



SROTHAS

A Monthly Magazine for UPSC Civil Service Examination

**CURRENT
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I. POLITY & GOVERNANCE

1. Article 164

- The chief minister is appointed by the governor without any advice from anyone
- But he appoints the individual ministers only on the advice of the Chief Minister only on the advice of the Chief Minister
- Governor cannot appoint an individual minister according to his discretion so, the governor can dismiss a minister only on the advice of the chief minister
- **Judicial Clarification**
- **Shamsher Singh And Anr Vs State Of Punjab(1974)- Governor Exercise Their Formal Constitutional Powers Only Upon And In Accordance With The Advice Of Their Ministers**
- **Nabam Rebia Vs Deputy Speaker –Discretionary Powers Of The Governor Are Limited To Postulates Of Article 163(1)**
- **Mahabir Prasad Sharma And Pratapsing Raojirao Rane Case- Governor Can Exercise Power Under Article 164 In An Unfettered Manner**

2. Pm pranam yojana

- The Yojana's full form is 'Programme for Restoration, Awareness, Nourishment and Amelioration of Mother Earth' (PRANAM).

- The scheme is to incentivise States and Union Territories to promote alternative fertilisers and counteracted use of chemical fertilisers.
- The PM-PRANAM is aimed at restoring the "health of Mother Earth" through promoting balanced/sustainable use of chemical fertilisers
- adopting alternate fertilisers such as organic, bio and nano fertilisers
- promoting natural and organic farming

3. Nirbhaya scheme

- **Ministry:** Women and Child Development (WCD) Ministry
- The "scheme for critical care and support for accessing justice to rape/gang rape survivors or minor girls who get pregnant" will provide shelter, food, safe transportation for court hearings, and legal aid.
- The support will be provided under aegis of the **Nirbhaya scheme**.
- The Government of India established the **Nirbhaya**

Fund in response to the **Nirbhaya Case** in 2013.

4. Mission Vatsalya

- Mission Vatsalya is a scheme that focuses on aligning development and child protection priorities with the **Sustainable Development Goals (SDGs)**.
- Its primary objectives include promoting child rights, advocating for awareness, and strengthening the **juvenile justice care and protection system**, all aimed at ensuring that every child is supported and not left behind.

5. Bharat 6G Alliance (B6GA)

- The Bharat 6G Alliance (B6GA) is a **collaborative platform** consisting of public and private companies, academia, research institutions, and standards development organisations.
- **Global Alliance:** B6GA will forge coalitions and synergies with other **6G Global Alliances**, fostering international collaboration and knowledge exchange.

- The Alliance will enable India to become a leading global supplier of IP, products and solutions of affordable 5G and 6G and other future telecom solutions.

6. Sarpanch-patism

- Most of the women's sarpanches do not attend meetings.
- **Instead**, the male family members of several women's sarpanches were attending official meetings on their behalf. Some male members even sign documents on their behalf.
- Proxy sarpanches diminish women's authority and block the election of women keen on bringing about a change in society through a career in politics.
- This is not only making a mockery of the reservation of women in **Panchayati Raj Institutions** but also appears to be a hurdle for other deserving women candidates.

7. Tele-MANAS chat-bot

- The Government launched India's first Tele-MANAS chat-bot in the **Union Territory of Jammu & Kashmir**, which will ensure round the clock services of health counsellors, clinical psychologists and consultants.

- The Centre had in Budget 2022 announced the **National Tele Mental Health Programme of India, Tele Mental Health Assistance and Networking Across States (Tele-MANAS)**.
- Tele-MANAS is a **two-tier system**.
- **Tier 1** comprises State Tele MANAS cells, which includes trained counsellors and mental health specialists.
- **Tier 2** comprises specialists at District Mental Health Programme (DMHP)/Medical College resources for physical consultation and/or **eSanjeevani** for audio visual consultation.

8. PM Gati Shakti NMP

- The PM Gati Shakti NMP was launched in October 2021.
- **Objective:** Holistic integration of various ministries and to address the gaps to ensure infrastructure for seamless movement of people, goods and services.
- The PM Gati Shakti National Master Plan is driven by seven engines - **roads, railways, airports, ports, mass transport, waterways, and logistics infrastructure**.
- **Composition:** The NPG is composed of representatives

from various connectivity infrastructure ministries and departments.



9. Solar power plant at Dubai Depot

- The **National Capital Region Transport Corporation (NCRTC)** has inaugurated a solar power plant at RRTS Depot in **Dubai, Ghaziabad**, making it a green station.
- The solar power plant has a capacity of **585 Kwp** and the solar panels have been installed at various depot buildings.
- The solar plant is projected to generate approximately **6,66,000 units of solar energy per year**.
- The plant is expected to reduce **CO2 emissions by 615 tonnes** annually, contributing to a remarkable reduction of **15,375 tonnes over its lifetime**.
- The plant has been installed under the solar policy that the

department adopted in March 2021.

10. Article 370

- On August 5, the Centre issued an order amending **the Constitution (Application to Jammu and Kashmir) Order, 1954**, and superseding it with **The Constitution (Application to Jammu and Kashmir) Order, 2019**.
- The new order made **“all the provisions of the Constitution”** applicable to **J&K state**.
- The government also amended **Article 367** to add a **new Clause (4)**, making **the Constitution of India** directly applicable to J&K.
- Also the President issued a declaration **under Article 370(3)** making all its clauses **inoperative except** the provision that all articles of the Constitution shall apply to J&K

11. Mahatma Gandhi Minimum Guaranteed Income Bill

- The new bill is part of government's efforts to provide **social security to citizens** of the State.

- **Aim:** The Rajasthan government plans to bring a law that promises **'guaranteed minimum income'** for the poor.
- With this scheme, all families in the state will be able to get **employment guarantee of 125 days every year**, and a minimum pension of **1,000 per month** in case of **aged /disabled/single women**.

Significance: The law will ensure that all beneficiaries are covered under different social security schemes and in case they are not, the government will ensure minimum income to them.

12. Atal Vayo Abhyuday Yojana

- Ministry : **Ministry of Social Justice and Empowerment**
- The government recognizes the invaluable contributions of the elderly to society, and aims to empower and uplift them, ensuring their active participation and inclusion in all aspects of life.
- **National Action Plan for Senior Citizens (NAPSrc)** had been revamped, renamed as Atal Vayo Abhyuday Yojana (AVYAY) and subsumed in 2021.

Major Components

- Until proven otherwise, the accused remains innocent.
- An accused's decision to remain silent can be construed as a negative inference in certain circumstances but it cannot absolve the prosecution from its duty to prove the guilt of that person beyond reasonable doubts.
- Referring to the constitutional Right of every person to not speak against himself or to remain silent, the court added that it cannot deprive a person of his liberty merely because there is a statement that he has not admitted his crimes.
- Article 20: It grants protection against arbitrary and excessive punishment to an accused person, whether citizen or foreigner or legal person like a company or a corporation. It contains three provisions in that direction:
 - It contains provisions related to No ex-post-facto law, No double jeopardy, No self-incrimination.
 - No self-incrimination: No person accused of any offence shall be compelled to be a witness against himself.
 - The protection against self-incrimination extends to both oral evidence and documentary evidence.
 - However, it does not extend to:
 - Compulsory production of material objects,
 - Compulsion to give thumb impression, specimen signature, blood specimens, and

- Compulsory exhibition of the body.
- Further, it extends only to criminal proceedings and not to civil proceedings or proceedings which are not of criminal nature.

16. Artificial intelligence (AI) governance

- Artificial intelligence governance is the legal framework for ensuring AI and machine learning technologies are researched and developed with the goal of helping humanity navigate the adoption and use of these systems in ethical and responsible ways.
- AI governance aims to close the gap that exists between accountability and ethics in technological advancement.
- AI can be used to assist members of the public to interact with government and access government services.
- It is the most effective technique of eliminating corruption by automating services and guaranteeing transparency in information communicated and making it easily available to the public.
- Ease of access to government services for all citizens 24*7 via online applications.

17. Multidimensional Poverty Index 2023

- As per the **Multidimensional Poverty Index 2023**, the number of states with **less than 10 per cent people living in multidimensional poverty** doubled in the **five years between 2016 and 2021**.
- **Released by:** NITI Aayog
- **Indicators:** The report examines three broad indicators of multidimensional poverty — **health, education, and standard of living**, each comprising various sub-indicators.
- It uses statistics from the **National Family Health Survey (NFHS)** to capture the various dimensions of poverty in India.
- NITI Aayog **Multidimensional Poverty Index 2023** shows **5 crore Indians** escaped poverty between 2016 and 2021.

18. Optional medium of instruction

- The **Central Board of Secondary Education (CBSE)** has directed to all its affiliated schools stating that they may consider using **Indian languages** as an **optional medium of instruction** in addition to other

existing options from **pre-primary classes till Class 12**.

- The **National Council for Educational Research and Training (NCERT)**, under directions of the **Ministry of Education**, has started gearing up to produce textbooks in **22 scheduled Indian languages** to initiate **teaching-learning** through Indian language medium in **addition to English medium** in CBSE schools.
- These steps are in line with the provisions under **National Education Policy 2020**.
- **The National Education Policy (NEP)** says that wherever possible the medium of instruction in schools until **Grade V** and preferably until **Grade VIII** -- should be the mother tongue or the local or regional language.

19. Structure of PRIs

- **PRI** was constitutionalized through the **73rd Constitutional Amendment Act, 1992** to build democracy at the **grass roots level** and was **entrusted with the task of rural development in the country**.
- Though the basic structure of the PRIs is **identical across the**

states of India, it is described via different nomenclatures in different states.

- a. **District Panchayat or Zilla Parishad** is co terminus with the district. Each district has one Zilla Parishad.
 - b. **Block Panchayats or Panchayat Samitis:** A Block may have several villages within it, but Gram Panchayats are not necessarily co terminus with each village.
- **Depending on the size of population** (as a matter of fact, number of voters) a Gram is defined under the law with a specific geographical area, which may consist of a **single village or a cluster of adjoining villages**.

20. India Climate Energy Dashboard (ICED) 3.0

- The ICED is the country's one-stop platform for near **real-time data** on the **energy sector, climate, and related economic datasets** based on government published sources.
- ICED 3.0 enables users to **freely access and analyse datasets** using an analytical engine.
- It will facilitate **insights and enhance understanding** about the energy and climate sectors

while identifying the key challenges.

- The Portal will draw insights from the **available data parameters** and hence immensely useful in **monitoring the progress** of India's clean energy transition journey.
- **This dashboard offers more than 500 parameters, over 2000 infographics, and a number of interactive visualizations, allowing users to gain a holistic understanding of India's energy sector.**

21. Adjournment Motion

- An adjournment suspends the work in a **sitting for a specified time**, which may be **hours, days or weeks**. In this case, **the time of reassembly is specified**.
- An adjournment only terminates a **sitting** and not a **session** of the House.
- The **power of adjournment** lies with the **presiding officer of the House** In case of Lok Sabha- **'Speaker' is responsible**.
- Adjournment sine die means terminating a **sitting of Parliament for an indefinite period**.
- In other words, when the House is adjourned without naming a day

for reassembly, it is called adjournment sine die.

- The power of adjournment sine die lies with the presiding officer of the House.

22. 'Interrogation' and 'Custody'

- **Under Prevention of Money Laundering Act, 2002 (PMLA):** Following the recommendations of the Financial Action Task Force (FATF) India enacted PMLA.
- The ED has been entrusted with the responsibility of executing the provisions of PMLA by conducting investigation to **trace the assets derived from proceeds of crime**, to provisionally attach the property and to ensure prosecution of the offenders and confiscation of the property by **the Special court**.
- The ED carries out **search (property) and seizure (money/documents)** after it has decided that the money has been laundered, under Section 16 (power of survey) and Section 17 (search and seizure) of the PMLA.
- On the basis of that, the authorities decide if arrest is needed as per Section 19 (power of arrest).

- Under Section 50 of the PMLA, the ED can also directly carry out search and seizure without calling the person for questioning.
- It is not necessary to summon the person first and then start with the search and seizure.
- If the person is arrested, the ED gets 60 days to file the prosecution complaint (charge sheet) as the punishment under PMLA doesn't go beyond seven years.
- If no one is arrested and only the property is attached, then the prosecution complaint along with attachment order is to be submitted before the adjudicating authority within 60 days.

23. National Broadcasting Day

- **National Broadcasting Day** in India is marked on **July 23** as symbolic of the **Radio Club of Bombay**.
- Radio broadcasting services were introduced in India during British rule in 1923 as an initiative of the **Radio Club of Bombay**.
- Later, on June 8, 1936, IBC was transformed into **All India Radio (AIR)**.
- **In 1956, the name "Akashvani" was officially adopted for AIR, inspired by Rabindranath**

Tagore's 1938 poem titled "Akashvani," which translates to "voice or announcement from the skies."



II. ECONOMY

1. Greedflation

- It is termed as the inflation in prices of basic commodities which is driven by the companies to increase their profit margins.
- In basic terms, is the inflation and hike in prices not driven by economic flow, but by corporate greed.
- Greedflation simply means big corporations squeezing out money from customers by increasing the prices of their

products, only to increase their profit margins.

2. Shrinkflation

- It refers to a **reduction in the quantity or quality of a product while the price remains the same.**
- Production costs increase to a lesser extent while e-commerce businesses maintain the same retail price.
- The main advantage is that **users generally don't spot these changes.**
- However, they do notice that prices remain unchanged despite inflation. This strategy is less likely to damage the brand or retailer's corporate image.

3. Small Finance Banks

- Small Finance Banks are government authorized entities aimed at offering basic banking facilities to unserved & underserved areas.
- **Regulated by:** RBI under Banking Regulations Act, 1949; RBI Act, 1934 and others
- **Credit creation:** SFBs offer Credit facilities
- **Demand deposits:** Demand deposits are acceptable by SFBs

4. 'Make in India' - Airbus C295

- The first aircraft -**Airbus C295**, manufactured in India would be delivered in September 2026.
- The C-295 is an aircraft of 5-10 tonne capacity used for tactical transport of up to 71 passengers or 50 paratroopers.
- It will replace the Indian Air Force's ageing fleet of Avro-748 planes
- It will be used for **logistic operations** to locations that are not accessible by current heavier aircraft.
- India has become the 35th C-295 operator worldwide.

- The first made-in-India aircraft is expected from September 2026 and completed by 2031 at the rate of eight aircraft per year.
- With a flight endurance of **up to 11 hours**, can carry out multi-role operations under all weather conditions.
- It can operate from short or unprepared airstrips.
- The C-295 has very **good fuel efficiency**.
- India is currently the **7th largest civil aviation market** in the world.
- With 'Make in India' initiatives, it is estimated that huge procurement costs can be significantly reduced.

5. Production linked incentives (PLI)

- The Central Government has announced the **re-bidding of Production linked incentives (PLI) for 20 GWh Advanced Chemistry Cell** manufacturing in consultation with the industrial representatives.
- The **Ministry of Heavy Industries (MHI)** will facilitate a stakeholder consultation with industry representatives for their inputs and suggestions before the

start of the re-bidding process of remaining 20 GWh capacity of Advanced Chemistry Cell manufacturing.

- The auctioning will allow, the prospective applicants to submit their bids to set up domestic manufacturing facility for advanced chemistry cell, eventually qualifying for incentives under **ACC PLI scheme**.

6. Chemistry Cells (ACCs)

- This is a new generation of advanced storage technologies.
- It can store electric energy either as electrochemical or as chemical energy and converts back to electric energy when required.

7. Special Rupee vostro accounts

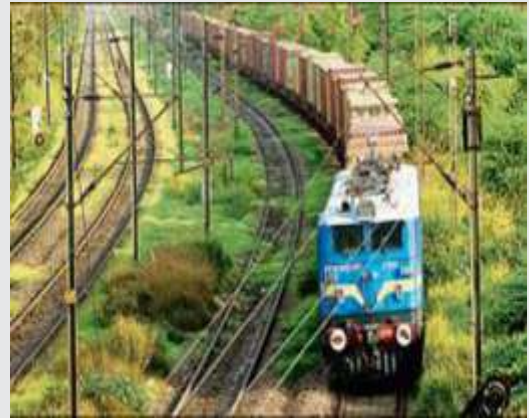
- The **Rupee Vostro Account system** is a financial arrangement that enables foreign banks to conduct transactions in Indian rupees with domestic banks.
- Under the system, a vostro account is a **bank account held by a domestic bank** for a foreign bank, denominated in the

domestic currency of the former.

- **The Rupee Vostro Account specifically holds the foreign entity's deposits in Indian rupees at the Indian bank.**

8. Electric Freight Accelerator for Sustainable Transport (e-FAST)

- **e-FAST is India's first national electric freight platform.**
- **Launched by:** NITI Aayog, in collaboration with **World Resources Institute (WRI),**
- **Objective:** To bring together different stakeholders from across the freight ecosystem, to strengthen partnerships and identify and support innovative freight solutions.
- e-FAST India aims to raise awareness on freight electrification, supported by on-ground demonstration pilots and evidence-based research.
- **In addition, the platform also support scalable pilots and inform policies aimed at accelerating freight electrification in India.**



9. Employee Provident Fund (PF)

- It is a **government-established savings scheme** for employees of the organised sector.
- The EPF interest rate is declared every year by the EPFO (Employees Provident Fund Organisation) which is a statutory body under the **Employees' Provident Fund Act, 1956.**
- For the current financial year 2022-23, the interest rate on the EPF account **has been fixed at 8.15%. Only employees of companies registered under the EPF Act can invest in the EPF or PF.**
- Both the employer and employee are required to contribute **12% of the employee's basic salary and dearness allowance every month** to the EPF account.

10. National Policy on Biofuels

- India's **Ministry of Petroleum and Natural Gas** published its "**National Policy on Biofuels**" in 2018 and further amended it in June 2022.
- The policy's objective is to reduce the **import of petroleum products** by fostering domestic biofuel production.
- The recent amendment has changed the following, selected elements in the **2018 National Policy on Biofuels**:
 - Advance the deadline to reach the **blending target of 20% bioethanol in petrol**, from 2030 to 2025-26.
 - Make additional feedstock eligible for the production of biofuels.
 - The policy supersedes **India's 2009 National Biofuel Policy**. Building on the amended National Policy on Biofuels, India published a "**Roadmap for Ethanol Blending in India 2020-25**".

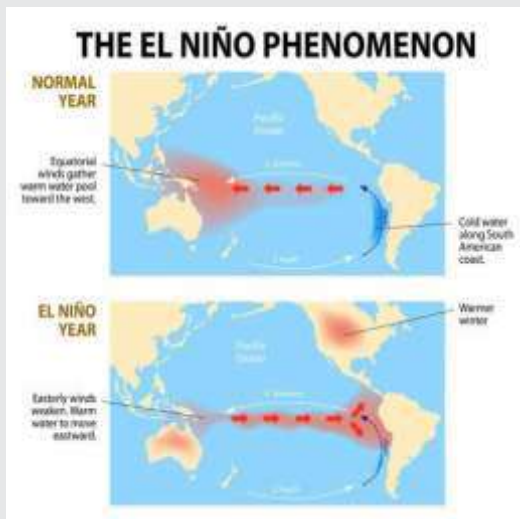
11. 'Standing Committee on Statistics (SCoS)

- The Ministry of Statistics is going to replace the existing Standing Committee on Economic Statistics (SCES) by a 'Standing Committee on Statistics (SCoS)' which has a broader mandate to review the framework and results of all surveys conducted under the aegis of the National Statistical Office (NSO).
- As per the update, a new committee 'SCoS' will have 10 official members, and four non-official members who are eminent academics.
- The panel can have up to 16 members.
- Need for a new committee: The last round of household surveys on consumption expenditure and employment cited 'data quality issues'.

III. ENVIRONMENT

1. El Nino and La Nina

- **El Nino and La Nina** are complex weather patterns resulting from variations in ocean temperatures in the Equatorial Pacific Region. They are opposite phases of what is known as the **El Nino-Southern Oscillation (ENSO)** cycle.
- **El Nino** is a climate pattern that describes the **unusual warming of surface waters** in the **eastern tropical Pacific Ocean**.
- **La Nina**, the “cool phase” of ENSO, is a pattern that describes the **unusual cooling** of the tropical eastern Pacific.



2. Cop 28

- The **28th Conference of the Parties on Climate Change (COP 28)** will take place in Dubai from November 30 to December 23, 2023.

- This international conference will bring together the signatory countries of the **United Nations Framework Convention on Climate Change** as well as climate actors.
- **Hosted by: United Arab Emirates**
- The UAE will take over the UN climate talks presidency from Egypt at the end of November
- UAE, the first country in the region to ratify the **2015 Paris Agreement**, has committed to reach net zero emissions by 2050.

3. Deep Sea Mining

- Deep sea mining involves **removing mineral deposits and metals** from the ocean’s seabed.
- There are three types of such mining:
 1. Taking deposit-rich **polymetallic nodule** off the ocean floor
 2. Mining massive **seafloor sulphide deposits**
 3. Stripping **cobalt crusts** from rock

- **Utilisation:** These **nodules**, sulphide deposits and crusts contain materials, such as **nickel, rare earths, cobalt and more**. They are needed for batteries and other materials used in tapping renewable energy and also for everyday technology like cell phones and computers.
- **Technology used for deep sea mining:**
 - massive pumps
 - artificial intelligence-based technology
 - deep sea robots to pluck nodules from the floor
 - advanced machines that could mine materials off side of huge underwater mountains and volcanoes

4. Indian Ocean Geoid Low (IOGL)

- There is an **enigmatic “gravity hole”** in the **Indian Ocean**.
- It is not the kind of “hole” that would allow the entire ocean to be drained. However, there is a **massive anomaly in the Earth’s crust** that has a much **weaker gravitational attraction** than usual.

- It is located about **600 miles** below the surface of the Earth.
- This “gravity hole” is actually the **Indian Ocean Geoid Low (IOGL)**, which spans an area of more than two million square miles.
- **Type of structure:** Humongous structures
- **Shape:** The gravity hole is not actually a perfect sphere, as Earth's gravitational field is not uniform due to variations in density and mass distribution

5. Debrigarh Wildlife Sanctuary

- **Debrigarh**, a wildlife sanctuary in **Odisha’s Bargarh district**, has been made completely free from any human settlement.
- Located in the **western part of Odisha**, it is nestled between the **Hirakud Dam and Reservoir**.
- It is a **dry forest**.
- **Major species:** Tigers, leopards, bison, hyena, spotted deer, Indian hare, monitor lizard and chameleons, among other animals.

6. Forest (Conservation) Amendment Bill, 2023.

- A Parliamentary committee has endorsed the proposed amendments to the Forest (Conservation) Act, 1980 introduced as Forest (Conservation) Amendment Bill, 2023.
- Dilution' of the Supreme Court's 1996 judgment in the **Godavarman case** that extended protection to wide tracts of forests, even if they were not recorded as forests.
- In geographically sensitive areas within **100 km of the International Borders** or the Line of Control, **no forest clearance** required to construct highways, hydel power projects and so on.
- No Central protection for vast tracts of so-called '**deemed forest**' (forests not officially recorded as forests) and permitting activities such as tourism, compromising their integrity.

Need for amendment:

- '**Forest cover**', in India, refers to land **greater than one hectare in size** where the **tree canopy density is greater than 10%**.
- India's total forest cover rose to **38,251 sq. km from 2001 to 2021**.
- This increase was mainly in terms of **open forest cover**, where tree canopy density ranges from **10% to 40%**.
- Forest cover in regions classified as '**dense forest**' actually decreased during that period.
- The amendments which **encourage plantation cultivation** may increase tree cover, but will be unable to stem the loss of dense forests.

7. Carbon Capture and Storage (CCS)

- **Carbon capture, utilization and storage (CCUS)**, is a process that captures carbon dioxide emissions from sources like coal-fired power plants and either reuses or stores it so it will not enter the atmosphere.
- Carbon dioxide storage in geologic formations includes **oil and gas reservoirs**, coal seams

and deep saline reservoirs -- structures that have stored crude oil, natural gas, brine and carbon dioxide over millions of years.

- CO₂ captured using CCU technologies are converted into **fuel** (methane and methanol), **refrigerants** and **building materials**.
- The captured gas is used directly in **fire extinguishers, pharma, food and beverage industries** as well as the **agricultural sector**.
- Using CO₂ to improve crop yields in **agricultural greenhouse** and **enhanced oil recovery** are two examples of mature CCU technologies.

8. Forever Chemicals

- PFAS, or forever chemicals, are **highly persistent synthetic chemicals** used in a wide range of industrial and consumer products.
- PFAS are a group of more than 12,000 types of chemicals that are known to persist in the environment for long periods, hence their nickname "forever chemicals."
- They have long-lasting properties, resist degradation, and can accumulate in the

environment and the human body.

- PFAS contamination of water, soil, and food sources is a major concern.
- **Potential health risks:**
 - developmental issues
 - liver damage
 - immune system disorders
 - hormone disruption
 - certain types of cancer

9. Northern hemisphere

- **According to a new study, the Himalayas and other mountains across the Northern Hemisphere are likely to see 15 per cent more rain for every 1-degree Celsius rise in temperature due to climate change.**
- Climate change could cause a shift in snowfall to rainfall in mountain regions across the Northern Hemisphere, amplifying rainfall extremes lasting over a few hours to a day.
- This switch from **snowfall to rainfall** could increase the risk of disasters such as floods, **landslides, and soil erosion**.
- The findings stress the importance of **developing climate adaptation plans** to protect the natural and built environments, where 26 per cent

of the global population live in or directly downstream of mountainous regions.

- The report quoted a study that **predicted a decline in snowfall by 30-50 per cent** in the Indus Basin, 50-60 per cent in the Ganges, and 50-70 per cent in the Brahmaputra between 2070 and 2100 compared to the average snowfall between 1971 and 2000.

10. Early Warning System

- Early warning systems are a major component of disaster risk reduction.
- They prevent loss of life, as well as reducing the economic impact of natural hazards.
- Increasing the availability of multi-hazard early warning systems and disaster risk information is one of seven global targets set by The Sendai Framework for Disaster Risk Reduction 2015-2030.
- UNESCO also promotes scientific exchange and collaborative efforts in order to establish effective early warning systems for different hazards such as tsunamis, landslides, volcanoes, earthquakes, floods and droughts.
- Early warning systems have proven to be an effective way to adapt to climate change by providing a cost-effective and

reliable way of protecting lives and livelihoods from natural hazards such as floods, heatwaves, storms, and tsunamis.

- According to the Global Commission on Adaptation, giving just 24 hours' notice of an impending hazardous event can reduce damage by 30 percent.

11. Reintroduction Plan for Cheetahs

- To establish a viable and secure cheetah population in India promoting its conservation.
- Twenty cheetahs have been brought from **Namibia and South Africa** since September 2022 to reintroduce them into Indian habitat.
- Eight of the animals have died, but the long-term plan is to gradually release the animals into the wild and keep adding more until a self-sustaining population is established.
- Four of the cheetahs have already been released into the wild, but the remaining cheetahs will remain in the acclimatisation camps for the duration of the monsoon season.
- The **National Tiger Conservation Authority (NTCA)** is the nodal body for Project Cheetah



THE CHEETAHS ARE COMING

HOW MANY?
20
8 from Namibia + 12 from SA

WHERE?
Kuno National Park, Madhya Pradesh
(Kuno National Park will have a 600-hectare fenced enclosure to house the Cheetahs)

What is the long-term population size expected?
36 (max)

Are there similar relocation programmes?
South Africa to Malawi, Mozambique

What is the carrying capacity of Kuno?
21 Cheetahs

Could it share its space? Yes, with Asiatic lions

Are there threats? Yes, with Kuno's existing leopard population

12. Heat waves

- Several parts of Greece are **witnessing wildfires** due to a soaring high temperature across the nation resulting in substantial damage and necessitating the evacuation of residents.
- Temperatures in Greece could climb to **44 degrees Celsius** though it is expected to fall for many parts of Europe, including northern Italy
- The situation could further exacerbate as the western Mediterranean basin is set to be affected by high concentrations of Saharan dust.

Causes of Heat waves:

- **Global Warming:** Long-term increase in Earth's average temperature due to human activities such as burning fossil fuels, deforestation, and industrial activities leading to change in weather patterns. **Example: Frequent heat waves.**
- **Urbanisation:** Rapid urbanisation leading to the phenomenon of urban heat island effect in which concrete surfaces absorb and retain more heat, leading to higher temperatures, particularly during heat waves.
- **El Nino Effect:** The warming of the Pacific Ocean affects global weather patterns witnessing change in temperature, rainfall, and wind patterns across the world.

Impact of Heat waves:

- **Health effects:** Hyperthermia, also known as **heat stroke**, becomes common during periods of sustained high temperature and humidity.
- **Increase in surface ozone: Ozone pollution** in urban areas is especially concerning with increasing temperatures, raising heat-related mortality during heat waves. During heat waves in urban areas, ground level ozone

pollution can be 20% higher than usual.

- **Lead to wild fires:** If a heat wave occurs during a drought, which dries out vegetation, it can contribute to bushfires and wildfires.
- **Power outages:** Heat waves often lead to electricity spikes due to increased air conditioning use, which can create power outages, exacerbating the problem.



13. 'Gomti River'



- The non-perennial rivers are those rivers that have **no water flow for the whole year.**
- River Gomti starts from **Gomat Taal** which is famous because of Fulhaar jheel that is close to Madho Tanda situated in **Pilibhit, India.**
- This river covers about **900 kilometers** which is about 560 miles and it flows through Uttar Pradesh and joins the Ganges close to Saidpur, **Kaithi in Ghazipur.**
- This river starts at its origin and after crossing 20 kilometers, it joins the small river and the name is **Gaihaee.**
- This river is very lean until it arrives at **Mohammadi Kheri** which is about 100 kilometers from its starting point.
- **Tributaries:** The tributaries and sub-tributaries of Gomti are- Sukheta, Choha, Andhar Choha.

IV. INTERNATIONAL RELATIONS

1. Roadmap 2030

- A set of nearly 60 policy recommendations that are designed to deepen and diversify the India –Africa partnership
- They cover four areas
 1. political and diplomatic cooperation
 2. defence and security cooperation
 3. economic and development cooperation
 4. socio-cultural cooperation

2. SCO summit 23

- India hosted leaders of the Shanghai Cooperation Organization for a virtual summit.
- The virtual summit under India's presidency was attended by leaders of Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan and Iran as well.
- **India's AI-based language platform Bhashini at SCO:** impact of language barrier on the functioning of multi-nation platforms like SCO, and how India's AI-based language platform Bhashini will help overcoming the obstruction.

3. New Delhi declaration

- SCO members adopt 'New Delhi declaration'
- **“New Delhi declaration”** coined by the Indian government proposed at SCO summit to fight against terrorism.

- It also proposed four other joint statements on
 - de-radicalisation
 - sustainable lifestyle to tackle climate change
 - production of millets
 - digital transformation

4. Colombo Security Conclave

- **Formed in:** 2011
- The Colombo Security Conclave (CSC) is a grouping of **India, Sri Lanka, Maldives, and Mauritius (newest member)**.
- **Bangladesh and Seychelles** are observers.
- The Conclave underlines regional cooperation and shared security objectives concerning all littoral nations in the **Indian Ocean Region (IOR)**.
- It aims to make maritime security, marine pollution response and maritime search & rescue priorities for the region.

5. African Union (AU)

- The African Union (AU) is a regional intergovernmental organisation that replaced the Organisation of African Unity (OAU).
- The African Union (AU) is a continental organization consisting of 55 member states in Africa.
- It was established on May 26, 2001, in Addis Ababa, Ethiopia.

- The organisation's main goal is to promote and accelerate the political and socio-economic integration of the continent
- Currently, South Africa is the only African country that enjoys member status in the G20

6. JIMEX 23



- This edition marks the 11th anniversary of JIMEX, since its inception in 2012.
- **Participants:** Japan Maritime Self Defence Force (JMSDF) units under the command of RAdm Nishiyama Takahiro, Commander Escort Flotilla One, and Indian Naval ships under the command of RAdm Gurcharan Singh, Flag Officer Commanding Eastern Fleet.

India's fleet:

- **INS Delhi**, India's first indigenously built guided missile destroyer
- **INS Kamorta**, an indigenously designed and built Anti-Submarine Warfare Corvette

- **Fleet tanker INS Shakti**, a submarine, maritime patrol aircraft P8I
- **Dornier**, ship-borne helicopters and fighter aircraft

7. Global South

- The term "Global South" is not geographical. In fact, the Global South's two largest countries – China and India – lie entirely in the Northern Hemisphere.
- Rather, its usage denotes a mix of political, geopolitical and economic commonalities between nations.
- **Colonisation:** Major commonality between the **South countries** is that most have a history of colonisation, largely at the hands of **European powers**.
- **Exclusion from prominent organizations:** The **region's historical exclusion** from prominent international organisations – such as from the permanent membership of the **United Nations Security Council**.
- **Economic issues:** In general, they are poorer, have higher levels of income inequality and suffer lower life expectancy and harsher living conditions than countries in the "Global North".

8. European Sky Shield Initiative (ESSI)

- European Sky Shield Initiative (ESSI) is a project to build a ground-based integrated European air defense system which includes anti-ballistic missile capability.
- As of July 2023, nineteen European states participate in the initiative.
- The initiative aims to create a European air and missile defence system through the common acquisition of air defence equipment and missiles by European nations to strengthen NATO's Integrated Air and Missile Defence (IAMD).



9. Legion of Honour

- Prime Minister Shri Narendra Modi has been recently conferred with the Grand Cross of the Legion of Honour, France's highest award by President of the Republic of France.

- The Legion of Honour is the highest French decoration and one of the most famous in the world.
- For more than two centuries, it has been awarded by the head of state to the most deserving citizens in all fields of activity.
- The award is divided into five categories Grand Cross, Grand Officer, Commander, Officer and Knight, with the Grand Cross being the highest.
- The PM was awarded the first honour.

10. India-Myanmar-Thailand Trilateral Highway project

- India, Thailand and Myanmar are working on about 1,400-km-long highway that would link the country with Southeast Asia by land and give a boost to trade, business, health, and education and tourism ties among the three countries.
- The highway will connect Moreh in Manipur, India with Mae Sot in Thailand via Myanmar.
- The strategic highway project has been delayed due to uncertainty in **Myanmar**.



11. Black Sea grain deal

- The last ship carrying grain from Ukraine, under Black Sea grain deal that guarantees its safe passage, left the port of Odesa.
- Brokered by the United Nations and Turkey, the deal was signed in Istanbul last July, allowing Ukraine to export more than 27 million tonnes of grain from several of its Black Sea ports.
- The deal allowed exports from Ukraine of grain, other foodstuffs, and fertilizer, including ammonia, to resume through a safe maritime humanitarian corridor from three key Ukrainian ports to the rest of the world: Chornomorsk, Odesa, Yuzhny/ Pivdennyi

12. Nomadic Elephant- joint Exercise

- 'Nomadic Elephant' is an annual training exercise which is conducted alternatively in Mongolia and India
- This is aimed at exchanging best practices and developing

interoperability, the Ministry of Defence.

- The primary theme of the exercise will focus on **counter-terrorism operations in mountainous terrain under United Nations mandate.**
- Soldiers of the Mongolian Armed Forces Unit 084 and the Indian Army's Jammu and Kashmir **Light Infantry Regiment** will participate in the exercise
- The last edition of the exercise was held at the **Special Forces Training School, Bakloh, and Himachal Pradesh in October 2019.**



13. Border Management between India and Nepal

- Indo-Nepal border is governed under **Sagauli Treaty 1816.**
- India and Nepal have shared an **open border since 1950.** The conception of such a border can be found in the **Treaty of Peace and Friendship** that the two countries signed that year.

- Provisions in the treaty, wherein citizens of both countries are given **equal rights in matters of residence, acquisition of property, employment and movement** in each other's territory, provide for an open border between the two countries.
- Free movement of people across the border and strong people to people tie-up. This base of this good relationship is due **friendship treaty of 1950**.
- There are dispute over the some areas due to shifting course of Himalayan River. **Kalapani and Susta disputes**.

14. India-Sri Lanka Fisherman Issue

- The India-Sri Lanka fisherman is a long-standing dispute between the two over fishing rights in the Palk Strait and the Gulf of Mannar.
- The Palk Strait is a narrow strip of water that separates the state of Tamil Nadu in India from the northern regions of Sri Lanka.
- Both Indian and Sri Lankan fishermen have been fishing in the Palk Bay Straits for several years but the maritime agreements signed between the two sides in 1974 and 1976 led to the demarcation of the International Maritime Boundary Line (IMBL).

- The two treaties between the two countries led to the Palk Bay Strait connecting India and Sri Lanka being declared a "two-nation pond" under the United Nations Convention on the Law of the Sea rules.
- This led to the ban on fishing in international waters of the two countries.



15. 'Neighbourhood First' policy

- Neighbourhood First Policy of India is a core component of India's foreign policy.
- It focuses on peaceful relations and collaborative synergetic co-development with its South Asian neighbors of the Indian subcontinent.
- This policy creates new avenues as well as leverages existing regional cooperation initiatives, such as SAARC, SASEC, BBIN, and BIMSTEC.
- It compliments India's Look East policy focused on Southeast Asia and Look West Policy focused on Middle East.

16. Sagar vision

- SAGAR stands for “Security and Growth for All in the Region” is India’s policy or doctrine of maritime cooperation in the Indian Ocean region.
- The policy was first announced by Prime Minister Narendra Modi in 2015.

17. Global Peace Index 2023

- Iceland has remained the most peaceful country. It also ranks as the **third happiest country in the world**, after **Finland and Denmark**.
- While the **United States** ranked 131 on the list, seven out of the top 10 most peaceful countries in the world are in Europe.
- **India:** India occupied the 126th spot in the rankings.
- India experienced an improvement of 3.5 per cent in overall peacefulness over the past year, owing to improvements in violent crime, neighbouring countries’ relations, and political instability.

18. Association of World Election Bodies (A-WEB)

- **Established in:** 2013
- The Association of World Election Bodies (A-WEB) is the **world’s**

largest international organization in the field of election management.

- It currently comprises 119 Election Management Bodies (EMBs) from 110 countries

19. Kurtha-Bijalpura rail section

- Nepal's Minister for Physical Infrastructure and Transport has launched the operations on the **Kurtha-Bijalpura rail section** of the cross-border rail line at Bijalpura, Nepal.
- The operations of a section of the cross-border **Jaynagar-Bijalpura-Bardibas** rail line connecting **India and Nepal** began soon.
- The Kurtha-Bijalpura line covers a **total of 17.3 km** and the stretch is dotted with five stations — **Kurtha, Pipradi, Loharpatti, Singyahi and Bijalpura**.
- This rail connectivity will provide a tremendous boost to the people-to-people linkages between the two countries and will enhance trade and tourism in Nepal.

20. Russia’s Wheat Export

- Russia ships more than **18 percent of the world’s supply**, followed by **the US (16 percent)**,

Canada (14 percent), France (10 percent) and Ukraine (seven percent).

- The primary destinations for Russian wheat are the **Middle East, North Africa and Central Asia**, led by Egypt, Iran and Algeria.
- Egypt is the **world's biggest importer** of wheat. It spends more than 4bn dollars annually to feed its population of over 100 million.
- While the **Black Sea Grain Initiative** helped Ukraine export 16.8 MT in 2022-23, about 39% of its wheat actually moved via the **land route to Eastern Europe**, instead of the specially-created corridors for shipping from the three designated ports of **Odesa, Chornomorsk and Yuzhny**.

21. Henley Passport Index 2023

- **Henley Passport Index 2023** has been released which assess the world's passports according to the **number of destinations** their holders can **access without a prior visa**.
- **Released by:** Henley and Partners.

- The index includes **199 different passports** and **227 different travel destinations**.
- **Singapore** is on the Top with most powerful passport in the world, with its citizens able to visit **192 travel destinations** out of **227 around the world visa-free**.
- **Germany, Italy, and Spain** occupy the second place.
- **Japan** remained at the third position with countries like **Austria, Finland, France, Luxembourg, South Korea, and Sweden**.
- **India's Performance:** India has climbed seven places on Henley Passport Index 2023 to 80th rank from 87 last year.



V. SCIENCE & TECHNOLOGY

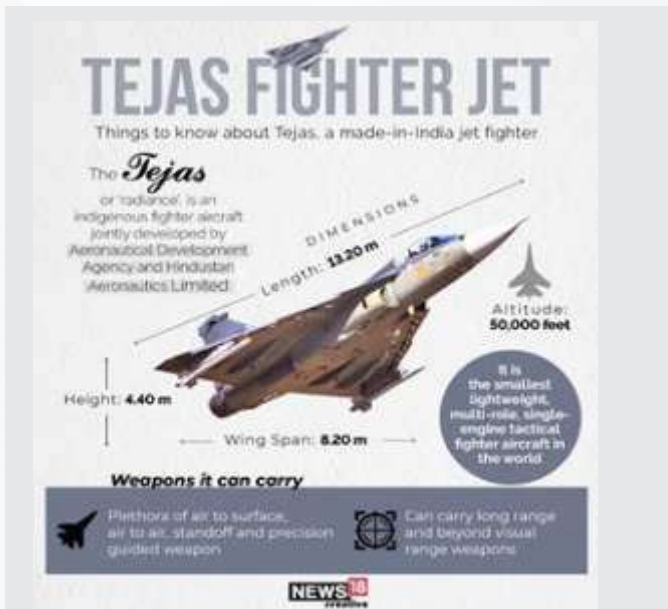
1. Dark patterns

- The Ministry ordered to all major online platforms advising them not to engage in ‘**unfair trade practices**’ by incorporating ‘**dark patterns**’ in their online interface to manipulate consumer choice and violate consumer rights as enshrined under **Section 2(9) of the Consumer Protection Act**.
- Dark Patterns are **unethical UI/UX (user interface/user experience) interactions**, designed to mislead or trick users to make them do something they don't want to do.
- In turn, they **benefit the company or platform** employing the designs.
- By using dark patterns, **digital platforms** take away a user's right to full information about the services they are using and their control over their browsing experience.
- The **Consumer Affairs Ministry** has identified nine types of dark patterns being used

by e-commerce companies.-
False urgency, Basket sneaking, Confirm shaming, Forced action, Nagging, Subscription traps, Bait & switch, Hidden costs, Disguised ads

2. Tejas Mk-1

- The Tejas Mk-1 is light **supersonic multirole jet**, capable of doing multiple missions including
 - air-defence (air-to-air)
 - intelligence, surveillance and reconnaissance (ISR)
 - air-interdiction (striking enemy targets deep into enemy territory)
 - maritime strike and reconnaissance missions



3. Euclid spacecraft

- The **European Space Agency's Euclid mission** is designed to study the so-called "dark universe."
- **3D map of the Universe:** Euclid will observe billions of galaxies out to 10 billion light-years to create the largest, most accurate 3D map of the Universe, with the third dimension representing time itself.
- This detailed chart of the shape, position and movement of galaxies will reveal
- **Matter distribution:** how matter is distributed across immense distances
- **Evolution:** how the expansion of the Universe has evolved over cosmic history, enabling astronomers to infer the properties of **dark energy and dark matter**

- This will help theorists to improve understanding of the **role of gravity and pin down the nature of these enigmatic entities.**
- **Developed by:** Euclid was designed and built entirely by ESA, with the US space agency, NASA, supplying photo detectors for its near-infrared instrument.
- Euclid is a medium-class mission in **ESA's Cosmic Vision Programme.**

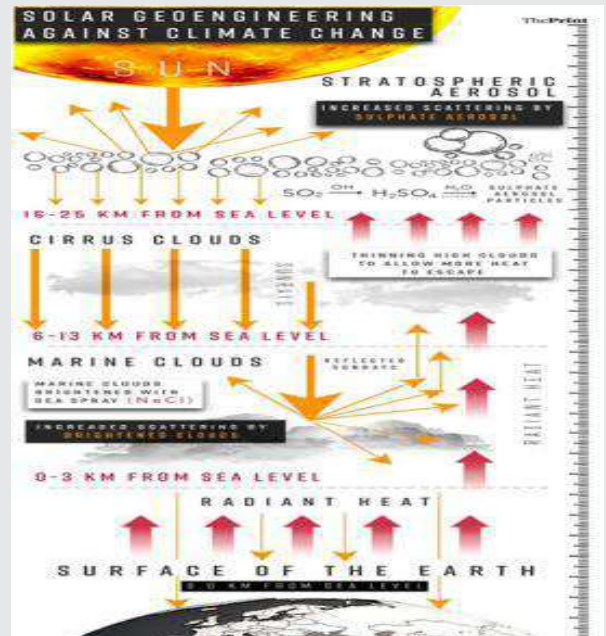
4. Carbocation CH₃⁺

- The CH₃⁺ molecule has been detected in space for the first time by the **James Webb Space Telescope (JWST).**
- The methyl cation, also known as the **carbocation CH₃⁺** is a very simple **organic molecule**, just one carbon atom and 3 hydrogen atoms.
- But it reacts with other molecules to form more complex ones.
- The CH₃⁺ consists of a positively charged carbon atom (C⁺) with three hydrogen atoms (H) attached to it.
- It is the simplest carbocation and belongs to the alkyl cation family.
- **This simple molecule has a unique property:** it reacts relatively inefficiently with the

most abundant element in Universe (hydrogen) but reacts readily with other molecules and therefore initiates the growth of more complex carbon-based molecules.

5. Solar radiation management (SRM)

- The Solar radiation management (SRM) is part of a controversial concept called 'geoengineering'.
- SRM aims at injecting the atmosphere with aerosols or using giant mirrors to reflect the sunlight back.
- By reducing the load of greenhouse gas (GHG) emissions, the SRM is being sold as a futuristic technology that will reduce soaring temperatures in Africa to make it relatively cooler.
- Popular theoretical ideas for SRM include:
 - Modifying cloud structures
 - Spraying aerosols into the stratosphere



6. Geoengineering

- 'Geoengineering' literally means interventions that change the way the Earth's systems work.
- **Category:** Geoengineering is broadly divided into two categories —
- technologies for capturing carbon (carbon dioxide removal)

- methods for managing how much of the Sun's heat reaches the Earth
- preventing the Sun from heating up the Earth (**solar radiation management**)
- removing heat from the Earth's atmosphere into space (**Earth radiation management**)

7. Data scraping

- Data scraping involves **pulling information** out of a website and into a spreadsheet.
- It is also known as **web scraping**.
- These data include specific information from web pages, such as text, images, prices, or contact details, and storing it for further analysis or use.
- **Ethical considerations in data scraping:** The unethical data scraping are acts like **copyright infringement, terms of service violations, and data privacy breach**.
- Potentially violate the terms of service or the policies of a website, leading to legal implications.

8. Zaporizhzhya Nuclear Power Plant

- **Location:** On the banks of the **Dnieper river**, 200

kilometres from the conflicted **Donbas region**.

- **Significance:** One of the four operating NPPs in the country since 1984, accounts for one-fifth of Ukraine's annual electricity production.
- **Composition:** Consists of six Pressurised Water Reactor (PWR) units with a gross electrical capacity of 1,000MWeach.
- **Reactors:** Zaporizhzhya NPP has six VVER-1000 reactors with a capacity of 6 GW total power-generations.
- **Primary cooling circuit:** Consists of the reactor vessel with fuel rods submerged in water.
- Control rods are inserted at the top.
- A pressuriser holds the water at a constant pressure (around 150 atm), preventing it from boiling.
- Water acts as both coolant and moderator.
- **Secondary cooling circuit:** Accumulates the heat from boiling, where it converts a separate resource of water into steam which feeds the turbines to generate electricity.

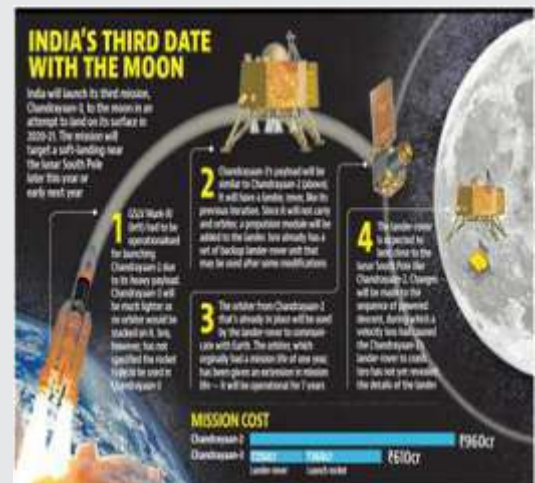
9. Chandrayaan Mission 3

- Chandrayaan-3 is a follow-on mission to **Chandrayaan-2** to demonstrate end-to-end capability in safe landing and roving on the lunar surface.
- The need for Chandrayaan-3 arose after the unsuccessful landing of the **Vikram lander** during **Chandrayaan-2**.
- This new mission is designed to demonstrate the essential landing skills required for the proposed lunar polar **exploration mission** in 2024, which India intends to carry out in collaboration with Japan.
- The mission aims to explore the Moon's surface, particularly areas that have been deprived of sunlight for billions of years.
- **Lunar Exploration:** A lunar exploration oriented mission that aims at exploring the Moon and its resources through a series of robotic missions.
- **Global Elite:** Mission makes India only the 4th nation after US, Russia and China to land on the moon.

The Chandrayaan-3 spacecraft consists of three parts:

- **Lander:** The lander will be powered by four throttle-able engines and will feature a **Laser Doppler Velocimeter (LDV)**.

- **Rover:** The rover will carry out chemical analysis of the lunar surface. Both the lander and the rover carry many scientific payloads for experiments on the lunar surface.
- **Propulsion module:** The propulsion module has one main function—to carry the lander and rover from “launch vehicle injection” to a 100-kilometre circular polar lunar orbit before it separates from the other modules.



10. MQ-9B Predator drones

- The Predator drone or the MQ-9 Reaper is an **unmanned aerial vehicle (UAV)**.
- **Developed by:** General Atomics Aeronautical Systems
- It is primarily used for **long-endurance, high-altitude surveillance and strike missions**.
- The Reaper is the successor to the **MQ-1 Predator drone**. The development of the Predator began in the 1990s.

- Its ISR capabilities, endurance, and armament make it an effective tool for tracking and targeting insurgent and terrorist networks, disrupting their activities, and supporting ground operations.



11. PBW RS1

- The Ludhiana-based institution has developed a new variety of wheat called **PBW RS1**.
- The **Punjab Agricultural University (PAU)** has developed a new wheat variety called PBW RS1.
- This variety contains high levels of amylose starch, which is known

to reduce the **risk of type-2 diabetes and cardiovascular diseases**.

- Unlike regular wheat, consuming chapatis made from PBW RS1 does not cause an immediate and rapid rise in glucose levels.
- The **high amylose and resistant starch content** in this wheat ensure that glucose is released more slowly into the bloodstream.
- PBW RS1 has total starch content similar to other wheat varieties, **around 66-70 percent**.

Anthropocene epoch

12. The Anthropocene epoch as a term was first coined by Nobel Prize-winning **chemist Paul Crutzen** and **biology professor Eugene Stoermer** in **2000** to denote the present geological time interval.

- In this period, the Earth's ecosystem has gone through radical changes due to human impact, especially since the **onset of the Industrial Revolution**.
- There are numerous phenomena associated with this epoch, such as **global warming, sea-level**

rise, ocean acidification, mass-scale soil erosion, the advent of deadly heat waves, deterioration of the biosphere and other detrimental changes in the environment.

13. Small Satellite Launch Vehicle (SSLV)

- The **Indian Space Research Organisation (ISRO)** announced that it will be transferring its **Small Satellite Launch Vehicle (SSLV)** to the private sector.
- SSLV is the **new small satellite launch vehicle** developed by ISRO to cater the launch of small satellites up to 500 kg to Low Earth Orbits on 'launch-on-demand' basis. It is configured with three solid stages 87 t, 7.7 t and 4.5 t respectively.
- SSLV is a 34 m tall, 2 m diameter vehicle having a lift-off mass of 120 t.
- A liquid propulsion-based **Velocity Trimming Module (VTM)** achieves desired velocity for the insertion of the satellites into the intended orbit. SSLV is capable of launching **Mini, Micro, or Nano-satellites (10 to 500 kg mass) to a 500 km orbit.**

- It provides low-cost access to Space, offers low turn-around time, facilitates flexibility in accommodating multiple satellites and demands minimal launch infrastructure.
- The SSLV is the sixth launch vehicle developed by the ISRO, following the Satellite Launch Vehicle-3 (SLV-3), Advanced Satellite Launch Vehicle (ASLV), Polar Satellite Launch Vehicle (PSLV), Geosynchronous Satellite Launch Vehicle (GSLV), and Launch Vehicle Mark-3 (LVM-3).
- The **SLV-3 and the ASLV** have already been retired.

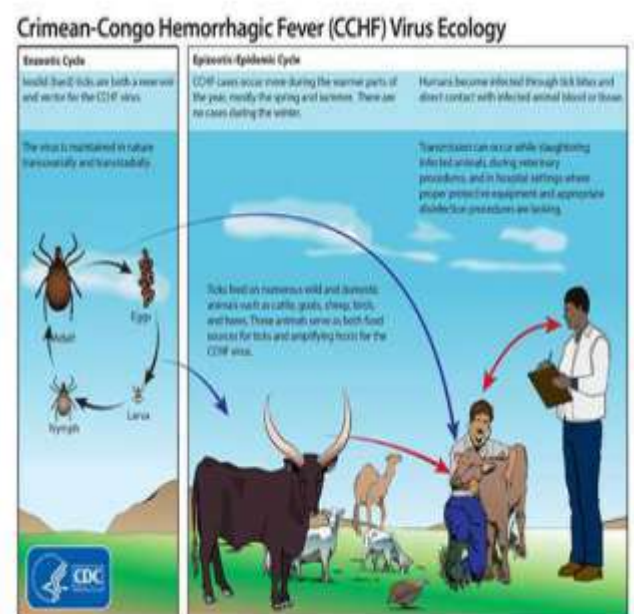
14. SAGAR SAMPARK

- The **Union Minister of Ports, Shipping and Waterways** inaugurated the indigenous **Differential Global Navigation Satellite System (DGNSS) 'SAGAR SAMPARK'.**

- It is an indigenous **Differential Global Navigation Satellite System (DGNSS)**.
- It is a terrestrial based enhancement system which corrects the errors and inaccuracies in the **Global Navigation Satellite System (GNSS)** allowing for more accurate positioning information.
- It is now able to transmit corrections of **GPS and GLONASS**.
- Sagar Sampark at **six locations** will assist the **Director General of Lighthouses and Lightships (DGLL)** to provide radio aids to ships for marine navigation.
- The system will provide accurate information to the ships for safe navigation and will reduce the risk of **collisions, groundings, and accidents in the port and harbour areas**.
- This will lead to the safe and efficient movement of vessels.
- It will significantly improve the accuracy of **GPS positioning and reduces errors** caused by atmospheric interferences, satellite clock drift, and other factors.
- The error correction accuracy has been improved from **5 to 10 meters** to less than **5 meters for 100 Nautical Miles (NM)** from Indian coastlines.

15. Crimean-Congo haemorrhagic fever (CCHF)

- **Crimean-Congo haemorrhagic fever (CCHF)** is a viral haemorrhagic fever usually transmitted by ticks.
- It can also be contracted through contact with **viraemic animal tissues** (animal tissue where the virus has entered the bloodstream) during and immediately post-slaughter of animals.
- **Vector of the spread: 'Ticks'**, especially those of the genus, **Hyalomma**, are both a reservoir and a vector for the CCHF virus.



- Numerous wild and domestic animals, such as **cattle, goats, sheep and hares**, serve as amplifying hosts for the virus.
- **Transmission to humans** occurs through contact with **infected ticks or animal blood**.



- **Symptoms:**
- CCHF symptoms include **fever, muscle ache, dizziness, neck pain, backache, headache, sore eyes and sensitivity to light**.
- There may be **nausea, vomiting, diarrhoea, abdominal pain and sore throat early** on, followed by sharp mood swings and confusion.
- After **2-4 days** the agitation may be replaced by **sleepiness, depression and lassitude**.
- There **is no vaccine** for the virus in either humans or animals, and treatment generally consists of managing symptoms.

16. Air Independent Propulsion system



- The Navy has drawn up plans to install **Air Independent Propulsion (AIP)** modules on all **Scorpene** submarines as they go for their refit beginning with **INS Kalvari** likely by end next year to enhance their endurance.
- The **indigenous AIP module** has been tested on shore and recently DRDO and Naval Group signed an agreement to integrate the **AIP module on the Scorpene**.
- AIP is mostly implemented as an auxiliary source, with the **traditional diesel engine** handling surface propulsion.
- Most of these systems generate electricity, which in turn drives **an electric motor for propulsion or recharges the boat's batteries**.
- **AIP allows longer submergence than a conventionally propelled submarine.**

17. GM crops

- GM food involves the editing of genes of a crop in such a way that it incorporates beneficial traits from another crop or organism.
- This could mean changing the way the plant grows, or making it resistant to a particular disease.
- Food produced using the edited crop is called **GM food**. This is done using the tools of genetic engineering.

GM Mustard

- DMH-11 is indigenously developed transgenic mustard. It is a genetically modified variant of Herbicide Tolerant (HT) mustard.
- DMH-11 is a result of a cross between Indian mustard variety 'Varuna' and East European 'Early Heera-2'
- It contains two alien genes ('barnase' and 'barstar') isolated from a soil bacterium called *Bacillus amyloliquefaciens* that enable breeding of high-yielding commercial mustard hybrids.
- India allows the import of **GM soybean and canola oil**.
- The only crops approved for cultivation are **(bt) cotton**.
- India had an effective ban on other GM seeds for a considerable time.

- The **Genetic Engineering Appraisal Committee (GEAC)** earlier this year cleared a proposal for commercial cultivation of GM mustard, and it was also approved by the **Ministry of Environment, Forest and Climate Change**.

18. National immunisation coverage

- **WHO and UNICEF** had released its estimates for '**National immunisation coverage for 2022**'.
- The **World Health Organization (WHO)** has mentioned that the coverage rate for **DPT3**, the third dose of **diphtheria, pertussis and tetanus vaccines**, in India rose to an all-time of **93% in 2022**, surpassing the previous pre-pandemic best of **91% recorded in 2019**.
- **For WHO South-East Asia Region:**
 - The coverage rate for **DPT3** recovered to the **pre-pandemic level of 91%**, a sharp increase from the 82% recorded in 2021.
 - The region also witnessed a **six per cent improvement** in the coverage of the measles vaccine, rising to 92% in 2022 from 86% in 2021.

- The number of **zero-dose children** (those that have not received even the first dose of DPT vaccine) halved to 2.3 million in 2022 from 4.6 million in 2021.
- The report revealed that the efforts were majorly attributed being made by **India and Indonesia**.
- It helps to strengthen capacities of the health workforce, better understand, and engage with vulnerable populations and roll out tailored strategies to reach each child with the lifesaving routine immunization vaccines.

19. Diphtheria, pertussis and tetanus vaccines

- The **DPT vaccine** or **DTP vaccine** is a class of combination vaccines against **three infectious diseases** in humans: **diphtheria, pertussis (whooping cough), and tetanus**.
- The vaccine components include diphtheria and tetanus toxoids and either kills whole cells of the bacterium that causes pertussis or pertussis antigens.
- Immunisation is an essential component for reducing under-five mortality: Immunisation coverage estimates are used to monitor coverage of immunisation services and to

guide disease eradication and elimination efforts.

- It is a good indicator of **health system performance**.

20. Duchenne's Muscular Dystrophy



- It is a rare genetic disease, using a food additive — a **beta-glucan** produced by N-163 strain of yeast *Aureobasidium pullulans*.
- Duchenne muscular dystrophy (DMD) is a genetic disorder characterized by progressive muscle degeneration and weakness due to the alterations of a protein called dystrophin that helps keep muscle cells intact.
- DMD is one of four conditions known as dystrophinopathies.
- The other three diseases that belong to this group are Becker Muscular dystrophy (BMD, a mild

form of DMD); an intermediate clinical presentation between DMD and BMD; and DMD-associated dilated cardiomyopathy (heart-disease) with little or no clinical skeletal, or voluntary, muscle disease

21. Radioisotope thermoelectric generator



- A **radioisotope thermoelectric generator**, or RTG, uses the fact that radioactive materials (such as plutonium) generate heat as they decay into non-radioactive materials.
- The heat used is converted into electricity by an array of *thermocouples* which then power the spacecraft.
- A thermocouple is a device which converts thermal energy directly into electrical energy.
- Basically, it is made of two kinds of metal that can both conduct electricity. They are connected to each other in a closed loop.
- If the two metals are at different temperatures, an electric

potential will exist between them.

- When an electric potential occurs, electrons will start to flow, making electric current.
- This is a much different technique than that used by nuclear power stations on Earth. That process is called *fission*, and gets very high efficiency rates by literally "splitting" unstable radioactive materials (such as uranium) into smaller parts.

22. Bacteriophages



- These are bacterial virus i.e. any of a group of **viruses that infect bacteria**.
- Bacteriophages were discovered independently by **Frederick W. Twort in Great Britain in 1915**.
- Bacteriophages also infect the **single-celled prokaryotic organisms known as archaea**.
- During infection a phage attaches to a bacterium and inserts its genetic material into the cell.
- Like all viruses, phages are simple organisms that consist of a core of

genetic material (nucleic acid) surrounded by a **protein capsid**.

- The nucleic acid may be either **DNA or RNA** and may be **double-stranded or single-stranded**.
- There are three basic structural forms of phage: an **icosahedral (20-sided) head with a tail**, an **icosahedral head without a tail**, and a **filamentous form**

23. International Moon Day



- The **United Nations General Assembly** declared **July 20** every year to be celebrated as **International Moon Day**.
- '**International Moon Day**' is celebrated every year to mark the anniversary of the day when humans first landed on the Moon as part of **NASA's Apollo 11 mission**.
- Astronauts **Neil Armstrong and Buzz Aldrin** landed on the Moon in a location that they then named **Tranquility Base**, on **July 20, 1969**.

Apollo 11 mission:

- The Apollo program was designed to **land humans on the Moon** and bring them safely back to Earth.

24. Ethanol

- Ethanol is an **organic chemical**
- It is a simple alcohol with the **chemical formula C₂H₆O**.
- Its formula can be also written as **CH₃-CH₂-OH or C₂H₅OH**, an ethyl group linked to a hydroxyl group. Ethanol is a volatile, flammable, colourless liquid with a characteristic wine-like **odour and pungent taste**.
- It is a **psychoactive drug, recreational drug**, and the **active ingredient in alcoholic drinks**.
- Ethanol is naturally produced by the fermentation of **sugars by yeasts** or via petrochemical processes such as **ethylene hydration**.
- It has medical applications as an **antiseptic and disinfectant**.
- It is used as a **chemical solvent** and in the synthesis of organic compounds.
- Ethanol is a **fuel source**. Ethanol also can be dehydrated and to make **ethylene**, an important chemical feedstock.

25. Ethanol blending

- An ethanol blend is defined as a blended motor fuel containing ethyl alcohol that is at least 99% pure, derived from agricultural products, and blended exclusively with petrol.
- Ethanol is one of the principal biofuels, which is naturally produced by the fermentation of sugars by yeasts or via petrochemical processes such as ethylene hydration.
- It has medical applications as an antiseptic and disinfectant. It is used as a chemical solvent and in the synthesis of organic compounds, apart from being an alternative fuel source.

Impacts of Ethanol blending:

- **Impact on Environment:**
- The use of E20 as fuel reduces carbon monoxide emissions by 50% in two-wheelers and 30% in four-wheeler vehicles.
- Hydrocarbon emissions also reduce compared to unblended petrol.
- Ethanol blending can thus reduce emissions in vehicles

26. Harvest water from air

- Bengaluru-based deep-tech start-up has found a technique to **harvest water from air** entirely powered by renewable energy.

- The product is based on '**desiccants**'.
- This contains a **salt solution of calcium chloride**. It allowed to scale up production to **20-30 litres of water per day**.
- The product is significant to reimagine the water infrastructure by reducing dependence on conventional water sources such as **groundwater**.
- Conventional technologies that harvest water from the air are roughly based on an **air conditioning device**.
- Basically, the air conditioner cools the air by **condensing the moisture** present in the atmosphere and then forms water.
- But the new technology is power-hungry and is highly dependent on the relative humidity of the place.

'Science' behind the Technique:

- **Desiccants** are materials that attract and absorb moisture from the surrounding air. The common example of a desiccant is **silica gel**.
- It can absorb moisture from the air when exposed.
- And heating this material to **about 70-80°C** releases the moisture in an almost **steam-like form**, which can be condensed to

form **fresh** water.



- First, when **air enters the unit**, the absorber air filters remove some dust particles.
- Second, the **liquid desiccant** has an affinity only for **water vapor and no other pollutants**.
- Third, **microbial life** dies when the material is heated to over 70°C. The water becomes pure and distilled, with **no minerals, heavy metals, or microbial life**.
- To make it drinkable, the water is passed through an **ultrafiltration membrane**.
- The **ultrafiltration stage** removes any particles that might have entered after the water gets collected; no water gets wasted at this stage.
- At last, it is passed through an **ultraviolet disinfection chamber to add an extra layer of safety and minerals** (minerals are primarily added in the form of a powder).

27. Solar Technology Application Resource Centre

- The programme aims to boost solar power ecosystems in the poorest countries.
- The **STAR-C initiative**, run by the **International Solar Alliance** in partnership with the **United Nations Industrial Development Organisation (UNIDO)**, aims to create a strong network of institutional capacities within ISA member states to enhance quality infrastructure for the uptake of solar energy products and services.
- The project is also **funded by France**.
- **The programme's objectives include;**
- Building solar workforces, standardizing products, setting up infrastructure, and raising awareness among policymakers in developing countries. Initially, the focus was on the Economic Community of West African States, the Pacific Island Forum, and the East African Community.
- **This move is part of India's efforts to expand its diplomatic footprint in the region, which has seen increased outreach by China.**

28. Marine heat waves

- A marine heat wave is an **extreme weather event**.
- It occurs when the surface temperature of a particular region of the sea rises to **3 or 4 degree Celsius** above the average temperature for **at least five days**.
- MHWs can last for **weeks, months or even years**.

Impacts of marine heat waves on ocean life

- **Catastrophic for marine life:** Marine Heat waves may cause the deaths of several marine species, alter their **migration patterns**, and **lead to coral bleaching and even impact weather patterns**. Although an increase of **3 or 4 degrees Celsius** in average temperatures may not be much for humans, it can be catastrophic for marine life.
- **Destroying kelp forest:** MHWs destroy **kelp forests** and fundamentally altered the **ecosystem of the coast**.
- **Enhances Coral Bleaching:** A 2010 study showed that more than **80 per cent of surveyed corals** had bleached and over 40 per cent of the total surveyed had died.

- Corals are very sensitive to the temperature of the water in which they live.
- **Disturbs food web:** MHWs also fuel the growth of **invasive alien species**, which can be destructive to marine food webs.

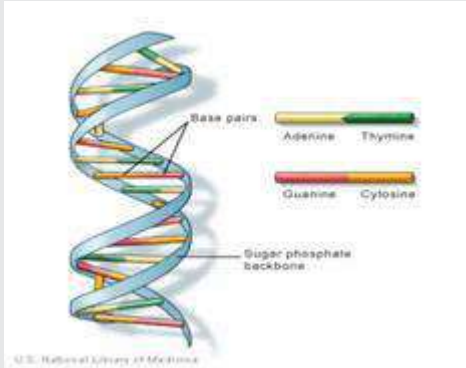
29. Evergreening of Patents

- The evergreening of patents is a practice of tweaking drugs in order to extend their patent term and thus their profitability.
- The **Indian Patents Act 1970** introduced many provisions to prevent the mischievous practice of “evergreening” of patents.

30. DNA and Components

- **Deoxyribonucleic acid (DNA)** is an organic molecule with a complex molecular structure.
- DNA molecule's strands are made up of a **long chain of monomer nucleotides**. It is arranged in a double helix structure.
- **James Watson and Francis Crick** discovered that DNA is a **double-helix polymer** in 1953.
- It is essential for the transfer of the genetic characteristic of the living being from one generation to the other generation.

The majority of DNA is found in the cell nucleus so it is called **nuclear DNA**.



DNA testing and related Judgments:

- Precedents set by the **Supreme Court** through the years show that judges cannot order **genetic tests** as a “**roving enquiry**” (*Bhabani Prasad Jena, 2010*).
- In the *Banarsi Dass case, 2005*, it held that **DNA test** must balance the **interests of the parties**. **DNA tests** should also not be ordered if there was **other material evidence** at hand to prove the case.
- Before ordering a **genetic test**, courts should consider the “**proportionality of the legitimate aims**,” the court stated in its **Ashok Kumar judgment 2021**.
- The ruling of the **Constitution Bench** in the *S. The Puttaswamy case (2017)* affirming that the **right to privacy** is part of the **rights to life (Article 21)** has only strengthened the privacy argument.

- In a case involving a woman, the Supreme Court recently ruled that forcing someone to submit to a **DNA test** against their will would **violate their right to personal liberty and privacy**.

31. World Fragile X Day



- Fragile X syndrome is the leading cause of inherited intellectual disabilities like autism.
- There are behavioural, physical, intellectual and mental health symptoms. Females have milder symptoms than males.
- FXS is not life-threatening and although there is no cure, medication and therapy can help manage the symptoms.
- FXS is one of three syndromes in the fragile X family. The other two syndromes are:
- **Fragile X-associated tremor/ataxia syndrome (FXTAS)**. Symptoms include balance problems, shaky hands, unstable mood, memory loss,

cognitive problems and numbness in the hands and feet.

- **Fragile X-associated primary ovarian insufficiency (FXPOI).** Symptoms include reduced fertility, infertility, missing or unpredictable menstrual periods and premature menopause.

32. Controlled Human Infection Studies (CHIS)



- **Controlled Human Infection Model (CHIM) study** is a well-characterised strain of an **infectious agent** is given to carefully select adult volunteers in order to better understand human diseases, how they spread, and find new ways to prevent and treat them.
- These studies play a vital role in helping to **develop vaccines for infectious diseases.**
- Infectious diseases are disorders that are caused by organisms, usually microscopic in size, such as **bacteria, viruses, fungi, or parasites** that are passed, directly or indirectly, from one person to another.

33. DS-SAR Satellite



- DS-SAR carries a **Synthetic Aperture Radar (SAR)** payload developed by **Israel Aerospace Industries (IAI).**
- This allows the DS-SAR to provide for all-weather **day and night coverage** and is capable of imaging at **1m resolution at full polarimetry.**
- The DS-SAR satellite is developed under a partnership between **DSTA (representing the Government of Singapore) and ST Engineering.**
- Once deployed and operational, it will be used to support the satellite imagery requirements of various agencies within the Government of Singapore.
- ST Engineering will use it for multi-modal and higher responsiveness imagery and **geospatial services for their commercial customers.**
- **The New Space India Limited (NSIL) has procured PSLV-C56 to deploy the DS-SAR satellite.**

VI. PLACES IN NEWS

1. South china sea

- The **South China Sea** is a marginal sea of the Western Pacific Ocean. It is bounded in the north by the shores of South China, in the west by the Indochinese Peninsula, in the east by the islands of Taiwan and north-western Philippines and in the south by the Indonesian islands of Borneo, eastern Sumatra and the Bangka Belitung Islands
- South China Sea is a region of tremendous economic and geostrategic importance.



2. Tam Pà Ling Cave:

- It is a sloping cave situated high in the Annamite mountain range in Northern Laos.
- The stratigraphy of the site indicates formation by periodic slope wash deposition from the muddy slope at the entrance of the cave



3. Pangong Lake

- Pangong Lake, situated at a height of almost 4,350m, is the **world's highest saltwater lake**.
- Its water, which seems to be dyed in blue, stand in stark contrast to the arid mountains surrounding it. Extending to almost 160km, one-third of the Pangong Lake lies in India and the other two-thirds in China.



4. West Bank city

- The West Bank is a chunk of land **east of Israel**.
- The West Bank stretches across the eastern border of Israel along the west banks of the **Jordan River** and most of the **Dead Sea**, thus how it received its name.
- The **holy city of Jerusalem** is considered by international law as part of the **West Bank**, with East Jerusalem being claimed as the capital by both Israelis and Palestinians.
- It is home to nearly three million Palestinians, and would make up the heart of any Palestinian state.

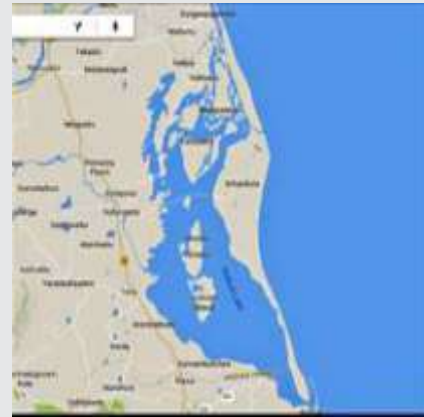


5. Taylor Glacier

- **Taylor Glacier in Antarctica.**
- Known as **the Blood Falls**, this unique phenomenon was first discovered by **scientists as a frozen waterfall in 1911**.
- unusual in terms of their colour but also grab attention because it is the coldest glacier on earth and supports constantly flowing water filled with iron.
- The falls remained a mystery for the longest time since one can see The Blood Falls are not only spot the glacier melting at the surface of the cliff, despite the average temperatures **being -17 degrees Celsius**.
- The waterfall flows out of the Taylor Glacier in Antarctica's McMurdo Dry Valleys and had continued to grab everyone's attention for its unique colour, until a few years ago.

Sriharikota: the launch site'

- India's third lunar, the Chandrayaan-3, took off from the Satish Dhawan Space Center (SDSC) in Sriharikota — a spindle-shaped island on the east coast of Andhra Pradesh.
- Sriharikota is a barrier island off the Bay of Bengal coast located in the Shar Project settlement of Tirupati district in Andhra Pradesh, India.
- It houses the Satish Dhawan Space Centre, one of the two satellite launch centres in India (the other being Thumba Equatorial Rocket Launching Station, Thiruvananthapuram).
- Sriharikota separates the Pulicat Lake from the Bay of Bengal and is where the town of Pulicat is located.
- There are two primary reasons for selecting Sriharikota as the launch site.
- One, it is on the east coast which facilitates the launching of the rockets in an easterly direction.
- Two, its proximity to the equator.
- By launching a rocket eastwards, one can take advantage of Earth's rotation.
- For a launch site close to equator the magnitude of the velocity imparted due to Earth's rotation is about 450 m/s, which can lead to substantial increase in the payload for a given launch vehicle.



6. Bura Chapori Wildlife Sanctuary



- Bura Chapori Wildlife Sanctuary is geographically located on the south bank of the Brahmaputra but under the **Sonitpur district of Assam**.
- It is a part of the **Laokhowa-Burachapori eco-system** and comprises a mosaic of wet alluvial grassland, riparian and semi-evergreen forests dotted by wetland and river systems.
- This sanctuary covers an area of 44.06 sq. km. and is home to the Great Indian **one-horned rhinoceros, tiger, leopard, wild**

buffalo, hog deer, wild pig, and elephants.

- Bura Chapori's bird list on the other hand includes the highly endangered Bengal Florican, Black-necked Stork, Mallard, Open billed Stork, Teal, and Whistling Duck among others.
- The grassland is also rich in various kinds of medicinal herbs and plants.

7. Srivilliputhur Megamalai Tiger Reserve



- **Srivilliputhur Megamalai Tiger Reserve** is the **fifth tiger reserve** in Tamil Nadu.
- It lies in the **Western Ghats**
- **Srivilliputhur-Megamalai Tiger Reserve** is Tamil Nadu's fifth tiger reserve and **India's 51st**.
- Srivilliputhur was well-known as the **Grizzled Giant Squirrel Wildlife Sanctuary**.
- **Bengal tigers, elephants, gaurs, Indian giant squirrels, leopards,**

Nilgiri tahrs, and other animals can be observed here.

- It's a blend of **tropical evergreen and semi-evergreen forests, dry deciduous and moist mixed deciduous woods, and grassland** in this area.
- SMTR is also adjacent to the **Kalakad-Mundanthurai** reserve. The Srivilliputhur end is about 45 km from Virudhunagar town.

8. Siachen Glacier

- The Siachen Glacier is located in the **Eastern Karakoram Range in the Himalayas**, just northeast of **Point NJ9842** where the **Line of Control** between India and Pakistan ends.
- The entire Siachen Glacier, with all major passes, is currently under the administration of India since **1984 (Operation Meghdoot)**.
- India currently occupies dominating positions on the **Saltoro ridge** with Pakistani posts located **3,000 feet below**.

Geography of the Location:

- It is situated to the **north of Nubra Valley**, which is located in the **east of Leh**.

- The Siachen Glacier lies immediately south of the great drainage divide that separates the **Eurasian Plate from the Indian subcontinent** in the extensively glaciated portion of the Karakoram sometimes called the "**Third Pole**".
- It is the **Second-Longest glacier** in the **World's Non-Polar areas**.
- The Siachen Glacier is **part of Ladakh** which has now been converted into a Union Territory.
- The Siachen Glacier is the **world's highest battlefield**.



VII. SPECIES IN NEWS

1. Junonia orithya (blue pansy)

- The Blue Pansy has been declared as the state butterfly of the union territory of Jammu and Kashmir in India
- The Blue Pansy is a species of bright blue butterflies found in parts of Southeast Asian countries, Australia and Africa, Srinagar
- These are territorial arthropods and are spread in 26 local subspecies throughout its range. The butterflies love sunlight and are often seen sitting on bare ground, basking in the rays of the sun.



2. Hasarius Mumbai

- 'jumping spiders' in the 'salticidae' family.
- These are spiders which, instead of trapping their prey in a web, stalk and hunt the prey by pouncing on it.
- occurs primarily in warm climates.
- In India, however, there are only two other Hasarius species which have been documented, namely H. adansoni which is found across the country including in urban areas, and H. kjellerupi, which was documented from the Nicobar Islands.



3. White-rumped vulture (*Gyps bengalensis*)



- The **white-rumped vulture (*Gyps bengalensis*)** is an **Old World vulture** native to South and Southeast Asia.
- It is the **smallest of the Gyps vultures**, but is still a very large bird.
- A medium-sized vulture with a silvery bill, a dark body, a grayish shine on the wings, a white back, and a distinctive white collar on the neck.
- It has been listed as Critically Endangered on the IUCN Red List since 2000.
- It is closely related to the **European griffon vulture (*Gyps fulvus*)**.

4. Chinkara (*Gazella bennettii*)

- Chinkara or Indian gazelle is the State animal of Rajasthan.
- **Geographic Range:** Indian gazelles, *Gazella bennettii*, are primarily found in the

northwestern region of India in the state of Rajasthan.

- **Habitat:** Dry deciduous forests, open woodlands, and dry areas such as sand dunes, semi-arid deserts, and arid valleys.
- *Gazella bennettii* is considered a species of least concern by the **International Union for Conservation of Nature (IUCN)**.
- They are included in the **CITES Appendix III**.



5. Ospreys:



- Ospreys are very large, distinctively shaped hawks. Despite their size, their bodies are

slender, with long, narrow wings and long legs.

- Ospreys are brown above and white below, and overall they are whiter than most raptors.
- From below, the wings are mostly white with a prominent dark patch at the wrists.
- The head is white with a broad brown stripe through the eye.
- Juveniles have white spots on the back and buffy shading on the breast.
- Ospreys reside around nearly any body of water: **saltmarshes, rivers, ponds, reservoirs, estuaries, and even coral reefs.**
- Their conspicuous stick nests are placed in the open on **poles, channel markers, and deadtrees, often over water**

6. Atlantic Menhaden



- These fishes are found in **coastal and estuarine waters** from Nova

Scotia to northern Florida, Atlantic menhaden play many important roles.

- They are filter feeders, primarily consuming **phytoplankton and zooplankton** in the water column. Menhaden support an important commercial fishery.
- They constitute the largest landings, **by volume, along the Atlantic Coast of the United States.**
- Menhaden are harvested for use as **fertilizers, animal feed, and bait for fisheries including blue crab and lobster.**
- They are a major source of **omega-3 fatty acids**, so they are also used to develop human and animal supplements.
- In estuaries like the **Chesapeake Bay**, they are food for striped bass and other fish, as well as for predatory birds, including **osprey and eagles.**

7. Hoolock Gibbon

- Gibbons, the smallest and fastest of all apes, live in tropical and subtropical forests in the south-eastern part of Asia.
- The hoolock gibbon, unique to India's northeast, is one of 20 species of gibbons on Earth.

- The estimated population of hoolock gibbons is 12,000.
- The current conservation status of gibbon species is alarming – all 20 species are at a high risk of extinction.

Western Hillock Gibbon:

- Its range extends into seven states covering Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura.
- Protection Status: The western hoolock gibbon is 'Endangered' according to the IUCN Red List found in India.

Eastern hoolock gibbon:

- It inhabits specific pockets of Arunachal Pradesh and Assam in India, and in southern China and north-east Myanmar outside India.
- It is listed as Vulnerable under the IUCN Redlist.

In India, both the species are listed on Schedule 1 of the Indian (Wildlife) Protection Act 1972.

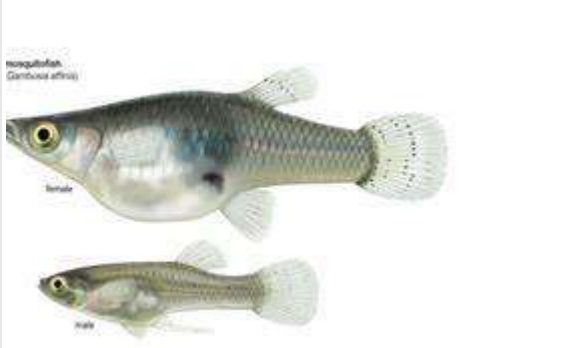


8. Purana tigrina

- Purana tigrina is a species of cicada found in Southeast Asia.
- It was described from Malabar, South India.
- It is a common species in the Malayan Peninsula and on Bunguran Island in the South China Sea.
- The body length of a male is 5–29 mm and that of the female somewhat less at 18–23 mm.
- They have a greenish-ochraceous head and thorax, and brownish-ochraceous abdomen. The head and thorax are marked in black.
- Approximately 250 kinds of cicadas are known to occur in India. They are distributed across many genera and Rustia is only one of them
- Purana tigrina was first described in 1850 from the Malabar Coast of south-western India by the English entomologist Francis Walker.
- It occurs in primary lowland rainforest but is more often found in secondary forest, felled areas, parks and gardens



9. Gambusia



- *Gambusia affinis* (*Gaffinis*) is native to the waters of the south-eastern United States and a single full grown fish eats **about 100 to 300 mosquito** larvae per day.
- Mosquitofish has been part of various malaria control strategies in India since 1928, including the **Urban Malaria Scheme**.
- The fish are generally understood to be a **good biological control method** against mosquito breeding but is not a sole solution to control Malaria.
- Multiple countries, including India have listed '**Gambusia**' as **invasive species**.
- **However, the fish continues to be a prominent part of the country's malaria control programmes and the fish continue to be released into freshwater bodies across the country, like Andhra Pradesh, Chandigarh and Uttar Pradesh.**

10. Ludwigia peruviana



- Ludwigia peruviana is an aquatic, sometimes deciduous species of flowering plant in the evening primrose family.
- Ludwigia is among the **22 priority invasive plants** in Tamil Nadu.
- It is used as an ornamental plant for its **tiny yellow** It grows fast along water bodies.
- Ludwigia peruviana, which grows fast along water bodies, has infested the majority of the hill station's swamps, locally known as **vayals**, where elephants used to find lush grass even in the summer.

11. Silver cockscomb



- **Silver cockscomb** is a short-lived **50-60 cm-tall plant** that bears simple, spirally arranged leaves around the stem with **pinkish or silky white flowers**.
- It is native to India and Africa or North and South America.
- **Medicinal use:** The flowers and seed are **astringent, haemostatic, ophthalmic, parasiticide and poultice**. They are used in the treatment of bloody stool,

haemorrhoid bleeding, uterine bleeding, leucorrhoea, dysentery and diarrhoea.

- Since it grows widely on farmlands

use the plant as fodder.

- But like the **Soliga tribe**, some communities also consume it as a leafy vegetable.

VIII. MISCELLANEOUS

1. Asian Kabaddi Championship 2023

- The Asian Kabaddi Championship 2023 featured six nations: India, Iran, the Republic of Korea, Japan, Chinese Taipei, and Hong Kong.
- The continental kabaddi championship was conducted in two phases - a single-headed round robin league phase and a final.

2. Siri Fort and Mongol Invasion

- The Mongol Empire carried out several invasions of the **Indian subcontinent from 1221 to 1327**.
- **Siri fort** built by **Alauddin Khilji**, at the centre of Delhi was seen as a remarkable monument which prevented the **Mongol invasion in India**.
- Some of these invasions were punitive raids intended for plunder while others were carried out with the intention of occupying key city centres.
- The Mongols suffered a series of defeats when the Delhi Sultanate undertook military campaigns against them in the mid-1300s.
- The Mongol was a **nomadic tribe** that lived on the plains of Central Asia from the **Ural Mountains to the Gobi Desert**.
- Taking the name **Genghis Khan**. He set on a path of conquest in which he would forge an empire

that would stretch from Korea in the east to the borders of Poland in the west at his height in 1237.

3. Lambani craft

- The Lambani embroidery is an intricate form of textile embellishment characterised by colourful threads, mirror-work and stitch patterns practised in several villages of Karnataka such as **Sandur, Keri Tanda, Mariyammanahalli, Kadirampur, Sitaram Tanda, Bijapur and Kamalapur**.
- The **Lambani craft tradition** involves stitching together small pieces of discarded fabric to create a beautiful fabric.
- The sustainable practice of patchwork is seen in many **textile traditions of India** and around the world.
- The embroidery traditions of the Lambanis are shared in terms of technique and aesthetics with textile traditions across **Eastern Europe, West, and Central Asia**.

The Lambani Community:

- It is a community that loves to adorn. They wear clothes that have a lot of **thread embroidery, buttons, shells, sequins, silver beads, etc.**
- Not only their clothes, but their homes are interestingly styled, too.
- The Lambanis have multiple colours on their walls, which are also decorated with artworks and

art styles.

- The Banjaras speak '**Gor Boli**' — **also called 'Lambadi'**.
- Since it has no script, it is written either in **Devanagari** or in the **local languages, like Telugu or Kannada**.
- Many people belonging to this tribal group are **bilingual or multilingual**.

4. Highway hypnosis

- Highway hypnosis is a phenomenon when the driver zones out and entered an altered mental state during driving on a long straight road at an extended speed.
- Highway hypnosis can cause the driver to lose the sense of their surroundings and have no recollection of the events.
- It is also called white line fever when the driver gets into a somewhat zoned-out and hypnotic state while driving for a great distance.
- Caused by: lack of sleep or physical exhaustion.

5. Nawab Wajid Ali Shah:

- Wajid Ali Shah, the twelfth and final King of Awadh, reigned for nine years, from **February 13, 1847**, until February 11, 1856.
- His realm, which had been safeguarded by the **East India Company** under contract for many years, was acquired by the East

India Company on February 11, 1856, two days before his coronation.

- This was in line with **Dalhousie's Doctrine of Lapse**, in which the British would take over a kingdom if there was misrule also.



6. Kathak:

- Kathak is one of the eight major forms of Indian classical dance.
- It is the classical dance form from Uttar Pradesh.
- Kathak developed under the influence of both Hindu and Muslim cultures.
- The genre developed during the Bhakti movement, the trend of theistic devotion which evolved in medieval Hinduism.
- The Kathakars communicate stories through rhythmic foot movements, hand gestures, facial expressions and eye work.
- This performing art that incorporates legends from ancient mythology and great Indian epics, especially from the life of Lord Krishna became quite popular in the courts of North Indian kingdoms.
- Three specific forms of this genre that is three gharanas (schools), which mostly differ in emphasis

given to footwork versus acting, are more famous namely, the Jaipur gharana, the Benaras gharana and the Lucknow gharana.

7. Rudragiri caves

- a **painting from Kakatiya-era** drawn in a natural rock shelter on the **Rudragiri hillock** depicts several evidences from **the Ramayana**.
- The site unveils a combination of **prehistoric rock paintings** from the Mesolithic period and exquisite artwork from the **Kakatiya dynasty**.



- Rudragiri hillock is located in the village of Orvakallu, in **Guntur district** of Andhra Pradesh.
- The shelters are found in the hillock which earlier was served as **living quarters** for people during the **Mesolithic age around 5000 B.C.**, and they bear witness to the **luminous rock paintings** of that era.

- Interestingly, two natural caves at the southern end of the hillock also exhibit exceptional murals from the renowned **Kakatiya kingdom**.

Findings from the site:

- The first cave, starting from the **southern end of the hillock**, presents a narrative mural portraying the intense battle between the Vanara brothers, **Vali and Sugriva**.
- In the middle cave, a grand sketch of Hanuman, accompanied by sacred symbols of the **conch (Sankha)** and the **fire altar (Yagna Vedi)** is present. Hanuman is depicted carrying the **Sanjivani hill** in his right hand, symbolising his mission to **save Lakshmana's life**.
- The third cave houses the **prehistoric rock paintings** from the Mesolithic era.



8. Tankai method



- The **2000-year-old technique** of shipbuilding known as the '**stitched shipbuilding method**', the **Ministry of Culture** and the Indian Navy has entered into a **Memorandum of Understanding (MoU)**.
- The technique is known as '**Tankai**' method or the "stitched shipbuilding method".

- The stitched ship is made by **stitching wooden planks**.
- These ships are more durable as nails are not used.
- Also these ships caused less damage due to shoals and sandbars.
- **For thousands of years they contributed to trade, cultural exchange, and exploration.**

9. Bal Gangadhar Tilak

- **Tilak's Ideology:** "*Swaraj is my birth right and I shall have it*".
 - Bal Gangadhar Tilak was called '**father of the Indian unrest**' by British colonial rulers.
- Major Contributions**
- **Educating Commons:** He founded the **Deccan Education Society in 1884** with an aim to educate common people in English.
 - **Publications:** He founded and edited two newspapers - **Kesari in Marathi** and **The Mahratta in English**. He used his pen as a weapon to **criticise the colonial rulers**.
 - **Popularization of mass movement:** He popularised **mass mobilisation programmes** like the celebration of **Ganesh**

chaturthi and Shivaji Jayanti to aid to **national awakening against the British.**

- **Swadeshi movement:** It was under the leadership of Lal-Bal-Pal, **Swadeshi movement** gained momentum across the country.
- **Strong voice against Bengal partition:** The trio also mobilised Indians against the **Bengal partition.**
- **Home Rule Movement:** Tilak was involved in the **Home Rule Movement** and joined **Anne Besant's Home Rule League.**

10. Chandrashekhar Azad

- He reorganised the **Hindustan Republican Association (HRA)**. It was a revolutionary organisation formed by **Ramprasad Bismil.**
- **1921:** When Mahatma Gandhi launched the Non-Cooperation Movement in December 1921, Azad, then a teenager, took part in it. He was arrested by the British during a demonstration.
- **1925:** He participated in the **Kakori train robbery** and

assassination of British police officer **John Saunders.** While most of the participants were arrested, Azad escaped to Jhansi.

- **1928:** Helped by Bhagat Singh and Sukhdev, they formed the **Hindustan Socialist Republican Association (renamed from HRA).**
- He refused to surrender and bravely fought the police battalion for hours before shooting himself in the head, staying true to his resolve to **remain 'azad' (free).** His **Colt pistol** is displayed at the **Allahabad Museum.**

11. World Population Day 2023

- Every year on July 11, World Population Day is observed around the globe to shed light on the challenges and opportunities presented by the world's growing population.
- Theme: "Unleashing the power of gender equality: Uplifting the voices of women and girls to unlock our world's infinite possibilities"

- This significant day serves as a reminder to address population-related issues and strive towards a sustainable future for all.
- Since its inception, World Population Day has gained momentum as a platform for
- raising awareness and initiating dialogue on global population concerns.
- It was established by the United Nations Development Programme (UNDP) in 1989.
- It aims to foster global awareness of issues such as overpopulation, reproductive health and rights, gender equality, poverty and sustainable development.

12. Kui Language:

- Kui (also known as **Kandh, Khondi, Khond, Khondo**), is a **South-Eastern Dravidian language** spoken by the Kandha community.
- It is primarily spoken in **the state of Odisha**.
- It is closely related to other languages in the Dravidian family, such as **Gondi and Kuvi**. It was also

referred to as the **Kuinga language** during the historical period.

- With **941,988 registered native speakers**, it figures at rank 29 in the **1991 Indian census**.
- **Script:** Kui is traditionally written using the **Odia script**, which is also used for writing the **Odia language**.

Questions for Practice

1. The Indian Navy recently signed an agreement with the Ministry of

as the "stitched shipbuilding method" or 'Tankai' method. What is the unique characteristic of ships constructed using this traditional method?

- (a) They are made from iron and steel, making them more durable.
- (b) They are constructed using prefabricated modules for faster assembly.
- (c) They are stitched together using wooden planks without the use of nails.
- (d) They are equipped with advanced navigation systems for long-distance voyages

2. Consider the following statements regarding the Advanced Chemistry Cell (ACC):

- 1. ACC can store electric energy either as electrochemical or as chemical energy.
- 2. In most cases, they cannot convert stored energy into electric energy or other forms of energy.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only

Culture to revive a 2,000-Year-Old Shipbuilding Technique, also known

- (c) Both 1 and 2
- (d) Neither 1 nor 2

3. With reference to the river Gomti, consider the following statements:

- 1. It is an alluvial river of the Ganga Plain.
- 2. It originates near Mainkot, from Gomat Taala Lake.
- 3. Sukheta, Bari, Choha are its tributaries.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

4. With reference to the Solar Technology Application Resource Centre [STAR C] Initiative, consider the following statements:

- 1. The programme aims to boost solar power ecosystems in the poorest countries.

2. The initiative is implemented by the United Nations Environment Programme.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

5. Consider the following statements regarding Srivilliputhur Megamalai Tiger Reserve:

1. The Tiger Reserve lies in the Eastern Ghat region.
2. It is well-known as the Grizzled Giant Squirrel Wildlife Sanctuary.
3. The region contains tropical evergreen and semi-evergreen forests, dry deciduous and moist mixed deciduous woods, and grassland.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

6. Consider the following statements regarding INS Kirpan:

1. INS Kirpan is the third indigenously built Khukri class missile corvette.
2. This is the first operational corvette gifted by India to any Friendly Foreign Country.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

7. Consider the following statements regarding Electric Freight Accelerator for Sustainable Transport – India, or e-FAST:

1. It is India's first national electric freight platform.
2. The platform supports scalable pilots and informs policies aimed at accelerating freight electrification in India.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

8. With reference to “One Sun One World One Grid”, consider the following statements.

1. The project is led by the International Renewable Energy Agency (IRENA).
2. Its ultimate goal is to reduce carbon footprints and energy costs.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

9. The India Climate Energy Dashboard (ICED) 3.0, recently seen in news, is released by-

- (a) NITI Aayog

- (b) Ministry of Environment, Forest and Climate Change

- (c) Ministry of Power

- (d) Ministry of New and Renewable Energy

10. With reference to the ‘Credit Guarantee Scheme’ of the Department of Animal Husbandry & Dairying, Ministry of Fisheries, Animal Husbandry, and Dairying (DAHD), consider the following statements:

1. The scheme targets underserved sections of society, including first-generation entrepreneurs and underprivileged individuals.
2. This first-ever credit guarantee scheme aims to support the Livestock sector's Micro, Small & Medium Enterprises (MSMEs) without the need for collateral security.

- (a) 1 only

- (b) 2 only

- (c) Both 1 and 2

- (d) Neither 1 nor 2

ANSWERS

1. C
2. A
3. B
4. A
5. B
6. C
7. C
8. B
9. A
10. C