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PRELIM BITS

JANUARY 2024

1. HISTORY, ART & CULTURE

1.1 Thanjavur Doll

Makers of the bobble-head and roly-poly dolls are facing stiff competition from electronic toys and e-commerce platforms, besides a severe labour crunch and shortage of clay.

Thanjavur doll earned GI tag in 2009.

- **Introduction -** Brought to Thanjavur by Maratha ruler ***Raja Serfoji*** in the 19th Century.
- **Types**
  - **Bobble-head (dancing girl) version** - The dancing doll has four sections each balancing on the other with the help of inner metal loop hooks that create the light bobbing movement.
  - **Tilting doll (roly-poly) version** - They use a bowl-shaped clay base (shaped with moulds) that ensures that the doll remains upright.
- **Made of -** Terracotta, papier-mache (a mixture of paper, glue, flour and water), plaster of Paris and other materials.
- A mixture of vandal mann (fine silt), kali mann (clayey mud), and manal (loose aggregate) is required to make the dolls' pedestals.
- ***Copper sulphate powder*** is added as a fungicide.
- Once assembled, the dolls are sandpapered and hand-painted, with watercolours for the dancing doll and oil paints for the others.

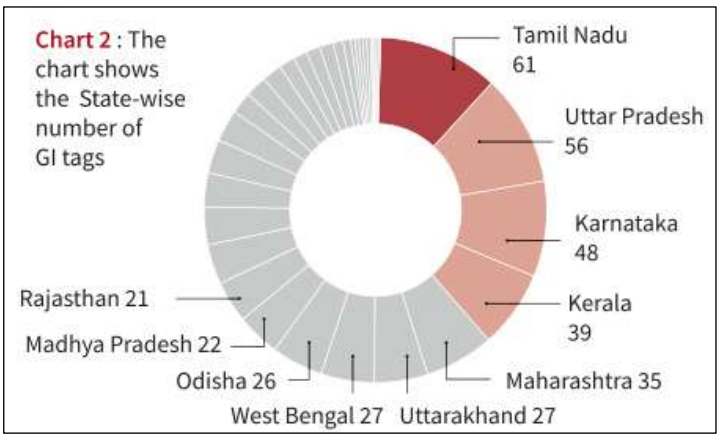


The dancing dolls are one of 4 papier-mâché handicrafts certified by the Tamil Nadu government. The others are the two-piece moulded idols, multi-jointed figurines, and wall-hanging panels.

1.2 Status of GI tag in India

17 products from across 6 States/Union Territories got the geographical Indications (GI) tag recently.

- **GI tag -** A GI tag is a sign used on products that have a ***specific geographical origin*** and possess qualities or a reputation that are due to that origin.
- **Ownership** - Any trader's body, association, or organization can apply for a GI tag.
- **Conditions** - The applicants need to prove the uniqueness of the item with historical records and a complete breakdown of how the product is made.
- **Raw materials** - The raw materials for such products do not necessarily have to come from that region, *unless it is an* ***agricultural tag***.
  - For instance, the mulberry silk used in Kancheepuram sarees comes from Karnataka, and the gold zari from Surat.



Categories (Highest to Lowest)
Handicrafts
Agriculture
Foodstuff
Manufactured
Natural

- **Status** - Every State in India has at least 1 GI tag. Tamil Nadu has the highest number of GI-tags.
- **Major Categories** - The products in the GI registry fall under five major categories.

- **Variety of products** - There are 34 classes of products that can get GI tags ranging from chemicals and paint to foodstuffs, handicrafts, musical instruments, and even firearms and locomotives.

1.3 Geographical Indication (GI) Tag Products

Over 17 products from Odisha, Arunachal Pradesh, West Bengal, and J&K bagged the coveted Geographical Indication tag.

- Geographical indications assign products to the place of its origin, conveying an assurance of quality and distinctiveness for such goods.
- GI is defined under Article-23 and 24 of the ***Trade-Related Aspects of Intellectual Property Rights (TRIPS)*** Agreement of the World Trade Organization (WTO).

*Under the **Paris Convention** for the Protection of Industrial Property, GIs are covered as an element of Intellectual Property Rights.*

- India is a member of the WTO and thus enacted the Geographical Indications of Goods (Registration & Protection) Act, 1999 that came into force from 2003.
- GI tagged products can be both ***Natural and Man-made*** and is valid for ***ten years.***
- The first product in India to be accorded with GI tag was Darjeeling Tea in the year 2004-05.

Arunachal Pradesh	
Wancho Wooden Craft 	• Wancho wooden craft items are unique as they feature tobacco pipes with head-shaped bowls and drinking mugs showing warriors carrying heads.
Adi Kekir (Ginger) 	• Adi Kekir is a variety of ginger produced in East Siang, Siang and Upper Siang districts of Arunachal Pradesh. • It is known for its taste and size.
Handmade Carpets 	• The handmade carpets made by Tibetan refugees, who live in various parts of the state, are known for their typical designs, motifs and textures.
West Bengal	
Tangail Saree 	• The tangail cotton sarees have finer count and are decorated with extra warp designs using coloured yarn. • It is a simplification of the jamdani cotton saree but with minimal designs in the body.
Garad Saree 	• Garad silk sarees are characterized by a plain white or off-white body, an unornamented coloured border and a striped pallu and were earlier worn for performing pujas. • With the change in taste, various colours and woven patterns have been introduced.
Korial Saree 	• The korial sarees are lavish silk ones. • They are in either white or cream base and have the characteristic heavy gold and silver embellishments of Benarasi sarees in the border and pallu.

Kalonunia Rice 	• It is one of the most sought after rice variety in north Bengal. • Kalonunia is a traditional black-husked non-Basmati type scented rice of Tarai region (foothills of eastern Himalayas) of West Bengal, India.
Sundarban Honey 	• The Sundarban honey, called Mouban, is a prime minor forest produce (MFP) in Sundarbans Biosphere Reserve. • The residents of Sundarbans are called Mauli.
Odisha	
Dhenkanal Magji 	• It is a famous and unique sweet of the Dhenkanal district. • The buffalo milk cheese gives it a unique flavor and cardamom powder adds to its unique aroma.
Khajuri Guda 	• Khajuri Guda (date palm jaggery) is a natural sweetener produced from the sweet juice of palm called neera. • The jaggery is prepared by the tribal populations, including the Lanjia Saura, of Gajapati, Boudh, Angul, and Dhenkanal districts in Odisha.
Similipal Kai Chutney 	• The chutney is made with red weaver ants by the tribal people of Odisha's Mayurbhanj. • The hot chutney has a pungent and sour taste and is appetizing.
Nayagarh Kanteimundi Brinjal 	• It is a tasteful vegetable with lots of prickly thorns on it as well as the whole plant. • It is green in colour and round in shape containing more seeds as compared to other genotypes. • This crop is grown both in the Kharif and Rabi seasons.
Kapdaganda shawl 	• The traditional knitted shawls of the hill tribe Dongaria Kondh are unique. • Dharanipenu, the much adored goddess of the Dongaria, has a home in every village. • The art and drawings made in the Dharanipenu residence are reflected in their shawls.
Koraput Kalajeera Rice 	• Koraput Kalajeera Rice known as the 'Prince of Rice' is an aromatic variety originating from Koraput district of Odisha. • Upholding the nutritional and cooking quality, the rice looks like coriander seeds.
Lanjia Saura Paintings 	• The Lanjia Saura paintings are a style of wall mural art. • Those paintings also called ekons or the idital, and have a significant spiritual importance for the tribe. • The Lanjia Sauras are an indigent society preserving their culture.

Gujarat	
Kachchhi Kharek 	• They are a variety of dates grown in the Kutch region of Gujarat, India. • Kutchi Kharek dates have a soft and chewy texture. • They are known for their natural sweetness and rich, caramel-like flavor.
Jammu & Kashmir	
Ramban Anardana 	• Anardana (Punica granatum) is a small wild fruit-bearing tree. • The fruits are harvested for its fleshy seeds, which are sundried to make anardana, a product of commerce used in medicinal and culinary preparations.

1.4 GI for Arunachal Products

12 distinctive products of Arunachal have obtained the Geographical Indication (GI) tags.

- **12 GI products** – Apatani, Monpa, Adi, Galo, Tai Khamti and Nyishi textiles, Monpa handmade paper, Singpho Phalap (Singpho tea), Adi Apong, Dao (machete), Angnyat millet and Marua Apo (Marua millet beverage).
    - The total number of indigenous products to have obtained the GI tag from Arunachal rises to 20, the highest among North Eastern states.
- **Role of NABARD** – National Bank for Agriculture and Rural Development has actively supported the GI registration process and have endorsed all 12 products.
- **Significance** – A testament to the dedication of the local communities in preserving traditional and unique products, reflecting the rich social and cultural heritage of Arunachal Pradesh.



Adis, Apatanis, Singphos, Monpas, Nyishis, Khamtis *are some of the tribes of Arunachal Pradesh.*

1.5 Kadambas (345-535 C.E.)

10th century Kadamba inscription written in Kannada, Sanskrit found in Goa.



- **Extent -** South India, especially current Karnataka region, from 4 – 6 cent CE.
- **Founder -** Mayurasharma, who was originally a feudatory of the Pallavas.
- **Capital -** The early capital was Banavasi, Karnataka. Later, the capital was shifted to Vaijayanti (modern-day Banavasi).
- **End –** By Pulakeshin II's capture of Banavasi during the reign of Ajavarman.
- **Kadambas of Goa -** They were the subordinates of Chalukyas of Kalyana.
- Chalukyan emperor Tailapa II appointed Kadamba Shasthadeva as mahamandaleshwara of Goa for his help in overthrowing the Rashtrakutas.
- **The Inscription** - The inscription was discovered in the Mahadeva temple at Cacoda in southern ***Goa.***
- It is in the literary style of Talangre inscription of Jayasimha I of the same period.

1.6 Kalaram Temple

Recently, Prime Minister of India took part in cleaning the Kalaram temple premises under the 'Swachh Bharat Abhiyan' campaign.

- **Built in** – ***1792***, with the efforts of one Sardar Rangarao Odhekar.
- **Name** – It derives its name from a ***black statue*** of the Lord Kala Ram translates literally to ***Black Ram.***
- **Location** – On the banks of the ***River Godavari*** in the Panchavati area of the Nashik in ***Maharashtra.*** It was a part of ***Dandakaranya*** (dense forest in central India).
- **Features** – It has ***14 steps***, which represent the 14 years of Ram's exile and has ***84 pillars***, which represents the cycle of 84 lakh species that one must complete to be born as a human.
- **Historical importance** – It is also the site of a landmark agitation led by Babasaheb Ambedkar demanding temple entry rights for Dalits more than 90 years ago.

Bhavarth Ramayana, written in Marathi, by Sant Eknath.

Nashik Satyagraha in 1930

- **Lead by** – ***B R Ambedkar*** along with the Marathi teacher and social activist Pandurang Sadashiv Sane, known as ***Sane Guruji***.
- **Aim** – To demand access for Dalits to Hindu temples.
- On March 2, ***1930***, Ambedkar organised a *large protest outside the Kalaram temple* with many dalit protesters.

*In 1927, Ambedkar launched **Mahad or Chavdar Tale Satyagraha** to assert the rights of Dalits to use the water in public places.*

1.7 Gol Gumbaz

Bomb threat e-mail to Gol Gumbaz museum turns out to be hoax.



- It is the located in ***Karnataka,*** built in Indo-Islamic style of architecture.
- It is the ***tomb of Mohammed Adil Shah*** (ruled 1627–1657).
- It is the 2nd largest dome ever built, next to St Peter's Basilica in Rome.
- It includes a mosque, a ***Naqqar Khana*** (a hall for the trumpeters), a central chamber, where every sound is echoed 7 times, ***Whispering Gallery***, where even minute sounds can be hear clearly 37 metres away.
- It is a protected monument administered by the Archeological Survey of India.

1.8 Haji Malang Dargah

Recently, Chief Minister of Maharashtra said that he was committed to the liberation of the Malanggad dargah which Hindus claim to be a temple.

- **Muslim community** – It is the final resting place of ***Baba Abdur Rehman Malang,*** a Sufi saint who arrived in India from the Middle East in 12th century AD.
- **Hindu community** – It is ***Machindranath Samadhi,*** an incarnation of Navanath as per Nath Sampraday tradition.
- **Gazetteer of the Bombay Presidency** – 1882 data corroborate the *existence of Haji Abd-ul-Rahman's tomb* in Malanggad but there is *no mention of Machindranath's tomb* in these records.
- **Supreme Court of India –** In ***1968***, SC referred to the site as a dargah.

History of Malanggad Fort



- **Location** – Maharashtra's Thane district.
- **Constructed by** – King Naladev of the Maurya Dynasty in the 7th century.
- It fell into the hands of Marathas in the 17th century before being conquered by the British.

Sufism is a way of life that outwardly rejected the religion and emphasized love and devotion to God and compassion towards all fellow human beings.

- In 1996, the name was changed ***from Haji Malang to Malanggad***.
- Despite this, it still continues to be a *shared space* where, traditionally, both a Hindu vahivatdar (priest) and a Muslim mutavalli (caretaker) officiated at religious ceremonies.

1.9 Khwaja Moinuddin Chishti

PM presents sacred Chadar to be placed during the Urs of Khwaja Moinuddin Chishti at Ajmer Sharif Dargah

- Khwaja Chishti is also known as, ***Khawaja Gharib Nawaz, 'Sultan-Ul-Hind'*** (Benefactor of the Poor).
- **Birth** – Sijistan (modern-day Sistan) in Iran in 1141-42 CE.
- He started living and *preaching in Ajmer after* ***2nd Battle of Tarain (1192),*** where Mohammed of Ghori defeated Prithviraj Chauhan.
- **Mission** – To establish the kingdom of God on Earth.
- He established ***Chishti order of 'fakirs'*** in India that emphasised the ***unity of being with God*** (waḥdat al-wujūd) and its members were pacifists.
- They *rejected all material goods* as distractions from the contemplation of God.
- They *abstained from connection* with the secular state.
- Recitation of the names of God, both aloud and silently (dhikr jahrī, dhikr khafī), is the cornerstone of Chishti practice.

Urs festival *is an annual festival held at Ajmer in Rajasthan to commemorate Chishti's death anniversary.*

Other Sufi Orders in India

- **Suhrawardi Order** – Founded by Sheikh Shahabuddin Suharwardi Maqtul - Accepted maintenance grants from the Sultans.
- **Naqshbandi Order** – Founded by Khwaja Baha-ul-din Naqsh band - Stressed on the observance of the Shariat.
- **Qadiriyya Order** – Sheikh Abdul Qadir of Badaun founded this in the 14th century - Supported the Mughals under Akbar.

1.10 Pakke Paga Hornbill Festival

The 9th edition of the 3-day Pakke Paga Hornbill Festival (PPHF) commenced in Arunachal Pradesh in 2024.

- **Theme for 9th Edition** - 'Domutoh, Paga hum Domutoh', translates to 'Let Our Hornbills Remain' in Nyishi, emphasising the critical need to preserve the iconic birds.
- In 2019, it was declared as a ***state festival*** of Arunachal Pradesh.
- **Aim** – To recognise the role played by ***Nyishi community*** in conserving hornbills in ***Pakke Tiger Reserve*** that is home to 4 species of hornbills - Wreathed, Great Indian, Oriental Pied and the endangered Rufous-necked.
- **Impact** – It *unites people from diverse backgrounds* to combat pollution, protect wildlife, and address environmental degradation.

Hornbill festival in Nagaland is also called as 'festival of festivals.

1.11 Batadrava Than

Rahul Gandhi prevented from visiting Batadrava Than.

- It is a temple complex, located in Nagaon District, Assam, the birthplace of Vaishnavite reformer-saint ***Srimanta Sankardeva*** (1449-1568).
- **Sankardeva** founded the first-ever ***Kirtan Ghar*** at Bordowa in 1494 AD which intended to practice and preach the neo Vaishnavite faith, and propagated the ***Ek Saran Naam Dharma.***
- It focussed on worship in the form of bhakti (devotion) to Lord Krishna, through singing and congregational Ek Saran Naam Dharma listening of His name and deeds.
- Sankardeva espoused a society based on equality and fraternity, free from caste differences, orthodox Brahmanical rituals and sacrifices. His teaching focused on prayer and chanting (naam) instead of idol worship.
- His dharma was based on ***4 components*** - deva (god), naam (prayers), bhakats (devotees), and guru (teacher).
- The Neo-Vaishnavite reformist movement that Sankardeva started is behind the monastic institutions called ***Thans/Sattras*** that dot Assam.

1.12 Prehistoric Rock Paintings in Tamil Nadu

The Tamil Nadu government has planned to declare the entire hillocks of Alampadi, Melvalai, and Sethavarai a protected monument.

- All 3 sites are located in Villupuram district of ***Tamil Nadu.***
- **Alampadi** - The paintings are in red and white ochre.
- **Melvalai** – A nondescript village whose ***paintings dates back to 3000 B.C.*** and majority of etchings was in ***red ochre***. Painting depicting a *group of men rowing a boat*, indicates a link between the Indus Valley and the southern region.
- **Sethavarai** - It has paintings of animals, especially a deer and a fish. The outlines are in red ochre, while the inner portion is filled with white ochre.

*The word, **Rattapparai**, has become synonymous with the rock art painted in red ochre.*

1.13 Marudhu Brothers

A Bhumi Puja has been performed recently to install the statues of the Marudhu Pandiyar Brothers of the Sivagangai region of Tamil Nadu in Chittoor, Andhra Pradesh.

- They are the generals of Muthu Vadugar of the ***Sivagangai region of Tamil Nadu.***
    1. Periya Marudhu or Vella Marudhu (1748–1801)
    2. Chinna Marudhu (1753–1801)
- Seeing the atrocities of the British Raj, the duo brothers started the unification of the anti-British forces from the coastal belt from Tamil Nadu to West Bengal.
- The rebellion of the Marudhu brothers is called the ***South Indian Rebellion.***
- Marudhu brothers issued the famous ***"Tiruchirappalli Proclamation"*** in 1801 which calls for the unification of Indians against the British.
- After a series of struggles, the brothers were captured in 1801 and hanged by the British rulers near Sivagangai.

1.14 Classical Language

Recently, West Bengal Chief Minister has called for inclusion of 'Bangla' as a classical language.

- Currently, ***6 languages*** enjoy the 'Classical language status.
- **Guidelines for declaring a language as 'Classical'** - *High antiquity* of its early texts/recorded history over a period of 1500-2000 years.
- A *body of ancient literature/texts,* which is considered a valuable heritage by generations of speakers
- The *literary tradition be original* and not borrowed from another speech community.
- The classical language and literature being *distinct from modern*, there may also be a discontinuity between the classical language and its later forms or its offshoots.

Classical Languages

Language	Year Declared
Tamil	2004
Sanskrit	2005
Kannada	2008
Telugu	2008
Malayalam	2013
Odia	2014

- **Benefits of Recognition** – 2 major *annual international awards* for scholars of eminence in classical Indian languages
- A *Centre of Excellence for studies* in Classical Languages is set up.
- The UGC is requested to create, to start with at least in the Central Universities, a certain number of *Professional Chairs* for the Classical Languages so declared.

Central Institute of Indian Languages (CIIL) is in Mysuru and Central Institute of Classical Tamil (CICT) is in Chennai.

Bengali Language

- **Origin** – It can be traced back to the *3rd-4th BCE*.
- **Official Language** – In West Bengal
- **Popularity** – It is the *2nd most spoken language in India* and the *7th most spoken language in the world*.

SHANKAR IAS ACADEMY

1.15 Somnath Temple

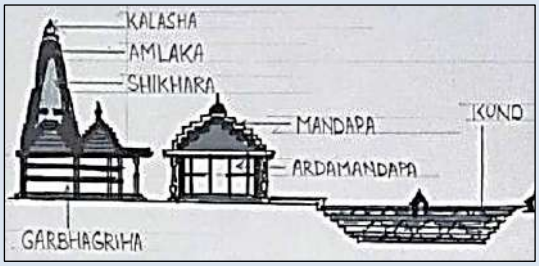
Prime Minister will inaugurate the Ram temple in Ayodhya, 73 years ago; the President of India inaugurated another temple in a grand ceremony.



- **Located in -** Prabhas Patan, Veraval, in ***Gujarat.***
- It is the holy place of the ***1st Aadi Jyotirling*** Shree Somnath Mahadev, among the 12 Jyotirlinga shrines of Shiva.
- It is also the place where Lord Shri Krishna took his last journey.
- **Built by -** In 1782, Maratha queen ***Ahalyabai Holkar*** built a small temple at the site.
- Somanātha temple or Deo Patan faced several attacks from raiders, with the most damaging by ***Mahmud of Ghazni*** in 1026 CE.
- **Under Mughals -** Akbar permitted the worship of the linga in the Somanatha temple and appointed desais /officers to administer it.
- Aurangzeb gave orders for its destruction and its conversion into a mosque in 1706 just before he died.
- **After Independence –** The contemporary Somnath temple was reconstructed in the ***Maru-Gurjara style*** under the orders of Vallabhbhai Patel and completed in 1951.

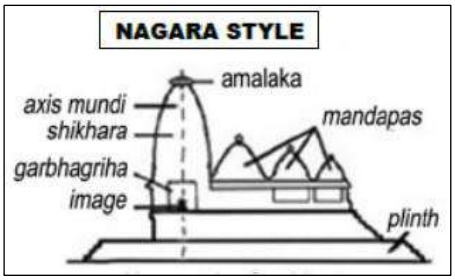
Maru-Gurjara Style

- It is also known as ***Solaṅki style***, the style of West Indian temple architecture.
- The style originated in Gujarat and Rajasthan from the 11th to 13th centuries, under the ***Chaulukya dynasty*** (Solaṅki dynasty).
- Although originating as a regional style in Hindu temple architecture, it became especially popular in Jain temples, and mainly under ***Jain patronage*** later spread across India.



1.16 Nagara Style of Architecture

Ayodhya's Ram Temple is built on the Nagara Style of Architecture.



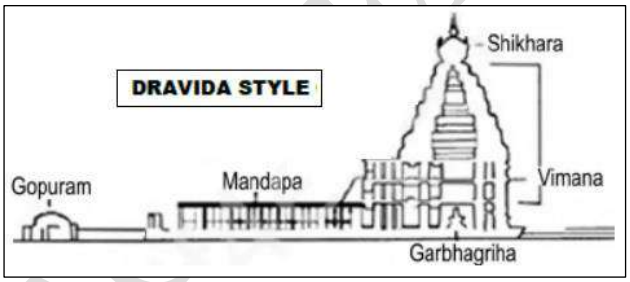
- The Nagara style of temple architecture emerged sometime in the 5th century CE, during the ***late Gupta period,*** in northern India.
- It is seen in juxtaposition with the Dravida style of southern India, which too emerged in the same period.
- Nagara temples are built on a raised plinth, with the garbha griha (sanctum sanctorum), where the idol of the deity rests.
- Towering over the garbha griha is the ***shikhara*** (literally 'mountain peak'), the most distinguishable aspect of Nagara style temples.
- A typical Nagara style temple also comprises a circumambulatory passage around the garbha griha, and one or more mandapas (halls) on the same axis as it.

Five modes of Nagara architecture

- Depending on the period and geography, there are 5 modes of Nagara architecture - ***Valabhi, Phamsana, Latina, Shekhari, and Bhumija.***
- The first two are associated with what scholars have classified as Early Nagara Style.
- The Valabhi begins as a masonry rendering of the barrel-roofed [wooden] structure, simple or with aisles, familiar through chaitya halls [prayer halls, most associated with Buddhist shrines].
- A formalisation of multi-eave towers, wedded to a piling up of slabs, leads to the Phamsana.
- From these modes emerged the Latina - a single, slightly curved tower with 4 sides of equal length.

5 modes of Nagara architecture				
Valabhi	**Phamsana**	**Latina**	**Shekhari**	**Bhumija**
				

Comparison to Dravida style



- The Dravida counterpart to the shikhara is the ***vimana***.
- In the Dravida style temples, vimanas are typically smaller than the great gatehouses or ***gopurams.***
- While shikharas are mentioned in south Indian sources, they refer to only the dome-shaped crowning cap atop the vimana.
- The existence of gopurams also points to another unique feature of the Dravida style, the presence of a boundary wall. Few Nagara style temple complexes are lined with distinctive boundary walls that are a part of the temple's design.
- This is one of Ayodhya's Ram temple's hybrid features, although no elaborate gopuram has been built, a 732m long wall runs around the temple compound.

Other Important Topics

The Kharsawan massacre of 1948

- The Kharsawan massacre occurred on ***January 1, 1948*** in the town of Kharsawan, now in ***Jharkhand***.
- The massacre was similar to the ***Jallianwala Bagh incident in 1919***.
- The massacre occurred during a protest against the merger of ***Kharsawan with Odisha***.
- Police opened fire on a crowd of Adivasis, killing hundreds or possibly thousands.

Bobbili Veena



- The Bobbili veena is a large plucked ***string*** instrument used in ***Carnatic classical music***.
- It is also known as the ***Saraswati veena*** and is named after the town of Bobbili, in the Vizianagaram district of ***Andhra Pradesh.***
- In 2011, the Government of India gave the instrument a ***Geographical Indication tag.***
- This veena is known for its distinctive notes and fine tune which is made from a single piece of jackfruit tree wood (*pansa)* and, therefore, called ***ekandi veena.***
- ***Pedda Rayudu***, the progenitor of the 17th-century Bobbili Empire, patronised the veena.

Nizamuddin Dargah

French President Emmanuel Macron visited the Dargah Nizamuddin Aulia in New Delhi recently.

- It is a revered Sufi shrine dedicated to the 13th -century mystic ***Hazrat Nizamuddin Auliya***.

- Also known as Hazrat Nizamuddin, and Mahbub-e-Ilahi (Beloved of God), Nizamuddin Aulia was a Sunni Muslim scholar and Sufi saint of the ***Chishti Order.***
- He stressed love as a means of realising God.
- Some of the famous disciples of Nizamuddin includes Shaikh Nasiruddin Chirag Delhavi, Amir Khusro, etc.

Grantham

- A team from Archaeological and Historical Research Centre has discovered 2 stone inscriptions of 'Grantham' and Tamil dating 11th and 16th centuries respectively at Kangayam.
- Grantha is an important historical script that was once used ***to write Sanskrit*** throughout South East Asia and greater Tamil Nadu.

Maasir-i-Alamgiri

Maasir-i-Alamgiri cited that a temple that stood adjacent to the existing Kashi Vishwanath temple have been razed on the orders of the Aurangzeb, and the Gyanvapi mosque erected on its ruins.

- Maasir-i-Alamgiri is a Persian-language book written by ***Saqi Musta'd Khan*** that details the reign of ***Emperor Aurangzeb (1620-1707).***
- The book was written after the emperor's death, at the request of ***Inayetullah Khan Kashmiri***, the emperor's last secretary.
- ***Sir Jadunath Sarkar*** translated the book into English and labeled it a ***"Gazetteer of Mughal State".***

> ***Alamgir Nama*** *is the history of the 1st ten years of* ***Aurangzeb****'s reign compiled by* ***Muhammad Kazim.***

Naiyandi Melam

- A naiyandi melam is a type of *percussion instrument* that is unique to ***Tamil Nadu, Kerala and parts of South India***.
- It is performed by artistes of different communities. The word, naiyandi, means making ***fun***.
- Naiyandi melam follows a set of tunes, beginning with ***'thooku'***.
- Other folk instrumental music, dance and songs of Tamil Nadu - Kattai koothu, kombu isai, periya melam, gana, themmangu paattu, etc.

Parakram Diwas

PM participated in the programme marking Parakram Diwas (Day of Valor) at Red Fort.

- The programme will commemorate the legacy of ***Netaji Subhas Chandra Bose and the Azad Hind Fauj.***
- **January 23, 2024** was commemorated as the ***126th birth anniversary*** of Netaji Subhas Chandra Bose.

Veerbhadra Temple



- **Location** - Lepakshi, ***Andhra Pradesh.***
- The temple (also known as the Lepakshi temple) is dedicated to Veerabhadra, the fiery form of ***Lord Shiva.***
- The temple is closely associated with the Ramayana as it is believed that the bird Jatayu, wounded by the king of Lanka Ravana fell here.
- The temple is thought to have been built during the 16th century by Virupanna and Veeranna, who were governors under the ***Vijayanagara Empire*** during the reign of King Achyuta Deva Raya.
- The Veerabhadra Temple has an open-air Kalyana Mandapam (wedding hall) and a massive dance hall that has the famous ***hanging pillar.***
- The Veerabhadra Swamy temple and the Nandi statue in Lepakshi were added to ***UNESCO's tentative list of world heritage sites*** in 2022.

Fo Guang Shan
Fo Guang Shan Cultural and Educational Centre, received registration under 'religious, cultural, economic, educational and social purpose' category recently. • Fo Guang Shan (FGS) is one of the largest ***Buddhist organization*** and monastic order based in **Taiwan**. • The name translates to ***"Buddha's Light Mountain".*** • FGS practices Humanistic Buddhism, which has roots in the ***Linji school of Chan Buddhism.***
Chandubi Festival
• The Chandubi Festival takes place near the Chandubi Lake in Kamrup district, ***Assam.*** • The festival celebrates Assamese culture and traditions to preserve the cultural heritage of the area's tribal communities like ***Rabhas, Garos, Gorkhas and tea tribes.***

2. GEOGRAPHY

2.1 Nine-degree Channel

The Indian Air Force (IAF) has proposed to set up a forward fighter airbase in Minicoy Islands, to safeguard the sea lanes of communications and to keep the Arabian Sea free from non-state actors in the region.

- **Location** - In the Indian Ocean between the Laccadive Islands of Kalpeni and Suheli Par, and Maliku Atoll of Minicoy.
- **Features** - Approximately 200 km wide with a depth of 2597 metres.

Channel	Location
8 Degree Channel	Minicoy Island and Maldives
9 Degree Channel	Laccadive Islands and Minicoy Island
10 Degree Channel	Little Andaman and Nicobar

Lakshadweep

- An archipelago consisting of 36 islands.
- India's smallest and ***uni-district*** Union Territory.
- Almost all the inhabited islands are ***coral atolls.***
- **Capital -** Kavaratti
- The territory falls under the jurisdiction of the ***Kerala High Court.***



2.2 Pong dam

Recently the draft policy was prepared to declare Pong Dam Wildlife Sanctuary and the surrounding area an eco-sensitive zone.

- It is the ***highest earth-fill dam in India*** and is one of India's largest man made reservoir.

- **Built in** – ***1975***, named after Maharana Pratap and so called as ***Maharana Pratap Sagar***.
- **Location** – Over Beas River in ***Himachal Pradesh.***
- **Pong Dam Wildlife Sanctuary** – In 1983, the entire reservoir was declared a Wildlife Sanctuary by the state government.

The National Environment Policy (2006) defined the Eco-Sensitive Zones as areas/zones with identified environmental resources having incomparable values which require special attention for their conservation because of its landscape, wildlife, biodiversity, historical and natural values.

- **Pong Dam Lake Bird Sanctuary** – In 1994, the Government of India declared it a 'wetland of national importance' and in 2002, it was declared as a ***Ramsar Site***.
- It is the *largest congregation of the 'Bar headed geese'*.
- **Vulture Cafe** – A place where cattle carcasses are made available at one spot, for vultures to 'feast' (scavenge) upon them.

2.3 Dahej

Industrial pollution has destroyed local fisheries in Dahej near Bharuch, Gujarat.



- **Location** - Near the ancient port site of Barygaza (near today's Bharuch) on the Gulf of Khambhat, ***Gujarat.***
- **Economic importance** - It began to be developed as a Special Economic Zone (SEZ) in 1990.
- It is one of the four Petroleum, Chemical and Petrochemicals Investment Regions (PCPIR) in the country.
- **Ecological significance** - The freshwater of the Narmada enters the saline waters of the Gulf of Khambhat in Dahej.
- Many types of sea life including shrimp, bumla, salmon, boi, makul are found here. It is also the breeding ground of the ***Hilsa*** ('palwa' in Gujarat) fish.

Gujarat has the longest coastline in India (1,600 km) and an Exclusive Economic Zone covering 0.214 mn sq.kms

2.4 Yeonpyeong Island

North Korea has fired more than 200 rounds of artillery shells off its west coast, towards the South's Yeonpyeong Island.



- **Yeonpyeong Island** – It is home to a *military base and a small civilian population* of about 2,000 people ***in South Korea.***
- **Geography** – It lies 3km from the disputed maritime border in the Yellow Sea and 12km from the North Korean coast.
- Yeonpyeong Island is close to what is known as the '***Northern Limit Line,***' the de facto maritime border that separates the two Koreas.

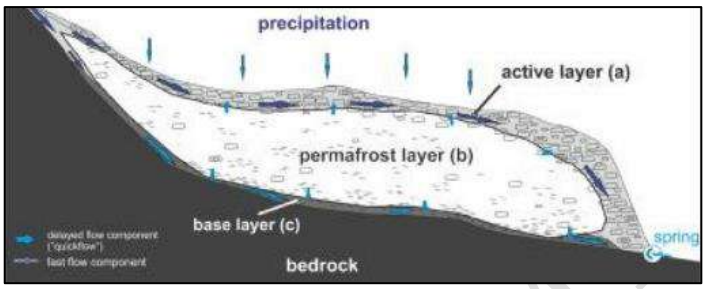
2.5 Rock Glaciers

A study has pointed out that the 100 active permafrost structures identified in Jhelum basin, can cause catastrophic disasters in future.

- A rock glacier is a mass of rock, ice, snow, mud, and water that moves slowly down a mountain under the influence of **gravity.**
- **Formation** - They typically form in ***mountainous regions*** where there is a combination of permafrost, rock debris, and ice.
    - A pre-existing glacier may accumulate debris and rocks as it moves.

- Over time, if the glacier recedes or thaws, the debris-covered ice can transform into a rock glacier.

- **Permafrost -** Thick ground layers frozen for at least 2 years.
- **Types** - They are classified as ***'active' or 'relict'*** to indicate the status of permafrost within them, identified by the appearance of the rock surfaces.
- **Rock glaciers in Kashmir Himalayas** - The Kashmir Himalayas dotted with these rock glaciers is facing deglaciation (retreat or melting of ice sheets and glaciers).
- The study has pointed that rock glaciers will become a more common mountain landform in the future, as debris concentrations increase in the melting glaciers due to global warming.



- The researchers found that some rock glaciers near glacial lakes in the region such as *Chirsar Lake and Bramsar Lake* particularly increase the risk of *glacial lake outburst floods (GLOFs).*

2.6 Western Disturbance

- It is an ***extratropical storm system*** that forms in the ***middle and upper latitudes.***
- It is a non-monsoonal precipitation pattern that causes rainfall and snowfall in northern India originating from the ***Mediterranean region.***
- The weather system begins in the Mediterranean as a non-monsoonal precipitation and proceeds eastward, having an impact on different regions of Pakistan, India, and surrounding nations.
- **Causes-** It develops when the Himalayas and western parts of central Asi a contact with the jet stream, a fast air current in the upper atmosphere. This interaction causes a low-pressure area to arise, which in turn causes the disturbance to develop.
- **Outcome**- In northern India, it causes ***rainfall in plain and snowfall in mountain*** regions.



- **Declining trend**- The Western disturbances is showing a declining trend in intensity in the past few years, Uttarakhand and Himachal Pradesh have experienced 47% and 40% less rain than normal during October to December in 2023.
- **Climate change**-A long-term shift in weather patterns, mainly caused by human activities, especially the burning of fossil fuels.
- **Impact of climate change**- A declining trend in the intensity and frequency of western disturbances, leading to reduced rainfall and snowfall in the post-monsoon season, affecting agriculture and water availability in the mountains.
- **Decline in apple production**- It is due to prolonged drought and lack of snow.

2.7 Day and Night Microphysics

Indian Meteorological Department (IMD) has been issuing alerts with maps from various weather monitoring satellites.

Day and Night Microphysics RGB Imager
• It is image created by combination of Red, Green and Blue colours. • **Aim** – To study various *atmospheric characteristics*. • **Radiometer** – A device that measures the properties of radiation by studying the radiation's interaction with matter.

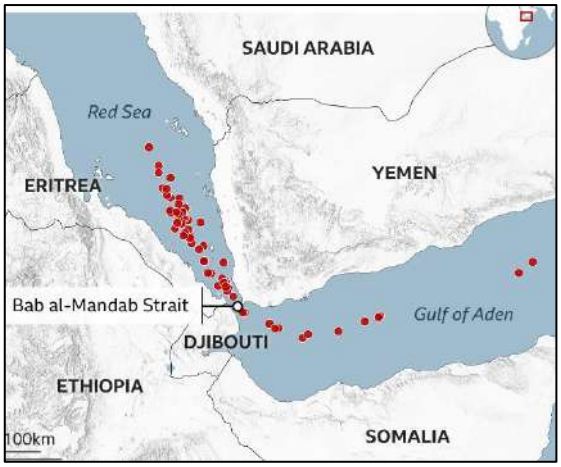
- **Atmospheric sounders** – A devices that measure temperature, humidity and study water vapour as a function of their heights from the ground.
- **Factors determining RGB imager** – Solar reflectance and brightness temperature.
- **Applications** - It helps in analysis of different *cloud types*, initial stages of *convection*, maturing stages of a *thunderstorm*, identification of *snow area*, and the *detection of fires*.
- It also helps in tracking the formation, evolution and depletion of *cyclones* and other weather events.

- Solar reflectance is a ratio of the amount of solar energy reflected by a surface and the amount of solar energy incident on it.
- Brightness temperature is the relationship between the temperature of an object and the corresponding brightness of its surface.
- **Daytime Microphysics (DtMicro) RGB** – It is the data formed by combining information about the cloud brightness, cloud particle phase and size, and cloud top temperature.
- **Aim** – To distinguish ice from water phase and to monitor the development of convection, fog and low clouds.
- **Observations** – Water cloud is more reflective than ice cloud and have a stronger red beam, smaller water or ice particles have a higher reflectivity, resulting in a stronger green beam and warm surface corresponds to strong blue beam component.
- **Night microphysics** – It is designed for monitoring the evolution of night time fog and stratus clouds.
- **Observations** – A strong red beam for thick clouds, strong green beam for water clouds with small droplets and a strong blue beam for warm surfaces.
- The Kalpana 1 and INSATs 3A, 3D, and 3DR satellites have bolstered India's weather monitoring and warning services.

2.8 Gulf of Aden

Indian Navy's destroyer INS Visakhapatnam responds to distress call from drone-hit merchant vessel in Gulf of Aden.

- It is a deep-water basin that forms a natural sea link between the ***Red Sea and the Arabian Sea.***
- **Geography** – It is an *arm of the Indian Ocean* that runs in a west-east direction, is located between Yemen on the south coast of the Arabian Peninsula and Somalia and Djibouti in Africa.
- **Strategic importance** - In the northwest it connects with the Red Sea through the Bab el Mandeb straits, making it strategically important.
- **Climate** – It is strongly influenced by the upwelling of cool, nutrient-rich waters during the southwest and northeast monsoons and is characterized by a prevailing high-energy climate.
- **Biodiversity** – Its nutrient rich water support for high levels of biological productivity and it also flows into the Red Sea making the southern part of the Red Sea higher productivity region.
- Indian Navy currently has around 12 warships deployed for anti-piracy and maritime security duties over Arabian Sea.



Jeddah Convention of 1982, the 'Regional Convention for the Conservation of the Red Sea and Gulf of Aden Environment' aims at protection of coastal and marine environment from pollution and the rational management of living marine resources that also lead to establishment of **PERSGA** (Programme for the Environment of the Red Sea and Gulf of Aden) in 1995.

2.9 Communities & Crisis in Meghalaya

Recently, Meghalaya has released an official state anthem on its statehood day that has led to a controversy over the state's Jaintia tribe.



- **Boundaries** –***Assam*** to the north and northeast and by ***Bangladesh*** to the south and southwest.
- **Communities in Meghalaya** – ***Garo, Khasi and Jainitia*** are 3 major matrilineal communities while other communities are ***Khynriam, War, Bhoi and Lyngnam***.
- **Population** – State's total population is 29.7 lakh (Census 2011).
    - Garos are around 8.21 lakh.
    - Jaintias, Khasis along with tribes War, Bhoi and Lyngngam make a total of about 14.1 lakh.
- **3 Autonomous District Councils** – Khasi Hills, the Jaintia Hills and the Garo Hills Autonomous District Council are created under the provisions of the ***6th Schedule*** of the Indian Constitution.
- It is for the *administration of tribal areas in certain states*.
- **Crisis** – The 2-minute-long anthem features segments in 3 languages namely English, Garo and Khasi. It led to controversy as it had left out the Jaintia or Pnar language.
- Meghalaya celebrates its statehood day every year on January 21st and 2024 marks its 52nd statehood day. It got its statehood status in ***1972.***
- **Government's response** – It has followed the Meghalaya State Language Act and has used languages that are recognised by the act.
- **Meghalaya State Language Act of 2005**
    - **State's official language** – English
    - **Associate Official Language** – Khasi and Garo
- ***U Kiang Nangbah*** is a Jaintia freedom fighter who led an uprising against the British in the 19th century.

2.10 Copper Reserves

India is to send industry delegation for copper mining opportunities in Zambia.

- Copper is a good conductor of electricity and is ductile (able to be drawn out into a thin wire).
- **Reserves in India -** Rajasthan (50%); Madhya Pradesh (24%); Jharkhand (19%); 7% in AP, Gujarat, Haryana, Karnataka etc.
- **Reserves across globe** ***- Chile*** has the world's largest copper reserves and is also the world's largest copper producer.
    - **Reserves** - Chile, Australia, Peru, Russia and Mexico
    - **Production** - Chile, Peru, the Democratic Republic of the Congo, China, the United States.



Composition	Alloys
Copper +iron +nickel	Stainless steel
Copper + nickel	Morel metal
Copper + aluminium	Duralumin
Copper + zinc	Brass
Copper + tin	Bronze

Zambia

- Located in southern Africa, the country got its name from the ***Zambezi River.***
- Zambia is a ***landlocked country*** of rugged terrain and diverse wildlife, with many parks and safari areas.
- On its border with Zimbabwe is the famed ***Victoria Falls***, plunging into the narrow Batoka Gorge.
- Zambia has about 6% of the world's copper reserves and was the 8th largest producer of copper in 2022.

Other Important Topics

Lake Victoria

- Lake Victoria in Africa is the ***world's largest tropical lake*** and the ***2nd - largest freshwater lake*** after Lake Superior by surface area.
- It's shared by Kenya, Tanzania, and Uganda, and ***touches the equator*** on its northern side.
- It is the chief reservoir of the ***Nile.***
- It is home to the ***world's largest freshwater fishery***.



Biswanath Ghat

- Biswanath Ghat is in ***Assam***, located on the banks of the Brahmaputra River and is known as ***"Gupta Kashi".***
- The name "Gupta Kashi" is a comparison to Kashi during the Gupta Empire era.
- Biswanath Ghat is also known for its ghat, island, and temple built by the Ahom king.

Warli tribe

- The Warli are an indigenous of ***Maharashtra and Gujarat***.
- The name "Warli" comes from the word "Warla", which means "piece of land" or "field".
- They are considered by some to be a *sub-caste of Bhil tribe*, and their history dates back to the 10th century AD.
- The Warli people speak Varli or Warli, an Indo-Aryan language.

Arambai Tenggol

- Arambai Tenggol (dart wielding cavalry) is a Meitei activist organization in the ***Manipur.***
- The organization is often described as radical or a radical armed militia.
- It is a revivalist organization that aims to reestablish pre-Hindu, native ***Sanamahi religion*** among Meiteis.
- **Arambai** is a dart weapon used by the Meitei cavalry soldiers of Kangleipak.

Mount Lewotobi Laki-Laki

- Mount Lewotobi Laki-Laki is a mountain in ***Indonesia*** that has erupted recently.
- It is part of the Lewotobi twin volcano, which is located in the southeastern part of ***Flores Island***.
- The Lewotobi twin volcano is made up of the Lewotobi Laki-Laki (male) and Lewotobi Perempuan (female) stratovolcanoes, with summit craters less than 2 km apart.



Zanskar River

- The Zanskar River is a tributary of the ***Indus River***.
- It originates from the Doda and Lungnak rivers, and flows ***entirely within Ladakh.***
- The Zanskar River's headwaters are known as the Tsarap Chu, and originate from the snows of the Himalayas.
- The river's entire catchment area is formed by glaciers.

El Nino

India's monsoon rainfall for the year 2023 hit a five-year low, marking the lowest since 2018 due to El Nino

- A climate phenomenon that describes the ***unusual warming of the Pacific Ocean***, affecting the trade winds and the monsoon rainfall in India.
- Kashmir - The El Nino's impact is evident through prolonged dry spells, milder winters, and diminished snowfall.
- It causes prolonged dry spells, milder winters, and diminished snowfall in some regions.

Czech Republic

- The Czech Republic, also known as Czechia, is a ***landlocked country*** in Central Europe with its capital Prague.
- It borders Poland, Germany, Austria, and Slovakia.

Krizna Jama Cave

- Krizna Jama, also known as Cross Cave or Cold Cave under Cross Mountain, is a cave in ***Slovenia***.
- It's located in the Loz Valley, between the Loz Karst Field, Cerknica Karst Field, and Bloke Plateau.
- Krizna Jama is the 4th biggest known underground ecosystem in the world in terms of biodiversity.

Alvaro

- Alvaro, the 1st cyclone of 2024, made landfall in ***Madagascar*** recently. **Mozambique** named the cyclone.
- Resilience and Preparedness to tropical cyclones across Southern Africa (REPRESA) is an international initiative that aims to improve community preparedness for tropical cyclones in Southern Africa.

Kyanjin glacial lake

- Kyanjin glacial lake is located above Kyanjin Gompa, halfway up the Langtang valley in ***Nepal***.
- The lake is drained to provide clean hydropower for Langtang and Kyanjin, two villages in the high Kyanjin Valley.

Daagna

- *Daagna* (branding) is a practice among some tribal communities of Madhya Pradesh, most prominent among the Baiga (traditionally priests), Kol, and Gond (traditionally rulers) tribes.
- It involves branding infants and children with ***iron rods or hot objects*** to treat undiagnosed illnesses.

3. POLITY

3.1 Designated Terrorist under UAPA

Gangster Goldy Brar, the mastermind behind the murder of Punjabi singer Sidhu Moosewala, was declared a designated terrorist by the Centre under the Unlawful Activities (Prevention) Act (UAPA).

- The UAPA aims to prevent unlawful activities and terrorist activities in the country.

- **Terrorist Act -** Any act committed with ***intent to threaten or likely to threaten*** the unity, integrity, security, economic security, sovereignty of India or any section of the people in India or in any foreign country.
- **2019 Bill -** Originally only covering ***organizations*** that engage in terrorism, the Act was amended in 2019 to allow the government to designate ***individuals*** as terrorists too.
- The 2019 Bill sought to empower the ***central government to designate*** an individual a terrorist or a terrorist organisation if they are found committing, preparing for, promoting, or involved in an act of terror.

Satinderjit Singh, popularly known as Goldy Brar has become the 56th person to be named an individual terrorist under the Unlawful Activities (Prevention) Act, 1967.

- The 2019 amendment did not clarify the standard of proof required to establish that an individual is involved, or is likely to be involved, in terrorist activities.
- The government is ***not required*** to give an individual an ***opportunity to be heard*** before such a designation
- An individual who is convicted in a terror case is legally referred to as a terrorist, while those suspected of being involved in terrorist activities are referred to as terror accused.
- **Effect of designation**- The designation of an individual as a global terrorist by the United Nations is associated with sanctions including travel bans, freezing of assets and an embargo against procuring arms. However, the 2019 amendment did not provide any such detail.
- **Appeal -** Under the amendment, the central government set up a ***review committee*** comprising a chairperson (a retired or sitting judge of a High Court) and 3 other members to order the government to delete the name of the individual from the schedule that lists terrorists, if it considers the order to be flawed.
- Apart from these two avenues, the individual can also move the courts challenging the government's order.



3.2 Supreme Court Legal Services Committee (SCLSC)

Recently, Department of Justice have announced nomination of Supreme Court judge Justice BR Gavai as the Chairman of the Supreme Court Legal Services Committee (SCLSC).

- **Constituted under** - ***Section 3A the Legal Services Authorities Act, 1987*** which states that the Central Authority (NALSA) shall constitute the committee.
- Legal Services Authorities Act was constituted in 1987 to give a statutory base to legal aid programmes and to provide free and competent legal services to eligible groups.
- **National Legal Services Authority (NALSA)** was constituted in 1995 to monitor and evaluate the implementation of legal aid programmes and to lay down policies for making them available.
- **Objective** – To provide ***free and competent legal services to the weaker sections of society***, in cases falling under the top court's jurisdiction.

Currently in 2024, SCLSC consists of chairperson and 9 members.

- **Composition** – It consists of a ***sitting SC judge***, who is the chairman, along with other members possessing the experience and qualifications prescribed by the Centre.
- **Selection criteria** – Under Section 27 of the 1987 Act, the Centre is empowered to make rules in consultation with the CJI, by notification.
- Rule 10 of the NALSA Rules, 1995, entails the numbers, experience, and qualifications of the SCLSC members.
- **Appointment** – ***CJI nominates*** both the chairman and other members of SCLSC and appoints the Secretary to the Committee.
- **Powers**– It can *appoint officers and other employees* as prescribed by the Centre, in consultation with the CJI.

Free Legal Aid in India

- **Article 39A** – The State shall secure that the operation of the legal system promotes justice, on a basis of equal opportunity, and shall, in particular, provide free legal aid.
- **Article 14** – It entails right to equality and make it obligatory for the state to ensure equality before law.
- **Article 22(1)** – It entails the rights to be informed of grounds for arrest which make it obligatory for the State to ensure a legal system that promotes justice based on equal opportunity.
- The Committee for Implementing Legal Aid Schemes chaired by the then SC Justice PN Bhagwati started monitoring legal aid activities throughout India, thereby conceptualised the free legal aid in India.

3.3 16th Finance Commission (FC)

Cabinet approves creation of 3 officer-level posts for 16th Finance Commission.

- **Chairman** – Arvind Panagariya
- **Secretary** – Ritvik Ranjanam Pandey
- 2 posts of Joint Secretary and 1 post of Economic Adviser was created to assist the FC in carrying out its functions.
- **Functions** – To suggest the principle of tax devolution between the Centre and States and revenue augmentation measures.
- To review the present arrangements for financing disaster management initiatives with reference to the funds constituted under the Disaster Management Act, 2005.
- **Report** – Submit to the President and it would be for 5 years from April 1, 2026.

*The 15th Finance Commission under **N.K. Singh** had recommended that States be given **41%** of the divisible tax pool of the Centre during 5-year period 2021-22 to 2025-26, the same level as recommended by the 14th FC.*

Finance Commission of India (FC)

- A quasi-judicial constitutional body under ***Article 280*** of Indian constitution.
- **Constituted by** – The ***President*** of India every 5th year or at such earlier time as necessary.
- **1st FC** – 1951 chaired by ***K.C.Neogy***
- **Role** – To make recommendations regarding
  - Sharing of central taxes with states
  - Distribution of central grants to states
  - Measures to improve the finances of states to supplement the resources of panchayats and municipalities
  - Any other matter referred to it.
- **Limitations** – Recommendations are ***only advisory*** in nature and hence, *not binding* on the government.

3.4 Voter Verifiable Paper Audit Trail (VVPAT)

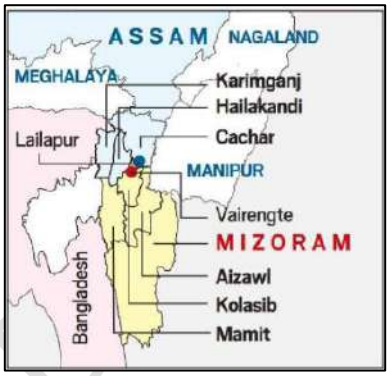
INDIA bloc leaders want a meeting with the Election Commission to discuss and provide suggestions on the use of VVPATs.

- A VVPAT is a machine that is attached to the Electronic Voting Machine (EVM) to generate a paper slip which has the candidate ***serial number***, ***name*** of the candidate voted for and the ***symbol*** of his party.
- This is recorded in the machine's control unit and a printer is attached to the balloting unit and kept in the voting compartment.
- The paper slip remains visible on the VVPAT for ***7 seconds*** through a transparent window.

- The paper slip can later be retrieved and tallied with the button pressed in the EVM.
- The use of VVPATs falls under ***Rule 49A of the Conduct of Elections Rules, 1961,*** which provides that every EVM shall have a control unit and a balloting unit.
- These machines were first used in a ***by-election in Nagaland*** in 2013.

3.5 Boundary Committee in Mizoram

Mizoram forms panel to resolve border dispute with Assam.



- Mizoram, once was part of Assam became a union territory in 1972 and later became a full-fledged state in ***1987.***
- **Boundary Committee** – Constituted by the Zoram People's Movement (ZPM) government of Mizoram.
- **Aim** – To resolve the 165-km ***border disputes between Mizoram and Assam*** shared across 3 districts on each side.
    - Mizoram shares boundaries with Assam, Manipur and Tripura in India and also share border with Bangladesh.
- **Panel members** –Minister for Environment, Forests and Climate Change, the state Home Department Commissioner, the advisor to the Chief Minister, the Chief Secretary and the state DGP along with 1 member each from the recognised parties in the state.

3.6 75th anniversary of Supreme Court

Recently, Prime Minister of India inaugurated Diamond Jubilee celebration of Supreme Court (SC).

- **SC** – It is the apex judicial body under the Constitution of India.
- ***Article 124*** of the Indian constitution states that 'there shall be a Supreme Court of India'.
- **Establishment** –26 January 1950 with the coming into force of the Constitution: **Inauguration** – 28 January 1950.
- **Location** –**New Delhi**.
- **Strength -** Determined by
    - ***Article 124*** of Indian Constitution
    - The ***Supreme Court (Number of Judges) Act, 1956***.
- **Original strength** –***8 Judges***, a Chief Justice and 7 puisne Judges. ***Parliament*** can increase the strength as provided by the Indian Constitution.
- The Supreme Court (Number of Judges) Act, 1956 has been ***amended in 6 instances*** to fix the maximum ceiling.

Harilal J. Kania is the 1st Chief Justice of India.

Initiatives launched during 75th Anniversary

- **Digital Supreme Court Reports (Digi SCR)** – It has 36,308 cases of SC since 1950, accessible to the public in the digital format.
- **Digital Courts 2.0** – It enables access of court records to the Judges of the district courts in digital form, it is coupled with the use of AI for transcribing speech to text on a real-time basis.
- **New website of the SC** – It will be in bilingual format in English and Hindi and has been redesigned with a user-friendly interface.

- **Current Strength** – As of 2024, it is 34 which includes ***33 SC judges and 1 Chief Justice of India***.
- **Eligibility of a SC Judge**
    - A person must be a citizen of India and
    - For atleast 5 years, a Judge of a High Court or of 2 or more such Courts in succession (or)
    - An Advocate of a High Court or of 2 or more such Courts in succession for at least 10 years (or)
    - He must be, in the opinion of the President, a distinguished jurist.
- **Recommendation by** – SC collegium headed by Chief Justice of India along with 4 other senior most SC Judges.
- **Appointed by** – President of India, after consultation with Chief Justice of India.

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3.7 Right to Food

Recently, Indian government argued for people's right to food in Supreme Court by supporting Genetically Modified (GM) crops as against the alleged environmental damage by it.

SDG 2 is about creating a world free of hunger by 2030.

- **Right to Food** – It implies the right to food at *appropriate nutritional levels* and the quantum of *relief to those in distress must meet those levels* in order to ensure that this right is actually secured and does not remain a theoretical concept.
- It is ***inherent to a life with dignity*** according to National Human Rights Commission (NHRC).
- **Legality** – ***Article 21*** of the Constitution of India should be read with ***Articles 39(a) and 47*** to ensure the effective realization of right to food.
    - **Article 21 –** Fundamental right to life and personal liberty.
    - **Article 39(a)** – State to direct its policies towards securing that all its citizens have the right to an adequate means of livelihood.
    - **Article 47** – State to raise the level of nutrition and standard of living of its people as a primary responsibility.
- Thus it is a guaranteed Fundamental Right which is ***enforceable under Article 32***.
- **Extended rights** – ***Right to free from hunger*** and that starvation constitutes a gross denial and violation of this right.

3.8 Idate Commission Report

The National Human Rights Commission (NHRC) stressed on the need for the implementation of the Idate Commission report.

A National Commission for De-notified, Nomadic and Semi-Nomadic Tribes (NCDNT) was first set up in 2003 and later reconstituted in 2005.

- **Headed by -** Bhiku Ramji Idate.
- **Setup by -** The Ministry of Social Justice and Empowerment.
- **Constituted in -** 2015, for a 3-year temporary term.
- **Purpose -** For the empowerment of Denotified Tribes (DNT), Semi Nomadic (SNT), and Nomadic Tribes (NT).
    - Nomadic and semi-nomadic communities are defined as those who move from one place to another rather than living at one place all the time.
- The committee had to submit its report identifying the above communities state wise, assessing their development status, and recommending ways to uplift them.
- The commission has studied the earlier report of Renke Commission and submitted its report in 2018**.**

Recommendations

- The Idate Commission has made a total of 20 recommendations which concern the various ministries and departments.
- The government must repeal the Habitual Offenders Act, 1952, if not, the appointment of a representative of De-notified Tribe community with the nodal officers as stipulated in the Act.
- **Non-inclusion -** It also suggested the non-inclusion of DNTs/NTs/SNTs under the SC/ST/OBC and formulation of specific policies for the former, among many others.
- **Protection -** The commission has recommended giving protection to Denotified Nomadic and Semi-Nomadic Tribes, the communities under the Atrocities Act.
- **Poorest of the Poor -** The report has called Denotified Nomadic and Semi-Nomadic Tribes poorest of the poor, most marginalised and most downtrodden communities.
- **Constitutional amendment -** It recommended a Constitutional amendment so that Scheduled NT/ DNT/ SNT can be added as a third category after Scheduled Castes and Scheduled Tribes in the Act.
- **Third schedule -** It stated that the government should provide strong legal protections and constitutional safeguards, including the extension of the Protection of Atrocities Act to the NT/ DNT/ SNT communities by creating a separate Third schedule as Scheduled De-notified Nomadic and Semi-Nomadic Tribes.

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- **Criminal Tribes Act -** In its report, the commission has noted that entire communities were branded as criminals under the colonial rule through enforcement of the Criminal Tribes Act, 1871.
- **2011 caste census -** Advocated for release of 2011 caste census, which is yet to be made public, at least on the DT/ NT/ SNT community, so that policies can be made specifically for these communities.

3.9 Sapinda Marriage

Recently, Delhi High Court has reaffirmed the ban on sapinda marriages.

- **Sapindas** – According to Section 3 of the ***Hindu Marriage Act, 1955 (HMA)***,
  - 2 persons are said to be sapindas of each other if *1 is a lineal ascendant* of the other or if they have a *common lineal ascendant*.
- **On the mother's side** – An individual cannot marry their sibling, their parents, their grandparents, or an individual who shares this ancestry ***within 3 generations***.
- **On the father's side** – The above (mother side) prohibition would extend up to their grandparents' grandparent, and anyone who shares this ancestry ***within 5 generations***.
- **Violation** – Such marriages will be ***declared void*** and will be treated as though it never took place.
- **Exceptions** - It allows such practices ***if the customs of each individual permits*** sapinda marriages.
- The word 'custom', according to Section 3(a) of HMA means 'a practice that has to be continuously and uniformly observed for a long time, and should have gained enough legitimacy among Hindus in a local area, tribe, group, or family, such that it has obtained the force of law'.

Status of Incest relationship around the world

- **European countries** – In France, incest remains *legal*. Portuguese law also does *not criminalise incest*.
- **United States** – They are *banned in all 50 states*, but such relationships between *consenting adults are allowed* in New Jersey and Rhode Island.

Other Important Topics

National Voters' Day (NVD)

- National Voter's Day (NVD), observed ***annually*** on ***January 25th*** to mark the foundation day of the Election Commission of India (ECI) to create electoral awareness amongst citizens and encourage them to participate in the electoral process.
- The 2024 theme is ***'Nothing Like Voting, I Vote For Sure,'*** emphasizing commitment.

SC Legal Services Committee

- Supreme Court judge ***Justice BR Gavai*** has been nominated as the Chairman of the Supreme Court Legal Services Committee (SCLSC) recently.
- The SCLSC is a statutory body constituted under Section 3A of the ***Legal Services Authorities Act, 1987.***
- It gives free legal services to the poor, marginalized, and unprivileged.

4. GOVERNMENT INTERVENTIONS & SCHEMES

4.1 Wine tourism

Over 5,000 tourists visited Sula Vineyard facilities in Bengaluru and Nashik, the most on a single day sale of ₹85 lakh.

- **Wine** – An alcoholic beverage with ***alcohol content from 12% or more*** so of distilled spirits (all by volume).
- **Production** - India's shares ***less than 1%*** in global production, while France, Italy, Spain and the US tops.
  - ***Maharashtra holds 90%*** of India's total wine production.

- **Wine tourism** – The *growth of home grown brands* and the availability of *imported wines* are driving travel interest to vineyards in India and overseas.
- Maharashtra's Nashik is emerging as the **'Wine Capital of India'**

> - ***Ghol fish*** *is the State fish of* ***Gujarat*** *whose air bladder is used in the production of wine and beer.*
> - ***Judima,*** *a home-made rice wine of* ***Assam****'s Dimasa tribe has become the 1st traditional brew in all of northeast to earn a Geographical Indication (GI) tag for its distinct sweet taste.*

4.2 National Maritime Domain Awareness Centre (NMDAC)

India is poised to establish a National Maritime Domain Awareness Centre (NMDAC) in response to emerging threats in the Indian Ocean Region (IOR).

- The Indian Navy's ***Information Management and Analysis Centre (IMAC) in Gurugram***, is on track to upgrade into the National Maritime Domain Awareness Centre in about three years.
- **Objective -** To gather, analyze, and provide actionable intelligence to address maritime challenges.
- The center will maintain vigilant oversight of the expanding Chinese naval activities within the IOR.
- Once operational, the NDMA Centre will house people from 15 agencies under 7 Ministries enabling exchange of maritime information in real-time across the board.
- ***Bharat Electronics Limited (BEL),*** a defense public sector undertaking, is entrusted with the responsibility of providing all the requisite hardware and software necessary for the NMDAC.

Information Management and Analysis Centre (IMAC)

- Nodal agency for maritime information and monitoring and was set up after the 26/11 Mumbai terror attacks.
- Approved by the ***Defence Acquisition Council*** in 2012, the IMAC became operational in 2014 and is located in Gurugram.
- IMAC serves as the nodal center of the ***National Command, Control, and Intelligence (NC3I) Network***, and the Information Fusion Centre-Indian Ocean Region (IFC-IOR) in 2018.
- **Functions of the IMAC -**
    1. Tracks vessels on the high seas
    2. Gets data from the coastal radars
    3. White shipping agreements
    4. Air and traffic management
    5. Global shipping databases management
    6. Automatic Identification Systems (AIS) transponders fitted on merchant ships

> ***NC3I*** *is the nodal centre of the National Command Control Communication and Intelligence System spearheaded by the* ***Indian Navy.***

4.3 Free Movement Regime (FMR)

The Centre has decided to start an advanced smart fencing system for the entire India-Myanmar border with the end of free movement regime.

- **Free Movement Regime** – It is a mutual pact between ***India and Myanmar*** to allow tribes dwelling along the border on either side to ***travel up to 16 km*** inside the other ***without a visa***.
- **Initiated in –** 1970's, last revised in 2016.
- **Eligibility –** It can be used by either a ***citizen*** of India or a citizen of Myanmar with the production of a ***border pass***
- Usually ***valid for a year***, and can stay for up to 2 weeks per visit.

> *India shares a 1,643 km-long border with Myanmar, which passes through the States of Arunachal Pradesh (520 km), Nagaland (215 km), Manipur (398 km), and Mizoram (510 km).*

- **Challenges** – Myanmar's military coup in 2021 prompted an *influx of undocumented migrants*, who took shelter in Mizoram, and also entered Manipur.

- The migrants belonging to the *Kuki-Chin-Zo ethnic group share ethnic* ties with communities in Mizoram and Manipur.
- **Suspension** – *Manipur has suspended the FMR since 2020*, due to COVID-19 pandemic but now urges the centre to end FMR as it attributes to the ongoing ethnic violence in the State.
- India's International border security is Centre's domain.
- **End of FMR** – Fencing along the entire border will be completed in the next 4-and-half years and it necessitates a visa requirement.
- **Significance of Ending FMR** – It is to *stop the misuse of the FMR by insurgent groups* to carry out attacks on the Indian side and flee towards Myanmar and also to put a *brake on the influx of illegal immigrants, drugs and gold smuggling*.



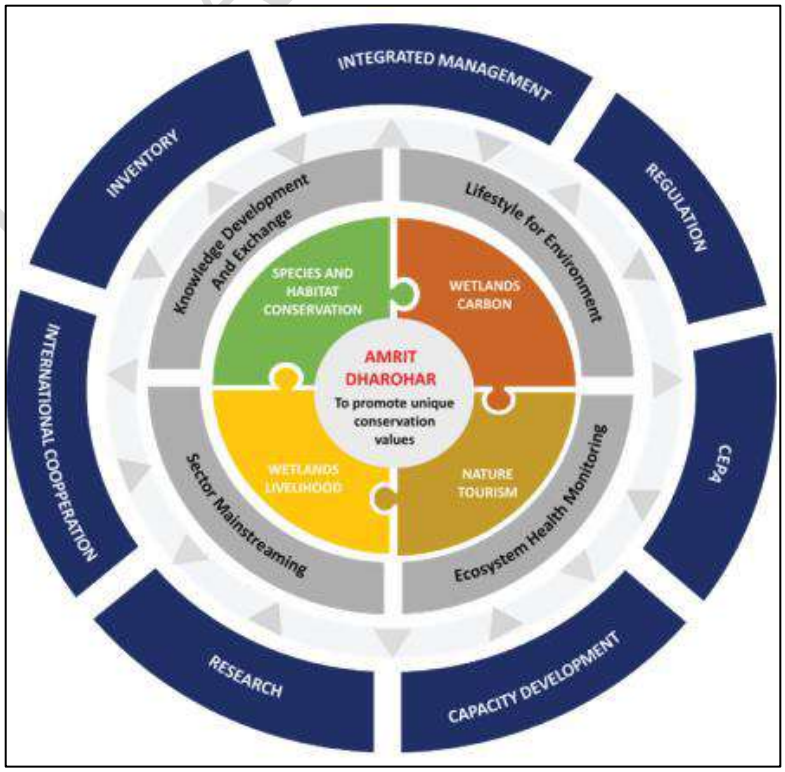
4.4 Amrit Dharohar Scheme

Recently, Ministry of Tourism started training in Bhitarkanika National Park, Odisha under Amrit Dharohar Capacity Building Scheme.

- **Goal** – To promote unique conservation values of Ramsar Sites'.
  - Ramsar Convention 1971, an intergovernmental treaty for conservation and wise use of wetlands, was ratified by India in 1982.
- **Timeline** –June 5, 2023 to June 5, 2026.
- **Implementation** – In convergence with Central Government, State Wetland Authorities, institutions and individuals.

Amrit Dharohar Capacity Building Scheme

- To enhance livelihood opportunities for local communities.
- **Implementation** - ***IITTM***, an autonomous body under Ministry of Tourism, in collaboration with ***MoEFCC***.
- **Training programmes** – Alternative Livelihood program (ALP) and Paryatan Navik Certificate (PNC).
- **Implementation** – In 1st phase, 5 Ramsar sites were identified.
  - Sultanpur National Park - Haryana
  - Sirpur wetland – Madhya Pradesh
  - Yashwant Sagar – Madhya Pradesh
  - Bhitarkanika National Park – Odisha
  - Chilika Lake – Odisha



4.5 PRITHvi VIgyan (PRITHVI)

The Union Cabinet Chaired by the Prime Minister of India has approved the overarching scheme 'PRITHvi Vigyan' (PRITHVI).

- **Implemented by** – Ministry of Earth Sciences (MoES).
- **Timeline** – ***2021-26***, at an overall cost of ***Rs. 4,797 crore***.
- It *encompasses 5 ongoing sub-schemes* namely

- **ACROSS** – Atmosphere & Climate Research-Modelling Observing Systems & Services
- **O-SMART** – Ocean Services, Modelling Application, Resources and Technology
- **PACER** – Polar Science and Cryosphere Research
- **SAGE** – Seismology and Geosciences
- **REACHOUT** – Research, Education, Training and Outreach

- **Objectives**
  - To *observe* the atmosphere, ocean, geosphere, cryosphere and solid earth.
  - To *predict* weather, ocean and climate hazards.
  - To *explore* polar and high seas regions of the Earth.
  - To do *sustainable harnessing* of oceanic resources.
  - To *translate the knowledge* of Earth systems science into services for societal, environmental and economic benefit.
- Earth System Sciences deal with all the ***5 components*** of the earth system namely atmosphere, hydrosphere, geosphere, cryosphere, and biosphere and their complex interactions.

4.6 Inland Waterways Development Council (IWDC)

Harit Nauka guidelines and the River Cruise Tourism Roadmap 2047 were launched at the recently held inaugural Inland Waterways Development Council (IWDC) in Kolkata.

- **Hosted by** - Inland Waterways Authority of India.
- **Establishment in** – 2023
- **Objectives** – For comprehensive *development of inland waterways* and associated ecosystems with improved cargo efficiency, passenger movement, and river cruise tourism.

Harit Nauka

Harit Nauka – It is the '*Guidelines for Green Transition of Inland Vessels'*.

Launched by – Ministry of Ports, Shipping, and Waterways.

Aim – To embark on a journey towards a *sustainable and eco-friendly future* for our inland waterways.

River Cruise Tourism Roadmap 2047

- **Launched by** – Ministry of Ports, Shipping, and Waterways.
- **Roadmap** – To ***enable capacity in an additional 26 waterways*** fit for river cruise tourism from an operational strength of 8 waterways.
- *To increase cruise routes with night stays* from 17 to 80 and to *increase river cruise terminals* from 15 up to 185, registering a growth of 1233%.
- To move the *cruise tourism traffic with night stays* up from 5000 to 1.20 lakh and the local cruise tourism traffic on National Waterways *without night stays* up from 2 lakh to 15 lakh by 2047.
- It had *identified 30+ additional potential routes* for different cruise types, including long and short, recreational, and heritage segments, to attract all tourist categories.

4.7 Survey of Villages and Mapping with Improvised Technology in Village Areas (SVAMITVA)

SVAMITVA Scheme wins Best Innovation Award for Innovation Sandbox presentation during Public Policy Dialogues–2024 at Indian School of Business, Hyderabad.

- **Initiative by -** Collaborative effort of the Ministry of Panchayati Raj, State Panchayati Raj Departments, State Revenue Departments and Survey of India.
- **Launch -** It is a ***Central Sector*** Scheme, launched in 2021.
- **Aim -** For mapping the land parcels in rural inhabited areas using drone technology and Continuously Operating Reference Station (CORS).
- To provide an integrated property validation solution for rural India.
- **SVAMITVA Property Cards -** They facilitate monetization of properties, enabling bank loans and comprehensive village-level planning.

- **Target year-** 2024–25.
- **Coverage Area -** The scheme has been saturated with generation of property cards of all inhabited villages of Haryana, Uttarakhand, Puducherry, Andaman and Nicobar Islands and Goa.

4.8 National Mission for Clean Ganga (NMCG)

Ganga mission gets power to allow treated sewage into water bodies.

- **Establishment** – It was registered ***as a society in 2011*** under the Societies Registration Act 1860.
- **Objectives** – To ensure effective abatement of pollution and rejuvenation of the river Ganga and to maintain minimum ecological flows ensuring better water quality and environmentally sustainable development.
- **Vision** – To ensure ***Aviral Dhara*** (Continuous Flow), ***Nirmal Dhara*** (Unpolluted Flow), Geologic and ecological integrity.
- **Key functions** – It is the ***implementation arm of National Ganga Council*** since 2016.
- It has a 2-tier management structure and comprises of Governing Council and Executive Committee.
    - Implement the work programme of National Ganga River Basin Authority (NGRBA) and the World Bank supported National Ganga River Basin Project.
    - Coordinate and oversee the implementation of the projects.
    - Accept or to provide any grant of money, loan securities or property to undertake operations.
- **New Provisions** – NMCG may now permit the discharge of treated sewage and effluent that conforms to the prescribed "norms" into the river, canal or water bodies.
- **Recent activities of NMCG in 2023** – It has organised the 8th India Water Impact Summit (IWIS) and Driving Holistic Action for Urban Rivers (DHARA) Conference.
- It has launched ***Global River Cities Alliance*** with 9 countries to scale up collaborative knowledge sharing to facilitate river conservation.

4.9 PM-KISAN Scheme

According to recent data from Ministry of Agriculture and Farmers' Welfare, every 4th beneficiary added under PM-Kisan scheme over the past 2 months is a woman.

- **PM-KISAN** – Pradhan Mantri Kisan Samman Nidhi is a ***Central Sector scheme*** with 100% funding from Government of India.
- **Launched in** – ***2019***, retrospectively operational from 2018.
- **Feature**– Provides income support of ***Rs. 6,000 per year*** to farmers in 3 equal instalments of Rs.2000 each.
- **Beneficiaries** – **All land-holding farmer families**, irrespective of the size of their landholdings.
- The amount is directly transferred to the bank accounts of the beneficiaries without intermediaries.

4.10 Viksit Bharat Sankalp Yatra (VBSY)

- It is Centre's flagship initiative to ***raise awareness on its schemes*.**
- **Launched in** – ***December 2023*** and will run till January 2024.
- **Aim** – To ensure that all intended beneficiaries are covered under various flagship schemes of the Central government and thereby achieving beneficiary saturation under government schemes.

4.11 Hamara Samvidhan Hamara Samman

Recently, Vice-President of India had inaugurated 'Hamara Samvidhan, Hamara Samman' to commemorate the 75th Year of India as Republic.

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- It is a yearlong pan India campaign to reaffirm our commitment to the constitutional principles and celebrate the shared values.
- **Undertaken by** – Department of Justice, Ministry of Law and Justice.
- **Aim** – To instil a sense of pride and responsibility to uphold the constitutional ideals and to give opportunity to every citizen to participate and contribute in our democratic journey.
- **Sabko Nyay Har Ghar Nyaya** – Connecting the villagers and spreading awareness of legal services.
- **Vidhi Jagriti Abhiyan** – Involving the students to carry the message Panch Pran in the villages adopted by the Law colleges, under the Pro Bono Club scheme.
- **Nyaya Setu** – Expanding the legal services till the last mile.
- The event also released the achievement booklet of the Scheme on Access to Justice 'Designing Innovative Solutions for Holistic Access to Justice' (DISHA).
- **Partnership with IGNOU** – To allow Paralegals to acquire certifications in diverse field of laws to increase their employability.
- **Partnership with Bhashini** – To break the barriers of language in accessibility to justice.
    - Bhashini, an AI powered language translation platform which will support digital inclusion in India's diverse languages.

4.12 Remission of Duties and Taxes on Exported Products (RoDTEP) Scheme

Recently, a government official confirmed that there is no relook at duty remission scheme (RoDTEP) needed due to US, EU action of imposing countervailing duties on Indian exports.

- **Announced in** – 2021, initially notified till 2023 now extended until June, 2024.
- It replaced the WTO-incompatible ***Merchandise Exports from India Scheme (MEIS) scheme.***
- **Aim** – To provide comprehensive ***support to exporters by remitting duties and taxes*** incurred during the production and distribution of exported products.
- **Administered by** – Department of Revenue, Ministry of Finance.
    - ***RoDTEP Committee's*** primary responsibility is to review and recommend ceiling rates for different export sectors.
- **RoDTEP rates notified by** – *Department of Commerce*.
- **Budget** – ***For FY 23-24, Rs 15,070 crore*** was allocated to boost exports of items such as pharmaceuticals, organic and inorganic chemicals and articles of iron and steel among other items.
- **Coverage** – Taxes, duties, and levies at the *central, state, and local levels*, which are not refunded through other existing mechanisms.
    - It ***refunds embedded duties and taxes***, such as *VAT on fuel* used in transportation, *mandi tax* and *duty on electricity*.
- Rebate is *based on the allowed % of FOB* (Freight On Board) value of exports and issued in the form of a transferable duty credit/electronic scrip (e-scrip).

4.13 Scheme for promotion of Coal/Lignite Gasification Projects

Recently, Union Cabinet approved the Scheme for promotion coal/ lignite gasification projects.

- **Coal gasification** – Coal is partially oxidised by air, oxygen, steam, or carbon dioxide under controlled conditions to produce a liquid fuel known as ***syngas.***
- **Syngas** – It is a *synthesis gas* which can be used for power generation and to make methanol as well.
- **Coverage** – It can be undertaken by ***both government PSU and private sectors***.
- **Finance** – ***Rs. 8500 crore***.
- **Significance** – It could help *reduce the imports of natural gas, methanol, ammonia and other product*s.

4.14 Modified PKC-ERCP Link Project

Recently, a MoU was signed for implementation of the Modified Parbati-Kalisindh-Chambal-ERCP (Modified PKC-ERCP) Link Project.

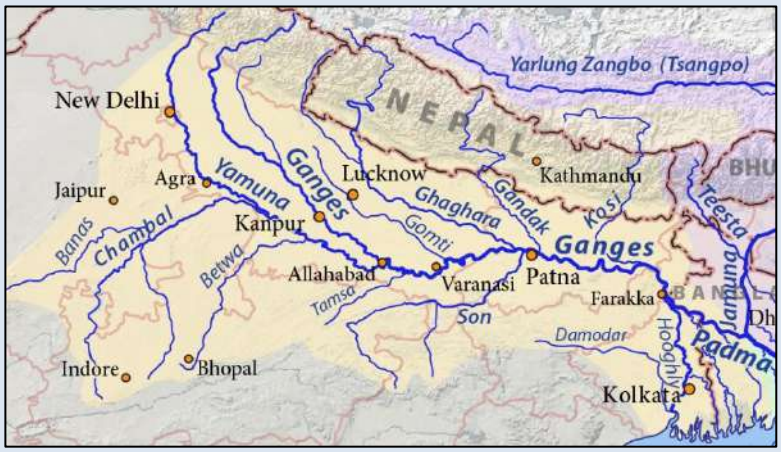
Background

- **Eastern Rajasthan Canal Project (ERCP)** – To meet the drinking and irrigation needs of the 13 districts of south-eastern Rajasthan by harvesting surplus water available during the rainy season in the rivers like Chambal and its tributaries.
- **Parbati-Kalisindh-Chambal (PKC) link Project** – It envisages diversion of surplus water of Parbati, Newaj and Kalisindh river for irrigation by connecting to the Gandhi Sagar or Rana Pratap Sagar reservoir built across river Chambal.
- It will traverse through Madhya Pradesh and Rajasthan states.
- **National Perspective Plan (NPP)** – It was prepared by the then Ministry of Irrigation (now Ministry of Jal Shakti) in August 1980 for water resources development through *inter basin transfer of water*, for transferring water from water surplus basins to water-deficit basins.

- An integration of PKC link project with ERCP of Rajasthan.
- It is the 2nd project under the ***national perspective plan (NPP) of interlinking of rivers*** (ILR) program.
- **Signing parties** – Rajasthan, Madhya Pradesh with the Union Ministry of Jal Shakti.
- **Objectives** – To provide drinking and industrial water in 13 districts of eastern Rajasthan, Malwa and Chambal regions of Madhya Pradesh.
- To provide irrigation in 2.8 lakh ha. area (or more) each in both the states (total of 5.6 lakh ha or more) including supplementation of enroute tanks in the states.

River Chambal

- **Origin** –Vindhyan ranges, Madhya Pradesh
- It is the largest tributary of the Yamuna.
- **Interstate river** – It has a catchment area of 1,32,508 sqkm covering parts of Madhya Pradesh, Rajasthan and Uttar Pradesh.
- **Kalisindh River** – A principal tributary which originates in Madhya Pradesh and joins the river Chambal in Rajasthan.
- **Parbati River** – 3rd largest tributary of Chambal River rising in MP and joins with River Chambal in Rajasthan.



- **Newaj River** – It is a left bank tributary of the river Parwan, a right bank principal tributary of the Kalisindh River.

4.15 Kalpasar Project

Local fishers of Gujarat's Baruch district suffer from lack of fish catch due to Bhadbhut barrages and others dams across River Narmada.

- It is known as 'The ***Gulf of Khambhat Development Project'***.
- **Mission** – To make a sustainable water state where there is 'water for all, water forever and more crops per drop'.
- **Vision** – To store Gujarat's 25% average annual surface water by 30 km long dam across the Gulf of Khambhat.
- It will be the world's largest fresh water reservoir in sea.

Bhadbhut barrage

- **Foundation stone in** – 2017, part of Kalpasar project.
- **Location** – About 25 km before Narmada River merges with sea.
- **Aim** – To stop the ingress of salinity along the Narmada River during high tide, prevent floods as well as to meet the water requirement of industrial units.

Quick facts

- **Narmada River** – It is the *5th largest river in India* and is also one of the only few *westward-flowing ones*.
- **Gujarat's Bharuch district** – A spot where *Narmada River meets the Saline water Gulf of Khambhat* forming an estuary.
- **Gulf of Khambhat** - An *inlet of the Arabian Sea*, and it marks the *highest tidal waves of India* (11 metres).
- **Dams on Narmada River** – *Indira Sagar, Omkareshwar, Maheshwar and especially Sardar Sarovar Dam (SSD).*
- **Sardar Sarovar Dam** – It is a *gravity dam* built across river Narmada in Gujarat and *Gujarat, Madhya Pradesh, Maharashtra and Rajasthan* are 4 Indian states that receive water and electricity from the dam.



Other Important Topics

Ratle Hydro Electric Project

Govt diverts Chenab River water to expedite hydroelectric project in Jammu and Kashmir.

- The Ratle Hydroelectric Project is an 850 MW hydroelectric power project under construction on the ***Chenab River*** in the Kishtwar district of ***Jammu and Kashmir.***
- The project is scheduled to open in ***2026***.

Rajmargyatra

The details of tourist sites in the vicinity of national highways will soon be available on the Rajmargyatra mobile application.

- Rajmargyatra is a unified mobile application that aims to create a seamless, user-friendly experience for highway users.
- It works under the ***National Highways Authority of India (NHAI)***.

PM Young Achievers' Scholarship Award Scheme (PM YASASVI)

- PM YASASVI is a *scholarship program* designed for students belonging to ***Other Backward Class (OBC), Economically Backward Class (EBC), and Denotified Nomadic Tribes (DNT).***
- It aimed at empowering students from marginalized communities, ensuring equitable access to education and fostering a brighter future for the youth of India.
- It offers pre-matric scholarships for students in ***grades 9 and 10***, as well as post-matric scholarships for higher education.
- Students who excel in their studies also get an opportunity of Scholarship to study in ***Top Class Schools and Colleges***.

SARATHI app

- ***Ministry of Rural Development*** in partnership with The/Nudge Institute recently launched DAY-NRLM's "SARATHI" app.

- **Aim -** To address the needs of the most vulnerable, ensuring efficient implementation of developmental programs for rural development.
- The app will be used in 6 states to support special projects for vulnerable households.

Vaishvik Bhartiya Vaigyanik (VAIBHAV) Fellowship

- It is implemented by the ***Department of Science and Technology (DST).***
- It is a scheme meant to attract ***Indian-origin scientists*** based abroad for short-term collaboration.
- Selected fellows will work in collaboration with *Indian Higher Educational Institutions (HEIs),* universities, and public-funded scientific institutions up to 2 months per year for max of 3 years.

FITUR

- The ***Ministry of Tourism,*** India is participating in FITUR, one of the important global travel exhibitions being held recently at Madrid, Spain.
- FITUR is growing as a ***leading international event in the tourism*** sector attracting over 150,000 visitors annually (from travel agents to tour operators and embassies).

Treatment of sewage water into Ganga

- The ***National Mission for Clean Ganga (NMCG)***, the Centre's nodal agency is responsible for abatement of pollution in river Ganga and its tributaries.
- It has assumed new powers under which it may now ***permit the discharge of treated sewage*** and effluent that conforms to the prescribed "norms" into the river, canal or water bodies.
- It is done by amending the ***River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016***.

IInvenTiv

- The 2nd edition of the ***Ministry of Education's flagship R&D Innovation Fair***, IInvenTiv-2024 was inaugurated by Union Education Minister recently.
- It aims to showcase the holistic impact of the research and innovation carried out by the country's top higher education institutes.

Zero Defect, Zero Effect Scheme

- Zero Defect Zero Effect (ZED) is a certification scheme for ***Micro, Small, and Medium Enterprises (MSMEs).***
- The scheme's goal is to improve the competitiveness and sustainability of MSMEs, and to help them become national and international champions.
- The ZED scheme has 3 levels of certification - ***Bronze, Silver, and Gold*** based on parameters such as quality, safety, production, cleanliness, energy, and the environment.

PRASADAM

- Union Minister of Health & Family Welfare inaugurates the country's ***1st Healthy & Hygienic Food Street, 'PRASADAM,'*** in Ujjain, Madhya Pradesh.
- The street will serve ***traditional dishes*** made of coarse grains like rajgira, sanwa, kuttu, ragi, dal-baffle, and more.

National Anti-Doping Agency (NADA)

- National Anti-Doping Agency (NADA) was set up as a registered society under the ***Societies Registration Act*** of 1860 on 2005 with a mandate of creating dope-free sports in India.
- NADA is an autonomous body under the ***Ministry of Youth Affairs & Sports***.

Pariksha Pe Charcha 2024

- It is an ***annual event*** where Prime Minister Narendra Modi interacts with students, teachers, and parents.
- Students of ***Classes 6 to 12*** are eligible to participate in this event.
- The event is part of the larger movement, ***'Exam Warriors',*** which aims to create a stress-free environment for young people.
- PPC 2024 is the 7th edition of the event and will take place in Bharat Mandapam, New Delhi.

Kuppa Pumped Hydro Storage Project

- NHPC Limited and Gujarat govt sign MoU for Rs.4,000 crore in the proposed ***750 MW*** Kuppa Pumped Hydro Storage Project in Chhota Udaipur, ***Gujarat***.
- It aims to utilize pumped hydro storage projects for energy storage and addressing.
- It is a part of "Vibrant Gujarat" initiative.

Education and Research Network (ERNET)

- It is an autonomous scientific society of the ***Ministry of Electronics and Information Technology.***
- ERNET was established in **1986** to provide a networking infrastructure for the research and education community with its headquarters are in ***New Delhi***.
- ERNET's mandate is to support the needs of academic and research institutions through consultancy, project management, training, and other value-added services.

PRERANA program

- Prerana is a ***week-long residential program*** for 20 selected students (10 boys and 10 girls) of class IX to XII, aimed at empowering them with leadership qualities.
- **Ministry –** Ministry of Education.
- Prerana program will run from a Vernacular School, established in 1888, in one of the oldest living cities of India, Vadnagar, in Gujarat.
- The curriculum of Prerana School has been prepared by ***IIT Gandhi Nagar*** and is rooted in 9 value-based themes.

Scope for Mainstreaming Ayurveda Research among Teaching professionals ('SMART 2.0')

- The Central Council for Research in Ayurvedic Sciences (CCRAS) along with *National Commission for Indian System of Medicine* (NCISM) has launched 'SMART 2.0' recently.
- The program aims to promote robust clinical studies in priority areas of Ayurveda with Ayurveda academic institutions/hospitals across the country through mutual collaboration.

Amendment of Central Civil Services (Pension) Rules, 2021

- It is to allow women government servants and pensioners to nominate their children for receiving family pension over their spouse.
- **Conditions –** At the time of the women's death, any proceedings for divorce, domestic violence, or dowry demands happen to be pending against the said spouse.
- Till now, the rules provided for the family pension to first go to the surviving spouse and the children became eligible to receive it only after the ***death of the spouse***.

PM Vishwakarma

- Jammu and Kashmir has becomes the 1st Union Territory (UT) to implement PM Vishwakarma Yojana (PMVY).
- It is an initiative that aims to empower and enhance the skills of the craftsman community (Vishwakarmas).

- ***18 traditional trades*** will be covered in the first instance under PM Vishwakarma.

All-Girls Sainik School

- Defence Minister recently inaugurated the ***Samvid Gurukulam Girls Sainik School***, the 1st all-girls Sainik School, at Vrindavan in Mathura, Uttar Pradesh.
- **Sainik Schools** are residential schools that provide public school education with a military bias.
- They are affiliated with the Central Board of Secondary Education (CBSE) and supported by Central and State funding.

Tehreek-e-Hurriyat

- The Ministry of Home Affairs has officially declared 'Tehreek-e-Hurriyat (TeH)' as an ***'unlawful association'*** for the next 5 years under the Unlawful Activities (Prevention) Act.
- Tehreek-e-Hurriyat Jammu Wa Kashmir is a ***separatist political party in Jammu and Kashmir***, India founded by Syed Ali Shah Geelani.

National Cooperative Dairy Federation of India (NCDFI)

- NCDFI was registered on 1970 under the ***Bombay Cooperative Societies Act (VII of 1925).***
- **Headquarters -** New Delhi.
- NCDFI is an apex body of cooperative dairies.
- **Members -** NCDFI members include federal dairy cooperatives of states and union territories.

5. INTERNATIONAL RELATIONS

5.1 Donkey Routes

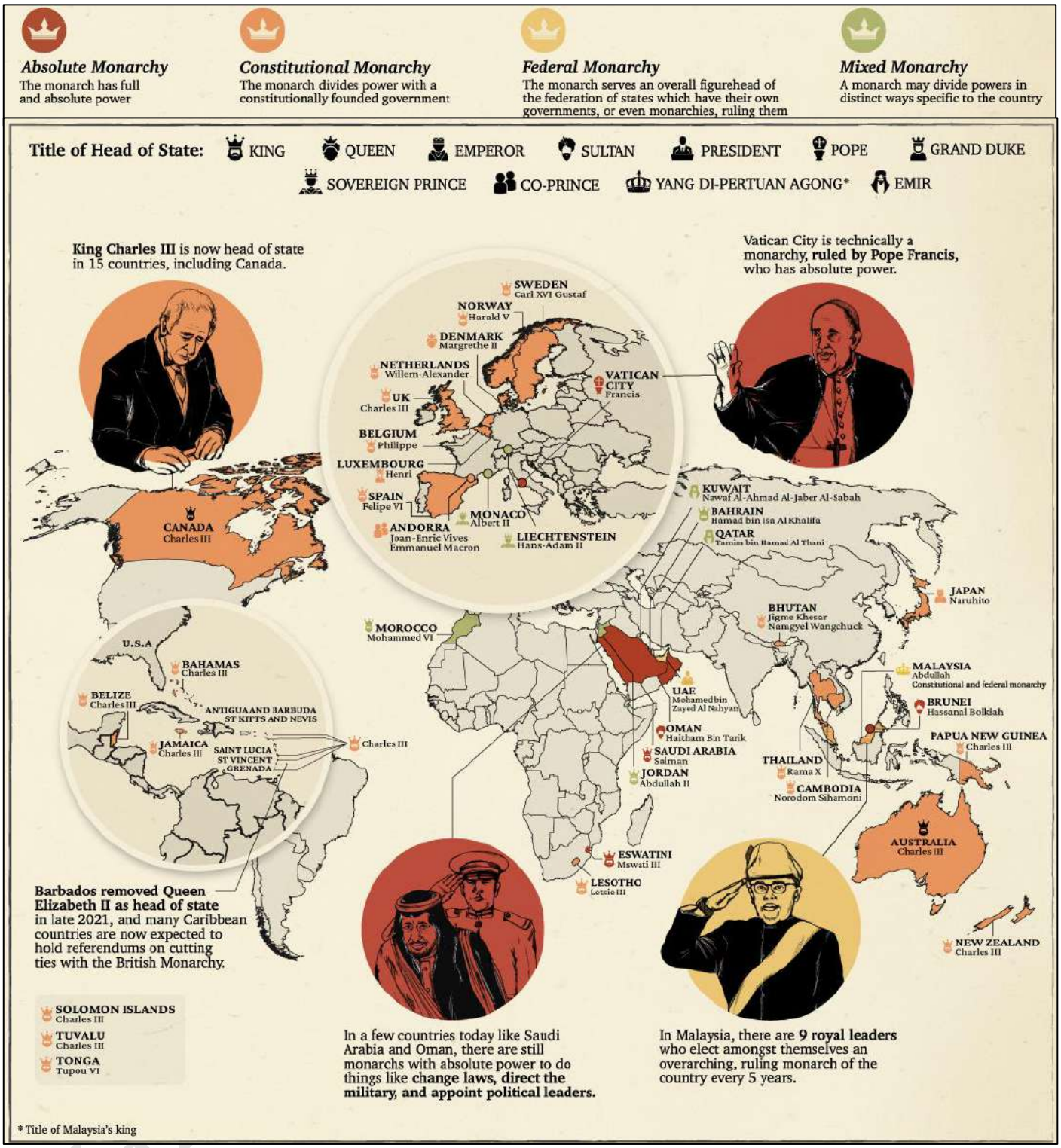
Indians take 'donkey route' through Nicaragua to enter US, Canada.



- The Punjabi word dunki, meaning to move or hop from one place to another, has inspired the term "donkey route".
- Donkey route refers to is a ***dangerous illegal immigration tech nique*** involving crossing a country's borders through a backdoor route via multiple stops in other countries.
- While donkey flight can be used to enter any country, the US, Canada, and the UK are some of the most popular destinations undertaken by Indian immigrants.
- In most such cases, on arrival in the transit country, agents connect the migrants with the so-called '***donkers',*** or people smugglers, who help them enter their final destination illegally.
- There are several risk factors, including imprisonment, deportation and maybe even death.

5.2 Rotational Monarchy of Malaysia

- Malaysia welcomes new king ***Sultan Ibrahim*** in unique rotating monarchy recently.
- 9 of Malaysia's 13 states practices a unique ***rotational form of monarchy***, in which the heads of the country's 9 royal families take turns to be king for a 5-year reign through a secret ballot.
- It is headed by a traditional ethnic Malay ruler, mostly known as the sultan.



5.3 Islamic Resistance of Iraq (IRI)

Recently, 3 US military servicemen were killed in a drone attack on their Tower 22 outpost in Jordan, which was claimed by Islamic Resistance of Iraq (IRI).

- IRI is an umbrella term to describe the operations of all ***Iran-backed militias in Iraq***.
- IRI is claimed to be a part of the '***Axis of Resistance***', the groups that Iran backs as part of its anti-Western and anti-USA stance.
- **Umbrella militias** – Hashd al-Shaabi ; **Operation** – Iraq, Syria and Jordan

- **Recent attacks** – It carried out a *drone attack in Iraqi Kurdistan*, *strikes into Syria* during 2023 Israel-Hamas conflict.

Iran backed Militias in Middle East	
Militant Group	**Region**
Hezbollah	Lebanon
Houthis	Yemen
IRI	Iraq, Syria, Jordan



Tower 22 – Strategic location in **Jordan**, at the north-eastern point where the Jordan meet Syria and Iraq.

Other Important Topics

Bilateral Haj Agreement 2024

- India signs Bilateral Haj Agreement 2024 with Kingdom of Saudi Arabia (KSA) recently.
- The Hajj is an annual Islamic pilgrimage to ***Mecca,*** Saudi Arabia, the holiest city for Muslims.
- It is one of the 'five pillars' of Islam.

Maori Haka

- ***New Zealand's*** youngest MP, Hana-Rawhiti Maipi-Clarke, performed the 'Maori haka' to honour her indigenous people in Parliament recently.
- It's a type of ***ancient war dance*** that's traditionally performed by both men and women for a variety of social functions.

Countries of Particular Concern

- U.S. designates ***China, Pakistan, North Korea*** and some others as 'Countries of Particular Concern' recently.
- Countries of Particular Concern (CPC) are countries where the government engages in or tolerates "particularly severe" ***violations of religious freedom.***
- The U.S. Department of State designates CPCs under the International Religious Freedom Act of 1998.

Sweden in NATO

- Hungary has the approved Sweden's application for NATO membership recently.
- Sweden and Finland applied for NATO membership in 2022 and Finland got its membership in 2023.
- North Atlantic Treaty Organization (NATO) is a military alliance established in 1949 of states from Europe and North America to ensure collective security in Western Europe.

Bangladesh

- PM congratulates Prime Minister Sheikh Hasina of Bangladesh for victory for ***4th consecutive term*** recently.
- Sheikh Hasina's Awami League won ***almost 75% (222 out of 300)*** Parliamentary seats of the seats in general election that was boycotted by the main opposition BNP and drew a low turnout.

6. INTERNATIONAL ORGANISATIONS

6.1 Genocide Convention, 1948

South Africa has moved the International Court of Justice (ICJ) to declare that the Israel was in breach of its obligations under the 1948 Genocide Convention.

- The convention was officially called as the ***UN's Convention on the Prevention and Punishment of the Crime of Genocide.***
- It is an instrument of international law that codified for the first time the crime of genocide in 1948.
- The Convention calls on all States to maintain vigilance, and push for action to prevent genocide, everywhere.

December 9 - International Day of Commemoration and Dignity of the Victims of the Crime of Genocide

- According to the convention, genocide means any of the following acts committed with ***intent to destroy a national, ethnical, racial or religious group***, as such:
    1. Killing members of the group;
    2. Causing serious bodily or mental harm to members of the group;
    3. Deliberately inflicting on the group conditions of life calculated to bring about its physical destruction;
    4. Imposing measures intended to prevent births within the group;
    5. Forcibly transferring children of the group to another group.
- It is a crime that can take place both in time of ***war as well as in time of peace***.
- India ratified the convention in 1959.

6.2 UN Relief and Works Agency for Palestinian Refugees (UNRWA)

Recently, UN officials urged countries to reconsider their decision to suspend the funding for the United Nations agency for Palestinian refugees (UNRWA).



- **Founded in** – 1949, mandated by the UN General Assembly to serve 'Palestine refugees'.
- **Objective** – To provide aid to Palestinians who were forced to leave their homes during the 1948 Arab-Israeli war and to offer services to certain other persons who require humanitarian assistance, on an emergency basis.
- **Funded by** – ***Voluntary contributions by donor states***, and a limited subsidy for administrative costs from the UN.
- **Areas covered** – It operates in *Gaza and the Israeli-occupied West Bank, as well as Lebanon, Syria, and Jordan,* countries where the refugees took shelter after their expulsion.

Other Important Topics

ECOWAS

Burkina Faso, Mali and Niger has recently announced their withdrawal from the West African bloc ECOWAS.

- The Economic Community of West African States (ECOWAS) is a regional group of 15 founded in 1975.
- **Lagos Treaty** – It is also known as CEDEAO in French and was established through the Lagos Treaty.
- **Mission** – To promote economic integration in all fields of economic activity, social and cultural matters.

SHANKAR IAS ACADEMY

7. ECONOMY

7.1 Economic Survey

Recently, the Ministry of Finance released a report titled "Indian Economy – A Review" as Economic Survey was not be released at this time.

- **ES** – A comprehensive ***annual report*** which displays the *performance of the Indian economy* in the past fiscal year.
- **Prepared by** – Department of Economic Affairs, Ministry of Finance.
- **Presented in** – Parliament, normally on 31st January, a day before the presentation of the Budget.
- **ES in 2024** – Since the Lok Sabha elections are due in April, only interim budget will be presented before it.
- Thus, a complete budget and the Economic Survey will be presented only in July 2024, after the results are declared.
- **Presented by** – The Chief Economic Advisor (CEA).

The 1st Economic Survey of India was presented in 1950-51 as a part of the Union Budget. However, since 1964, it has been decoupled from the Budget presentation.

- **Features** – It summarises the performance of government's initiatives and provides an outlook of the prospects of the Indian economy in the short to medium term.
  - **Part A** – Major economic developments in the year as well as a broad review of the economy.
  - **Part B** – It covers specific topics such as social security, poverty, education, healthcare and human development.
- **Importance** – It helps the government in *analysing the performance* of various sectors, *identifying the major impediments* to economic growth and in *formulating economic strategies* for the coming year.
- The report 'Indian Economy – A Review' gives the top highlights in the Indian economy from the past 10 years.

	Economic Survey	Union Budget
Content	Deals with *economic policies* and demonstrates forthcoming economic plans.	Deals with yearly *expenditures and income.*
Presented on	*31st January* on non-election years.	*1st February* on non-election years.
Presented by	Chief Economic Advisor	Union Finance Minister

Other Important Topics

Members of 16th Finance Commission

- The Government has appointed 4 members of the newly-constituted ***16th Finance Commission*** recently.
  - Former Expenditure Secretary - Ajay Narayan Jha,
  - SBI Group Chief Economic Advisor - Soumya Kanti Ghosh,
  - 2 other members - Annie George Mathew and Niranjan Rajadhyaksha

Computerization of Agriculture & Rural Development Banks (ARDBs)

Union Home Minister launched the computerization scheme for the Registrar of Cooperative Societies (RCSs) and ARDBs of the states in New Delhi recently.

- ARDBs are banks that play a significant role in improving land productivity.
- In the 1960s and 1970s, ARDBs helped develop minor irrigation and farm mechanization.
- ***NABARD*** is an apex development bank that supports and promotes agriculture and rural development.

Halwa ceremony

- Ahead of the ***Union Budget 2024 presentation***, the halwa ceremony was performed recently.
- The Halwa ceremony is performed around a week ahead of the Union Budget every year.

India's stock market

- India overtakes Hong Kong to become ***4th-largest stock market*** recently.
- India's stock market capitalization crossed USD 4 trillion for the first time, with about half of that reportedly coming in the past 4 years.
- The top 3 stock markets are the ***U.S., China, and Japan***.

'Swayam Siddha'

- Swayam Siddha is a financial product from the ***State Bank of India (SBI)*** that provides loans to ***women entrepreneurs*** from Self Help Groups (SHGs).
- The loans can be ***up to 5 lakh rupees***.

Investment bankers

- An investment banker is an individual who often works as part of a financial institution and is primarily concerned with raising capital for corporations, governments, or other entities.
- **Examples -** Goldman Sachs (GS), Morgan Stanley (MS), JPMorgan Chase (JPM), Bank of America Merrill Lynch (BAC), and Deutsche Bank (DB).

Inoperative account by RBI

- A savings or current account is treated as inoperative, if there are **no** 'customer induced transactions' in the account for a period of ***over 2 years.***
- A customer induced transaction can be a financial transaction initiated by or done at the
  - Behest of the account holder by the bank or third party, or
  - A non-financial transaction, or
  - A KYC (know your customer) updation done in face-to-face physical mode or through digital channels such as internet banking or mobile banking application of the bank.

8. AGRICULTURE

8.1 Litchi

National Research Centre on Litchi (NRCL) has successfully expanded litchi cultivation in India by providing technical help, plants and training to farmers.

- It is a *sweet juicy fruit* that is ***native to Southeast Asia***.
- **Scientific name** – *Litchi chinensis*; **Family** - Sapindaceae
- **Growing conditions** – A *sensitive fruit* influenced by temperature, rainfall, humidity and soil suitability as well.

National Research Centre on Litchi (NRCL)

- **Established in** – 2001.
- **Located at** – Mushahari in Muzaffarpur, Bihar. (Muzaffarpur region is the litchi capital of India)
- **Umbrella Institution** – Indian Council of Agricultural Research (*ICAR*).
- **Aim** – To act as a nodal institution for research and development on litchi in India, acts as a national repository of information and also provides consultancy services to end users.

- **In India** – It mainly grows in the foothills of the Himalayas in Uttarakhand, Bihar, West Bengal and Jharkhand.
- Bihar, West Bengal, Jharkhand and Assam accounts for 78% of the total production in the country.
- **Harvest –** It takes place in summer in North India while in Karnataka, it takes place in the winter.
- **Popular varieties** – Shahi litchi, China, Gandki Lalima, Gandki Sampada and Gandki Yogita.
- Litchi fruit contains a toxin, methylene cyclopropyl-glycine (MCPG), which is known to be fatal by causing encephalitis-related deaths. This is especially harmful when consumed by malnourished children.

> ***Shahi litchi*** *from Bihar known for its sweet, juicy, unique flavour and aroma with pearly white aril has a GI tag.*

8.2 Lentil Production

India is set to become the world's largest producer of lentil (masoor) during the 2023-24 on account of higher acreage.

- **Cultivation in India** – Agriculture Ministry shows that ***19.45 lakh hectares is under lentil*** till January, 2024, 6% higher from last year's area, and 37% higher than the normal area.
- **India's lentil production** – In the 2022-23 crop year, it stood at 1.56 million tonne.
    - According to FAO, ***India is world's 2nd largest lentil growers*** in 2022 while Canada tops the chart.
- **Imports** – It is to meet its domestic requirements, buying mainly from *Australia, Canada, Russia, Singapore, and Turkey*.

Lentils

- **Scientific name** – *Lens culinaris*
- It is a small annual **legume** of the pea family (Fabaceae) and its edible seed.
- **Types** – Green lentils, Red & Yellow lentils, Black lentils and Brown lentils.
- **Cultivation** – Throughout Europe, Asia, and North Africa but are little grown in the Western Hemisphere.
- **Benefits** – It helps in nitrogen fixation in the soil. It has high protein and fibre content.

8.3 Poppy straw

Over 10,000 kg of poppy straw, under the cover of cattle feed, has been seized by the Central Bureau of Narcotics in the last 1 year.

- **Poppy straw** – It is the husk left after the opium is extracted from the pods which also contains a very small morphine content.
- **Drug** – It is one of the narcotic drugs under the ***Narcotic Drugs and Psychotropic Substances Act, 1985 (NDPS)***.
- **Legal regulation** – Possession, sale, use, etc. are ***regulated by the State Governments*** under the State NDPS Rules.

> *India is one of the few countries that legally cultivate opium poppy and is the only country on earth that illicitly produces opium gum.*

- Farmers sell the poppy straw to those licensed by the State Governments to purchase poppy straw and any excess poppy straw is ploughed back into the field.
- **Responsible authorities** – The ***Central Bureau of Narcotics*** is responsible for
    - *Issuing licenses* to farmers to cultivate opium poppy; Supervising and *controlling the cultivation*
    - *Procuring* the opium produced by the licenced cultivators
- A Deputy Narcotics Commissioner is in-charge of each of the ***3 opium growing States*** Rajasthan, Madhya Pradesh and Uttar Pradesh.
- The ***Narcotics Control Bureau*** under the Ministry of Home Affairs is also responsible in regulating NDPS.
- **Violation** – Anyone possessing, selling, purchasing or using it without a license or in violation of any conditions of the license is ***liable to prosecution under the NDPS Act***.
- **Control operations** - Under ***Operation Prahaar in 2023***, 10,326 hectares of illicit opium field was destroyed in Arunachal and Manipur.

- India is a signatory to the
  - single Convention on Narcotic Drugs 1961, as amended by the 1972 Protocol,
  - the Conventions on Psychotropic Substances, 1971 and
  - the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988.

Other Important Topics

Tur dal procurement portal

- Cooperation ministry recently launched a portal through which farmers can sell tur dal to government procurement agencies at the minimum support price (MSP) or market price, whichever is higher.
- **Govt. Procurement agencies -** National Agricultural Cooperative Marketing Federation of India (Nafed) or National Cooperative Consumers' Federation of India (NCCF).

Investment Forum for Advancing Climate Resilient Agrifood Systems

- It is jointly launched by
  - The National Institution for Transforming India (NITI Aayog),
  - The Ministry of Agriculture and Farmers' Welfare (MoA&FW), and
  - The Food and Agriculture Organization of the United Nations (FAO)
- The conclave will discuss an investment and partnership strategy to advance climate resilient agri-food systems among the government, private sectors, and farmers' organisations.

Indigenous paddy varieties

- Some important varieties are
  - **From Kerala** - Chenkazhama, Cheruvellari, Chettadi, Chitteni, Gandhakasala, Jeerakasala, Kattamodan, Kuttadan, Rakthasali, Thavalakannan, Thekkan, Vellari and Velutha Navara, Jyothi and Kanchana.
  - **From Karnataka** - Nagasampige, karingajavili, raktasali, jugul and rajamudi.
  - **Others** - Swarna, Sambha, Basmati, Kuzhiadichan, Karungkuruvai.

9. ENVIRONMENT

9.1 Biodiversity Credits (or) Bio Credits

There is an urgent need to regulate frameworks to ensure the effective implementation of biodiversity credits.

Kunming-Montreal Global Biodiversity Framework (KMGBF)

- **Aim -** KMGBF aims to catalyze transformative action by governments, and subnational and local authorities, with the involvement of all of society, to halt and reverse biodiversity loss.
- **Adoption -** KMGBF was adopted in 2022 at the 15th Conference of Parties (CoP15) of Convention on Biological Diversity (CBD).
- **Financing work -** Biodiversity credits are increasingly being pushed as a means for financing work on the various targets set under the Kunming-Montreal Global Biodiversity Framework (KMGBF).

Biodiversity Credits

- Biodiversity credit is a financial mechanism, which represents an asset created through investments in the restoration, conservation, and development of biodiversity in a specific landscape.
  - ***Biocredits are similar to carbon credits used to control greenhouse gas emissions.***
- Biocredits are not designed to offset or compensate for actions with negative impacts on biodiversity.

- Instead, proceeds from the sale of biocredits are used to protect and restore biodiversity where it exists.
- To promote biocredits, the ***biodiversity credit alliance*** was also launched at CoP15.

Biodiversity Credit Alliance (BCA)

- BCA provides guidance for the establishment of a credible and scalable market that stands up to the scrutiny of multiple stakeholders.
- BCA is working together with the Indigenous Peoples and Local Communities to ensure strong foundations and principles exist and can be applied by all market participants going forward.
- BCA was launched during the COP 15 with the support from UNDP, the United Nations Environment Programme Finance Initiative (UNEP FI) and the Swedish International Development Cooperation Agency (SIDCA).
- BCA is a voluntary international alliance that brings together diverse stakeholders to support the realization of the Global Biodiversity Framework.

9.2 Chipko Movement

Sainikpuri residents plan 'chipko' movement to save trees.

The trigger for modern Chipko movement was the growth in development that Uttar Pradesh witnessed following the 1963 China border conflict.

- The Chipko movement was a non-violent agitation in 1973 that was aimed at protection and conservation of trees.
- Gandhian social activist ***Chandi Prasad Bhatt***, founder of the cooperative organisation Dasholi Gram Swarajya Sangh, led the first Chipko movement near the village of Mandal in 1973.
- The movement is an uprising against the felling of trees in Uttar Pradesh's Chamoli district (now Uttarakhand) in 1973.
- The name of the movement chipko comes from the word embrace, as the villagers hugged the trees and encircled them to prevent being hacked.
- The Chipko movement can essentially be called a women's movement.

Chipko Andolan

- The original Chipko andolan dates back to 18th century when ***Rajasthan's Bishnoi community*** started it.
- The incident includes the sacrifice of a group of villagers, who led by a lady named ***Amrita Devi,*** laid down their lives while protecting trees from being felled on the orders of then King of Jodhpur.
- After this incident, the king, in a royal decree, banned cutting of trees in all Bishnoi villages.
- The Chipko Andolan also stands out as an eco-feminist movement.

9.3 Wetland City Accreditation (WCA)

MoEF&CC has submitted 1st 3 Indian cities Indore, Bhopal & Udaipur for Wetland City Accreditation (WCA) under the Ramsar Convention on Wetlands.

- **WCA** – A ***voluntary scheme*** that recognizes cities which have taken exceptional steps to safeguard their urban wetlands.
- **Establishment** – During the Ramsar Convention COP12, 2015.
- **Objectives** – To recognize the importance of wetlands in *urban and peri-urban environments* and to take appropriate measures to conserve and protect these wetlands.
- **Significance** – Cities can ***gain international recognition*** and ***positive branding opportunities*** for their efforts and provides sustainable socio-economic benefits for local populations.
- It will ***generate public awareness*** about wetland conservation and also help in implementation of Amrit Dharohar in India which aims to foster sustainable ecosystem development with the help of local communities.

	Indore	Bhopal	Udaipur
Location	Madhya Pradesh	Bihar	Rajasthan

Ramsar Site (or) Wetland	Sirpur Lake, a bird sanctuary	Bhoj Wetland with Jal Tarang (wetland interpretation centre)	5 wetlands –Pichola Fateh Sagar Rang Sagar Swaroop Sagar Doodh Talai
Efforts & Recognitions	-Wetland mitras for Sarus Crane. -Cleanest city in India. -India's Smart City Award 2023.	-Wetland mitras for Sarus Crane. -Lake Conservation Cell -Draft City Development Plan 2031	-

6 Criteria for getting WEA

- It has *one or more Ramsar Sites, or other significant wetlands* which provide(s) a range of ecosystem services to the city;
- It has *adopted measures for conservation* of wetlands.
- It has *implemented wetland restoration* measures.
- It *considers the challenges and opportunities* of integrated spatial/land-use planning for wetlands under its jurisdiction.
- It has *raised public awareness* about the values of wetlands and enabled public participation in decision-making processes.
- It has established *a local committee to support* the preparation work and the implementation of measures.

9.4 Air Quality in Indian Cities

The Centre's ambitious attempt to improve air quality in some of India's most polluted cities suggests that a majority of Indian cities are far from making significant progress.

- The goal of the National Clean Air Programme (NCAP) is to ***reduce average particulate matter (PM)*** concentrations 40% by 2026 (compared to 2017) in 131 cities.
- PM 2.5 is considered the most dangerous grade of pollutant and PM10 is particulate matter 10 micrometers or less in diameter.
- The aim was to cut pollution 20-40% by 2024 in cities, which was later shifted to 2026.
- **Status -** Delhi has seen average annual PM 2.5 levels decline by 5.9%.
- Navi Mumbai has seen a 46% rise in PM 2.5 levels and Mumbai saw a 38.1% rise and Ujjain, a 46% rise.
- Jaipur and Visakhapatnam saw PM 2.5 increase 13% and 12% rise respectively and Pune 10%.
- **Reduction -** Sharp decline in PM 2.5 from 2019-2023 were Varanasi, with a 72% average reduction in PM 2.5 levels and 69% reduction in PM 10 levels.
- Agra too reported a 53% decline, as did Jodhpur with a 50% decline.
- **PM 10 -** With respect to PM 10 levels, apart from Varanasi and Talcher, no other cities have met the 40% reduction target yet.

9.5 Singchung Bugun Village community reserve

- SBVCR is a biodiversity hotspot in ***Arunachal Pradesh***.
- It was established in ***2017***.
- It is home to critically endangered species such as the passerine bird ***Bugun Liocichla (Liocichlabugunorum),*** which is named after the tribe.
- It is also home to endangered species such as the ***red panda (ailurusfulgens)*** and many other varieties of flora and fauna.

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Other Important Topics

Padmaja Naidu Himalayan Zoological Park (PNHZP)
• The Padmaja Naidu Himalayan Zoological Park (PNHZP) is a zoo in ***Darjeeling, West Bengal.***
• It's also known as the ***Darjeeling Zoo*** and is the ***largest high-altitude zoo in the country.***
• The zoo is known for its breeding programs for red pandas, Himalayan salamanders, Tibetan wolves, and snow leopards.
• World Association for Zoos and Aquariums (WAZA) has recently annpunced that it has the ***world's largest number of snow leopards in captivity***.
Hottest Year, 2023
• The World Meteorological Organization (WMO) has officially confirmed that 2023 is the hottest year on record by a huge margin, smashing global temperature records.
• The yearly average global temperature approached ***1.5 degrees Celsius*** above pre-industrial levels.
• The ***Paris Agreement*** established a critical threshold, limiting global temperature change to no more than 1.5 degrees Celsius.
Pench Tiger Reserve
• The Pench Tiger Reserve (PTR) in Maharashtra has become India's first ***Dark Sky Park*** and is the ***5th in Asia.***
• The park earned the title for ***protecting the night sky*** and preventing light pollution, making the facility ideal for astronomy enthusiasts.
• Pench Tiger Reserve is one of India's top reserves housing the population of the ***Bengal Tigers***.
• The reserve is located covering the 2 states of ***Maharashtra and Madhya Pradesh*** and is managed jointly by them.

SPECIES IN NEWS

9.6 Sikki or Golden Grass

Sikki artisans suffer livelihood losses amid climate change & state apathy.

- **Family -** Zizanoides grass family.
- **Scientific name -** *Chrysopogon zizanioides*
- Sikki finds mention in ancient Sanskrit texts such as the Ramayana, and it is locally known as Kaincha in the state of Odisha.
- **Tarai Region -** This grass grows indigenously in the Tarai regions of Uttar Pradesh and Bihar and has an average height of 3-4 feet and Sikki is also now grown to arrest soil erosion in hilly regions.
- The stem is used to make artefacts; roots are used for extracting oil that is used in perfumery and medicine.
- It is used to make traditional items such as multipurpose baskets, ornaments, showpieces, etc.
- Sikki vermillion boxes are considered auspicious and are given as part of dowry to brides in the Mithilanchal, Bihar.
- **GI Tag -** Sikki got the geographical identification tag in 2018 along with Makhana (aquatic fox nut) and Madhubani paintings.



- Unlike many plant-based products, Sikki items barely get mouldy or infested with fungi.

9.7 Olive Ridley Turtles

At least 8 Olive Ridley turtles wash ashore dead along Chennai's southern coast.

Threats
Bycatch in fishing gear
Direct harvest of turtles and eggs
Loss and degradation of nesting habitat
Predation of eggs and hatchlings
Vessel strikes
Ocean pollution/marine debris
Climate change

- **Scientific Name -** *Lepidochelys olivacea*
- The Olive ridley turtles are the ***smallest and most abundant*** of all sea turtles found in the world.
- It gets its name from its olive colored carapace (shell), which is heart-shaped and rounded.
- **Habitat -** Olive ridleys are globally distributed in the tropical regions of the Atlantic, Pacific, and Indian oceans.
- **Feeding -** The olive ridley is omnivorous (feeds on a wide variety of food items, including algae, lobster, crabs, tunicates, and mollusks).
- **Nesting -** The coast of ***Odisha*** is the largest mass nesting site for the Olive-ridley, followed by the coasts of ***Mexico and Costa Rica.***
- In the Indian Ocean, 3 arribada beaches occur in Odisha, India (***Gahirmatha, Devi River mouth, and Rushikulya).***
- The sex of hatchlings is determined by the *temperature of the sand.*
- The mass nesting event is known as an arribada, meaning "arrival by sea" in Spanish. It is found only in the genus Lepidochelys which includes the Kemp's ridley and olive ridley sea turtles.

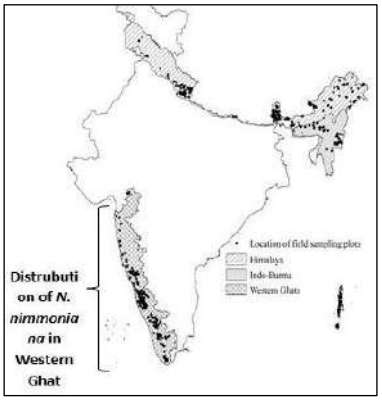
Species of sea turtles in Indian waters	Conservation Status		
	IUCN	CITES	Wildlife Protection Act, 1972
Leatherback	Vulnerable	Appendix I	Schedule I
Loggerhead	Vulnerable		
Hawksbill	Critically endangered		
Green	Endangered		
Olive Ridley	Vulnerable		



9.8 Nathapodytes nimmonana

Researchers at the Indian Institutes of Technology Madras and Mandi have metabolically engineered plant cells to increase production of anti-cancer drug camptothecin (CPT).

- It is an endangered medicinal plant widely distributed throughout the ***Western Ghats of India.***
- The plant contains ***camptothecin (CPT***) which is renowned anticancer drugs.
- Though, CPT found in many plant species but maximum amount of CPT has been reported from N. nimmoniana.
- The plant has been overharvested, pushing it to the ***endangered list.***



- The Chinese variety of the plant used to extract the cell is listed as ***critically endangered.***



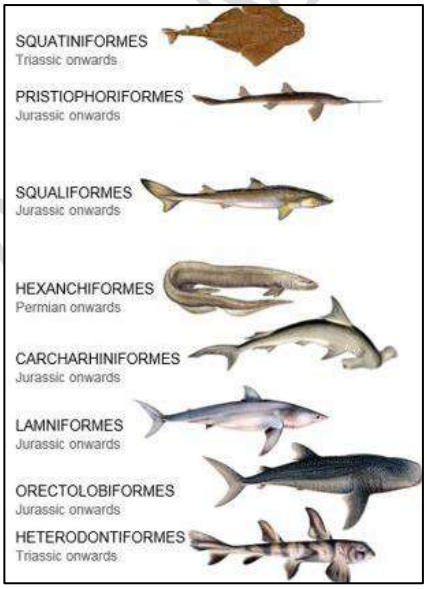
Camptothecin (CPT)

- Only two CPT analogs (***irinotecan and topotecan***) have been approved for cancer treatment.
- The allopathic medicine is produced using *Nathapodytes nimmoniana*.
- Camptothecin is majorly produced in Southeast Asian region, with the plant being largely found only in China and India.

9.9 Elasmobranch Species

Shark & ray meat (elasmobranch meat) consumption no longer restricted to India's tribal & coastal peoples.

- Elasmobranch is a subclass of the Class Chondrichthyes: ***Cartilaginous Fishes,*** which consists of sharks, rays, skates, and chimaeras.
- The term Elasmobranch actually means naked gill.
- **Features -** A skeleton made of cartilage; No swim bladders; Five to seven pairs of gills opening individually to the exterior; Rigid dorsal fins; Rough skin made up of small dermal denticles.
- Elasmobranch skin is made of tiny, hard, tooth-like placoid scales called denticles.
- Elasmobranchs are renowned for their highly tuned senses, which make them incredibly successful in their environment.
- Many Elasmobranchs can sense electrical impulses of other animals as they possess sensory organs called the Ampullae of Lorenzini.



India has banned the live finning of sharks and the export of fins of all shark and ray species and 10 species are completely protected from any fishing and trade.

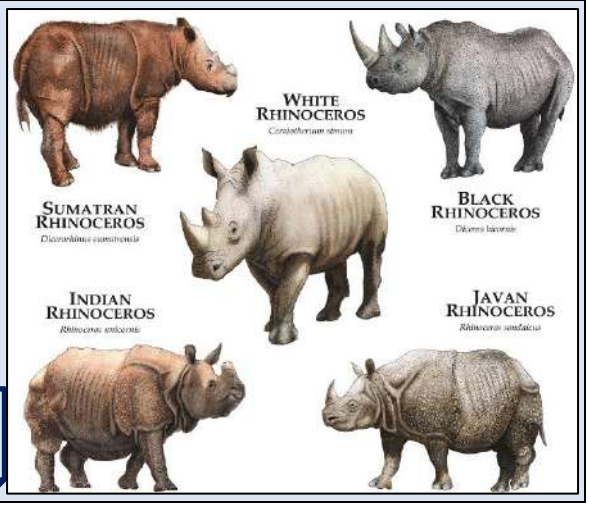
9.10 White Rhinoceros

An international team of researchers from BioRescue, a consortium backed by the German government announced the 1st successful embryo transfer in a white rhinoceros.

- **Two distinct subspecies** – Northern and southern white rhinos.
- **Northern white rhinos** – Despite their name, they are ***actually grey*.**
- Once roamed freely in several countries in ***east and central Africa,*** their numbers fell sharply due to *poaching for their horns*.
- The last male northern white rhino 'Sudan' died in 2018 with only 2 female members remaining, neither are able to carry a calf to term.
- **Southern white rhinos** - They are abundant than northern sub species, roughly 20,000 remain in Africa.

IUCN Protection Status of Rhinos

- There are totally *5 species of rhinoceros* globally.
- **Critically Endangered** – *3 species*, Black, Javan and Sumatran.
- **Near Threatened** – White Rhino (Northern White is Critically Endangered).
- **Vulnerable** – Greater One Horned Rhino.



World Rhino Day is celebrated each year on 22 September.

In-vitro fertilization of Northern White Rhinos

- The eggs of female northern white rhinos were harvested and sperm from dead northern male rhinos of the subspecies was used to produce embryos.
- The embryo was successfully ***transferred to southern white rhino surrogate mothers***.
- It was the ***world's first IVF rhino pregnancy***.

Other Important Topics

Vazhakulam variety

- Vazhakulam pineapple is a pineapple grown in the Vazhakulam area of ***Kerala, India.***
- The pineapple is unique in aroma, flavour and sweetness due to its high sugar content and low acidity.
- It got its ***GI tag in 2009***.

Sisal (Agave sisalana)



- Sisal is a species of flowering plant native to ***southern Mexico.***
- It belongs to the family Asparagaceae and has the ***leaf fibre*** that are used to make twine, cloth, carpets and ***mezcal***, a distilled alcoholic beverage.
- A recent study suggests that sisal leaves could make sanitary napkins more sustainable.

ReTro

- Chinese scientists have announced that they have cloned a Rhesus monkey named ***ReTro*** that lived to adulthood.
- The scientists created ReTro using a slightly modified version to create Dolly the Sheep and other mammals like the long-tailed macaque, which was the ***first primate to be cloned***.

Pinanga Subterranea



- *Pinanga subterranea* is a species of ***palm tree*** native to ***Borneo***.
- It's the 1st known species of palm to flower and fruit almost exclusively underground.
- This rare phenomenon has only been recorded in one other plant group, the orchid ***Rhizanthella***.

Syndiniales & Corallicolids

- The international team of researchers collected samples of corals from across the Mediterranean Sea and analysed the bacteria that live with the corals.
- The researchers found that the presence of a group of parasitic single-celled organisms called ***Syndiniales*** made it more likely that a coral could ***survive heat stress.***
- The presence of Corallicolids, a group of single-celled organism related to the parasite that causes malaria, was more common in corals that ***die*** from heat stress.

Melanistic Tiger Safari

Odisha announced to establish a melanistic tiger safari, 1st of its kind in the world in ***Similipal Tiger Reserve.***

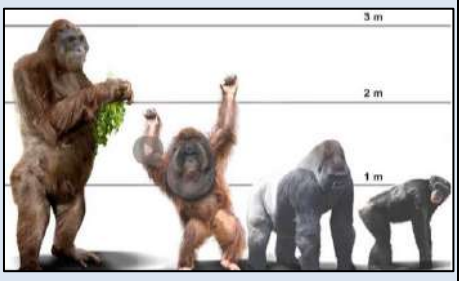
- The Similipal Tiger Reserve is the ***only home for melanistic tigers*** in wild in the world.
- Melanistic tigers are a rare color variant of ***Bengal tigers***, also known as black tigers because their stripes are darker than those of a normal tiger.
- Melanistic tigers are caused by a single mutation in the Transmembrane ***Aminopeptidase Q (Taqpep)*** gene, which is called as Pseudo Melanism.

Wandering Albatross



- The wandering albatross (*Diomedea exulans*) is the ***world's largest flying bird***, with a wingspan reaching an incredible 3.5 metres.
- Also known as snowy albatross and white-winged albatross, it is found in all oceans except ***North Atlantic***. **IUCN** – Vulnerable

Gigantopithecus blacki



- *Gigantopithecus blacki,* also known as "***Giganto",*** was a giant ape that lived in ***southern China*** during the Pleistocene Epoch (2.6 million to 11,700 years ago).
- It was a distant human ancestor and the largest primate that ever lived and the mightiest of all the primates.
- It was a relative of today's ***orangutans*** and G. Blacki went ***extinct*** between 295,000 and 215,000 years ago.

Laughing gull (Leucophaeus atricilla)



- Laughing gull, a ***migratory bird*** from North America, has been sighted for the 1st time in the Chittari (highly dynamic) Estuary in ***Kasaragod district, Kerala***.
- The bird is known for its unique ***laughter-like calls***
- It is a ***diurnal, coastal bird*** that are rarely found inland. **IUCN** – Least Concern

Sloth Bear

- A Sloth Bear (*Melursus ursinus*) is an omnivorous mammal that can live up to 40 years.
- Sloth bears occupy a significant 67% of potential habitat in India.
- India has 4 sloth bear sanctuaries namely
  1. Daroji Sloth Bear Sanctuary (Karnataka)
  2. Gudekote Sloth Bear Sanctuary (Karnataka)
  3. Jessore Sloth Bear Sanctuary (Gujarat)
  4. Ratanmahal Sloth Bear Sanctuary (Gujarat)
- ***Daroji Sloth Bear Sanctuary in Karnataka*** is Asia's first sloth bear sanctuary.

Conservation Status	
IUCN Red List	Vulnerable
CITES	Appendix I
Wildlife (Protection) Act, 1972	Schedule I (Highest Protection)

Golden tiger

- Rare golden tiger sighted in ***Kaziranga National Park in Assam*** recently.
- It is a rare color variant of the Bengal tiger, also known as ***"Tabby tigers" or "Strawberry tigers".***
- **IUCN - *Critically endangered.***
- Kaziranga National Park a ***world heritage site*** and is famous for the Great Indian one horned rhinoceros.

Agasthyagama edge

Scientists discover new kangaroo lizard species, a diminutive dragon from Western Ghats, Kerala recently.



- Agasthyagama edge or the northern kangaroo lizard, which belongs to the ***Agamidae family***, is known to have a maximum snout-vent length of 4.3 cm.
- The species is the 2nd one of the *Agasthyagama* genus after ***A. beddomii or Indian kangaroo lizard*** that has been previously reported from Sivagiri hills in Tamil Nadu.
- These lizards do not climb trees like other lizards & are mostly terrestrial and found in areas with dense leaf cover.

10. SCIENCE AND TECHNOLOGY

SPACE

10.1 Plasma waves

The researchers at Indian Institute of Geomagnetism (IIG) have examined the existence of high-frequency plasma waves in the Martian plasma environment.

- **Plasma waves** – A ***type of electromagnetic wave*** that propagates through plasma, a state of matter.
- Plasma is formed when a gas is ***heated to high temperatures*** or subjected to strong electric fields, causing its atoms to become ionised by either losing or gaining electrons.
- **In earth** – It is observed in the *Earth's magnetosphere* as a *short-time scale fluctuations* in the electric and magnetic field.
- **Role** – In the *energization and transport of the charged particles* in the Earth's magnetosphere.
- Some act as a *cleaning agent for the Earth's radiation belt*, which is hazardous to our satellites.
    - **Example**: Electromagnetic ion cyclotron (EMIC) waves

Plasma waves in Mars

- **Recent Study** – It was carried out by IIG scientists in collaboration with scientists from Japan, USA, and UAE *to understand the existence of plasma waves in unmagnetized planets like Mars*.
- ***Mars does not have any intrinsic magnetic field*** therefore the high-speed solar wind coming from the Sun interacts directly with the Mars atmosphere, like an obstacle in the flow.
- **Observation** – By using high-resolution electric field data from the MAVEN spacecraft of NASA when it crossed the magnetopause boundary and entered the magnetosheath region.
- **Cause** – It could be due to *electron oscillations* with respect to the background magnetic field in the magnetosheath region of the Mars.

10.2 SLIM Mission

Japan's SLIM spacecraft lands on moon, a 1st for the country.

- **SLIM** – The ***Smart Lander for Investigating Moon*** is a lightweight spacecraft about the size of a passenger vehicle.
- It is nicknamed as ***'the Moon Sniper'***.
- Japan became the 5th country in world to reach the lunar surface following the United States, the Soviet Union, China and India.
- **Main goals** – To *test new landing technology* that would allow moon missions to land 'where we want to land' and to seek clues about the *origin of the moon and analysing minerals* with a special camera.
- **Launched by** – ***Mitsubishi Heavy H2A rocket*** from the Tanegashima Space Centre on Tanegashima Island, Japan.
- **Space agency** – Japan Aerospace Exploration Agency (***JAXA***).
- **Scientific instrument** –2 small autonomous probes ***lunar excursion vehicles LEV-1 and LEV-2.***
- **Landing** – It was aiming to land ***near the Shioli crater***, near a region covered in volcanic rock by using ***"pinpoint landing" technology*** to provide greater control than any previous moon landing.
- **Challenges** – SLIM's *solar battery wasn't generating power* and thus battery life of the spacecraft would only last a few hours.

10.3 X-Ray Polarimeter Satellite (XPOSAT)

ISRO's XPoSat was successfully launched from the Satish Dhawan Space Centre in Sriharikota, Andhra Pradesh.

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- **About-** India's inaugural scientific satellite to measure space-based polarization of X-ray emissions from celestial sources such as black holes and neutron stars in the medium energy band (8-30 keV).

Payloads	Usage	Developed by
POLIX (Polarimeter Instrument in X-rays)	An advanced X-ray camera that captures image and measures unique X-ray vibrations	Raman Research Institute, Bengaluru
XSPECT (X-ray Spectroscopy and Timing)	A scientific detective, examining the colours and timing of X-rays	UR Rao Satellite Centre's (URSC's) Space Astronomy Group, Bengaluru

- **Orbit location** - Low earth orbit ***(650 km***), low inclination of 6 degree)
- **Launch vehicle** - PSLV C58; **Mission life** - 5 years
- **Payloads** - The satellite carries 2 payloads.
- XPoSAT is the 2nd spacecraft in the world which will study celestial bodies using polarimetric techniques, after NASA's Imaging X-Ray Polarimetry Explorer (IXPE).

Payload	Purpose	Agency/Company
Radiation Shielding Experimenta Module (RSEM)	Evaluation of Tantalum coating effectiveness	TakeMe2Space
Women Engineered Satellite (WESAT)	Comparison of Solar Irradiance and UV Index	LBS Institute of Technology for Women
BeliefSat0	Amateur radio satellite	K J Somaiya Institute of Technology
Green Impulse TrAnsmitter (GIT	Green bipropellant CubeSat propulsion unit	Inspecity Space Labs Private Limited
Launching Expeditions for Aspiring Technologies Technology Demonstrator (LEARTD)	Demonstration of subsystem of microsatellite	Dhruva Space Private Limited
RUDRA 0.3 HPGP	Green Monopropellant Thruster	Bellatrix Aerospace Private Limited
ARKA-200	Heater less Hollow Cathode for Hall thrusters	Bellatrix Aerospace Private Limited
Dust Experiment (DEX)	Interplanetary dust count measurement	PRL, ISRO
Fuel cell Power System (FCPS)	Demonstration of fuel cell	VSSC, ISRO
Si based High Energy cell	Demonstration of Silicon based High Energy cells	VSSC, ISRO

PSLV Orbital Experimental Module (POEM)

- The fourth stage of PSLV (PS4), also called the PSLV Orbital Experimental Module (POEM) will perform orbital experiments.
    - *Since this is the 3rd time ISRO has used PS4 to exhibit orbital experiments, XPoSAT's PS4 is called* ***POEM-3.***
- The spent PS4 stage will be used to conduct in-orbit scientific experiments in microgravity conditions for an extended duration of 4-6 months.
- It derives power from the solar panels mounted around the PS4 tank and a Lithium-ion battery.
- POEM-3 is equipped with 10 payloads.

10.4 Ingenuity

The National Aeronautics and Space Administration (NASA) regained contact with its Mars helicopter Ingenuity, after it was unable to communicate with it towards the end of its 72nd flight.



- **Launched on -** July 30, 2020 by ***NASA.***
- **Ingenuity -** It is a small solar-powered helicopter that landed on the ***Martian surface*** on February 18, 2021, along with the ***Perseverance Rover.***
- **Purpose -** The rover's mission was to study signs of ancient life, and collect samples that might be sent back to Earth during future missions.
- The chopper made its first flight on Mars on April 19, 2021.
- **Records -** Ingenuity was the first aircraft to fly on another planet. It managed to fly in Mars' thin atmosphere, which is not conducive for flying.
- **Guidance by -** Ingenuity is an ***autonomous aircraft*** piloted by onboard guidance, navigation, and control systems running algorithms developed by the team at NASA Jet Propulsion Laboratory (JPL).

10.5 Big Ring

Recently, scientists have discovered massive superstructures in space and named it as Big Ring.

- They are ultra-large superstructure in the sky, about **9.2 billion light-years away from Earth**.
- It isn't actually even a ring, it's coiled sort of like a slinky.
- **Formation -** It is made up of ***galaxies and galaxy clusters***.
- ***Giant Arc*** is the previously discovered super structure which is even more massive, with a diameter of 3.3 billion light-years.



Scientific concepts related to Big Ring

- **Cosmological theory** – All structures in the universe can be traced back to the cosmic microwave background (CMB) radiation, the so-called "fireball of the Big Bang" that scientists observe filling the universe.
- **Baryonic Acoustic Oscillations (BAOs)** – They are acoustic waves from the early universe, and statistically, they should appear as spherical shells in the arrangement of galaxies.
- **Cosmic strings** – They are hypothetical 1D topological defects believed to have formed from the remnants of the cosmic fabric, left over from cosmic symmetry breaking shortly after the Big Bang.
- They are extremely thin and possess an immense amount of energy.
- **Quasars** – They are extremely luminous interiors of active galaxies which are powered by supermassive black holes.

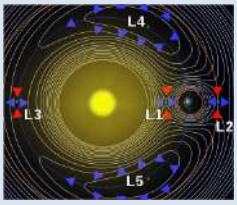
Other Important Topics

Starlink

- Starlink is a ***satellite internet network*** operated by ***SpaceX***, an American aerospace company.
- It provides coverage to over ***70 countries*** and aims to provide high-speed internet coverage to every part of the world.
- It also aims to provide global mobile phone service after 2023.

Halo orbit

Aditya-L1 spacecraft was successfully placed in halo orbit around Lagrangian point (L1).



- A periodic, 3-dimensional orbit that occurs near one of the L1, L2, or L3 Lagrange points.
  - These points are locations in space where the ***gravitational pull from two celestial bodies is equal.***
- It is called a halo orbit because the tracked orbit looks like a halo around the moon.

Old Smoker

*Astronomers have recently discovered a new type of **red giant star** nicknamed as "Old Smoker".*

- It was found in a densely packed and metal-rich region at the centre of the Milky Way called the ***Nuclear Stellar Disc.***
- These stars looked dim for several years before they puffed out huge clouds of smoke into space.

W1935

- W1935 is a ***brown dwarf star*** that is 47 light-years away from Earth.
- It is the ***1st auroral candidate outside of the solar system*** that has been identified through methane emission signatures.
- It is also the ***coldest auroral candidate*** outside of our solar system, with a temperature of about 400 degrees Fahrenheit (200 degrees Celsius).

Peregrine Lunar Lander
• The Peregrine Lunar Lander, also known as Peregrine Mission One, is a lunar lander built by ***Astrobotic Technology, U.S***.
• It was launched recently carrying payloads for NASA's Commercial Lunar Payload Services program.
Peregrine & Vulcan
• The Peregrine lander was built by Pittsburgh-based space robotics firm Astrobotic and aimed to become the first lunar lander constructed by a private company.
• This is also the first mission to fly under ***NASA's Commercial Lunar Payload Services (CLPS) initiative***, where NASA pays private companies to send scientific equipment to the moon.
• Vulcan Centaur is a two-stage-to-orbit, heavy-lift launch vehicle developed by United Launch Alliance (ULA).
Hot Jupiters
• Hot Jupiters are a ***class of exoplanets*** that have features similar to Jupiter, but are much closer to their host star & its upper atmosphere is hotter than 1,800 degrees Celsius.
• The harsh ultraviolet radiation from its star is heating the planet's upper atmosphere, which in turn causes ***magnesium and iron*** gas to escape into space.
• The star's powerful gravitational tidal forces altered the planet's shape, making it more ***oblong-shaped***.
Perihelion
• The Earth reached its *perihelion, or the* ***closest point*** *in its orbit around the Sun* recently.
• Perihelion occurs in early January, about 2 weeks after the **Winter Solstice**.

DEFENCE

10.6 Project Kusha

The Defence Research and Development Organisation (DRDO) is working on the Project Kusha to operationally deploy its own long-range air defense system by 2028-29.

- **Aim** – To develop India's own ***Long-Range Surface-to-Air Missiles (LR-SAM)***
- **Jointly developed with** - Israel Aerospace Industries, Israel's major aerospace and aviation manufacturers
- **Range** - Hit hostile targets at 150 km, 250 km, and 350 km ranges.
- **Features** – The LR-SAM system will be a mobile platform equipped with long range surveillance and fire control radars.



- It seeks to establish a formidable ***3 layered*** defense system to detect and destroy incoming stealth fighters, aircraft, drones, cruise missiles and precision-guided munitions.
- It will be made capable of interacting with an integrated command and control system (IACCS), an automated air defence command and control centre used by the Indian Air Force (IAF).
- The ground systems include Igla, OSA-AK-M, Pechora missiles, Spyder quick-reaction missiles, indigenous Akash area defence missiles and the Barak-8 medium-range SAM systems.

Missile defence system	Country
S-400 Triumf	Russia
Patriot	United States
Iron Dome	Israel

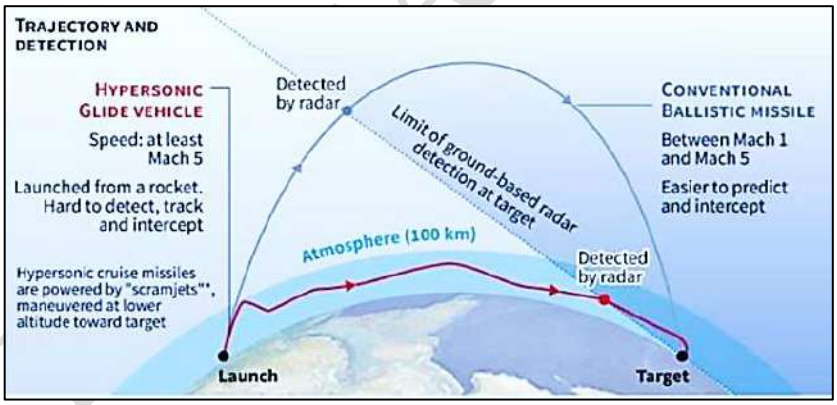
10.7 DRDO anti-drone technology

With rising use of drones, DRDO develops own counter technology.

- **Indigenous -** The DRDO is developing an indigenous counter-drone technology, which is capable of counter-attacks including detection, soft kill and hard kill of all types of drones.
- The counter-drone system is ready for production and is already demonstrated to armed services and other internal security agencies.
- The technology is transferred to ***Bharat Electronics Limited, Benga***luru, who is the production agency for the system.
- In addition, Transfer of Technology is given to four more Indian firms for production of anti-drone systems.
- **TAPAS -** The Medium Altitude Long Endurance (MALE) unmanned aerial vehicle TAPAS was developed for ISTAR (Intelligence in Surveillance, Reconnaissance and Target Acquisition).
- TAPAS is currently only in developmental stage.

10.8 Hypersonic Missiles

Recently, North Korea had tested a new solid-fuel hypersonic missile with intermediate range that are difficult to detect and intercept.



- **Hypersonic Missiles** – They fly at speeds of ***at least Mach 5*** and are *highly manoeuvrable* and able to *change course during flight.*
- It can also be *launched from a submarine and a frigate*.
- **Hypersonic glide vehicles** – Glide vehicle are launched from a rocket which *leaves the Earth's atmosphere* and then plunges back into it.
- **Hypersonic cruise missiles** - They are powered by *high-speed, **air-breathing engines***, that can sustains flight on its own through the atmosphere like a cruise missile.
- **Fractional orbital bombardment system (FOBS)** – The missile can launch the *glide vehicle partially into orbit* which could strip adversaries of reaction time and traditional defence mechanisms.
- **Different from Ballistic missiles** – While both can travel at hypersonic speeds, *ballistic missiles follow only set trajectories and limited manoeuvrability*.
- ICBM can carry nuclear warheads on ballistic trajectories that travel into space but *never reach orbit*.
- **Advantages** - It can't be detected easily because of its speed, manoeuvrability and low altitude of flight.
- **Concerns** – It can threat national security of a nation as they can *potentially evade missile shields* and early warning systems.
- **Countries with hypersonic technology** - The US, Russia and China.

10.9 VijayRaghavan Panel Report

A 9-member panel headed by the former principal scientific advisor to the government Prof. Vijay Raghavan have submitted its report.

- **Aim** - To review the functioning of the Defence Research and Development Organisation (DRDO).

The Defence Acquisition Council (DAC) is an apex body for clearing major capital acquisitions for defence and it has been headed bu the Union Defence Minister.

Recommendations of the committee

- **Focus on research** - The DRDO should focus on its original goal of *research and development* for defence.

- It should refrain from involving itself in productization, production cycles, and product management, tasks that are more suitable for the private sector.

- **Defence Technology Council** - The committee has also suggested a Defence Technology Council (DTC) chaired by the ***Prime Minister***, with the defence minister and the National Security Advisor as its Vice Presidents.
- It will also have an executive committee chaired by the Chief of Defence Staff (CoDS).
- It will include representation from academia and industry, with two members from each sector.
- The Council will determine the country's defence technology roadmap and decide on major projects and their execution.

Earlier in 2008, Dr P Rama Rao Committee was constituted to review the functioning of the DRDO and all the recommendations by the Committee were accepted by the DRDO except the creation of a Board of Research for Advanced Defence Sciences (BRADS).

- **Separate Department** - The panel has also suggested the creation of the ***Department of Defence Science, Technology, and Innovation*** under the Defence Ministry.
- This department will be headed by a technocrat and it will serve as the secretariat for the Defence Tech Council (DTC).
- **Centralized Laboratory** - The committee has recommended the setting up of close to *10 national-level laboratory* facilities instead of the existing 40 or more DRDO labs across the nation.

10.10 Indian National Army (INA)

In 2024, January 23rd marks the 127th anniversary of Netaji Subhas Chandra Bose.

- **INA** – It is also known as ***Azad Hind Fauj*** (*Free Indian Army*).
- **Formation** – In 1942 by ***Mohan Singh***, comprised Indian prisoners of war (PoWs) captured by Japanese during their Southeast Asia campaign during WWII.
- **Aim** – To secure Indian independence from British rule.
- **Headquarters** – Singapore, later ***shifted to Rangoon*** in Myanmar (since January 1944).

The 2 slogans 'Delhi Chalo' and 'Jai Hind' were the war cry of the INA.

- **Fighting brigades** – They were named after Gandhi, Azad, Nehru, Bose and the ***Rani Jhansi brigade*** (an exclusive women force).
- **Revival** – ***In 1943*** by Subhas Chandra Bose.
- It had its *own currency, postage stamps and symbols* portraying a vision of a liberated India.
- **Successful activities** – INA *crossed the Burma border*, and stood on Indian soil by March, 1944 and ***hoisted the tricolour flag*** and subsequently advanced up to Kohima and Imphal.

Shah Nawaz Khan, Prem Sahgal and Gurbaksh Singh Dhillon, faced the 1st and most high-profile of court martials (INA trails), became a potent symbol of the unity of Indians.

- It controlled the Andaman Islands and parts of Manipur briefly.
- It ignited the Indian soldiers, led to the revolt of ***Royal Indian Navy and Royal Indian Airforce in 1946.***
- **Downfall** – They failed to take Imphal and Kohima, was forced to retreat.
- By 1945, the British had retaken Burma, many perished or surrendered and it got completely vanished after Bose death and Japan surrender.

Other Important Topics

Important Exercises

- **Exercise Cyclone** – It is a joint military exercise between ***India and Egypt.***
- **Exercise Desert Cyclone** - It is a Joint Military Exercise between ***India & UAE.***
- **Exercise Desert Knight** – It is a joint exercise between the air forces of ***India, France and UAE.***

- **Exercise Sada Tanseeq** - It is a joint military exercise between ***India and Saudi Arabia.***
- **Exercise KHANJAR** - It is a Joint Special Forces Exercise between ***India and Kyrgyzstan***

X-65

- The X-65 is an experimental jet aircraft developed by the *Defense Advanced Research Projects Agency's (DARPA) Control of Revolutionary Aircraft with Novel Effectors (CRANE)* program.
- It is a full-scale aircraft to demonstrate a new method of flight control that uses no external moving parts.

Project BHISHM

- **BHISHM -B**harat **H**ealth **I**nitiative for **S**ahyog, **H**ita and **M**aitri).
- It is a project that aims to provide immediate medical assistance during humanitarian crises or natural disasters.
- It is a joint project of the ***Indian Navy and the DRDO (Defence Research and Development Organisation).***
- The project also includes the world's first indigenous portable hospital.

Operation Black Gold

- Operation Black Gold is a ***DRI (Directorate of Revenue Intelligence) operation*** that seized an alloy containing gold and silver.

Operation Sarvashakti

- ***Indian Army*** launches 'Operation Sarvashakti' to ***counter militancy*** on both sides of Pir Panjal range in Jammu & Kashmir.
- The operations are likely to follow in the footsteps of ***Operation Sarpvinash***, initiated in 2003 to eradicate terrorists from the same locations in the Pir Panjal range's southern reaches.

Ugram

- Defence Research and Development Organisation (DRDO) lab and a Hyderabd based private firm launched an ***indigenous assault rifle*** named Ugram recently.
- The rifle is weighing less than 4 kg with a 500-meter firing range.
- It is designed and developed to meet the operational requirements of the Indian armed forces, Para military forces and state police forces.

MV Vasiliy Golovnin

- MV Vasiliy Golovnin, an expedition vessel chartered by India, commenced its journey recently.
- The journey is from ***Cape Town to Antarctica*** for the 43rd Indian Scientific Expedition to Antarctica (ISEA) Voyage.
- The expedition includes 21 members from ***India***, two from ***Mauritius***, and one from ***Bangladesh***.

Project 'Veer Gatha'

*The **Ministry of Defence (MoD)** in collaboration with the **Ministry of Education (MoE)** has now decided to launch Project Veer Gatha 3.0 in the current year 2023-24.*

- It is a project instituted under ***Gallantry Awards Portal (GAP)*** in 2021 to commemorate the 75th year of India's Independence.
- **Aim –** To disseminate the details of the bravery and sacrifice of the Gallantry Awardees (Soldiers of Armed Forces) among the students so as to raise the spirit of patriotism.
- The order of precedence for Gallantry awards - Param Vir Chakra, Ashoka Chakra, Mahavir Chakra, Kirti Chakra, Vir Chakra, Shaurya Chakra.

HEALTH

10.11 Bio-Imaging Bank

AI can help detect cancer and India's biggest cancer treatment hospital is utilizing it.

Bio imaging

- It is an optical form of biosensing used to create ***non-invasive***, visual representations of biological processes in cells, tissues, and anatomy for more accurate diagnosis and treatment of diseases.
- **Aim -** To interfere as little as possible with life processes.
- **Uses -** To gain information on the 3-D structure of the observed specimen from the outside, i.e. without physical interference.

Biosensing is a detection of target molecules based on the principles used by a living system such as an immune system.

The Bank

- **Background -** A 'Bio-Imaging Bank' for cancer, hospitals are utilizing deep learning to craft a cancer-specific tailored algorithm that aids in early-stage cancer detection.
- **Goal -** To create a robust repository encompassing radiology and pathology images, intricately linked with clinical information, outcome data, treatment specifics, and additional metadata.
- This resource is strategically designed for the training, validation, and rigorous testing of AI algorithms.
- **Fund -** Department of Biotechnology, in collaboration with IIT-Bombay, RGCIRC-New Delhi, AIIMS-New Delhi, and PGIMER-Chandigarh.
- **Method -** Segmenting and annotating images, outlining tumours, identifying different features, and annotating them as malignant, inflammatory, or edematous.
- Biopsy results, histopathology, immunohistochemistry reports, and genomic sequences are correlated with images and clinical data to develop diverse algorithms.

Tata Memorial Hospital (TMH) has already added the data of 60,000 patients into the biobank over the previous year, started using AI to reduce radiation exposure for pediatric patients undergoing CT scans.

10.12 TM Module-2 in ICD-11

Recently ICD-11 was launched with the inclusion of Traditional Medicine Module 2.

- ***International Classification of Diseases*** 11th Revision is the global standard for diagnostic health information.
- **Prepared by** –World Health Organisation (WHO) in collaboration with Ministry of AYUSH.
- **Aim** - To *modernize Ayush medicine* by integrating it with global standards in India as well as across the world.
- **Inclusion of** – Data & terminology relating to diseases based on ***Ayurveda, Siddha and Unani*** Medicine.
- **Significance** – It forms a ***link between traditional medicines with global standards*** and will *expand India's healthcare delivery* system, research, Ayush insurance coverage, R&D and policy making system.
- These codes can also be used *to formulate future strategies* to control various diseases in the society.
- **Future prospects** – Ministry of Ayush will prepare public health strategy in future, based on ICD-11, Module 2 and will implement it nationally and internationally.
- **Importance of ICD-11**
    - *Legally mandated health data standard* (WHO Constitution and Nomenclature Regulations).
    - Integration of terminology and classification.
    - End-to-end digital solution (API, tools, online and offline).
    - It is *accessible to everybody* with up-to-date scientific knowledge.
    - Comparable statistics and semantic interoperability for 150 years.
    - ICD-11 enables, for the *1st time, the counting of traditional medicine services and encounters*.

10.13 Critically Important Antimicrobials (CIA)

The findings of a new survey by the National Centre for Disease Control (NCDC) underscored the need for properly monitoring critically important antimicrobials to mitigate AMR.

- **CIAs** – They represent a ***class of antimicrobials***.
- **Categorised by** – World Health Organisation (WHO).
- **3 groups** – Based on their *importance to human medicine* and the *urgency to preserve their effectiveness in treating* infectious diseases.

3rd generation cephalosporins are categorised as the highest priority critically important antimicrobials (HPCIA) by WHO.

- **HPCIAs** – Highest priority critically important antimicrobials constitute a ***subcategory within CIAs***, signifying antimicrobials of the highest priority in preserving their effectiveness.
- **Limitation** – It is limited to *antibacterial drugs of which most are also used in veterinary medicine* and on how much and what kind of antibiotics are used in food animals and crops.
- **Key findings** – ***3rd generation cephalosporins tops*** in overall antibiotic prescriptions with Ceftriaxone as top in this class.
- *Aminoglycosides is 2nd highest* in overall antibiotic prescription where amikacin is the most commonly prescribed antibiotic.
- Other CIAs were belonging to the classes of carbapenems, penicillins, fluoroquinolones, glycopeptides and macrolides.
- **Significance of listing** – It assists in ***managing antimicrobial resistance***, ensuring that all, especially CIA are used prudently both in human and veterinary medicine.

10.14 Cervavac

Indian government is set to roll out a human papillomavirus (HPV) vaccination campaign for girls in the 9-14 years age group.

- **Cervavac** is an indigenously developed quadrivalent vaccine by the ***Serum Institute of India (SII) in Pune***, is already available commercially.
- **Immunisation drive** – It will be conducted *through schools* and existing vaccination points, *planned in 3 phases over 3 years* and is likely to start from the 2nd quarter of 2024 for free.
- Currently, the *2-dose HPV vaccine* is available commercially for about Rs 2,000 per dose.
- **Target** – Nearly 8 crore children between the ages of 9 and 14 years will be eligible and when divided over 3 years.
- **Benefits** – It offers protection against the HPV strains that cause cancer of the anus, vagina and oropharynx and genital warts.

Cervical Cancer

At least 14 HPV types have been identified as oncogenic and among these, HPV types 16 and 18 considered to be the most oncogenic.

- It is the ***4th most common cancer in women*** which develops in a woman's cervix (the *entrance to the uterus* from the vagina).
- **Cause** – Almost all (99%) are linked to infection with high-risk ***human papillomaviruses (HPV)***, an extremely common virus transmitted ***through sexual contact***.
- **Prevention** – There are ffective primary (***HPV vaccination***) and secondary prevention approaches.
- **Treatment** – It is a *treatable form of cancer*, as long as it is detected early and managed effectively.

10.15 Leprosy & New Leprosy Treatment Regimen

Union Health Ministry of India announces new treatment regimen for leprosy.

- According to the WHO, it is a ***chronic infectious disease*** and is also known as ***Hansen's disease.***
- **Caused by** – ***Mycobacterium leprae (bacteria)***.

SHANKAR IAS ACADEMY

- **Transmission** – ***Through droplets*** from the nose and mouth during close and frequent contact with untreated cases.
- **Spread** – It is reported from all the ***6 WHO regions*** and the majority of *new cases are from South East Asia*.
- **Symptoms** – It predominantly ***affects the skin and peripheral nerves***, mucosal surfaces of the upper respiratory tract and the eyes.
- If left untreated, it may cause progressive and permanent disabilities.



- **Diagnosis** – ***Pauci-Bacillary (PB) cases*** shows no signs of advanced disease, while ***multi-bacillary (MB) cases*** shows signs of more advanced disease in biopsies.
- **Treatment** – WHO's recommends 3 drugs dapsone, rifampicin and clofazimine called as ***MDT*** which kills the pathogen and cures the patient.
- The WHO has been providing MDT free of cost and single 3-pack kit to be given to all leprosy patients under *'Uniform MDT' scheme*.

*Leprosy is now considered a **rare disease** in India with a prevalence rate of 1 case in a population of 10,000 people since 2005. India aims to **eradicate leprosy by 2027.***

New Leprosy Treatment Regime

- It introduces a ***3-drug regimen for Pauci-Bacillary (PB) cases*** in place of a 2-drug regimen for 6 months.
- **Aim** – To ***stop its transmission at the sub-national level by 2027***, 3 years ahead of the UN's Sustainable Development Goals.
- **Approval** - WHO had agreed to supply the revised drug regimen from April 1, 2025 and India will implement the same.

Other Important Topics

Western Equine Encephalitis Virus (WEEV)

International Health Regulations National Focal Point (IHR NFP) in Argentina alerted World Health Organization of a human case of WEEV infection recently.

- Western equine encephalitis (WEE) is a ***rare viral disease*** that affects humans and equines (related to horse).
- It is caused by the ***western equine encephalitis virus*** (WEEV), a member of the Togaviridae family of virus.
- WEE is primarily spread by the ***Culex tarsalis mosquito*** and transmitted to birds, and other vertebrate hosts in an enzootic cycle.

Malaria in Cabo Verde

*The World Health Organization (WHO) has certified Cabo Verde (also known as Cape Verde) as a **malaria-free country** recently.*

- It becomes the ***3rd country*** to acquire the status in the global health organisation's ***African region.***
- Africa has the highest malaria burden & accounted for 95% of global malaria cases and 96% of related deaths.

No sale of blood

*The **Central Drugs Standard Control Organisation (CDSCO)** said that blood at hospitals or private banks and centres is "not for sale" but allowed for a processing charge.*

- The revised guidelines said that processing fees can be charged for blood or blood components, which ranges from Rs 250 to Rs 1,550.
- The **CDSCO** is a statutory body established under the ***Drugs and Cosmetics Act, 1940.***

Zosurabalpin

Researchers have identified a new class of antibiotics named Zosurabalpin.

- It has the potential to tackle a drug-resistant bacterium, ***Acinetobacter baumannii***.
- It inhibits the transport of ***lipopolysaccharide (LPS)*** molecules.
- Zosurabalpin was found to be effective against CRAB (carbapenem-resistant *Acinetobacter baumannii*)-induced pneumonia and sepsis in mice models.

BIOTECHNOLOGY

10.16 Fermentation

Fermentation can help make uniquely tangy healthy dishes while also reducing food waste at home.

- The International Scientific Association for Probiotics and Prebiotics defines fermented foods and beverages as "foods made ***through desired microbial growth*** *and* ***enzymatic conversions of food components***".
- LAB converts the starch in the food to lactic acid that inhibits growth of food-spoiling bacteria and fungi.
- It gives distinct sour taste.

Lactic Acid Bacteria (LAB)

- It consists of 16 genera, 12 of which are associated with food.
- **Examples** – Lactobacillus and Streptococcus among others.
- **Significance** – Used in fermentations of food products.
- These genera are amongst the very 1st bacteria studied.

- **Health Benefits** – Can reduce the likelihood of developing cardiovascular disease and type 2 diabetes mellitus.
    1. **Kimchi** – It has anti-obesity and anti-diabetic effects.
    2. **LAB fermented milk** – It could help lower cholesterol and has anti-cancer properties.
- It could also reduce symptoms of inflammatory bowel disease and can improve in mood and cognitive function.
- LAB fermentates can beneficially modulate gut microbiota which can improve overall health.
- **Common examples of fermented food**
    - **Curd** – It is commonly prepared in Indian households.
    - **Kasundi** – A spiced mustard sauce from West Bengal
    - **Dal vadis** or dried lentil fritters – From Uttarakhand
    - **Sour and spicy kanji** – Used in North India, prepared from black carrots by the action of Lactobacillus plantarum
    - **Idli and dosa batter** – In making traditional foods in India.
    - **Sauerkraut** – A traditionally consumed food in eastern and central Europe, made from cabbage.
    - **Kimchi** – A Korean vegetable dish.

In 1873, ***Joseph Lister*** *isolated the 1st bacterial pure culture, which he called* ***Bacterium lactis.*** *This LAB is now called* ***Lactococcus lactis*** *and is used to ferment milk to produce hundreds of dairy products.*

	Prebiotic	Probiotic
Content	Non-digestible, a form of carbohydrates or fibre	Live microorganisms
Role	Nourishes the bacteria that lives in intestine.	Fights the harmful gut bacterial species.

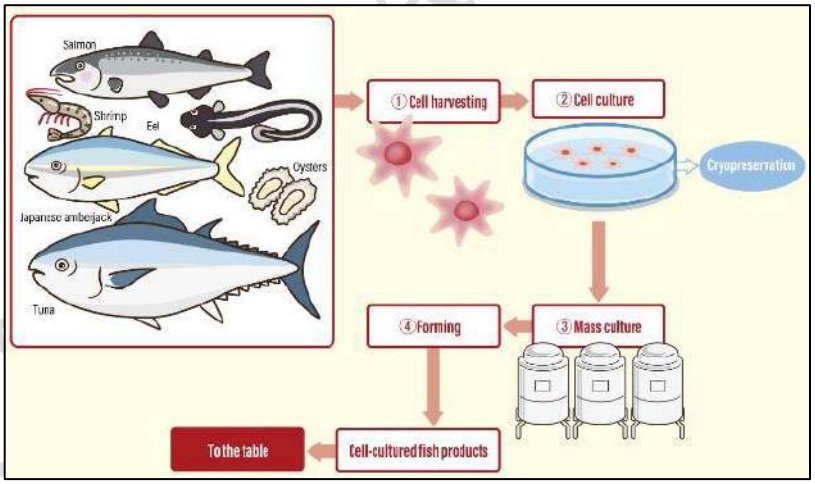
Vulnerability	Can survive heat, cold and acid action.	Vulnerable to heat, stomach acid and they may be killed over time.
Fermentation process	Can be controlled	Not controlled
Health benefits	Beneficial in irritable bowel movements, colon polyps and cancer	Improves gut health and protects against disease.

10.17 Lab Grown Fish

Recently, MoU was signed for CMFRI-Neat Meatt public private partnership project to accelerate development of lab grown fish meat.

- **Mark Post,** the Dutch pharmacologist was the 1st to present a proof of concept for cultured meat in 2013. Currently lab-grown meat from cells including chicken, pork, lamb, fish and beef are underway.
- **Cultivated fish meat** – It is produced by isolating specific cells from fish and growing them in a laboratory setting using media that is free of animal components.
- It is expected to replicate the flavour, texture, and nutritional qualities of 'real' fish meat.
- **Need** – To address the ever growing demand for seafood, and reduce excessive pressure on wild resources.
- **Countries engaged** – Israel is the frontrunner, followed by Singapore, the United States and China.
- In 2023, the US cleared the sale of lab grown chicken meat in the country. Previously Singapore have approved cell-based meat for consumption.

Central Marine Fisheries Research Institute *(CMFRI) was established in 1947, joined ICAR family in 1967 with its headquarters in Kochi.*



- **Significance** – Ensure food security and environmental benefits.
- Antibiotics- and environmental contamination-free, and will have no contact with microplastics or heavy metals in the polluted oceans.

Other Important Topics

North India's 1st Biotech Industrial Park

- North India's 1st industrial biotech park inaugurated in ***Jammu and Kashmir's Kathua*** recently.
- **Biotech Parks** offer facilities to scientists and small and medium-sized enterprises (SMEs) for technology incubation, demonstration, and pilot plant studies.
- The parks are established to facilitate product advancement and innovation through the development of biotechnology industrial clusters.

INFORMATION TECHNOLOGY

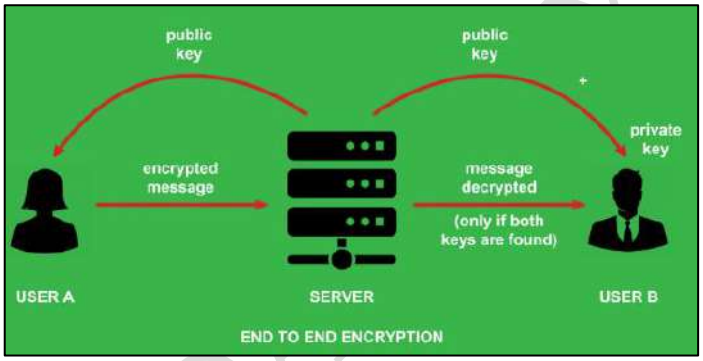
10.18 End To End Encryption (E2EE)

In the digital era, information is wealth and so encryption is an important way to protect it.

Encryption

- It is the act of changing some consumable information into an inconsumable form based on some rules.
- **Key** – A data using which a computer can 'unlock' (decrypt) some 'locked' (encrypted) text, knowing the set of rules used to 'lock' it.
- **Types** – Encryption-in-transit and E2E encryption.
- **Encryption-in-transit** – It is encryption before a message is relayed from the server to you (or vice versa).

- **E2E** – End-to-End encryption refers to encryption of particular locations between which information moves.
- Here, the message is **encrypted both in transit and at rest** i.e. when being relayed from your phone to the server (or vice versa) and when is inside the server.
- **Ways of encryption** – It depends on the level of secrecy and protection required.
- **Symmetric encryption** – A way of ***using the same key for encryption and decryption***, useful when the sender and the recipient are the same person.
    - The Advanced Encryption Standard (AES) which is seen while setting your WiFi password, is also a symmetric encryption algorithm.



- **Asymmetric encryption** – A way of using ***different keys for encryption and decryption***.
    1. **Public key** – It is the encryption key
    2. **Private key** – It is the decryption key.
- End to End Encryption (E2E) is a type of asymmetric encryption.
- **Challenges** – A potent malware can 'snoop' on the messages by infiltrating the device and reading them before they are encrypted.
- In case of man-in-the-middle (MITM) attack, the attacker acquires the key by hacking either of end devices.
- Illegal use of backdoor or exceptions installed by the parent company for legal purposes.

Hash Function

- It is responsible for encrypting a message.
- **3 functions** – It will accept an input message and produce an encrypted version called the digest.
- It should accept a message of any length and produce a digest of a fixed length, irrespective of how long or short the message is.
- It should produce unique digests for unique messages.

10.19 Centre of Excellence in AI for sustainable cities

15 consortiums have applied for the chance to set up a Centre of Excellence in AI to help Indian cities achieve demonstrable improvements in the SDGs that are relevant to them.

- **Set up by** – Ministry of Education, collaboration with the Ministry of Housing and Urban Affairs.
- **Union budget** – ***Rs. 300 crore***.
- **Objectives** – To help create AI-based applications and scalable solutions and products that have a disproportionate societal impact.
- **Focus** – City planning, traffic management, water and sewage network systems, effective distribution of gas and electricity, etc.

2023 Union budget of India had announced to set up 3 AI Centres of Excellence targeting agriculture, health and sustainable cities domain as a part of 'Make AI in India' and 'Make AI Work for India' initiatives.

- **Data** – From GIS maps, sensors deployed in public spaces, and satellite feeds.
- It could be reduced down to the level of a household and can be aggregated at street, city/village, taluk, district, state, and country level.
- **AI inspired tool** – It could predict the need for a resource at a particular place or design of a public space.

- **Significance** – They will strive to help the Smart Cities
  - Reduce energy consumption in target sectors by 15%
  - Reduce air and water pollution by 10% and reduce pollutant levels in rivers and seas
  - Improve sewage and garbage disposal outcomes by 25%
  - Increase the reclamation of water and solid waste
  - Improve access to transportation, leading to a 20% reduction in commuting time.

Other Important Topics

Kochi-Lakshadweep Islands Submarine Optical Fiber Connection

- PM Inaugurates Kochi-Lakshadweep Islands Submarine Optical Fiber Connection and dedicates Low Temperature Thermal Desalination (LTTD) plant at Kadmat recently.
- The project is funded by ***Universal Services Obligation Fund (USOF)***, Department of Telecommunications.
- **LTTD** is a desalination technique using low-grade thermal energy to evaporate seawater & produce fresh water.

Fog Pass Device

- A Fog Pass Device is a ***GPS-based navigation device*** that helps train loco pilot navigate through dense fog.
- It provides on-board ***real-time information*** to Loco Pilots regarding location of fixed landmarks such as Signal, Level Crossing gate (Manned & Unmanned), Permanent Speed Restrictions, and Neutral Sections etc.

Cyber kidnapping

- It is a type of cybercrime where attackers gain unauthorized access to computer systems and ***demand ransom.***
- They monitor the victims through video chat and use pictures captured by them in isolated conditions to extort money from their families.

Vondy

- It is an ***all-in-one AI platform*** developed by US software engineers ***Rohit Das*** and ***David Laub.***
- It is free and there are no message limits unlike ChatGPT and has an AI assistant that's a social media influencer.

C-BOT

The director general of the Council for Scientific and Industrial Research (CSIR) launched C-Bot recently.

- C-Bot is a coral monitoring and surveillance robot ***underwater unmanned vehicle*** indigenously developed by the ***National Institute of Oceanography (NIO).***
- The underwater vehicle will help in studying temperature, humidity and climate and will help collect samples and take photos, study growing biology in extreme environment.

NUCLEAR TECHNOLOGY

10.20 Demonstration Fast Reactor Fuel Reprocessing Plant (DFRP)

Prime Minister dedicated to the nation, indigenously developed Demonstration Fast Reactor Fuel Reprocessing Plant (DFRP) at the Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam, Tamil Nadu.

- It is a pilot for the bigger facility that would come up to reprocess the fuel that would come out of the two more 500 MW Prototype Fast Breeder Reactors (PFBR).

A fast breeder reactor is one, which breeds more material for a nuclear fission reaction than it consumes and is the key to India's three-stage nuclear power programme.

- It has the unique distinction of being the world's only industrial-scale plant capable of handling both carbide and oxide spent fuels from fast reactors.

Fast Reactor Fuel Cycle Facility (FRFCF)

- The Fast Reactor Fuel Cycle Facility (FRFCF), which is being set up in Kalpakkam is expected to be completed by 2027.
- **Executed by -** The FRFCF project is executed by the Nuclear Recycle Board, Bhabha Atomic Research Centre and the Department of Atomic Energy (DAE).
- **Purpose -** The purpose of FRFCF is to reprocess the spent fuel (nuclear *fuel that has been used in a reactor*) of the fast breeder reactors.

Other Important Topics

Jaitapur Nuclear power plant
• It is a proposed nuclear power plant that would be the ***world's largest nuclear*** power generating station. • The plant would have a capacity of 9,900 MW and would be located 400 km south of ***Mumbai, in Ratnagiri, Maharashtra.*** • The project is part of a civil nuclear cooperation agreement between ***France and India***.

11. INDICES AND REPORT

11.1 World Employment and Social Outlook Report 2023

- It details the impact of economic slowdown on the global labour market.
- **Released by-** International Labour Organisation annually.
- **Theme-** The value of essential work.
- **2023 report**- Calls for a revaluation of the work of key workers to reflect their social contribution and greater investment in key sectors.
- **Key workers**- Food system workers, health workers, retail workers, security workers, manual workers, cleaning and sanitation workers, transport workers, and technicians and clerical workers.

Aspects	Trend
Global unemployment rate	5.1%, a modest improvement on 2022
Global labour force participation rate	It is expected to decline further in 2023, reaching 60.5% the lowest level since 1990.
Global labour income share	It has fallen by 3.3% points since 2004 indicating worsening of income inequality
Number of workers in extreme or moderate poverty	It is estimated to increase by 34 million in 2023, reversing the progress made in the past decade.
Women workforce	They account for 38% of all key workers globally, though they are the majority in health and retail.

11.2 Global Carbon Project (GCP) Report

The Global Carbon Project report for 2023 was released during the recent COP28 summit held in Dubai, UAE.

- It is a Global Research Project of Future Earth and a research partner of the ***World Climate Research Programme.***

- **Established in** – 2001 prepared ***every year*** by a global consortium of scientists.
- **Aim** – To develop a complete ***picture of the global carbon cycle***, including both its biophysical and human dimensions together with the interactions and feedbacks between them.
- **Focus** – On the global biogeochemical cycles which govern ***3 greenhouse gases (GHGs)*** like carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), including their natural and human drivers, and opportunities for low carbon pathways.
- **Significance** – It produces Global Carbon Budget annually which provides an in-depth look at the amount of fossil fuels that nations around the world burn and where it ends up.
- **2023 report** – It projects fossil CO_2 emissions of 36.8 billion tonnes in 2023, up 1.1% from 2022.
- Global emissions from coal, oil and gas are all projected to increase with most steep increase from oil.
- Atmospheric CO_2 levels are projected to average 419.3 ppm in 2023, 51% above pre-industrial levels.

India's 3rd National Communication (2023) Report

- India's total GHGs was 3.1 gt of CO_2eq (2019).
- Almost 76% of GHGs were emitted by the energy sector followed by agriculture and industrial process sectors.
- About 92% of the CO_2 emissions is from the energy sector.
- Among energy sectors, power generation contributes about 39% in the total CO_2 emissions followed by transport and iron and steel.

- **In India** – CO_2 emissions will cross 3 gigatons (gt) by the end of 2023, about 8% higher than the figure of 2022.
- India's per capita emissions is only about 1.9 tonnes (against a world average of almost 5 tons) and its cumulative emissions is only 3% (as against 25% for US) of the global emissions.

11.3 National Multidimensional Poverty Index

Over 24.8 crore people moved out of poverty in India in nine years: NITI report.

- According to the World Bank, those who are ***unable to earn 2.15 dollar per day*** are living in extreme poverty.
- **Released by - *Niti Aayog***.
- **Purpose -** Plays a role in assessing advancements towards Sustainable Development Goals (SDGs) 1.2.
- **Indicators of National MPI -** India's national MPI has 3 equally weighted dimensions, which are then represented by 12 other indicators.
    1. Health
    2. Education
    3. Standard of living

SDG 1.2. *- By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to regional definitions.*

- These 12 include nutrition, child and adolescent mortality, maternal health, years of schooling, school attendance, cooking fuel, sanitation, drinking water, electricity, housing, assets, and bank accounts.
- Sub-indices of National MPI:
    1. Headcount ratio (H): How many are poor?
    2. Intensity of poor (I): How poor are the poor?
- **Formula -** MPI= H*I

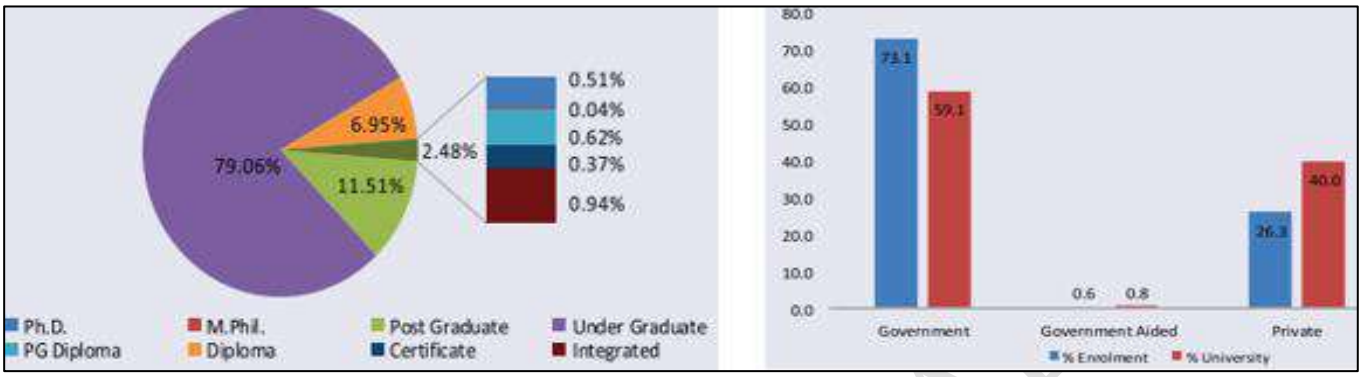
Global MPI Report *- Jointly published by the Oxford Poverty and Human Development Initiative (OPHI) and the United Nations Development Programme (UNDP).*

- If the deprivation score (sum of the weighted status of all the indicators) for an individual is more than 0.33, then an individual is considered multidimensionaly poor.
- **Findings** - As many as 24.82 crore people moved out of multidimensional poverty in nine years to 2022-23, with Uttar Pradesh, Bihar and Madhya Pradesh registering the largest decline.
- All 12 indicators of MPS have shown remarkable improvement during this period.

11.4 AISHE 2021-22

All India Survey of Higher Education (AISHE) 2021–22 was made public on January 25, 2024.

- **Initiated in** – ***2011***.
- **Aim** – To give *complete picture of Higher Education* in the country.
- **3 Categories –** Universities, Colleges and Stand-alone institutions.
- **Data source** – *Voluntary uploading of data by institutions of Higher Education* listed in www.aishe.gov.in portal.
- **AISHE 2021-22** – It was the ***11th Survey*** and *1st Survey conducted through Web Data Capture Format (DCF)*.



Key takeaways from AISHE 2021-22 Report

Gross Enrolment Ratio (GER) *indicates how many students are part of the higher education system in a given population.*

Gender Parity Index (GPI) *shows the ratio of the female GER to male GER. A GPI of 1 indicates parity between the two genders, GPI greater than 1 indicates a disparity in favour of females.*

- **Increase in enrolment** – 4.33 crore students, up from 2020-21 level, captured in 8 different levels.
- **Primacy of government institutions** – 73.7% of all students attend government universities, where *state public universities have the largest share* of enrolment, accounting for around 31%.
- **Higher enrolment of females** – It has *steadily increased* to 2.07 crores in 2021-22, a 32% jump from 2014-15 levels with the *highest numbers at the post graduate level*, 55.4% are women.
- **Gender Enrolment Ratio** – It is 28.4 for the age group 18-23 years at all India level (population data from the 2011 census) and is in *favour of women in 26 states and Union Territories*.
    - *Chandigarh boasts of the highest GER* (64.8%), followed by Puducherry, Delhi and Tamil Nadu.
- **Gender Parity Index** – It is 1.01 at all-India level, and for SC and ST categories, it is 1.01 and 0.98 respectively.

For the 1st time, all the major Stakeholders in Higher Education, such as UGC, AICTE, MCI as well as State Governments participated in the data collection exercise for AISHE 2021-22.

- **Higher preferences for Arts** – In UG, Bachelor of Arts (BA) and in PG, Master of Arts (MA) programme has the highest enrolment.
- **Demographics of students graduating** – Among the graduated students, *roughly 50.8% are women* and the graduation rate in arts and social sciences streams is higher than others.
- Category-wise, around 35% of the students belong to OBC, 13% are from SC and 5.7% are from ST community.

11.5 Corruption Perceptions Index 2023

India slipped on the corruption perceptions index (CPI) for 2023 to 93 as against 85 it scored for 2022.

- **Released by** – Transparency International.
- **Rankings** – It ranks ***180 countries and territories*** by their *perceived levels of public sector corruption* according to experts and business people.
- Scale – 0 to 100; 0 – Highly corrupt; 100 – Very clean.

Key Findings of the 2023 Report

- Over 2/3rd of countries score below 50 out of 100, indicating that they have serious corruption problems.
- **Global average** – It is stuck at *only 43*, while the vast majority of countries have made no progress or declined in the last decade.
    - **Top positions** –New Zealand (3) and Singapore (5)
    - **Bottom positions** –North Korea and Myanmar.
- **Asia Pacific region** - 71% of the countries have a CPI score below the regional average and the global average.
- **South Asia** – Both Pakistan and Sri Lanka grapple with debt burdens and ensuing political instability.
- **India** – Its overall *score was 39 while in 2022, it was 40*.
    - **Reason for weak scores** – Lack of delivery by elected officials on anti-corruption agendas, crackdowns on organised civil society and attacks on freedoms of press, assembly and association.

Other Important Topics

Mountain Green Cover Index (MGCI)
• Recently National Highways Authority of India (NHAI) signed a 3-year MoU with the ***National Remote Sensing Centre (NRSC)*** to develop & report a *Green Cover Index* for National highways. • **MGCI** is a metric that measures the amount of green vegetation in mountain areas (forest, shrubs, trees, pasture land, crop land, etc.) in order to monitor progress towards the mountain target.
MSMEs in India
• A recent report of CBRE-CREDAI says that ***Maharastra, TamilNadu and Uttar Pradesh*** (top 3 States) contribute 40% of registered MSMEs in India. • Micro, Small and Medium Enterprises are known by the acronym MSME.

12. PERSONALITIES

12.1 Karpoori Thakur & Bharat Ratna Awards

Recently, the President of India has conferred Bharat Ratna posthumously to former Bihar CM Karpoori Thakur.

- **Karpoori Thakur** - From *1952* and remained one *till his last Assembly election in 1985*, also has served as the ***CM of Bihar twice***.
- Often remembered as the '*voice of the oppressed and the downtrodden*' and thus called as '***Jannayak'***.
- He is widely considered as the ***pioneer of reservations for OBC and EBC*** (economically backward classes) in the country.
- He was *firmly against dynastic politics*.
- Some current schemes in Bihar bear the mark of Thakur's socialist politics, like ***waiving of school fees for girls*** until their post-graduation and 50% ***reservation to women*** in panchayats.

Bharat Ratna was previously awarded in 2019 to Shri Nanaji Deshmukh (posthumously), Dr Bhupendra Kumar Hazarika (posthumously) and Shri Pranab Mukherjee. It has been granted to 49 individuals so far (2024), with 17 posthumously.

Bharat Ratna Awards

- It is the ***highest civilian Award*** in India, ***instituted in 1954***.
- **Eligibility** – Any person without distinction of race, occupation, position or sex is eligible for these awards.
- For recognition of exceptional service/performance of the highest order in any field of human endeavour.

- **Recommendation** – *By Prime Minister* himself to the President.
- **Numbers** – Restricted to a ***maximum of 3*** in a particular year, but not mandatory to award every year.
- **Award** – A Sanad (certificate) signed by the President and a medallion but ***no monetary grant*** is given.
- **Title** – *Cannot be used as a prefix or suffix* to the recipient's name as per ***Article 18 (1)*** of the Constitution.
- However, one may use the expression "*Awarded Bharat Ratna by the President"* or "*Recipient of Bharat Ratna Award*".
- **Posthumous awards** – Though original statutes did not provide for this, ***1955 amendment permitted them***.

Other Important Topics

Valmiki
• Valmiki, also known as Maharishi Valmiki, is a legendary poet and revered sage in Hindu mythology. • He is known as the author of the epic poem ***Ramayana***, and is revered as the ***1st poet in Sanskrit literature***. • He is called as the ***Adikavi or First Poet*** - the Poet of Poets of India. • Valmiki's birth anniversary is celebrated every year on ***Ashwin Purnima.***
Savitribai Phule
• Savitribai Phule (1831 - 1897) was a social reformer, poet in ***Maharastra.*** • She is considered the 1st female teacher in India and is known as the ***mother of Indian feminism.***
Rani Velu Nachiyar
• Rani Velu Nachiyar was the ***1st queen to fight against the British*** colonial power in India. • She is known by Tamils as **Veeramangai**, who was the princess of Ramanathapuram.
Homi.J.Bhabha
• Homi Jehangir Bhabha (1909 - 1966) was an Indian nuclear physicist and ***the father of the Indian nuclear program.*** • He established the ***Tata Institute of Fundamental Research (TIFR)*** in 1945 to conduct nuclear science research. • He was the 1st Indian to receive the ***Adams prize*** most prestigious prizes instituted by Cambridge University. • He was the chairman of ***India's first Atomic Energy Commission***.

13. AWARDS & PRIZES

13.1 Swachh Survekshan Awards

Recently Union government announced the Swachh Survekshan Awards 2023.

*2023 was the 7th year in a row that **Indore** was named the cleanest city in the Swachh Survekshan Awards. **Surat** won the top award for the 1st time.*

- An ***annual*** cleanliness ranking for ***urban areas since 2016***.
- **Released by** – Ministry of Housing and Urban Affairs.
- **Coverage** – Originally 73 cities in 2016, now has increased along with *4,416 urban local bodies*, *61 cantonments* and *88 Ganga towns*.

- **Criteria**
    1. Door-to-door collection of waste
    2. Segregation at source
    3. Cleanliness of public areas
    4. Clean water bodies
    5. Citizens' feedback regarding the cleanliness of their cities

2023 Awards

- **Among Cities with >1 lakh population** – ***Indore and Surat*** were named the joint winners with 100% door-to-door collection of waste & remediation of dumpsites and 98% segregation at source.
- **Among States** – ***Maharashtra*** bagged the top spot with 89.24% door-to-door collection and 67.76% source segregation followed by Madhya Pradesh.
- *Sasvad in Maharashtra* was named the cleanest city among those with population below 1 lakh.
- *Chandigarh* won the award for the city having the *best safety standards for sanitation workers*, Safaimitra Surakshit Shehar.
- Varanasi was named the *cleanest 'Ganga town'*.
- *Mhow Cantonment* was the cleanest cantonment in the country.
- Arunachal Pradesh, Mizoram, Rajasthan, Nagaland and Tripura were ranked the *bottom five states*.

13.2 Padma Awards

For the year 2024, the President has approved conferment of 132 Padma Awards including 2 duo cases (counted as one).

- **Instituted in** – ***1954***, announced ***every year*** on the occasion of Republic Day except during 1978 and 1979 and 1993 to 1997.
- **Presented by** – ***President of India***, usually in March/April every year.
- **Eligibility** – All persons without distinction of race, occupation, position or sex but *government servants including PSUs*, except doctors and scientists, are *not eligible* for these Awards.

3 categories of Padma Awards

- **Padma Vibhushan** – For exceptional and distinguished service.
- **Padma Bhushan** – For distinguished service of a high order.
- **Padma Shri** – For distinguished service.

- **Awards** – A *Sanad* (certificate) signed by the President, *medallion* and a *small replica of the medallion*, awardee names are also published in the Gazette of India on the ceremonial day.
- **Title** – It does ***not amount to a title*** and cannot be used as a suffix or prefix to the awardees' name
- **Number**– In a given year (excluding posthumous and to NRI/foreigners/OCIs), it should ***not be more than 120***.
- **Fields covered** – Art, social work, social service, Public Affairs, science & engineering, trade & industry, medicine, literature & education, civil service, sports and others fields that not covered.

It is normally not conferred posthumously but in highly deserving cases, the Government could consider giving an award posthumously.

Padma Awards Committee

- **Constituted by** – Prime Minister of India every year; **Headed by** – Cabinet Secretary; **Members** – It includes Home Secretary, Secretary to the President and 4 to 6 eminent persons.
- **Role** – It considers the nominations and submits its recommendations to the Prime Minister and the President of India for approval.

2024 list comprises 5 Padma Vibhushan, 17 Padma Bhushan and 110 Padma Shri Awards. It includes 30 women, 8 persons from the category of Foreigners / NRI / PIO / OCI and 9 posthumous awardees.

SHANKAR IAS ACADEMY

Padma Vibhushan 2024		
Name	**Field**	**State/ Region**
Ms. Vyjayantimala Bali	Art	Tamil Nadu
Shri Konidela Chiranjeevi	Art	Andhra Pradesh
Shri M Venkaiah Naidu	Public Affairs	Andhra Pradesh
Shri Bindeshwar Pathak **(Posthumous)**	Social Work	Bihar
Ms. Padma Subrahmanyam	Art	Tamil Nadu

Other Important Topics

Subhash Chandra Bose Aapda Prabandhan Puraskar

- It was recently announced to commemorate the birth anniversary of Netaji Subhash Chandra Bose.
- It is to recognize and honour invaluable contribution and selfless service rendered by individuals and organizations in the ***field of disaster management.***
- It was administered by ***National Disaster Management Authority (NDMA).***

National Sports and Adventure Awards 2023

- Established in 2002 to honor athletes who contributed to sports and continue to promote it even after retirement.
- The awards include
  - Major Dhyan Chand Khel Ratna Awards
  - Dronacharya Awards
  - Arjuna Awards-
  - Dhyan Chand Awards
  - Tenzing Norgay National Adventure Awards
  - Rashtriya Khel Protsahan Puruskar
  - Maulana Abul Kalam Azad Trophy

PM's Awards for Excellence in Public Administration, 2023

- The award is to acknowledge, recognize and reward the extraordinary and innovative work done by Districts/ Organizations of the Central and State Governments.
- The Award Scheme restructured to recognize the performance of the ***District Collectors*** through targeted individual beneficiaries and implementation with a saturation approach.
- The PM's Awards, 2023 will consist of Trophy, Scroll and an incentive of ***Rs. 20 lakh*** to the awarded District/organization.

National Youth Award 2024

- Union Ministry of Youth Affairs and Sports has selected ***Bisathi Bharat*** of Anantapur district of Andhra Pradesh for the National Youth Award (NYA) recently.
- It is an award conferred ***annually*** to individuals and voluntary organisations serving in the arena of youth development.

Best marching contingents and tableaux awards

- The government selects one marching contingent and one tableau as the best each year.
- An ***Expert Committee of the Ministry of Defence*** makes the selection.

- In addition to the committee's selection, a popular choice award is also given to the marching contingents and tableaux based on public votes.

Best Marching Contingent among the 3 services	Indian Air Force
Best Marching Contingent among CAPF/other auxiliary forces	CRPF
Best 3 Tableaux (States/UTs)	**1st** - Gujarat (Clean-Green energy efficient Gujarat) **2nd** – Odisha (Woman Empowerment in Viksit Bharat) **3rd** - Culture Ministry (Bharat: Mother of Democracy)

14. IMPORTANT DAYS

14.1 Republic Day

French President Emmanuel Macron was India's chief guest for the 75th Republic Day, celebrated on January 26, 2024.

- It marks the ***adoption of India's constitution*** and the country's ***transition to a republic*** on ***January 26, 1950***.
- The Constitution was adopted officially by the Constituent Assembly on November 26, 1949.
- **Celebrations** – It features military and cultural pageantry.
- **Ceremonious parades** – It is inaugurated from Raisina Hill along the Kartavya Path, past India Gate, and onto the historic Red Fort in New Delhi.
- **Historical Roots of January 26 -** The day is deeply symbolic as it serves as a bridge connecting India's past, present and future.
- On ***January 26, 1930, Poorna Swaraj declaration*** was officially promulgated in *Lahore session of INC* which marked the beginning of the final phase of India's freedom struggle.
- The theme for the tableaux at the Republic Day Parade 2024 is 'Bharat - The Mother of Democracy'.

	Republic Day	Independence Day
Day	January 26	August 15
Ceremonial head	President	Prime Minister
National Flag	Unfurled	Hoisted

Other Important Topics

International Braille Day

- It is celebrated on ***January 4th*** to commemorate the birthday of ***Louis Braille***, the inventor of braille.
- Braille is a tactile representation of alpha & numerical symbols using ***6 dots*** to represent each letter and number, and even musical, mathematical and scientific symbols.

National Birds Day

- ***January 5*** is observed as National Birds Day introduced by U.S.A in 2002 and followed in some countries.
- The ***theme*** of the National Birds Day 2024 is ***'Right to Fight'***.
- **Birds in News -** Jungle Babbler, Oriental Magpie-Robin, Common Hoopoe, Indian Roller, Indian white-eye, Brown-headed barbet, House Sparrow.

International Education Day

- The ***UN General Assembly (UNGA)*** declared ***January 24*** as the International Day of Education in 2018.

- The day celebrates the role of education in peace and development and aims to raise awareness of the value and impact of quality education.
- In **2024**, UNESCO is focusing on promoting anti-racist guidelines and addressing racism in textbooks with the ***theme*** - ***'learning for lasting peace'.***

National Tourism Day

- The ***National Tourism Day*** is celebrated on ***January 25***, while the ***World Tourism Day*** is celebrated on ***September 23***.
- The main focus of celebrating this day in India is to educate people about the benefits of traveling, to appreciate the country's beauty and spread awareness of the importance of tourism.
- The theme of 2024 is ***"Sustainable Journeys, Timeless Memories."***

15. OTHERS

15.1 Veli

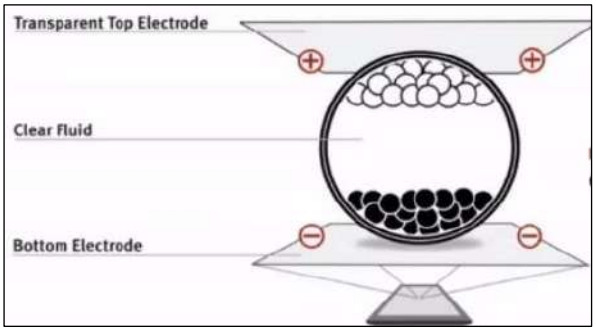
In a fishing village of Andhra Pradesh, the practice of social boycott among the Vaddi community has adverse social and economic consequences.

- Veli is the practice of ***social boycott.***
- Those subjected to social ostracisation are not allowed to speak to other villagers and in some cases, compelled to abandon their homes and seek refuge elsewhere.
- An informal grama peddalu (village elders), also called a kula (caste) panchayat, of six or seven members nominated for a year by the community (they are never re-installed), takes a call on veli.
- The grama peddalu may also enforce tappu (wrong), a monetary penalty against 'wrongdoers'.

15.2 E Ink Displays

E Ink displays are a special type of screen technology often used in e-readers like the Amazon Kindle.

- **Development** – In 1990s at MIT, now owned by E Ink Corporation.
- **Working** – It is made of a thin film on top of millions of microcapsules filled with particles floating in a clear fluid.
- They are charged black or white particles which are set to move around depending on what type of electric charge they receive.
- Rising of particles to the surface creates the text and images on the display.



	E Paper	E Ink
Design	It uses a low-power LCD with a reflective layer to look like paper.	It uses tiny microcapsules filled with charged particles suspended in a clear fluid.
Example	Pebble smartwatch	Amazon Kindle

- **Other applications** – In Mobile devices, bus stop displays, walking direction signs and E Ink menu boards in restaurants.
- **Advantages** - They *consume very little power* compared to LCD and OLED displays, draws power only when the image is changed.
- It cause *less eye strain* for the user as there is no backlight.

- The matte surface and high contrast also make them *easily readable outdoors and under bright light*.
- **Disadvantages** – Has *slow refresh rate* compared to LCD and OLED displays, unsuitable for video/animation
- It has *limitations on colour and resolution* compared to others.
- The displays *remain expensive,* which limits their use to mostly e-readers and a handful of other products.

15.3 Nitrogen Hypoxia

Alabama carried out the 1st ever execution using nitrogen gas in the United States.

- **Execution method** – Forcing the inmate to breathe in pure nitrogen which deprives the body of oxygen needed to maintain bodily functions and ultimately causes death.
- **Technology used** – NIOSH approved '***Type-C full face piece supplied air respirator***', a type used in industrial settings to deliver life-preserving oxygen was used to deliver the nitrogen.
- **Issues** – Human rights advocates criticise it as a method of cruel and inhumane action.

Execution by Nitrogen hypoxia marks the United States' 1st execution using the method, and the 1st time in over 4 decades that a new method of execution was introduced, since lethal injection was 1st used in 1982.

Nitrogen

- Colourless and odourless gas, denoted by symbol 'N'.
- It is the ***most abundant element*** in our atmosphere, approximately 78% of the atmosphere.
- It is a constituent of all living tissues as it is a component of DNA and a part of a genetic code.
- It is found in nitrates and nitrites in soil and water.
- Generally, it is inhaled by humans from the air and clearly, the gas itself is harmless.

Other Important Topics

Sheen-e She (Shan)



- It is the mascot and logo of ***Khelo India Winter Games,*** 2024.
- In keeping with the tradition and bio-diversity of the region, the mascot of the Khelo India Winter Games 2024 is a ***snow leopard***.
- The first part of the Winter Games was held in Union Territory of Ladakh for the first time.
- The second portion was held in Gulmarg, Jammu & Kashmir.

EV batteries

A new study has found that Coal can inject some extra life into chargeable batteries for electric vehicles (EV) without burning.

- An Electric Vehicle Battery is a rechargeable battery that powers the electric motors of a hybrid electric vehicle (HEV) or battery electric vehicle (BEV).
- EV batteries are also known as ***traction batteries***.
- EV batteries store electricity for transmission to an alternating or continuous current engine.

Women participation in workforce

The latest results of the Periodic Labour Force Survey (PLFS), released by the Labour Bureau had shown considerable increase in the women participation.

- In 2017-18, the participation rate was 23.3% and in 2022-23, it was 37%.
- The survey is being taken to assess the spread of women employee-friendly practices in the country like creche facilities for children and equal pay for equal work.

Khelo India Youth Games 2023

Prime Minister inaugurated Khelo India Youth Games 2023 in Chennai, being held also in Madurai, Trichy, and Coimbatore.

- This is the ***1st time*** the games are being held in ***South India***.
- For the ***1st time***, Tamil Nadu's ***Silambam*** is set to debut as 'demo sports'.

Operation AMRITH

- Operation Amrith (AMRITH - **A**nti**M**icrobial **R**esistance **I**ntervention for **T**otal **H**ealth)
- It is a strategy by ***Kerala*** Drug Control Department to ***combat antimicrobial resistance (AMR).***
- The initiative aims to reduce the use of antibiotics by conducting surprise raids on retail medical shops to detect the sale of antibiotics without a prescription.

Wings India 2024

- Wings India 2024 is a civil aviation event that took place at ***Begumpet Airport in Hyderabad.***
- This event is organized by the *Ministry of Civil Aviation, AAI, and FICCI.*
- The event celebrated India's status as the ***world's third-largest domestic aviation market.***

Boeing India Engineering and Technology Centre (BIETC)

Prime Minister inaugurated aircraft manufacturing giant Boeing's largest investment facility outside the USA in Bengaluru recently.

- **Aim**- A cornerstone for partnership with the vibrant startup, private and government ecosystem in the country.
- PM will also launch the ***Boeing Sukanya Program*** that aims to support the entry of more girl children from across India into the country's growing aviation sector.

Green Hydrogen from Whisky Distillery

- Researchers at the Heriot-Watt University in Edinburgh used wastewater from the whisky distilling industry to produce green hydrogen, which is a type of sustainable fuel.
- They did this by developing a new nanoscale material, nickel selenide that allowed distillery wastewater to replace fresh water in the green hydrogen production & it treats the wastewater.

Global FinTech Forum

- On the sidelines of the Vibrant Gujarat Global Summit, PM interacted with prominent business leaders in the ***Global FinTech Leadership Forum*** at GIFT city in Gujarat recently.
- The Global Fintech Forum is a space for shareholders, customers, and participants to share experiences and experiment.

Pravasi Bharatiya Divas (PBD)

- Pravasi Bharatiya Divas, also known as ***Non-Resident Indian (NRI) Day***, flagship event of the Ministry of External Affairs is celebrated on ***January 9*** every year.
- **Aim -** To mark the contribution and achievements of the overseas Indian community to the development of India.
- It's a day to acknowledge the achievements ***of Non-Resident Indians (NRIs) and Persons of Indian Origin (PIOs)*** who have made significant contributions to their adopted countries.

International Purple Fest 2024

- India's First-of-its-kind inclusive festival that ***celebrates persons with disabilities.***

- A collaborative effort between the Office of the State Commissioner for Persons with Disabilities, the Directorate of Social Welfare under the Government of Goa, and the Department of Empowerment of Persons with Disabilities from the Ministry of Social Justice and Empowerment, Government of India.
- Held in Goa. (Purple is often associated with power, dignity, and independence).

The DART Book & Food Safety on Wheels (FSW)

- ***Food Safety and Standards Authority of India (FSSAI)*** has recently released "The Detect Adulteration with Rapid Test (DART) Book" & Food Safety on Wheels (FSW).
- DART booklet is a compilation of common quick tests for detection of food adulterants by the citizens themselves so as to induce awareness among the consumers about food safety.
- A mobile food testing van called ***Food Safety on Wheels (FSW)*** was launched to reach remote areas and conduct training and awareness activities & to promote awareness campaigns.

Moradabad brass



- Moradabad brass is a small-scale, low-technology industry that has been growing since the early 19th century.
- Moradabad city is known as the ***"City of Brass" or Pital Nagri.***
- It was established in 1600 by Murad, ***the son of the Mughal Emperor Shahjahan***, as a result the city came to known as Moradabad.

GolDN

- IIT Bombay has developed an instrument, GolDN (pronounced as Golden) for melt-mixing of waste thermoplastic polymers and inorganic particulate fillers to manufacture polymer composites.
- GolDN is a ***single screw extruder*** that ***mechanically recycles waste plastic polymers through melt-mixing***.
- The instrument can manufacture composites from thermoplastic waste that can be molded into materials like paver blocks, tiles, and bricks.

South Coast Railway Zone

- It is ***India's 18th railway zone***, and its headquarters are in ***Visakhapatnam, Andhra Pradesh.***
- It was announced ***in 2019*** and still not started yet.

Rajiv Gandhi International Airport (RGIA)

- RGIA in Hyderabad was ranked 2nd among the top 20 global airports with the highest ***On-Time Performance (OTP)***, according to Cirium's annual report released recently.
- OTP is a measure of how punctual an airline's flights are compared to their scheduled times.
- A flight is considered on-time if it arrives or departs ***within 15 minutes*** of its scheduled time.

Leap Year, 2024

- A leap year has ***366 days*** in a year as opposed to the regular 365 days.
- The extra day is added to February, the shortest month of the year, as February 29.

Surya Namaskar

- Gujarat set a Guinness World Record recently after more than 50,000 people performed 'Surya Namaskar' simultaneously at 108 venues.
- ***Surya Namaskar or sun salutation*** is an ancient Yogic practice of paying respect to the rising sun and comprises different postures or Asanas.

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