

MAY 2024

1. C-DOME DEFENCE SYSTEM

- The C-Dome is the naval version of Israel's Iron Dome missile defence system. It was deployed for the first time as a response to a "hostile aircraft" entering Israeli airspace near Eilat.
- Similar to the Iron Dome, which intercepts rockets fired from Gaza, the C-Dome uses radar to detect incoming threats and destroys them with its own missiles.
- Unlike the Iron Dome, the C-Dome is mounted on ships and integrated into the ship's radar system.
- It provides full-circular protection against maritime and coastal threats.

2. TSAT-1A

- Tata Advanced Systems Limited (TASL) announced the successful deployment of its submetre optical satellite, TSAT- 1A, into space.
- The satellite, assembled and tested in India, was launched aboard SpaceX's Falcon 9 rocket from the Kennedy Space Center in Florida.
- TSAT-1A will provide high-resolution optical satellite images with enhanced collection capacity and dynamic range through its multispectral and hyper- spectral capabilities.

3. INTERNATIONAL NARCOTICS CONTROL BOARD

- India's nominee, Jagjit Pavadia, has been re-elected for a third term to the International Narcotics Control Board (INCB) after securing the highest number of votes.
- The INCB, established in 1968, monitors the implementation of international drug control conventions and aims to ensure adequate drug supplies for medical and scientific uses while preventing diversion to illicit channels.

4. MERCENARY SPYWARE

- Apple issued threat notifications to iPhone users in India and 91 other countries, warning of potential attacks by mercenary spyware, including Israel's Pegasus spyware.

About Mercenary Spyware:

- Mercenary spyware refers to sophisticated surveillance software developed and sold by private companies to governments and other entities.
- Unlike traditional cybercriminal activities, mercenary spyware is often used for targeted surveillance, intelligence gathering, and espionage purposes.
- This type of spyware can infiltrate devices such as smart phones and computers, allowing the attacker to monitor communications, track location, access files, and gather sensitive information remotely.
- E.g. Pegasus.





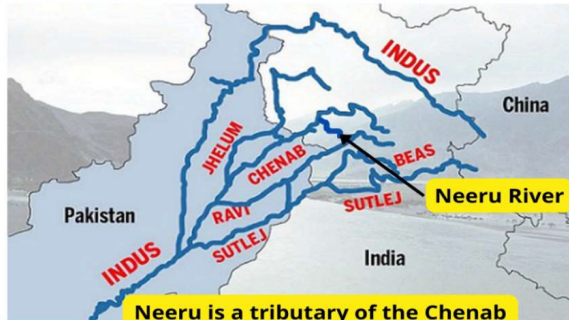
5. EURASIAN OTTER

- The first Eurasian otter in India was radio-tagged in the Satpura Tiger Reserve (STR) in Madhya Pradesh.
- The Eurasian otter was first photographed in the STR in 2016, expanding its known range to central India.

Context: Scientists from the University of Jammu's Institute of Mountain Environment have camera-trapped three Eurasian otters in the **Neeru stream of the Chenab catchment** in Jammu and Kashmir

About: Eurasian Otter (*Lutra lutra*)

- It is an **elusive, solitary otter species** that is found in parts of three continents: Europe, Asia and Africa.
- **Range in India:** Northern, northeast and southern India (mostly in cold hills and mountain streams)
- **IUCN:** Near Threatened
- **CITES:** Appendix I
- **Indian Wildlife Protection Act, 1972:** Schedule II



Neeru is a tributary of the Chenab River that originates in the Kailash Lake

Threats: The species is persecuted in some countries, and its populations in Europe and Asia have declined in recent years due to hunting, habitat loss, pollution, and climate change.

Significance of spotting Eurasian Otters: Eurasian otters are regarded as a **flagship species and indicator of high-quality aquatic habitats**. Its presence is encouraging for the health (pollution free) of the Neeru stream.

6. HYDROGEL

- Researchers at the Indian Institute of Science (IISc) have developed a sustainable hydrogel to address the issue of microplastic pollution in water.
- The three-layer polymer hydrogel, consisting of chitosan, polyvinyl alcohol, and polyaniline, forms an interpenetrating polymer network (IPN) architecture.
- Infused with nanoclusters of copper substitute poloxometalate (Cu-POM), the hydrogel can bind and degrade microplastics under UV light irradiation.
- Hydrogels are three-dimensional networks composed of hydrophobic polymers synthesized by crosslinking water-soluble polymers.
- Hydrogels can retain a large quantity of water within their network without disturbing their original structure.
- This imparts flexibility and swelling properties to the hydrogel structures.

7. DOXXING

- Doxxing, the act of publicly revealing a person's private information online, poses significant risks to victims, including physical, digital, and emotional harm.
- Perpetrators often share personal data such as addresses, phone numbers, and financial information obtained through illegal means like hacking.



8. SHRINKFLATION

- Shrinkflation, the reduction in product sizes while maintaining prices, is resurfacing in the fast-moving consumer goods (FMCG) industry due to rising input costs.
- Brands like Clear, Frooti, and Smooth are introducing smaller packaging at the same or slightly reduced prices to cope with inflation.
- Shrinkflation refers to the practice employed by manufacturers wherein the size or quantity of a product is reduced while keeping its price the same or slightly adjusted.

9. COTTON

- **Type:** Kharif Crop
- **Climate:** 21-30 degree C and minimum of 180 frost-free days
- **Rainfall:** 50-100 cm (nearly 65% of cotton cropped area is rain-fed)
- **States:** Guj> MH> Telangana> Andhra> RJ
- **India's position:** 2nd (China is largest cotton producer)
- **Soil:** Black cotton soil (high water retention)
- **Species of Cotton** (all four are grown in India): **Asian Cotton** (*Gossypium arboreum* and *G. herbaceum*); **Egyptian Cotton** (*G. barbadense*); **American Upland Cotton** (*G. hirsutum*)



State	Cotton Production 2017-18 (0000 tons)
Gujarat	122
Maharashtra	61
Telangana	50
Karnataka	28
Andhra Pradesh	27

*Maps - For representation purpose only.

10. NITROPLAST

- Scientists have discovered a new organelle, termed a nitroplast, within algae that can convert nitrogen gas into a form usable for cell growth.
- This ground-breaking finding challenges the conventional belief that only bacteria and archaea can perform nitrogen fixation.
- The nitroplast, found in the algae *Braarudosphaera bigelowii*, is considered the first nitrogen-fixing organelle in eukaryotes.

11. FDI IN SPACE SECTOR

- 74% FDI for satellite manufacturing, up to 49% for launch vehicles, and up to 100% for component and system manufacturing.
- Investment beyond 49% for spaceports requires government approval.

12. VASUKI INDICUS

- A fossil vertebrae discovered in Gujarat has been confirmed as belonging to the largest snake to have ever lived, named 'Vasuki Indicus.'
- Unearthed in 2005 by scientists from IIT-Roorkee, the snake is estimated to have been 11-15 meters (about 50 feet) in length and weighed around 1 tonne.



- Vasuki likely lived as an ambush predator in marshy swamps during a time of higher global temperatures.

13. TACHYONS

- A new paper suggests that the universe may be dominated by particles called tachyons, which move faster than light.

About Tachyons:

- They are hypothetical subatomic particles that move faster than the speed of light. Coined by physicist Gerald Feinberg in 1967, they're distinct from bradyons, which travel slower than light. While bradyons include familiar particles like protons and electrons, tachyons have never been observed.
- Tachyons violate known principles like causality and are proposed as a potential explanation for dark matter
- According to special relativity, particles with mass can't exceed light speed in a vacuum due to infinite energy.
- Tachyons, however, are believed to have imaginary mass, allowing faster-than-light travel without violating known physics laws.
- They would slow down with energy gain and accelerate with energy loss.

14. DRAGONFLY MISSION

- NASA has confirmed its Dragonfly rotorcraft mission to Titan, Saturn's largest moon will be scheduled for 2028.
- Dragonfly, a "dual-quadcopter," will explore Titan's organic compound-rich surface, covering tens of kilometres in under an hour due to Titan's dense atmosphere and low gravity.

15. GENOMIC ACCORDION

- Mpox, a DNA virus, exhibits a unique evolutionary strategy known as the genomic accordion, involving expansions and contractions of its genome.
- Researchers identified 6.4-kilobase sections of the genome, previously deemed unimportant, as critical for human-to-human transmissibility and evolutionary adaptability.

16. ETHYLENE OXIDE IN INDIAN SPICES

- The harmful substance, ethylene oxide, has been classified as a 'Group 1 carcinogen' by the International Agency for Research on Cancer.
- Ethylene oxide is banned for use in food items in India.
- Ethylene oxide, primarily used as a sterilizing agent and insecticide, poses health risks including irritation of the eyes, skin, nose, throat, and lungs, as well as potential long-term effects on the central nervous system and carcinogenic properties.





17. ANDAMAN AND NICOBAR ISLAND

Context:

The Andaman and Nicobar administration's plan to establish wildlife sanctuaries on **islands traditionally managed and inhabited by the indigenous southern Nicobarese people** ignores their rights and disregards the ecological and social impacts.

Proposed Sanctuary	Description
Coral Sanctuary on Meroë Island	The government plans to establish a coral sanctuary
Megapode Sanctuary on Menchal Island	The proposed sanctuary aims to protect endemic Megapode birds
Leatherback Turtle Sanctuary on Little Nicobar Island	The administration seeks to create a sanctuary for leatherback turtles without consulting indigenous Nicobarese people, who traditionally use the island.

The Andaman Islands **consist of 572 islands**, with key ones including **North Andaman, South Andaman, Little Andaman, and Middle Andaman**. It boasts the **highest number of wildlife sanctuaries in India**, totalling 96, along with **9 national parks**.

National Park/Sanctuary	Location	Features	Major Fauna
Campbell Bay & Galathea National Parks	Great Nicobar	Part of Great Nicobar Biosphere Reserve - Separated by a 12-km wide forest buffer zone . Galathea National Park is India's southern-most	Giant robber crab, megapode, Nicobar pigeon, turtle species
Mahatma Gandhi Marine National Park	South Andaman	Protects mangroves, corals, and nesting sea turtles. Mostly fringing reefs	Mangroves, corals, nesting sea turtles
Mount Harriett National Park (Mount Manipur National Park)	South Andaman	The third-highest peak in the A&N archipelago. Renamed to honour Manipur's freedom fighters	Andaman wild pigs, saltwater crocodiles, turtles, robber crabs
Rani Jhansi Marine National Park	Ritchie's Archipelago, South Andaman	Located near Button Islands. Vegetation includes mangroves and evergreen forests	Spotted deer, water lizards, monitor lizards, fruit-eating bats, dugongs, dolphins, sea turtles, blue whales, corals
Saddle Peak National Park	Andaman and Nicobar Islands	The highest point of the A&N Islands. Features varied fauna and flora	Andaman wild pig, Andaman imperial pigeon, dolphins, whales, saltwater crocodile
Other National Park	North Button Island NP, Middle Button Island NP, South Button Island NP		

18. NEPTIS PHILYRA

- Butterfly enthusiasts made a remarkable discovery in Tale Valley Wildlife Sanctuary, Lower Subansiri district, Arunachal Pradesh India, spotting the elusive Neptis philyra, also known as the long-streak sailor, for the first time in the country.
- The butterfly, initially described in Russia in 1859, is native to East Asia but had not been recorded in India before.

19. GOLDEN TREVALLY

- The ICAR-Central Marine Fisheries Research Institute achieved a significant breakthrough in mariculture by successfully developing seed production technology for golden trevally, a high-value marine fish.



20. RAMPAGE MISSILES

- Israel recently utilized the Rampage missile in an attack on an Iranian military base. The Rampage missile is an air-to-surface weapon developed by Israel Aerospace Industries and Israeli Military Industries Systems.

Features of Rampage:

- Designed for precision strikes, it targets high-quality, well-protected sites such as communication centres and air force bases.
- The missile boasts supersonic speeds, making it challenging to intercept.
- With a range exceeding 190 miles, it can be deployed from aircraft or as a stand-alone system, utilizing GPS/INS guidance navigation and anti-jamming capabilities.

21. COMPULSORY CONVERTIBLE DEBENTURES

- The Competition Commission of India (CCI) has approved the International Finance Corporation's (IFC) subscription to Compulsory Convertible Debentures (CCDs) of Napino Auto and Electronics Limited (Napino).
- IFC, established in 1956, aims to promote economic growth in developing countries by fostering private sector development.
- Compulsory convertible debentures (CCDs) are debt instruments that are automatically and mandatorily converted into equity after a specific time period or when certain events occur.
- CCDs are hybrid instruments that are debt when issued but are guaranteed to be converted into equity at a later date.
- CCDs help companies repay debt without spending cash and benefit investors by offering fixed interest and later ownership of company shares.

22. PULICAT BIRD SANCTUARY

- Pulicat Lake Bird Sanctuary is a wildlife refuge in the Tirupati district of Andhra Pradesh and the Thiruvallur District of Tamil Nadu, India.
- It's a popular birding spot in South India and is known for its greater flamingos, White Ibis, Grey Pelicans, Grey Herons, Open Billed Storks, Egrets, Spot Billed Ducks, Reef Herons, Painted Storks, Spoon Bills, and Cormorants.

23. PARO STATEMENT

- The Sustainable Finance for Tiger Landscapes Conference, held in Paro, Bhutan, concluded with the Paro Statement, committing to mobilize an additional \$1 billion over the next decade to conserve tigers and their landscapes.
- Tiger Range Countries present included Bangladesh, Bhutan, Cambodia, China, India, Kazakhstan, Malaysia, Nepal, Thailand, and Vietnam.





27. ZIMBABWE'S LAKE KARIBA

- The recent El Nino drought has drastically reduced water levels in Zimbabwe's Lake Kariba, prompting Zimbabwe to declare a national disaster.
- Lake Kariba, situated between Zambia and Zimbabwe, has seen its water levels plummet to just 13% of its capacity due to an El Nino-induced drought.
- It was formed by damming the Zambezi River in 1955 (Kariba Dam). Lake Kariba serves as a crucial source of hydroelectric power for both Zambia and Zimbabwe.
- It is the world's largest artificial lake and reservoir by volume.
- Zimbabwe is a landlocked country in Southern Africa, bordered by South Africa, Botswana, Zambia, and Mozambique.



28. SECOND THOMAS SHOAL REEF

- Tensions have escalated at the Second Thomas Shoal, with China blocking manoeuvres and disrupting supply missions. The Philippines has refuted China's claim of reaching an agreement over the South China Sea dispute, labelling it as propaganda. Second Thomas Shoal (located near the Spratly Islands) is a submerged reef in the South China Sea. The shoal is within the Philippines' exclusive economic zone (EEZ) but is also claimed by China.

29. ABOUT EASTER ISLAND

- It is a Chilean territory in the southeastern Pacific Ocean.
- Famous for its monumental statues called moai, it became a UNESCO World Heritage Site in 1995. Chile annexed the island in 1888, granting citizenship to the Rapa Nui in 1966.
- It is one of the world's most remote inhabited islands, with the nearest land over 2,000 kilometres away.

30. BLUE WHALES MAKES COMEBACK IN SEYCHELLES

- Blue whales, the largest mammal on Earth, have made a remarkable return near the Seychelles after a 60- year absence.

31. PARADIP PORT

- Paradip Port Authority (PPA) has achieved a significant milestone by *becoming the top cargo-handling major port* in India, surpassing Deendayal Port, Kandla.
- About Paradip Port
- It is located in Odisha and is a vital deep-water port on the East Coast of India, situated at the convergence of the Mahanadi River and the Bay of Bengal. Administered by the Paradip Port Trust (PPT), it holds the distinction of being the first major port on the East Coast established after independence.



- Along with Deendayal Port and V.O. Chidambaranar Port, Paradip Port has been designated as a Green Hydrogen hub by the government.
- Unlike minor ports, major ports like Paradip are managed by central government authorities and handle international trade, contributing significantly to India's maritime commerce.

32. KUMITTIPATHI VILLAGE (COIMBATORE, TN)

- The rock paintings at Kumittipathi village near Coimbatore are significant testimonies to the prehistoric Kongu region.
- Believed to be around 3,000 years old, these cave paintings depict an elephant, a chariot, and scenes from the lives of early inhabitants.
- Despite their cultural and historical importance, the paintings are at risk due to damage caused by miscreants.

33. KHAVDA SOLAR PARK (GUJARAT'S KUTCH)

- Khavda Solar Park in Gujarat's Kutch, is the world's largest renewable energy park (5 times the size of Paris City).
- It boasts of 2 GW of commissioned capacity with plans to add 4 GW in the current fiscal year and 5 GW annually thereafter.
- The Khavda Solar Park is near Vighakot village in Gujarat's Kutch district.
- Situated near the Pakistan border, it aims to generate 30 gigawatts of electricity from solar panels and wind turbines across 72,600 hectares of land when fully operational.

34. MUDUMALAI TIGER RESERVE

- In Mudumalai Tiger Reserve, Asiatic wild dogs are affected by mange disease, likely spread by feral dogs.

About Mange Disease

- It is a skin disease caused by mite infestations, leading to inflammation, itching, and hair loss.
- It can be severe, caused by *Sarcoptes scabiei* mites, which also cause human scabies. It affects various domestic animals and spreads through direct contact or contaminated objects. Treatment is available in most forms.

Mudumalai Tiger Reserve

- Mudumalai Tiger Reserve is located in the Nilgiris District of Tamil Nadu state at the trijunction of three states, viz, Karnataka, Kerala and Tamil Nadu.
- It is a part of the Nilgiri Biosphere Reserve (1st Biosphere Reserve in India).
- The Reserve has tall grasses, commonly referred to as 'Elephant Grass'.

35. IREDA GET NAVRATNA STATUS

- Recently, IREDA (Indian Renewable Energy Development Agency), the financing agency for Renewable projects in India, was conferred with 'Navratna status' by the Department of Public Enterprises (Ministry of Finance).



- IREDA is under the administrative control of the Ministry of New and Renewable Energy. It was established as a Non-Banking Financial Institution in 1987.

Criteria for Maharatna Status	Criteria for Navratna Status	Criteria for Miniratna Status
1. Shall have Navratna status	1. Miniratna Category - I or Schedule 'A' CPSEs	Miniratna Category-I status: <ul style="list-style-type: none"> • Made profit in the last 3 years continuously • Pre-tax profit is Rs.30 crores or more in at least 1 of the 3 years • Having Positive net worth status
2. Listed on the Indian stock exchange with prescribed public shareholding	2. 'Excellent' or 'Very Good' rating in 3 of last 5 years	
3. Average annual turnover > Rs. 25,000 crore (last 3 years)	3. Composite score of 60 or above in the following 6 performance indicators including	
4. Average annual net worth > Rs. 15,000 crores (last 3 years)	Net Profit to Net Worth, Cost of Services, Earning per share, etc.	Miniratna Category-II status: <ul style="list-style-type: none"> • Made profit for the last 3 years continuously • Having positive net worth status. • Not defaulted in the repayment of loans/interest payment on any loans due to the Government. • Not dependent upon budgetary support or Government
5. Average annual net profit after tax > Rs. 5,000 crores (last 3 years)		
6. Significant global presence/international operations		

36. FPI

- The Reserve Bank of India (RBI) has announced that the Foreign Portfolio Investment (FPI) limits for investment in various securities will remain unchanged for the current fiscal year.
- The limits for FPI investment in government securities (G-sec), state development loans, and corporate bonds will be maintained at 6%, 2%, and 15% respectively, of the outstanding stocks of securities.

37. K2- 18B AND DIMETHYL SULPHIDE

- The James Webb Space Telescope is gearing up for a significant mission targeting K2-18b, a distant planet with potential for extra-terrestrial life.
- Scientists are focusing on detecting dimethyl sulphide (DMS) in its atmosphere, a gas primarily produced by life on Earth. Preliminary data suggests a high probability of DMS presence.

Why DMS presence is significant?

- The presence of dimethyl sulphide (DMS) in the atmosphere of a distant planet, such as K2-18b, could indicate the possibility of extraterrestrial life

38. GOLDMAN ENVIRONMENTAL PRIZE

- Alok Shukla, a forest and tribal rights activist of Chhattisgarh Bachao Andolan has won the 2024 Goldman Environmental Prize for his campaign saving over 4 lakh acres of forests in Chhattisgarh's Hasdeo Aranya region from 21 planned coal mines.
- The Hasdeo Aranya forests, spread across 1.70 lakh hectares in Chhattisgarh, are vital for biodiversity, home to 25 endangered species, 92 bird species, and 167 rare plants. The Hasdeo River, fed by these forests, irrigates 741,000 acres of farmland. Chhattisgarh, with 44% forest coverage, ranks third in India.



- The award, also known as the Green Nobel, is given by the Goldman Environmental Foundation to grassroots environmental leaders worldwide, with winners receiving USD 200,000.

39. RAJA RAVI VARMA

- On the occasion of Raja Ravi Varma's 176th birth anniversary celebrations, the first true copy of his painting "Indulekha" was unveiled at Kilimanoor Palace, Kerala – where the artist was born.
- The oil painting portrays Indulekha holding a letter addressed to her lover, Madhavan, dated 1892, and has been recently restored.

About Raja Ravi Varma:

- Raja Ravi Varma (1848 – 1906) was an Indian painter and artist who is known for his work
- that combines European academic art with Indian iconography.
- Some of his works include Shakuntala, Woman Holding a Fruit, and Hamsa Damayanti.

40. WHAT IS THE 'EGGSHELL SKULL'?

- The "eggshell skull" rule, also known as the "thin skull rule" in some cases, is a legal principle applied in civil litigation. Essentially, it dictates that a defendant in a lawsuit is liable for all injuries caused to the plaintiff, even if the plaintiff's condition makes them more susceptible to harm than an average person.

41. WHAT IS FRONT RUNNING?

What is Front Running?

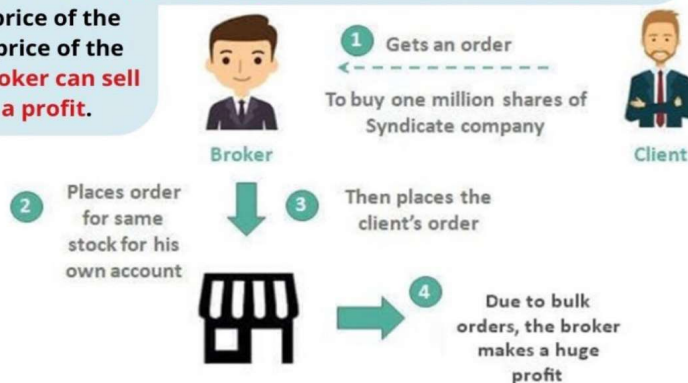


Front-running is an **illegal practice** in the stock market where an individual or entity trades based on **advanced information** obtained from a broker or analyst before it is made available to their clients.

Example

Suppose a **broker** receives a large order to buy shares of Company X from a client. Before placing the order on behalf of the client, the broker may purchase shares of Company X **for their personal account**, knowing that the client's order will drive up the price of the shares. Once the price of the shares rises, the **broker can sell their shares at a profit**.

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42. WHAT IS THE #PLAYTRUE CAMPAIGN?

- The #PlayTrue Campaign, organized by NADA India, aims to raise awareness about clean sports and anti-doping practices.

43. GI TAG

About Kutch Ajrakh:

- It is a traditional textile craft of Gujarat, particularly in regions like Sindh, Barmer, and Kutch. It involves meticulous hand-block printing on treated cotton cloth, resulting in intricate designs rich in symbolism and history.
- The name “Ajrakh” derives from ‘Azrak,’ meaning indigo, a key dye used in the process. Traditionally, Ajrakh prints feature blue, red, and white colours representing the sky, land/ fire, and stars, respectively.
- Introduced over 400 years ago by Sind Muslims, Ajrakh is commonly worn by nomadic pastoralist and agricultural communities such as the Rabaris, Maldharis, and Ahirs, in various forms like turbans, lungis, or stoles.

44.

Right to Vote	Right to Be Elected
Statutory right, not fundamental	Statutory right, not fundamental
Can be regulated by Parliament	Can be regulated by Parliament
Citizens exercise the right to choose. However, Those confined in prison cannot vote (Section 62(5) of the RPA, 1951), under sentence of imprisonment, transportation , or in lawful police custody.	Citizens exercise the right to stand for election. However, Convicted individuals sentenced to 2 years imprisonment cannot contest elections (Section 8(3) of the RPA, 1951)
Preventive detainees have the right to vote (Section 62(5) of the RPA, 1951 and Rule 18 of Conduct of Elections Rules 1961)	Even if on bail , convicted persons cannot contest.
Allows citizens to participate in elections	Allows citizens to be candidates in elections
Subject to statutory limitations	Subject to statutory limitations
Can be revoked or restricted by law	Can be revoked or restricted by law
Ensures representation in governance	Enables individuals to represent constituents



45. WHAT ARE STANDARD ESSENTIAL PATENTS (SEPS)?

- Standard Essential Patents (SEPs) are patents that cover technologies adopted as industry standards, crucial for ensuring interoperability among different products and systems.
- These patents are essential for implementing a particular standard, and companies that own SEPs commit to licensing them to others on fair, reasonable, and non-discriminatory (FRAND) terms

Issues with SEPs?

- The significance of Standard Essential Patents (SEPs) in the telecom sector lies in ensuring compatibility among different cellular phone brands. However, private Standard Setting Organisations (SSOs) largely control the standard-setting process, limiting India's influence. Consequently, SEP owners can demand high royalties, leading to the "patent holdup" problem.

46. CHLOROPICRIN

- The U.S. accuses Russia of using the chemical compound chloropicrin against Ukrainian forces, violating the Chemical Weapons Convention.

What is Chloropicrin?

- Chloropicrin is a chemical compound (it is a colourless to yellow oily liquid; highly volatile and is a gas at room temperature) used as both a chemical weapon and a pesticide. It poses health risks when inhaled, causing irritation, tears, and vomiting.
- Originally developed as a poison gas during World War I, it is also employed as an antimicrobial agent, herbicide, and nematicide. Chloropicrin is highly toxic and carcinogenic, and its use as a weapon is a violation of international conventions.

47. BATILLIPES CHANDRAYAANI

- A new marine tardigrade species discovered off the southeast coast of Tamil Nadu has been named Batillipes chandrayaani after the Chandrayaan-3 moon mission.
- It is the third marine tardigrade species scientifically described from Indian waters. It features a trapezoid-shaped head and four pairs of legs with sharp-tipped sensory spines.

What are Tardigrades (also known as "water bears")?

- They are near-microscopic aquatic animals with plump, segmented bodies and flattened heads.

48. ABOUT BHADRA TIGER RESERVE:

- Situated in the Western Ghats region of Karnataka, Bhadra Tiger Reserve is unique for being nestled within several hill ranges. It has served as both an Elephant Reserve and the 25th Project Tiger Reserve of India since 1998, boasting a substantial tiger population. Well-drained by the river Bhadra and its tributaries, it features a variety of vegetation including dry-deciduous, moist-deciduous, shola, and semi-evergreen patches. Other Tiger Reserves in Karnataka include Bandipura, Nagarahole, Dandeli-Anshi, and Biligiriranga Tiger Reserve.



49. WHAT IS 'VIRTUAL TOUCH'?

- 'Virtual Touch' refers to the concept of teaching minors to recognize potential risks in cyberspace, alongside traditional concepts of "good touch" and "bad touch." It involves educating them about appropriate online behaviour, identifying warning signs of predatory behaviour, understanding the importance of privacy settings and online boundaries, and developing critical thinking skills to assess the credibility of online contacts and safeguard personal information.

50. REPORT

- Recipe for a Livable Planet: Achieving Net Zero Emissions in the Agrifood System' report. World bank.

Key Findings include:

- The agrifood system contributes nearly one-third of global greenhouse gas emissions, spanning food production to disposal. Developing countries, notably India, contribute significantly, with 60% of India's emissions stemming from farm activities, especially livestock-related enteric fermentation.

51. WHAT IS INDIA VIX?

- India VIX is a volatility index that measures the expected volatility in the Indian stock market over the next 30 days.
- It is often referred to as the "Fear Index" because it reflects investors' sentiments about the market's future volatility.
- A high India VIX suggests that investors expect significant fluctuations in stock prices, indicating uncertainty and risk in the market.

52. DARFUR (SUDAN)

- The UN warns of imminent starvation in Darfur, Sudan, as escalating violence worsens the country's hunger crisis.

About the Darfur region:

- It is a region in western Sudan that has been plagued by violent conflict and humanitarian crises. The area has experienced ethnic tensions between Arab and African communities, leading to widespread violence and human rights abuses
- Sudan is a country in Northeast Africa.
- It borders the Central African Republic to the southwest, Chad to the west, Egypt to the north, Eritrea to the northeast, Ethiopia to the southeast, Libya to the northwest, South Sudan to the south, and the Red Sea.
- It was the largest country by area in Africa and the Arab League until the secession of South Sudan in 2011.



53. BATAGAY CRATER (PERMAFROST)

- Siberia's "gateway to the underworld," the Batagay crater, is expanding at an alarming rate of 35 million cubic feet (1 million cubic meters) annually due to permafrost thaw.

What is Batagaika Crater?

- Located in Russia's Far East is the world's largest permafrost crater, formed by melting permafrost dating back to the Quaternary Ice Age.

54. INDIA IS NOW A NET EXPORTER OF MEDICAL CONSUMABLES AND DISPOSABLES

- India has achieved a significant milestone by becoming a net exporter of medical consumables and disposables, marking a reversal of the previous trend where foreign products dominated the market.
- In the fiscal year 2022-23, India exported medical consumables worth \$1.6 billion, surpassing imports valued at approximately \$1.1 billion.

55. MAMMOTH

- The world's largest Direct Air Capture and Storage (DAC+S) plant, Mammoth, has commenced operations in Iceland.
- This Swiss company Climeworks' second commercial DAC+S facility surpasses its predecessor, Orca, in size.

What is a Direct Air Capture and Storage (DAC+S) plant?

- Direct Air Capture and Storage (DAC+S) is a technology designed to remove carbon dioxide (CO₂) directly from the atmosphere at any location.
- It is a form of Carbon Dioxide Removal (CDR) technology, distinct from carbon capture methods typically carried out at the point of emissions.

56. HAGUE CONVENTION

- UNESCO is commemorating the 70th anniversary of the Hague Convention for the Protection of Cultural Property in Armed Conflict.
- The Convention is the first legal framework solely dedicated to safeguarding movable and immovable heritage.
- It shields cultural property during both peace and conflict.
- With 135 member states, including India, the Convention and its 1954 and 1999 Protocols aim to protect cultural treasures, with the latter introducing the concept of Enhanced Protection for Cultural Properties.

57. SONAI RUPAI WILDLIFE SANCTUARY

- Located in the foothills of the Himalayas in Assam's Sonitpur district, it is part of the Sonitpur Kameng Elephant Reserve along with Nameri National Park.
- Recognized as an Important Bird Area by Birdlife International, it boasts diverse fauna including Asian Elephants, Indian Bison, Leopards, and various deer species, and rich flora with different types of forests.



- The sanctuary is intersected by perennial rivers like Dolsiri, Gabharu, Gelgeli, Belsiri, and Sonairupai.

58. FOOT ROT DISEASE

- The Punjab Agricultural University (PAU) has developed a biocontrol agent, *Trichoderma asperellum*, to manage foot rot disease in Basmati rice crops.

About Foot Rot Disease:

- It is a fungal disease affecting Basmati rice crops, primarily at the seedling stage. Caused by *Fusarium verticillioides*, a soil-seed borne pathogen. Spreads through the plant root, leading to stem base colonization. Symptoms include pale yellowing, elongation, drying, and eventual death of seedlings.
- Current treatments involve chemical fungicides like Sprint 75 WS (carbendazim + mancozeb), harmful to soil and consumers.

Trichoderma asperellum:

- Biocontrol agent offering a non-chemical alternative, aiding disease management while minimizing environmental harm.

59. ALPHAFOLD

- is an AI tool by Google's DeepMind to predict protein folding since 2018.
- It aims to understand 3D protein shapes, crucial for biology and health. Versions like AlphaFold 3 offer about 80% accuracy and model DNA, RNA, and more.
- Protein folding is vital for biological function and disease understanding.
- While AlphaFold aids drug development, its limitations include a lack of explanation for protein folding and restricted access.

60. FLiRT

- New COVID variants, collectively known as FLiRT, have emerged in India.
- The FLiRT variants (KP.2 and KP1.1) are descendants of the Omicron JN.1 variant. They are characterized by increased transmissibility and the ability to potentially evade immunity from vaccines and previous infections.
- While KP.2 is more infectious than its predecessor, JN.1, it has shown lower overall infectivity.
- Symptoms are similar to the JN.1 variant, including sore throat, runny nose, coughing, and fever.

61. OLEANDER

- Kerala temples ban oleander flower offerings following a woman's suspected poisoning death from consuming oleander leaves.
- Oleander is a poisonous plant known scientifically as *Nerium oleander*. It contains toxic compounds throughout its parts, including leaves and flowers.
- Ingestion of oleander can lead to symptoms such as vomiting, nausea, bloody diarrhoea, and irregular heart rhythm.
- They are fast-growing evergreen shrubs or small trees native to Europe and Asia. In Kerala, they are also called arali and kanaveeram



62. ORANGUTAN DIPLOMACY

- Malaysia’s “orangutan diplomacy” aims to use the endangered species as diplomatic gifts to trade partners who buy the country’s palm oil, hoping to improve its image amid accusations of unsustainability.
- Inspired by China’s successful “panda diplomacy,” Malaysia sees orangutans as a way to signal commitment to certain values.
- Orangutans, the only great apes found outside of Africa, inhabit Sumatra and Borneo in Southeast Asia.
- They prefer tropical forests, particularly in river valleys and floodplains. All three species are classified as Critically Endangered on the IUCN Red List.

63. HERMES 900

- The Indian Army and Navy are set to receive Hermes-900 drones, also known as Drishti-10, to enhance their surveillance capabilities.
- The Hermes-900 is a next-generation, Medium Altitude Long Endurance (MALE) unmanned aerial system

64. UNESCO’S MEMORY OF THE WORLD ASIA-PACIFIC REGIONAL REGISTER

- The Ramcharitmanas, Panchatantra, and Sahrdayāloka-Locana have been added to UNESCO’s Memory of the World Asia-Pacific Regional Register, celebrating India’s rich literary heritage and cultural legacy.
- About UNESCO’s Memory of the World Asia-Pacific Regional Register: Launched in 1992.
- It consists of three Registers namely, International, Regional and National Register.

Literary Work	Author	Description
Ramcharitmanas (Awadhi)	Goswami Tulsidas	An epic poem consisting of seven Kāndas; a poetic retelling of the Ramayana.
Panchatantra (Sanskrit)	Pt. Vishnu Sharma	One of the oldest collections of Indian fables, consisting of five parts with a ‘story within a story’ structure.
Sahrdayāloka-Locana (Sanskrit)	Acharya Anandvardhan	A text on Indian poetics with commentary by philosopher Abinava Gupta.





65. INDIA'S LARGEST TRADING PARTNER

- In FY24, China reclaimed its position as India's largest trading partner with bilateral trade reaching \$118.4 billion, driven by a 3.24% increase in imports to \$101.7 billion and an 8.7% rise in exports to \$16.67 billion as per Global Trade Research Initiative (GTRI) report.
- This marked a shift from the previous two years when the US held the top spot. India-US trade slightly decreased to \$118.3 billion, with exports falling by 1.32% and imports dropping by 20%.
- Over the past five years, India's trade deficit with China has widened significantly due to a 44.7% surge in imports, particularly in critical sectors like telecom, technology components, and EV batteries.

66. INDIA INTERNATIONAL BULLION EXCHANGE (IIBX)

- The State Bank of India (SBI) has become the first bank to be a trading-cum-clearing member of the India International Bullion Exchange (IIBX) at GIFT City in Gujarat.
- This allows SBI's branch at GIFT City to conduct and settle trades on the IIBX platform on behalf of its clients.

About India International Bullion Exchange (IIBX):

- The IIBX is located at the GIFT City (Gujarat International Finance Tec-City) in Gandhinagar, Gujarat.
- GIFT City is a planned business district aimed at becoming a global financial and IT services hub.

67. KEELING CURVE

- In March 2024, the monthly average concentration of carbon dioxide at NOAA's Mauna Loa Observatory spiked by 4.7 parts per million compared to March 2023, marking the largest year-over-year gain ever recorded.

About Keeling Curve:

- The Keeling Curve is a record of atmospheric carbon dioxide (CO₂) concentrations measured at the Mauna Loa Observatory in Hawaii. It was initiated by scientist Charles David Keeling in 1958.

68. VENEZUELA

- Venezuela may become the first nation to lose all its glaciers as climate scientists reclassify its last glacier, the Humboldt, as an ice field due to its diminutive size.
- It is a country on the northern coast of South America. To the northwest are the Andes Mountains and the colonial town of Mérida, a base for visiting Sierra Nevada National Park. Caracas, the capital, is to the north.
- The country's economy is strongly dependent on hydrocarbons, as well as on loans from China and Russia.



69. SAHUL

- Recent archaeological findings have revealed an ancient, Atlantis-like supercontinent named Sahul, which facilitated human migration from Asia to Australia around 70,000 years ago. This landmass was exposed during the last ice age due to lower sea levels and connected present-day Australia, Papua New Guinea, and Tasmania.

70. WHOLESALE PRICE INDEX

- Recently, India's Wholesale Price Index (WPI)-based inflation surged to a 13-month high of 1.26%, up from 0.5%, driven primarily by increases in food and fuel prices. Economists noted that this spike was influenced by seasonal factors and base effects.

71. BAOBAB TREES

- Scientists have unravelled the origins of ancient baobab trees, revealing they first appeared in Madagascar 21 million years ago before spreading to Australia and mainland Africa via ocean currents.
- Baobabs, dubbed "the tree of life" for their unique shapes and longevity, face threats from climate change and deforestation.

Context: The Madhya Pradesh government has decided that the forest department cannot grant permission for the translocation of Baobab trees in Dhar, after the protest from Bhil tribes.



Biodiversity
Act, 2002

Under the Biodiversity Act, any commercial use of the trees will require permission from the state biodiversity board

Baobab Trees	
Baobab trees are deciduous trees found in mainland Africa, Madagascar, and Australia . They have barrel-like trunks (5 to 20m in height), can live up to 2,000 years , and are known for their extraordinary longevity .	
Tree of Life	Baobabs are succulent trees that store water in their trunk , allowing them to produce nutrient-dense fruit in dry seasons; it has pendulous flowers pollinated by bats and bush babies
Uses	Provide food, livestock fodder, medicinal compounds, and raw materials.
Threat	Since 2005, 9 of the 13 oldest African baobab specimens and 5 of the 6 largest trees have died or suffered a collapse , possibly due to climate change.
IUCN Status	Endangered
GI Tag	Madhya Pradesh government has applied for a GI tag for Baobabs.
About Bhil Tribe	Bhil are one of the largest tribal groups , living in Chhattisgarh, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Andhra Pradesh and Rajasthan. The name is derived from the word ' billu ', which means bow . They are skilled in archery and has deep knowledge of their local geography. Traditionally experts in guerrilla warfare, they



72. SEMAL TREES

- Semal trees, crucial to Udaipur's Holi festivities, face peril in south Rajasthan. Despite their ecological significance, thousands are cut annually for bonfires, violating forest laws.
- Semal trees, also known as silk cotton trees or Bombax Ceiba, are large, fast-growing trees (large deciduous trees, known for their Crimson red flowers) native to India. Ayurvedic medicines can be prepared from every part of the tree (e.g., roots are used for treating ailments such as diabetes, etc).



- It is worshipped by many tribal communities in Rajasthan (e.g. Garasia tribe, Kathodi tribe) and Madhya Pradesh.
- Its seed produces edible oil, used in making soaps.

73. DENGUE VACCINE

- WHO prequalified the new dengue vaccine, TAK-003. Developed by Takeda, it's a liveattenuated vaccine containing weakened versions of the four serotypes of the dengue virus.
- TAK-003, developed by Japan's Takeda, is a live-attenuated dengue vaccine prequalified by the WHO. It's recommended for children aged 6–16 in high-burden areas.

About Dengue:

- It is caused by four virus serotypes (Dengue virus named DEN-1, DEN-2, DEN-3, and DEN-4.), and is transmitted by infected mosquitoes.

74. KANWAR LAKE

- Kanwar Lake in Begusarai, Bihar, is in critical condition due to encroachment and drying, severely impacting bird habitats.
- About the lake:
- Kanwar Lake (also known locally as Kabartal) is Asia's largest freshwater oxbow lake, formed by the meandering Burhi Gandak River, a tributary of the Ganga.
- Recognized as a wetland of international importance under the Ramsar Convention (the only one from Bihar), it was declared a protected area in 1986 and later designated as a sanctuary to prevent bird poaching.

75. WHAT IS CO-LENDING?

- Co-lending, also known as co-origination, is a collaborative lending arrangement involving multiple lenders to extend loans to borrowers.
- As per RBI, banks and NBFCs can co-lend loans to priority sectors, with a minimum 20% credit risk on NBFCs, and the rest on banks.
- Banks are not allowed to enter into a co-lending arrangement with an NBFC belonging to the promoter Group.

76. LUPEX

- The India-Japan joint moon mission, the Lunar Polar Exploration Mission (LUPEX), is expected to launch in a few years.
- This collaboration between the Indian Space Research Organisation (ISRO) and the Japan Aerospace Exploration Agency (JAXA) aims to explore the lunar surface and search for subsurface water.
- ISRO is developing the lander, while JAXA is responsible for the rover and launch vehicle. The mission will also carry instruments from NASA and the European Space Agency
- (ESA), enhancing its scientific potential.

