin** and in the southeast by the **Bay of Bengal**.

- The principal tributaries of the river are **Kanchi, Kharkai and Karkari.**

WHAT ARE TARDIGRADES?

- Tardigrades, often called **water bears or moss piglets**, are **microscopic eight-legged animals.**

- They are **free-living tiny invertebrates** belonging to the phylum Tardigrada.

- Around 1,300 species of tardigrades are found worldwide.

- **Habitat**:
  - Considered aquatic because they require a **thin layer of water around their bodies to prevent dehydration,** they've also been observed in all kinds of environments, from the deep sea to sand dunes.
  - **Freshwater mosses and lichens are their preferred habitat**, hence their nickname, moss piglet.

- They belong to an elite category of animals known as **extremophiles,** or critters that can survive extreme environments.
  - They can survive punishing heat, freezing cold, ultraviolet radiation and even outer space.
  - **Under unfavourable conditions**, they **go into** a **state of suspended animation** called the "**tun" state**—in which the **body dries out** and appears as a lifeless ball (or tun).
  - Tardigrades can **survive as tuns for years or even decades.**

- **Physical Features:**
  - Tardigrades are **short, plump**, and **covered in a tough cuticle** (similar to that of grasshoppers and other insects) that they must shed to grow.

- o Tardigrades are mostly about 1 mm (0.04 inch) or less in size.
- o Their tiny bodies contain **no bones** and are instead **supported by a hydrostatic skeleton** – a fluid-filled compartment **known as a hemolymph**.
- o They have **four pairs of legs**, with 4-6 claws on each foot.
- o Their **specialised mouthpart**–called a **buccopharyngeal apparatus**–allows them to suck the nutrients out of plants and other microorganisms.

WHAT ARE SALT PAN LANDS?

Salt Pan lands are parcels of **low-lying lands** where **seawater flows in** at certain times and leaves behind salt and other minerals.

- This ecosystem is instrumental in **protecting the city from flooding.**
- According to the Coastal Regulation Zone (CRZ) notification of 2011, the ecologically sensitive salt pans **fall under the CRZ-1B category,** where **no economic activity** is allowed with the exception of salt extraction and natural gas exploration.
- Nationally, some **60,000 acres** have been demarcated as salt pan lands, spread across Maharashtra, Andhra Pradesh, Tamil Nadu, Odisha, Gujarat and Karnataka.
- **Andhra Pradesh** (20,716 acres) boasts the **largest expanse of such land**, followed by Tamil Nadu (17,095 acres) and Maharashtra (12,662 acres).
- **Ecological Significance:** Salt pans, which, along with the mangroves, stop the city from flooding, also host various species of birds and insects.

What are Coastal Regulation Zones?

- The coastal land up to 500m from the High Tide Line (HTL) and a stage of 100m along banks of creeks, estuaries, backwaters and rivers subject to tidal fluctuations, is called the Coastal Regulation Zone.