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POLITY

India must build awareness on population control

- A private members' Bill aimed at population control was introduced in the Lok Sabha recently.
- The bill came up after the United Nations raised a concern that the population of India can surpass China, becoming the world's most populous country.
- It stated that population rise is the most significant reason for India's slow rate of development and argued for an immediate need for population control.

Objective to bring Population Control Bill

- It aims **to amend Article 47** by adding Article 47A to the Indian Constitution.
- It proposes that -
 - The State shall **promote small family norms** by offering incentives in taxes, employment, education, etc., to its people who keep their family limited to two children.
 - The State shall **withdraw every concession** from and deprive such incentives to those not adhering to small family norm, to keep the growing population under control.

Key provisions

- **Two-child policy:** It proposes to introduce a two-child policy per couple.
- **Incentivizing adoption:** Through various measures such as educational benefits, taxation cuts, home loans, free healthcare, and better employment opportunities.
- **Birth spacings:** It also proposes to ensure healthy birth spacing through measures related to augmenting the availability, accessibility and affordability of quality reproductive health services.
- **Penalties for couples:** Couples not adhering to the two-child policy will be debarred from contesting in elections; becomes ineligible for government jobs, subsidies on various facilities, goods given by the government, etc.

Earlier attempts at population control

- India was **among the first nations** to address its population problem as early as 1951, raising awareness about the ills of overpopulation.
- Population Control Bill or Two Child Policy has been introduced in the Parliament **35 times since independence**, but not passed yet.
- In **2017**, the **Assam** government passed the 'Population and Women's Empowerment Policy'.
 - It specified that individuals with two children would only be eligible for public employment, and that present government employees had to adhere to the two-child family standard.
- In **2021**, the Law Commission of **Uttar Pradesh** came up with a proposal where any person having more than two children will be barred from getting government subsidies. The draft bill in this regard is still under consideration.

Steps taken by government for population control

- **Mission Parivar Vikas:** For substantially increasing access to contraceptives and family planning services in high fertility districts with TFR of 3 and above.
- **New Contraceptive Choices:** g., Injectable contraceptive and a new method of IUCD (Intrauterine Devices) insertion immediately after delivery i.e., post-partum IUCD has been introduced.
- **Awareness building:** The packaging for Condoms, emergency contraceptive pills, etc., has been redesigned so as to increase their demand alongside **360-degree**

media campaign.

- **Compensation scheme for sterilization acceptors:** Health Ministry provides compensation for loss of wages to the beneficiary and also to the service provider (and team) for conducting sterilizations.
- **Scheme for Home delivery of contraceptives by ASHAs:** At doorstep of beneficiaries.
- **Family Planning Logistic Management and Information System (FP-LMIS):** A dedicated software to ensure smooth forecasting, procurement and distribution of family planning commodities across all the levels of health facilities.
- **National Family Planning Indemnity Scheme (NFPIS):** The clients are insured in the eventualities of death, complication and failure following sterilization.

How are disputes among states resolved in India

- The border dispute between Maharashtra and Karnataka is intensifying, with both states hardening their stance.
- Recently, both Houses of the Maharashtra Assembly passed a unanimous resolution to support a legal battle to resolve the dispute.



- The Maharashtra and Karnataka boundary dispute has its origins in the reorganisation of states along linguistic lines via the **State Reorganisation Act, 1956**.
 - This Act, which took effect from 1 November, 1956, divided states on linguistic lines.
- Since its creation on May 1, 1960, Maharashtra has claimed that 865 villages, including **Belagavi** (then Belgaum), **Carvar** and **Nipani**, should be merged into Maharashtra
 - Maharashtra claims that these are the regions where Marathi is the dominant language, should remain in Maharashtra.
- Karnataka, however, has refused to part with its territory.

Mahajan Commission:

- In October, 1966, the Centre constituted the Mahajan Commission headed by the then Supreme Court **Chief Justice Meher Chand Mahajan**, at the insistence of Maharashtra.

- **Commission's recommendations –**
 - While rejecting Maharashtra's claim over Belagavi (then Belgaum), the commission recommended 247 villages/places, including Jatt, Akkalkote and Solapur, to be made part of Karnataka.
 - It also declared 264 villages /places, including Nippani, Khanapur and Nandagad, to be made part of Maharashtra.
- However, the commission's report was outrightly rejected by Maharashtra, and in 2004, it moved the Supreme Court.
- **Centre as a neutral mediator**
 - Attempts are often made to resolve inter-state disputes with the cooperation of both sides, with the Centre working as a facilitator or a neutral mediator
 - For example, in current case between Maharashtra and Karnataka, Union Home Minister met both the Chief Ministers and asked them to form a six-member team to address all boundary issues.
 - If issues are resolved amicably, Parliament can bring a law to alter state boundaries.
 - Eg., Bihar-Uttar Pradesh (Alteration of Boundaries) Act of 1968 and the Haryana-Uttar Pradesh (Alteration of Boundaries) Act of 1979 was brought in similar fashion.
- **Judicial redressal**
 - The Supreme Court in its original jurisdiction decides disputes between states.
 - **Article 131 of the Constitution** allows SC to have original jurisdiction in any dispute:
 - between the Government of India and one or more States; or
 - between the Government of India and any State or States on one side and one or more other States on the other; or
 - between two or more States.
- **Inter-state Council**
 - Article 263 of the Constitution gives powers to the President to set up an Inter-state Council . for resolution of disputes between states
 - The Council is envisaged as a forum for discussion between the states and the Centre.
 - In 1988, the **Sarkaria Commission** suggested that the Council should exist as a permanent body, and in 1990 it came into existence through a Presidential Order
 - In 2021, the Centre reconstituted the Inter-state Council and the body now has 10 Union Ministers as permanent invitees.
 - The standing committee of the Council has been reconstituted with Home Minister as Chairman.

Remote voting for migrants will deepen democracy in India

- The Election Commission (EC) announced that it is ready to pilot remote voting for domestic migrants, so they don't have to travel back to their home states to vote.
- For this, the commission has developed a prototype for a Multi-Constituency Remote Electronic Voting Machine (RVM).
- The ECI will demonstrate the functioning of the remote EVM on January 16 to the eight national and 57 state political parties.

Remote Electronic Voting Machine (RVM)

- In order to enable remote voting for domestic migrants, a technological solution was proposed in the form of Remote Electronic Voting Machine (RVM).
- RVM relies on the creation of a robust electoral roll and identification mechanisms (to stop duplicate voting), and allow voters to vote remotely, in a safe and controlled environment.
- It was developed with the assistance of Bharat Electronics Limited (BEL) and the Electronics Corporation of India Limited (ECIL). It is based on the currently used EVM system.

How does RVM work?

- The RVMs are , effectively providing the voter the same experience as currently used EVMs. stand alone, non-networked systems
- They will be set up in remote locations outside the state under similar conditions as current polling booths.
- The unique feature of RVMs is that a single Remote Ballot Unit (RBU) will be able to cater to multiple constituencies (as many as 72) by using a dynamic ballot display board instead of the usual printed paper ballot sheet on EVMs.
- The Ballot Unit Overlay Display (BUOD) will show the requisite candidates based on the constituency number read on the voter's Constituency card.
- A barcode scanning system will be used to read these cards.

What will be the voting process under RVM?

- The voting process will be as follows: after verifying a voter's identity, their constituency card will be read with a public display showing the constituency details and candidates.
- This will also be displayed privately, on the BUOD in the RVM's RBU.
- The voter will then vote and each vote will be stored constituency-wise in the control unit of the voting machine.
- The VVPAT system is expected to work along the same lines with the new technology.

Benefits of RVM

- Many times, migrants are reluctant to get themselves enrolled at their place of work for various reasons such as:
 - frequently changing residences,
 - not enough social and emotional connect with the area of migration,
 - unwillingness to get their name deleted in electoral roll of their home/native constituencies as they have permanent residence/property etc.
- The remote voting initiative, if implemented, can lead to a social transformation for the migrants and connect with their roots. It will also result in .better voter turnouts

What are the different challenges that would be faced by RVM?

- There is no accurate number of migrants. Also, in 2017, the ECI had told the SC that it was not feasible to track movement of domestic migrants to allow remote voting.
- Also, migrants are not a uniform and defined class, with fluid identities, locations and situations.

Geospatial policy to foster startup ecosystem, incentivize creation of digital twins of cities

- Geospatial Technology is an emerging field of study that includes Geographic Information System (**GIS**), Remote Sensing (**RS**), and Global Positioning System (**GPS**).
- It has **applications in almost every domain of the economy** ranging from -
 - Agriculture to industries,
 - Development of urban or rural infrastructure,
 - Administration of land,
 - Economic activities of banking and finance, resources, mining, water, disaster management, social planning, delivery services, etc.
- It enables government systems, services, and initiatives to be integrated using '**location**' as a common and underpinning reference frame.
- **Geospatial data is now widely accepted** as a critical national infrastructure and information resource with proven societal, economic and environmental value.

The National Geospatial Policy, 2022:

- **Background:**
 - In 2021, the DST issued "**Guidelines for acquiring and producing Geospatial Data and Geospatial Data Services including Maps**".
 - The Guidelines deregulated the Geospatial sector by **liberalising Geospatial data acquisition/ production/ access**, with an aim to promote private sector participation through continued enhancements of Ease of Doing Business in the sector.
 - **The 2022 Policy** takes it further by laying down an overarching framework for holistic development of the Geospatial ecosystem.
 - It comes at a time when India's geospatial economy is expected to cross Rs 63,000 crore by 2025 at a growth rate of 12.8%
- **About:** It is a citizen-centric policy that seeks to strengthen the Geospatial sector to support national development, economic prosperity and a thriving information economy.
- **Vision and goals:**
 - To make India **a World Leader in Global Geospatial space** with the best in the class ecosystem for innovation.
 - To develop **a coherent national framework** in the country and leverage it to move towards a digital economy and improve services to citizens.
 - **To develop Geospatial infrastructures**, Geospatial skill and knowledge, standards, Geospatial businesses.
 - **To promote innovation** and strengthen the national and sub-national arrangements for generation and management of Geospatial information.
- **Significance:**
 - To make geospatial technology and data as agents of transformation for achieving the Sustainable Development Goals (SDGs).
 - Bringing efficiency in all sectors of economy and instilling accountability and transparency at all levels of governance.

Huge turnout at 205th anniversary of battle of Koregaon Bhima

- The 205 anniversary of the Battle of Koregaon Bhima was celebrated at the

Jaystambh in Pune's Perne village amidst heavy police deployment.

- One person was killed and several others were injured in violence in the Koregaon Bhima area on January 1, 2018.
- Every year since then, the district administration and police machinery has been taking stringent steps to prevent any law-and-order situation in the area.

Battle of Koregaon Bhima

Background:

- A small village in Pune district of Maharashtra, Bhima-Koregaon is associated with an important phase of Maratha history.
- The people of Dalit communities gather in Bhima Koregaon on 1 January every year to pay tribute to the Dalit heroes who died in the war between the British and the Peshwas on 1 January 1818.
- The Peshwas were defeated in this battle of Bhima Koregaon.

Battle of 1818

- The battle of Bhima Koregaon was fought on January 1, 1818, between Peshwa Bajirao II and British army commanded by Captain F F Staunton of the East India Company.
 - The battle was a part of the Third Anglo-Maratha War.
- The British army was largely dominated by Mahars - the most populous of the Dalit sub-castes in Maharashtra.
- The Dalit-dominated British Army had defeated a Peshwa army
- It resulted in losses to the Maratha empire, then under Peshwa rule, and control over most of western, central and southern India by the British East India Company.

Koregaon Pillar (Jaystambh)

- In the memory of Battle, the British built squared-pillar to pay homage to the martyr soldiers, which is popularly known as 'Koregaon Pillar'.
- The pillar symbolises the courage of Mahar Regiment.
- The names of the martyred soldiers were engraved on the pillars and soldiers were honoured with a medal by the British in 1851.

Significance

- Mahar relates this battle to their self-respect because they were insulted by the Peshwa Baji Rao II on their identity and caste when they offered their services to the Peshwa.
- Many historians have termed this incident as the , which happened almost two hundred years ago.first historic step towards making India free of caste
- After Dr. Ambedkar visited the site on January 1, 1927, it became a place of pilgrimage for Dalits, an assertion of pride. In recent years, attendance has been in the lakhs, with Dalits coming from all over India.

Dinesh Kumar Shukla takes over charge as Chairman of AERB

- The AERB was constituted on November 15, 1983, by the **President of India** by exercising the powers conferred by the **Atomic Energy Act, 1962** to carry out certain regulatory and safety functions under the Act.
- **The regulatory authority of AERB** is derived from the rules and notifications promulgated under the **Atomic Energy Act and the Environment (Protection) Act, 1986**.
- **The Mission of the AERB** is to ensure the use of ionizing radiation and nuclear energy in India does not cause undue risk to the health of people and the

environment.

- **The total number of members** including the Chairman and Member-Secretary **shall not exceed five**. The Board shall be responsible to the **Atomic Energy Commission**.
 - The Board shall consist of full time and part time members. The Board shall have a **full time Chairman and a full time Member-Secretary**.
- The AERB shall have authority to administer the provisions of the **Factories Act, 1948, the industrial safety for the units of Department of Atomic Energy (DAE) as per Section 23 of the Atomic Energy Act, 1962**.
- **The executive functions of the AERB** shall be vested in Chairman, AERB.
- The DAE will provide the necessary administrative support to the AERB in this regard to its budget, parliamentary work and establishment and accounts matters.

Members of high-powered committee on Ladakh say MHA order is vague, avoids mention of Sixth Schedule

- **The committee will discuss measures to:**
 - protect the region's unique culture and language taking into consideration its geographical location and strategic importance;
 - ensure protection of land and employment for the people of Ladakh;
 - strategise inclusive development and discuss issues related to the empowerment of the Ladakh Autonomous Hill District Councils of Leh and Kargil.
- **Why was the committee formed?**
 - After the unique status of the formerly-existing State of Jammu and Kashmir under **Article 370 of the Constitution** was read down by Parliament on August 5, 2019, civil society organisations in Ladakh have been calling for the protection of land, resources, and jobs for the previous three years.
- **What is the sixth schedule?**
 - **The sixth schedule under Article 244 of the Constitution** protects the autonomy of tribal populations through creation of autonomous development councils which can frame laws on land, public health and agriculture.
 - **As of now ten autonomous councils exist in Assam, Meghalaya, Tripura and Mizoram.**
 - As per the 2011 Census, **the total population of Ladakh was 2,74,289, and nearly 80% of them are tribals.**

Stalemate over SYL canal continues as meeting between Haryana, Punjab remains inconclusive

- The Sutlej Yamuna Link Canal (SYL), is an under-construction canal to connect the **Sutlej and Yamuna rivers**.
- The decades-old dispute over the canal, which is supposed to carry water from Punjab to Haryana, has its origin in a disagreement over sharing of Ravi-Beas water.
- **The river Beas joins river Sutlej in Punjab.**
- The dispute regarding sharing of river water emerged after **Punjab was reorganised in 1966, and the state of Haryana was created (out of Punjab)**.
- After this, **Punjab refused to share waters of Ravi and Beas with Haryana.**

Dispute on water sharing:

- Before the reorganisation in **1955**, out of **15.85 million acre feet (MAF)** water of **Ravi and Beas**, the Centre had allocated **8 MAF** to Rajasthan, **7.20 MAF** to undivided Punjab, **0.65MAF** to Jammu and Kashmir.
- In March 1976, when Punjab Reorganisation Act was implemented, the Centre notified fresh allocations, providing 3.5 MAF To Haryana.
- Later, in 1981, the water flowing down Beas and Ravi was revised and estimated to be at 17.17 MAF. Out of this, 4.22 MAF was allocated to Punjab, 3.5 MAF to Haryana, and 8.6 MAF to Rajasthan.
- To enable Haryana to use its share of the waters of the Sutlej river and its tributary, Beas, a canal linking the Sutlej with the Western Yamuna Canal, was planned. The 212-km canal (SYL) was supposed to carry Haryana's share of water to its southern parts.
- 122 km of the canal was to pass through Punjab and the remaining 90 km was to pass through Haryana. Haryana has completed its side of the canal, however, Punjab has continued to delay the construction for over three decades.
- **In 2002 and 2004**, the Supreme Court ordered the completion of the canal in Punjab.
- **In 2004**, the Punjab assembly passed a law, which declared all inter-state agreements related to the sharing of Ravi and Beas waters, as invalid.
- However, **in 2016 the Supreme Court invalidated (cancelled) this law.**

National Commission for Scheduled Tribes' position on new Forest Conservation Rules 'will be same'

- It was established by amending **Article 338** and inserting a new **Article 338A in the Constitution through the Constitution (89th Amendment) Act, 2003.**
- By this amendment, the erstwhile National Commission for Scheduled Castes and Scheduled Tribes was replaced by two separate Commissions namely-
 - **the National Commission for Scheduled Castes (NCSC), and**
 - **the NCST w.e.f. 19 February, 2004.**

What is the composition of the National Commission for Scheduled Tribes?

- The term of office of Chairperson, Vice-Chairperson and each member is three years from the date of assumption of charge.
- The Chairperson has been given the rank of Union Cabinet Minister, and the Vice-Chairperson that of a Minister of State and other Members have the ranks of a Secretary to the Government of India.

Functions

- To Monitor safeguards provided for STs under the Constitution or under other laws;
- To inquire into specific complaints relating to Rights & Safeguards of STs;
- To advise in the Planning Process relating to Socio-economic development of STs;
- To submit report to the President annually and other times on welfare Measures required related to Socio-economic development of STs;
- To discharge such other functions in relation to STs as the President may by rule specify;

Members of high-powered committee on Ladakh say MHA order is vague, avoids mention of Sixth Schedule

About the high-power Ladakh committee:

- **The committee will discuss measures to:**
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- **What is the sixth schedule?**
 - **The sixth schedule under Article 244 of the Constitution** protects the autonomy of tribal populations through creation of autonomous development councils which can frame laws on land, public health and agriculture.
 - **As of now ten autonomous councils exist in Assam, Meghalaya, Tripura and Mizoram.**
 - As per the 2011 Census, **the total population of Ladakh was 2,74,289, and nearly 80% of them are tribals.**

Decennial census exercise postponed till September 2023

- As per norms, a census can be conducted only three months after the freezing of boundary limits of administrative units such as districts, sub-districts, tehsils, talukas and police stations.
- The finalisation of boundaries of administrative units entails covering all jurisdictional changes between two consecutive censuses.

Census

- It is a process of collecting, compiling, analyzing, evaluating, publishing and disseminating statistical data regarding the population.
- It is being conducted at an interval of 10 years.
- In India, the census was first started under British **Viceroy Lord Mayo** in 1872 and the first synchronous census in India was held in 1881.

India's census?

- **Nodal Ministry:** The decennial Census is conducted by the Office of the Registrar General and Census Commissioner, Ministry of Home Affairs.
- Census is conducted under the provisions of the Census Act, of 1948.
- The population census is a **Union subject** under Article 246 of the Indian Constitution.
- It is listed as serial number 69 of the seventh schedule of the constitution.

Centre's Recent Move to Regulate Online Gaming Will Further the 'Illegality' of IT Rules

- Gambling has been defined under the Old Law "**Public Gambling Act 1867**".

- It is the subject of the “**State list**” under the **7th Schedule of the constitution**.
- The Law Commission in one of its reports recommends allowing gambling in sports.:

Online Gaming

- Online gaming regulated by **Ministry of Electronics and Information Technology** but different states have their own laws related to permission within the state.
- So far States like Chhattisgarh, Rajasthan, Tamil Nadu, Telangana, Andhra Pradesh and Karnataka have been passed laws banning online games.
- There is no monitoring body in India till now to control online gaming and it is in ‘Grey area’.
- Online gaming industry revenue in India to exceed \$1.5 billion by 2022 and is expected to reach \$5 billion by 2025.

Types of online gaming

- **e-Sports:** These are video games that were played privately or on consoles in video game stores in the 1990s, but are currently played online in a structured manner between professional players, either individually or in teams.
- **Fantasy sports:** These are games in which the player selects a team of real sports players from several teams and earns points based on how well the players perform in real life. For example,
- **Online casual games:**
- These could be skill-based, where the outcome is heavily impacted by mental or physical skill or chance-based, where the outcome is heavily influenced by some randomised activity, such as rolling a die.
- A game of chance may be considered as gambling if players bet money or anything of monetary value.

PM addresses 2nd National Conference of Chief Secretaries

- The Aspirational Blocks Programme is on the lines of the Aspirational District Programme that was launched in 2018 and covers 112 districts across the country.
- This new programme is aimed at improving performance of blocks lagging on various development parameters.
- This will enable holistic development in those areas that require added assistance.
- The programme will cover **500 districts across 31 states** and Union Territories initially.
- Over half of these blocks are in 6 states—Uttar Pradesh (68 blocks), Bihar (61), Madhya Pradesh (42), Jharkhand (34), Odisha (29) and West Bengal (29).

Aspirational Districts Programme

- It was launched in 2018 and aims to transform districts that have shown relatively lesser progress in key social areas.
- **3C Strategy:** The broad contours of the programme
- **Convergence** (of Central & State Schemes)
- **Collaboration** (of Central, State level ‘Prabhari’ Officers & District Collectors)
- **Competition** (among districts driven by a Mass Movement)
- **Parameters for Ranking:** The ranking is based on the incremental progress made across 49 Key Performance Indicators (KPIs) under 5 broad socio-economic themes
 - Health & Nutrition (30%)
 - Education (30%)

- Agriculture & Water Resources (20%)
- Financial Inclusion & Skill Development (10%)
- Infrastructure (10%)

Government To Disband Telecom Body DCC

Digital Communication Commission (DCC)

- It was set up by the Government of India via a resolution in 1989 with administrative and financial powers of the Government of India to deal with various aspects of Telecommunications.
- The Government re-designated the 'Telecom Commission' as the 'Digital Communications Commission' in 2018.
- **Nodal Ministry:** It is under the **Ministry of Communication**.
- **Members:** Consists of a Chairman, four full-time members, who are ex-officio Secretaries to the Government of India in the Department of Telecommunications and four part-time members who are Secretaries to the Government of India in the concerned Departments.
- The Secretary to the Government of India in the Department of Telecommunications is the ex-officio Chairman of the Digital Communications Commission.

Functions

- Formulating the policy of the Department of Telecommunications for approval of the Government.
- Preparing the budget for the Department of Telecommunications for each financial year and getting it approved by the Government.
- Implementation of Government policy in all matters concerning telecommunication.

Supreme Court to set up Bench to hear pleas against *nikah halala*

- The term "Nikah" and "Halala" both are Arabic terms.
- **"Nikah" means Marriage and "Halala" means to make something halal or permissible.**
- The expression "Nikah Halala" **literally means a marriage to make something halal or permissible.**
- As per Muslim Law, a man cannot remarry his wife after he divorced her, unless the wife is married to another man and gets divorced from that man (second husband) or after the death of the second husband.
- Thus, **the process of making the woman permissible for her first husband by giving her marriage to a third person with a pre-condition is known as Nikah Halala also known as Tahleel marriage.**
- In this process, the third person consummates the marriage with the object to make the woman permissible for her first husband.
- **Does the Quran permit this?** There is **no sanction in the holy Quran for such marriages.**
- **Legality of Nikah halala in India:**
 - The **Muslim Women (Protection of Rights on Marriage) Act, 2019** passed after the invalidation of triple talaq by the Supreme Court, is silent on **nikah halala**.
 - The Act made instant triple talaq a criminal offence but steered clear of halala

which takes place as a consequence of triple talaq.

Chargesheets need not be put in public domain

- The Supreme Court said that the chargesheet filed by investigating agencies in a criminal case in court is not a public document which could be directed to be put in public domain by uploading it on a website and also it cannot be revealed under Right to Information Act.

Chargesheet

- According to Section 173 of Code of Criminal Procedure (CrPC), a **charge sheet is a report generated by police officers after investigating a case.**
- It **contains all the stringent records right from the commencement of investigation** procedure of lodging an FIR to **till the completion of investigation** and preparation of final report.
- It **contains the names of the people brought in the custody, the charges they are brought in for and the identity of the accusers.**
- **Once the charge sheet has been submitted to a court of law, prosecution proceedings against the accused begin.**
- **Time limit for filing a Charge Sheet:**
 - It is to be **filed within 60 days from the date of arrest** of the accused in **cases triable by lower courts** and **90 days in cases triable by Court of Sessions.**
 - If the charge sheet is **not filed within the prescribed time** mentioned above, the **accused has a right to default bail.**
- A charge sheet is **distinct from the First Information Report (FIR).**

First Information Report (FIR)

- It is a **written document prepared by a Police officer based on information given by an aggrieved person or any other person either in writing or made orally about the commission of a Cognizable Offence.**
- **Investigation is started only after filing of the FIR.**
- **Who can file an FIR? Anyone can file a FIR,** whether it is the victim, victim's family or friends, or any witness to a crime.
- An FIR **can only be lodged in case of cognizable offences.**

Cognizable Offence

- It is **one in which the police may arrest a person without warrant.**
- The **police are authorized to start investigation into a cognizable case on their own and do not require any orders from the court to do so.**

President of India presents pradhan mantri rashtriya bal puraskar 2023

- It is given under two categories.
- **Bal Shakti Puraskar:** This award is given by the Government of India every year to recognize exceptional achievements of children in various fields namely innovation, scholastic achievements, social service, arts & culture, sports and bravery.
 - **Eligibility criteria:** A child who is an **Indian Citizen** and residing in India and is between 5-18 years of age.
 - **Award:** The award consists of a medal, a cash prize of Rs. 1,00,000, book

- vouchers worth Rs.10,000, a certificate and a citation.
- It was started in 1996 as the National Child Award for Exceptional Achievement, and renamed in 2018 as Bal Shakti Puraskar.
 - **Bal Kalyan Puraskar:** This is given as recognition to **Individuals and Institutions**, who have made an outstanding contribution towards service for children in the field of child development, child protection and child welfare.
 - **Eligibility criteria:** An individual who is an Indian Citizen residing in India and should have attained the age of 18 years or above (as of 31st August of the respective year). S/he should have worked for the cause of children for not less than 7 years.
 - The institution should not be entirely funded by the government and should have been in the field of child welfare for 10 years and performing consistently in the field.
 - **Award:** The awards are given in each of the two categories - Individual and Institution - along with cash prizes (Rs. 1,00, 000 and Rs. 5,00, 000 respectively).
 - It was started in 1979 as the National Child Welfare Awards and in 2018 renamed it as Bal Kalyan Puraskar.

Grievance Appellate Committees to handle user complaints against social media firms from March 1: IT Ministry

- The central government notified three Grievance Appellate Committees (GACs) under an amendment to IT Rules 2021.
- **Composition**
 - Each of the three GACs will have a **chairperson, two whole-time members** from various government entities and retired senior executives from the industry.
 - **Term:** Three years from the date of assumption of office.
- The GAC will be a virtual digital platform that will **operate only online** and the digitally entire process, from the filing of an appeal to the decision, will be conducted digitally.
- Users will have the option to appeal against the decision of the grievance officer of the social media intermediaries and other online intermediaries before this new appellate body.
- The Committee will endeavour to address the user's appeal within **30 days**.

Goa seeks early Supreme Court hearing on river water dispute with Karnataka

- The Karnataka government recently received clearance from the Central government for two Detailed Project Reports (DPR) on the Kalasa-Banduri water diversion project on the Mahadayi River.

Mahadayi river:

- **Origin:** Mahadayi river rises in the Western Ghats, from the Bhimgad Wildlife Sanctuary in Khanapur taluk of Karnataka's Belagavi district.
- The river travels 35 km in Karnataka; 82 km in Goa before joining the **Arabian Sea at Panji (North-Goa)**.
- Also called Mandovi in Goa, Mahadayi is a rain-fed river that is shared between Karnataka and Goa for their water needs.

- **The Salim Ali Bird Sanctuary** is located on the island of Chorao in the Mandovi river.
- **Major Tributaries:** Kalasa Nala, Banduri Nala, Surla Nala, Haltar Nala, Poti Nala, Mahadayi Nala, Pansheer Nala, Bail Nala, Andher Nala.

Kalasa-Banduri project

- The project involves the construction of dams and a canal system to **divert water from the Mahadayi River, located in Goa, to the Malaprabha River (a tributary of Krishna river)** basin in Karnataka.
- The main goal of the project is to **meet the drinking water needs of the districts of Belagavi, Dharwad, Bagalkot, and Gadag in Karnataka.**
- The project was **proposed by the Karnataka Government in the 1980s**, but faced opposition from the state of Goa.

PM Modi addresses first 'Mann Ki Baat' of 2023, urges citizens to read about 'Padma' awardees

- The Padma Awards are **one of the highest civilian honours of India** announced annually on the eve of **Republic Day**.
- The award **seeks to recognize works of distinction** and is given for **distinguished and exceptional achievements/service** in all fields of activities/disciplines.
- Padma Awards were **instituted in the year 1954**
- The award is **given in three categories**, namely,
 - **Padma Vibhushan:** for exceptional and distinguished service;
 - **Padma Bhushan:** for distinguished service of a high order; and
 - **Padma Shri:** for distinguished service.
 - **Award:** The awardees are presented a **Sanad (certificate) signed by the President and a medallion.**
- **Eligibility:**
 - **All persons** without distinction of race, occupation, position or sex **are eligible for these awards.**
 - **Government servants** including those working with PSUs, except doctors and scientists, **are not eligible for these Awards.**
 - The award is **normally not conferred posthumously.** However, in highly deserving cases, the Government could consider giving an award posthumously.
- The award does not amount to a title and cannot be used as a suffix or prefix to the awardees' name.
- Nominations
 - Nominations are **invited from Central Ministries/Departments, States/UT Governments**, Bharat Ratna and Padma Vibhushan awardees, Institutes of Excellence.
 - **All citizens can make nominations/recommendation including self-nomination.**
- All nominations received for Padma Awards are **placed before the Padma Awards Committee**, which is **constituted by the Prime Minister** every year.
- On the basis of the **recommendations of the Awards Committee**, and after **approval of the Home Minister, Prime Minister and President**, the Padma Awards are announced on the eve of the Republic Day.

OBC sub-categorisation panel gets 14th extension

- The commission was **set up by the President under Article 340** of the Indian Constitution on October 2, **2017**.
- It is **headed by** former Delhi High Court judge, **Justice G. Rohini (retd)**.
- **Mandate:** To **examine the issues** related to the **sub-categorisation of Other Backward Classes**.
- **Terms** of **References:**
 - to **examine the extent of inequitable distribution of benefits of reservation** among the castes or communities included in the broad category of Other Backward Classes, with reference to such classes included in the Central List;
 - to **work out the mechanism, criteria, norms** and parameters in a scientific approach **for sub-categorisation within such Other Backward Classes**;
 - to take up the exercise of **identifying the respective castes or communities** or sub-castes or synonyms **in the Central List** of Other Backward Classes and **classifying them into their respective sub-categories**.

Article 340

- The Article reads, "The President may, by order, appoint a Commission consisting of such persons as he thinks fit to investigate the conditions of socially and educationally backward classes within the territory of India and the difficulties under which they labour and to make recommendations as to the steps that should be taken by the Union or any State to remove such difficulties and to improve their condition..."

ECONOMY

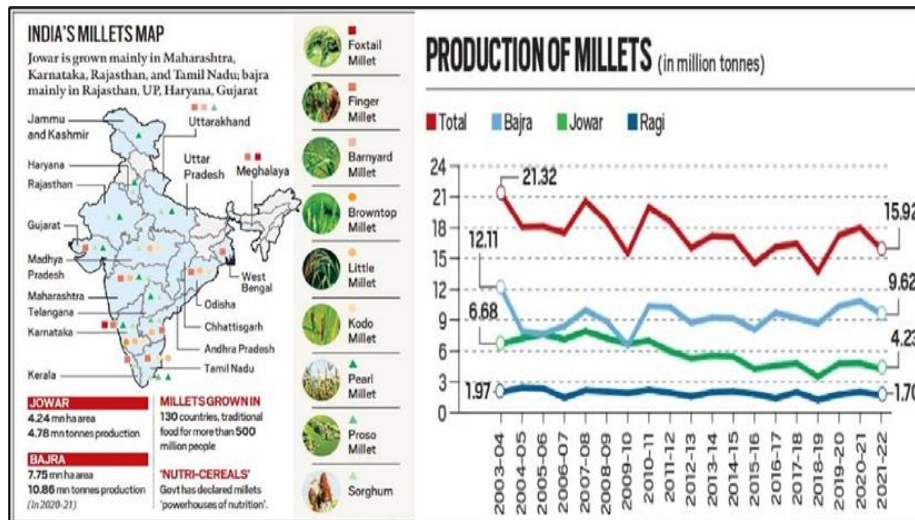
International Year of Millets (IYM) 2023 kick starts

- Recently, the United Nations General Assembly (UNGA) declared 2023 as the International Year of Millets (IYM), a proposal sponsored by the Government of India to promote these "nutri-cereals."
- The declaration will be helpful to the Government of India in articulating its goal of making IYM 2023 a "People's Movement" as well as presenting India as the "Global Hub for Millets," as India produces one-fifth of the world's millets.

Millets

- Millets are a highly varied group of **small-seeded grasses**, widely grown around the world as cereal crops or grains for **fodder and human food**.
- They are important crops in the **semiarid tropics of Asia and Africa** (especially in India, Mali, Nigeria, and Niger), with 97% of millet production in developing countries.
- This crop is favoured due to its **productivity and short growing season under dry, high-temperature conditions (hardy and drought-resistant crops)**.
- **Millets are a powerhouse of nutrients**, which score over rice and wheat in terms of minerals, vitamins, and dietary fibre content, as well as amino acid profile.
- Though rich in both iron and zinc, wheat's protein content comprises **glutens**, known to trigger gastrointestinal and autoimmune disorders in many people.
- **Bajra (pearl millet)**, on the other hand, has iron, zinc, and protein levels comparable to that of wheat, but it's **gluten-free** and has more fibre and which significantly addresses the problem of **"hidden hunger."**

Status of millets in India:



- They were among the first crops to be domesticated in India with several evidence of its consumption during the **Indus valley civilization**.
- In India, millets are primarily a **kharif** crop, **requiring less water and agricultural inputs** than other similar staples.
- The main millet-growing states in India are **Rajasthan, Maharashtra, Karnataka, Andhra Pradesh, and Madhya Pradesh**

Issues

- **Rice and wheat no longer remain aspirational foods.** Thanks to the Green

Revolution and the National Food Security Act of 2013.

- **Millets are not the first choice either of consumers or of farmers.**
 - For farmers, **low per-hectare yields** (1 tonne for jowar, 1.5 for bajra and 1.7 for ragi, as against 3.5 tonnes for wheat and 4 tonnes for paddy) are a disincentive.
 - Also, **access to assured irrigation**, made farmers switch to rice, wheat, sugarcane, or cotton.
 - For consumers, the gluten proteins make the **wheat dough more cohesive and elastic** and the resultant breads come out light and fluffy, which isn't the case with bajra or jowar.

Steps taken

- **Pusa-1201:** A hybrid bajra that gives an average grain yield of over 2.8 tonnes and potential of 4.5 tonnes per hectare.
 - It matures in 78-80 days and is resistant to downy mildew and blast, both deadly fungal diseases.
- Recognising the enormous potential of Millets, which also aligns with several UN Sustainable Development Goals (SDGs), the Government of India (in 2018),
 - Rebranded Millets as "**Nutri Cereals**"
 - Declared 2018 as the National Year of Millets, aiming at larger promotion and demand generation

Ministry of Rural Development launches Prajwala Challenge

- **Aim:** To invite ideas, solutions and actions that can **transform the rural economy**. This Mission is looking for ideas which are broadly categorised into
- Focus on Women and the Marginalized section of the community
- Localised Models
- Sustainability
- Cost Effective solutions
- Multi-sectoral ideas and solutions
- Shortlisted ideas will be acknowledged by the Mission and will be provided mentorship support from an expert panel and incubation support to scale up. **The top 5 ideas will be rewarded with Rs. 2 Lakh each.**

DAY-NRLM

- It is one of the **flagship poverty alleviation programs** which aims at creating efficient and effective institutional platforms for the rural poor, enabling them to increase household income through sustainable livelihood enhancements and improved access to financial services.
- Key Features:
 - **Universal Social Mobilisation:** At least one woman member from each identified rural poor household, is to be brought under the Self Help Group (SHG) network in a time bound manner.
 - **Participatory Identification of Poor (PIP):** All households identified as poor through the PIP process is the NRLM Target Group and is eligible for all the benefits under the programme.
 - **Community Funds as Resources in Perpetuity:** NRLM provides

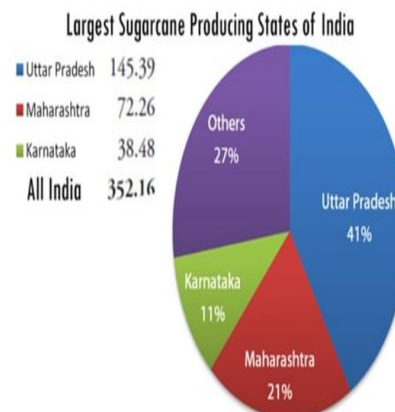
Revolving Fund (RF) and Community Investment Fund (CIF) as resources in perpetuity to the institutions of the poor, to strengthen their institutional and financial management capacity.

Cabinet approves BIND scheme to further modernise Public Service Broadcasting

- It is a **Central Sector Scheme** which provides financial support for the **infrastructure development** of Prasar Bharati i.e. All India Radio (AIR) and Doordarshan (DD).
- This scheme will enable the public broadcaster to undertake a major upgradation of its facilities with better infrastructure which will widen its reach, including in the LWE, border and strategic areas and provide high-quality content to the viewers.
- Another major priority area of the scheme is the development of high-quality content for both domestic and international audiences and ensuring the availability of diverse content to the viewers by upgradation of the capacity of the DTH platform to accommodate more channels.
- Purchase of **OB vans and digital upgradation of DD and AIR Studios** to make them HD-ready will also be done as part of the project.
- The Project for modernization and augmentation of broadcast infrastructure also has the potential to **generate indirect employment** by way of manufacturing and services related to the supply and installation of broadcast equipment.
- The Scheme will **increase coverage of AIR FM transmitters** in the country to 66% by geographical area and 80% by population up from 59% and 68% respectively.
- It also envisages free distribution of over 8 lakh DD Free Dish STBs to people living in remote, tribal, LWE and border areas.

Haryana sugarcane farmers kick off agitation seeking higher support price

- **What is it?** Fair and remunerative price (FRP) is the minimum price at which rate sugarcane is to be purchased by sugar mills from farmers.
- **Who determines it?** The FRP is fixed by **Union government (Cabinet Committee on Economic Affairs (CCEA))** on the basis of recommendations of **Commission for Agricultural Costs and Prices (CACP)**.
- **Rules:** The 'FRP' of sugarcane is determined under Sugarcane (Control) Order, 1966.
- **Methodology:** Recommended FRP is arrived at by taking into account various factors (cost of production, demand-supply situation, domestic & international prices, inter-crop price parity etc).
- **Benefits:** FRP assures margins to farmers, irrespective of whether sugar mills generate a profit or not.
- This will be uniformly applicable all over the country. Besides FRP, some states such as Punjab, Haryana, Uttarakhand, UP and TN announce a State Advised Price, which is generally higher than the FRP.



Reserve Bank of India puts on hold NUE licensing

- Six groupings, which included Facebook, Google, Amazon, Flipkart and others, had applied for NUE licences and all of them have fallen short of the RBI's expectations.

New Umbrella Entity (NUE)

- As envisaged by the RBI, an NUE will be a non-profit entity that will set up, manage and operate new payment systems, especially in the retail space such as ATMs, white-label PoS; Aadhaar-based payments and remittance services.
- The entity formed shall be a company incorporated in India under **the Companies Act, 2013**. Currently, the umbrella entity for providing retail payments systems is NPCI, which is a non-profit entity, owned by banks.
- **Promoters:** A promoter will hold at least 25% and up to 40% of the operator. Only those entities that are owned and controlled by Indian citizens with at least **three years of experience** in the payments segment can become promoters of NUEs.
- **Foreign investment:** Foreign companies can own a maximum of 25%, so are teaming up with local players.
- **Capital required:** According to the RBI guidelines, the entity will have **minimum paid-up capital of Rs 500 crore**, with no single promoter group holding over 40 per cent investment in the capital.
- **Governance structure:** The new entity will have to abide by corporate governance norms and the 'fit and proper' criteria for persons to be appointed to the board.

Sebi moots ASBA-like payment system for secondary market stock trade

- This process is developed **by SEBI to apply for IPOs, Rights and Debts Issues, FPS and more.**
- It entails that the amount to be paid for subscribing to the shares does not get debited from the investor's account **until the shares have been allotted** by the company.
- Investors can apply for ASBA and have the bank block out the application money until the shares get allotted to the investor.
- This system will provide the authorization of the investor to subscribe only when the application is selected for the issue.
- This blocking is carried out by Self-Certified Syndicate Banks (SCSB).
- Upon the approval of the issue to the investor, the funds are paid accordingly.
- **Self-Certified Syndicate Banks (SCSBs):** These are **SEBI-authorized banks** that conform to the conditions laid by SEBI to accept the applications, verify and block the amount to the extent of what the application requires, upload the details to the web and stay updated with the process until the shares are allotted.
- If the issue gets withdrawn, or the investor has not been allotted the shares, then SCSBs refund the money back to the investor's account.
- Subscribing to issues via ASBA is a **mandatory option since 2016**.
- If the money has been blocked in an interest-bearing ASBA account then the amount will continue to **earn interest** during the time it takes to get the allotment of the share. The investor needs to be an Indian resident to avail of ASBA.
- **Significance:** The reason for this process to come into effect was to eliminate the inconvenience of finding refunds or having shares not be allotted.

Rupee weakens amid thin volumes on FII outflow, greenback rebound

Greenback

- A greenback is a **term for U.S. paper dollars**.
- Greenback **refers to the first paper money issued by the United States government in the 19th century**.
- It was **legal tender by law backed by the United States government**.
- The issuance was primarily **intended to cover up the expenses of the American Civil War**.
- **Why is it called Greenback?** Since the **backside of this paper money is inked in green color**, it got the name greenback.
- Because **they were not fully backed by gold, greenbacks lost value and caused inflation** in the economy.
- Even though **they were not minted after the nineteenth century**, the terminology is **now used in reference to the United States Dollar**.

Greenback trading

- Traders in the foreign exchange market use the term greenback to refer to the United States Dollar.
- Hence **it indicates the trading in the United States Dollar or U.S. dollar index**.

National Export Co-operative Society to export farm, non-farming products in three months

- The Union Cabinet, recently approved the setting up of a National Level multistate cooperative export society under the Multi State Cooperative Societies (MSCS) Act, 2002.

National Level multistate cooperative export society:

- This will be the largest of the three proposed national cooperative societies to be established under the Multi State Cooperative Societies (MSCS) Act, 2002. Other being National multi-state cooperative organic society; and national level multi-state seed cooperative.
- It will act as an umbrella organization for export of surplus goods/services produced by various cooperative societies across the country.
- It will also help cooperatives in getting benefits of various export related schemes and policies.
- The society will have an **authorized share capital of ₹2,000 crore** with the **area of operation all over the country**.
- It will have its **registered office in Delhi**.
- It will **open foreign bank accounts** and complete all the formalities, including necessary permissions for exporting a product.
- **Dividends will be shared with the manufacturer instantly and without any brokerage fee**.

EPFO portal offers link to opt for higher pension

- In 2014, the central government issued a notification allowing an EPFO member and their employer to jointly avail the option of contributing 8.33 percent of the actual salary to the Employee Pension Scheme (EPS) without any ceiling, thus enabling the member to receive a higher pension.
- A six-month deadline — later extended by another six months was set to opt for this provision.
- Recently the Supreme Court ruled that employees who had not exercised the option for higher pension would get a further four months from the date of this court order to do so, with their employer's consent.

Employees Provident Fund Organisation (EPFO):

- It is a **statutory body** under the **Employees' Provident Funds and Miscellaneous Act, 1952**.
- It is under the **administrative control of the Union Ministry of Labor and Employment**.
- **Structure of EPFO:**
 - The Act and all its schemes are **administered by a tripartite board** called the **Central Board of Trustees**.
 - The **board comprises representatives of the Government (both Central and State), employers, and employees**.
 - The board is **chaired by the Union Minister of Labour and Employment, Government of India**.
- The Central Board of Trustees **operates 3 schemes:**
 - The **Employees' Provident Funds Scheme, 1952 (EPF)**
 - The **Employees' Pension Scheme, 1995 (EPS)**
 - The **Employees' Deposit Linked Insurance Scheme, 1976 (EDLI)**
- EPFO is also the **nodal agency for implementing Bilateral Social Security Agreements** with other countries on a reciprocal basis.
- **Coverage:** The schemes offered by EPFO **cover Indian workers and international workers** (from countries with whom the EPFO has signed bilateral agreements).

Employee Pension Scheme (EPS):

- The scheme makes **provisions for employees working in the organized sector for a pension** after their retirement at the **age of 58 years**.
- The benefits of the scheme **can be availed only if the employee has provided a service for at least 10 years**.
- Under **Employees' Provident Funds Scheme (EPF)**, **both the employer and employee contribute 12%** each of the employee's pay towards the Employees Provident Fund (EPF).
- While the **employee's entire share is contributed towards EPF**, **33% of the employer's share goes towards the Employees' Pension Scheme (EPS)** and **3.67%** goes towards EPF contribution every month.

Discrepancies in insurance disbursement baffles Barmer farmers

- It was **incorporated under the Indian Companies Act 1956 on 20th December, 2002.**
- The company has an **authorized capital of Rs. 1500 crore** and paid-up share capital of Rs. 200 Crores.
- The Company is under **administrative control of the Ministry of Finance.**
- It is the **biggest crop insurance company in the world** (20 million farmers covered).
- It is **headquartered at New Delhi, India.**
- It is **promoted by 6 Public Sector Financial Institution** General Insurance Corporation, New India Assurance Company, Oriental Insurance Company, National Insurance Company, United India Insurance Company and NABARD.:
- **AIC provides weather & yield-based crop insurance schemes in over 500 districts of India.**
- **AIC provides insurance cover to the farmers for financial losses arising from the failure of the crop** (mentioned in insurance scheme) resulting from the pests, diseases, and natural calamities.

SEBI Extends Suspension Of Derivatives Trade In 7 Commodities Till December 2023

- On December 20, 2021, the capital markets regulator suspended futures trading in seven commodities, viz., wheat, paddy (non-basmati), moong, chana, soybean and its derivatives, mustard seed and its derivatives, and palm oil and its derivatives on the exchanges.
- The trading was initially suspended for a year, but in December 2022, the ban was extended for another year, i.e., until December 20, 2023.

Derivative trading

- The derivatives are short-term financial contracts that are bought and sold in the market.
- Profits are made in the derivatives trade by predicting the price movements of the asset that underlies the contract.
- The derivatives trade can be in **futures and options**. In a futures contract, a supplier pledges to sell a certain quantity at a fixed price at a future date. An option is a derivative contract which gives the buyer (the owner or holder of the option) the right, but not the obligation, to buy or sell an underlying asset.
- Farmers can put fixed amounts of their products, which fit the quality standards of the exchange, to be sold at a fixed price — almost like price insurance.
- These contracts can be exited by either the producer or the trader by paying a margin price to the exchange.
- Agricultural commodities like cotton, paddy, soya bean, soya oil, mustard seed, etc., are traded on the **National Commodities and Derivatives Exchange (NCDEX) and the Multi Commodity Exchange (MCX).**

NSE to pay ₹100 crore in penalties to SEBI for lapses

- Securities and Exchange Board of India passed its first order after adjudicating the co-location case in April 2019, when it fined the National Stock Exchange (NSE) a

sum of ₹625 crores.

Co-location trading

- The National Stock Exchange 2009 started to offer co-location services to members of the exchange.
- **It allows a member to set up his server in a specifically earmarked data centre** within the NSE's exchange premises for a certain price.
- The relative proximity allows members wishing to gain access to the entirety of buy and sell orders sent because of the **reduced time taken** for order execution.
- **Is it illegal?** : Stock exchanges across the world allow the practice to flourish as a paid service. The SEBI allowed exchanges to offer co-location in 2008.

Securities Appellate Tribunal

- It is a **statutory body** established under the provisions of Section 15K of the Securities and Exchange Board of India Act, 1992
- It hears and disposes of appeals against orders passed by
 - The Securities and Exchange Board of India
 - Insurance Regulatory Development Authority of India
 - The Pension Fund Regulatory and Development Authority (PFRDA)

Process to set up Sixteenth Finance Commission set to kick off soon

- **What is it?** It is **constitutional body for giving recommendations on distribution of tax revenues between the Union and the States** and amongst the States themselves.
- **Who constitutes?** The Finance Commission is **constituted by the President under article 280** of the Constitution.
- It is constituted at the **end of every fifth year or earlier**, as the deemed necessary by the President.
- **Parliament may by law determine** the requisite qualifications for appointment as members of the Commission and the procedure of their selection. On account of this, The **Finance Commission (Miscellaneous Provisions) Act, 1951** was passed.
- **Mandate:** It is the duty of the Commission to **make recommendations** to the President as to:
 - the **distribution between the Union and the States of the net proceeds of taxes** which are to be, or may be, divided between them **and the allocation between the States** of the respective shares of such proceeds;
 - the **principles which should govern the grants-in-aid** of the revenues of the States **out of the Consolidated Fund of India**;
 - the **measures needed to augment the Consolidated Fund of a State** to supplement the resources of the **Panchayats and Municipalities** in the State on the basis of the recommendations made by the Finance Commission of the State;
 - any other matter referred to the Commission by the President in the interests of sound finance.
- **Composition:** It consists of a **Chairman and four other members** appointed by the President.
- **Qualifications of members:** The **Chairman of the Commission** is selected from

among **persons who have had experience in public affairs** and the **four other members** are selected from among persons who

- are, or have been, or are **qualified to be appointed as Judges of a High Court**; or
- **have special knowledge of the finances** and accounts of Government; or
- have had **wide experience in financial matters** and in administration; or
- **have special knowledge of economics**
- **Tenure of members:** Every member will be in office **for the time period as specified in the order** of the President and is **eligible for reappointment**.
- **Recommendations of the Finance Commission are not binding on the government.**

LIC's exposure to Adani Group is under 1% of total assets under management

- **What is it?** AUM is the **total market value of investments a financial institution** (such as a bank, mutual fund, or hedge fund) **owns or manages on behalf of its clients**.
- AUM **can be calculated in different ways**, depending on the **firm's discretion**.
- The calculation is done on the **basis of either the total capital that the firm handles or calculating the Individual client's money**.
- AUM **fluctuates daily** reflecting the variable returns from stocks, mutual funds and change in prices of fixed investment.
- **Importance of AUM:**
 - AUM **helps to build the market value** of the firm.
 - It can be used as a market tool to **attract potential new customers**. The higher a firm's AUM is, the more likely people are to trust them and invest with them.
 - A fund's **management fees and expenses** are often **calculated** as a percentage of AUM.

Book value and Market value of a company

- A company's **book value** is the amount of money shareholders would receive if assets were liquidated and liabilities paid off. **The book value of an asset is strictly based on the company's balance sheet**
- The **market value is the value of a company according to the markets** based on the current stock price and the number of outstanding shares.
- When the market value is less than book value, the market doesn't believe the company is worth the value on its books.
- A higher market value than book value means the market is assigning a high value to the company due to expected earnings increases.

ENVIRONMENT

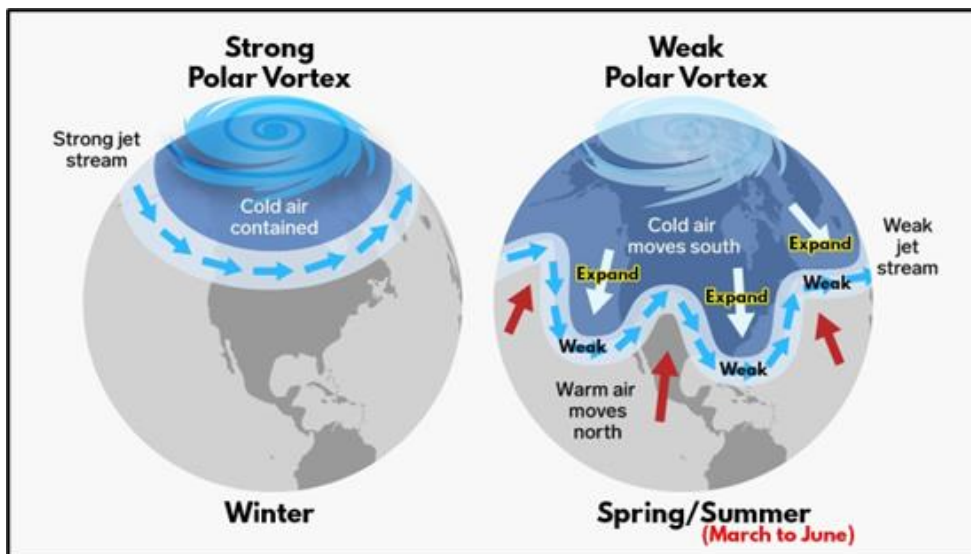
Deadly blizzard leaves more than 60 dead across US

- A deadly blizzard (snowstorm) has gripped the United States & Canada, leading to multiple deaths and complete disruption of normal life.
- Scientists have once again started to discuss .if the rising temperatures of the Arctic are responsible for extreme cold conditions in some of the areas of the Northern Hemisphere

Background:

- Recently, a study was published in Science.org, revealing that the rapid warming of the Arctic might be allowing frigid air in the region to move southward more frequently than ever before
 - However, scientists said they need more data to arrive at a consensus about the claim.
- The study largely focused on something called the **polar vortex**, which is a mass of cold, low-pressure air that consistently hovers over the Arctic region.

What is a Polar Vortex?



- The polar vortex is a **large area of low pressure and cold air** surrounding both of the Earth's poles.
- It ALWAYS exists near the poles, but weakens in summer and strengthens in winter.
- The term "vortex" refers to the **anti-clockwise flow of air** that helps keep the colder air near the Poles.
- Many times, .during winter in the northern hemisphere, the polar vortex will expand, sending cold air southward with the jet stream
 - Jet stream is the area of fast-moving air high in the atmosphere that surrounds the polar vortex.

- This occurs fairly regularly during wintertime and is often associated with large outbreaks of Arctic air in the United States & Canada.
- Portions of Europe and Asia also experience cold surges connected to the polar vortex.
- Polar vortexes are not something new.
- The term “polar vortex” has only recently been popularized, bringing attention to a weather feature that has always been present.
- By itself, the only danger to humans is the magnitude of how cold temperatures will get when the polar vortex expands, .sending Arctic air southward into areas that are not typically that cold

Findings of the Study:

- In the study published, the researchers found that the .expansion of the polar vortex has been occurring more than twice as often in recent years and the reason for it is the **rapidly warming Arctic**
- With the help of observational analysis and numerical modelling, the study came to the following conclusion.
 - The melting sea ice in **Barents** and **Kara seas** north of Russia and Scandinavia and increasing Siberian snowfall create larger and more energetic atmospheric waves.
 - These waves ultimately stretch the polar vortex, causing extreme winter weather in the US and other places.

Tamil Nadu undertakes project to conserve Nilgiri tahr

- Under The Nilgiri Tahr project, the Tamil Nadu government plans to
- Develop a better understanding of the Nilgiri Tahr population through surveys and radio telemetry studies
- Reintroduce the Tahrs to their historical habitat
- Address proximate threats
- Increase public awareness of the species
- The project is to be implemented for 5 year period from 2022 to 2027.

Nilgiri Tahr

- Nilgiri Tahr is the **only Caprinae species** found in the **tropical mountains of southern**
- **Habitat:** They are **endemic to the Western Ghats** and used to inhabit a large part of the Western Ghats between Kerala and Tamil Nadu.
- **Conservation Status**
- IUCN - **Endangered**
- Wildlife (Protection) Act of India, 1972 - **Schedule I**

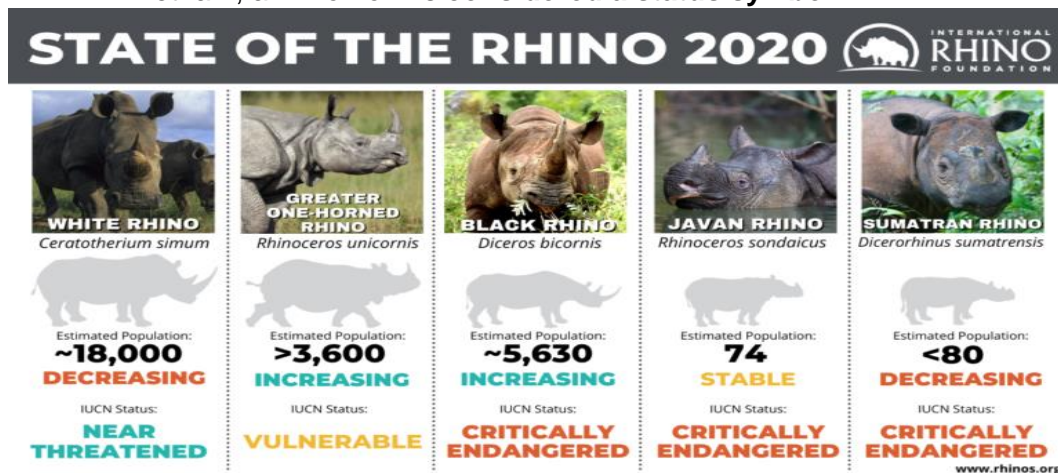
Emperor penguin at risk of extinction, along with two-thirds of native Antarctic

species, research shows

- They are the **2nd largest penguin species**.
- **Habitat:** They live on Antarctic and sub-Antarctic islands. Major colonies are found on Crozet, Prince Edward Island, Kerguelen Island, Heard Island, South Georgia and Macquarie Island.
- King penguins **don't make a nest** and they carry their egg around with them at all times on top of their feet by taking turns.
- **Conservation Status:** According to IUCN it is under the category of **Least Concern**.
- **Threats:** Climate change, habitat shifting and southward shifting of the Antarctic Polar Front.

Assam Chief Minister has recently announced that no rhinos were poached in the state in 2022

- **Distribution:** The Indian rhinoceros (*Rhinoceros unicornis*) is found only in the Brahmaputra valley, parts of North Bengal, and parts of southern Nepal.
- **Characteristics:** It has a single black horn that can grow up to 60 cm, and a tough, grey-brown hide with skin folds, which gives the animal its characteristic armour-plated look.
- **Conservation:** The Indian rhino is listed as vulnerable (better than endangered, worse than near threatened) in the IUCN Red List; it was earlier placed in the endangered category.
- **Population:** According to the WWF, there are around 3,700 Indian rhinos in the wild today. Assam's Kaziranga National Park (KNP) alone has 2,613 animals, according to a census carried out in March 2022. There are more than 250 other rhinos in the Orang, Pobitora, and Manas parks.
- **Rhino poaching:**
 - Rhinos have been poached for their horn, which is prized in some cultures.
 - Ground rhino horn is used in **traditional Chinese medicine** to cure a range of ailments, from cancer to hangovers, and also as an aphrodisiac; in Vietnam, a rhino horn is **considered a status symbol**.



South Asian black carbon aerosols increase glacial mass loss over Tibetan plateau

- **Black carbon aerosols** are produced by the incomplete combustion of fossil fuels and biomass, and are characterised by strong light absorption.
- **The South Asia region adjacent to the Tibetan Plateau has among the highest levels of black carbon emission in the world.**
- Many studies have emphasised black carbon aerosols from South Asia can be transported across the **Himalayas to the inland region of the Tibetan Plateau.**
- **Black carbon deposition in snow reduces the albedo of surfaces** -- a measure of how much of Sun's radiations are reflected -- which may accelerate the melting of glaciers and snow cover, thus changing the hydrological process and water resources in the region.
- Black carbon aerosols in South Asia heat up the **middle and upper atmosphere**, thus increasing the **North--South temperature gradient.**
- Accordingly, the convective activity in South Asia is enhanced, which causes convergence of water vapour in South Asia. Meanwhile, black carbon also increases the number of cloud condensation nuclei in the atmosphere.
- These changes in meteorological conditions caused by black carbon aerosols make more water vapour form precipitation in South Asia, and the northward transport to the Tibetan Plateau was weakened.
- As a result, precipitation in the central and the southern Tibetan Plateau decreases during the monsoon, especially in the southern Tibetan Plateau.
- The decrease in precipitation further leads to a decrease of mass gain of glaciers.
- From 2007 to 2016, the reduced mass gain by precipitation decrease accounted for 11% of the average glacier mass loss on the Tibetan Plateau and 22.1% in the Himalayas.

50 ASI-protected monuments disappear: How did they go 'missing'.

- The Ministry of Culture mentioned in its report titled 'Issues relating to Untraceable Monuments and Protection of Monuments in India' which was submitted to the Parliamentary Standing Committee on Transport, Tourism and Culture.

Centrally Protected Monuments

- The Ancient Monuments and Archaeological Sites and Remains Act (AMASR Act) 1958 regulates the preservation of monuments and archaeological sites of national importance.
- The Act protects monuments and sites that are **more than 100 years old**, including temples, cemeteries, inscriptions, tombs, forts, palaces, step-wells, rock-cut caves, and even **objects like cannons and mile pillars** that may be of historical significance.
- The Archaeological Survey of India (ASI), which is under the aegis of the **Union Ministry of Culture**, functions under this Act.

ASI

- It was founded in 1861 by a British Army engineer **Alexander Cunningham** who is also known as the '**Father of Indian Archaeology**'.
- It engages in archaeological research and conservation, and protection and preservation of ancient monuments and archaeological sites in the country.
- ASI regulates all archaeological activities conducted in the country through the provisions of the Ancient Monuments and Archaeological Sites and Remains Act (AMASR Act), 1958.
- It also regulates the Antiquities and Art Treasure Act, of 1972.
- ASI has more than 3,693 protected monuments and archaeological sites of National Importance that it protects and preserves.

What Is A Winter Heat Wave?

- At least seven countries in Europe recorded their hottest January weather ever. These included Poland, Denmark, the Czech Republic, the Netherlands, Belarus, Lithuania and Latvia.
- Experts said that the continent is experiencing an extremely warm spell because of the formation of a heat dome over the region.

Heat dome

- A heat dome occurs when an area of **high-pressure traps warm air over a region**, for an extended period. The longer that air remains trapped, the more the sun works to heat the air, producing warmer conditions with every passing day.
- Heat domes generally stay for a few days but sometimes they can extend up to weeks, which might cause deadly heat waves.
- Moreover, when air sinks, it gets drier and further raises the temperature of the area.

How it is formed

- The heat dome's formation is related to the behaviour of the **jet stream**; an area of fast-moving air high in the atmosphere.
- The jet stream is believed to have a wave-like pattern that keeps moving from **north to south and then north again**.
- When these waves get bigger, they move slowly and sometimes can become stationary. This is when a heat dome forms.

Previous instances of heat domes

- In 2021, a heat dome formed over western Canada and the US, causing deadly heat waves. Portland city in Oregon, US, saw the mercury rise to 46 degrees Celsius while the temperature in Washington hit 49 degrees Celsius.

Orange alert issued for Delhi over next two days

- In Delhi, the day temperature settled several notches below normal and the minimum temperature plunged to 4.4 degrees Celsius, the season's lowest and making the national capital colder than Dharamshala, Nainital and Dehradun.

Colour-coded weather warning

- These are issued by the Indian Meteorological Department (IMD) for explaining the severity of the weather phenomena which has the potential to cause damage, widespread disruption or danger to life.
- These alerts are also issued during floods, depending on the amount of water rising above land/in a river as a result of torrential rainfall. Warnings are updated daily.
- The IMD uses 4 colour codes:
 - **Green (All is well):** No advisory is issued.
 - **Yellow (Be Aware):** Yellow indicates severely bad weather spanning several days. It also suggests that the weather could change for the worse, disrupting day-to-day activities.
 - **Orange/Amber (Be prepared):** The orange alert is issued as a warning of extremely bad weather with the potential of disruption in commute with road and rail closures, and interruption of power supply.
 - **Red (Take Action):** When extremely bad weather conditions are certainly going to disrupt travel and power and have significant risks to life, the red alert is issued.

India Meteorological Department

- It is the main agency responsible for meteorological observations, weather forecasting and seismology in India.
- **Nodal Ministry:** Ministry of Earth Sciences.
- It operates hundreds of observation stations across India and Antarctica.
- Regional offices are in Chennai, Mumbai, Kolkata, Nagpur, Guwahati and New Delhi.
- It is also one of the six Regional Specialised Meteorological Centres of the World Meteorological Organisation.
- It has the responsibility for **forecasting, naming and distributing warnings** for tropical cyclones in the Northern Indian Ocean region, including the Malacca Straits, the Bay of Bengal, the Arabian Sea and the Persian Gulf.

Birders spot 17 newcomers in Silent Valley

- This year's survey marked the 30th anniversary of the first bird survey in Silent Valley.
- Brown wood owl, Banded Bay cuckoo, Malabar woodshrike, White-throated kingfisher, Indian nightjar, Jungle nightjar, and Large cuckooshrike were among the 17 species newly identified in the Silent Valley.

Silent Valley National Park:

- It is a beautiful representation of the last remaining rainforest of Kerala. The forests of the Silent Valley National Park harbour some of the most pristine, unique and highly productive forests in the world.
- Silent Valley is located in the **Southwestern** corner of Nilgiris.
- A perennial river named **Kunthipuzha** is passing through the western side of the park, from north to south direction finally merging into Bharathapuzha.
- Fauna: Silent Valley Park is known for many highly endangered species such as lion-

tailed macaque, tiger, gaur, leopard, wild boar, panther, Indian Civet and Sambhar.

- The indigenous tribal groups that live within park boundaries include **Irulas, Kurumbas, Mudugas and Kattunaikkars.**

Novel water filter quickly removes 99.9 per cent of microplastics

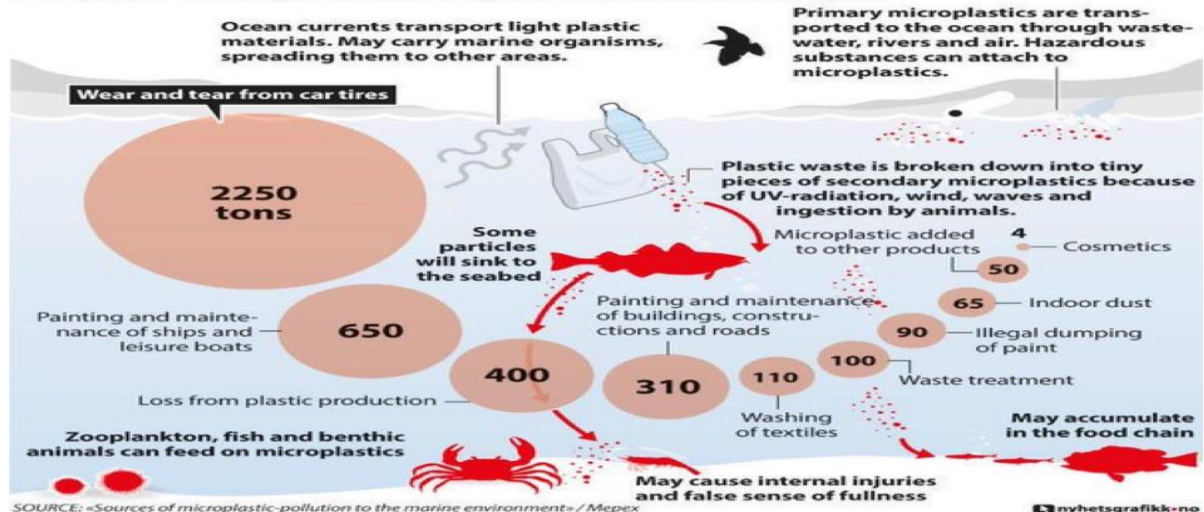
- Microplastics are tiny bits of various types of plastic found in the environment.
- The name is used to differentiate them from “macroplastics” such as bottles and bags made of plastic. There is no universal agreement on the size that fits this bill — the U.S. NOAA (National Oceanic and Atmospheric Administration) and the European Chemical Agency define microplastic as less than 5mm in length.

Types of microplastics

- There are two categories of **microplastics: primary and secondary.**
- **Primary microplastics** are tiny particles designed for commercial use, such as cosmetics, as well as microfibers shed from clothing and other textiles, such as fishing nets.
- **Secondary microplastics** are particles that result from the breakdown of larger plastic items, such as water bottles.
 - This breakdown is caused by exposure to environmental factors, mainly the sun’s radiation and ocean waves.

We are filling our oceans with microplastics

Approximately 8000 tons of primary microplastics are generated annually in Norway. About half will end up in the ocean. If 8000 tons of microplastics were dumped in downtown Bergen, its citizens would stand knee deep in microplastics. The main source of microplastic waste is car tires.



Assam approves road underpasses in jumbo corridors

- Recently, The Assam Cabinet approved the construction of elephant underpasses in 7 jumbo corridors between Azara and Kamakhya railway stations along the boundary of Deepor Beel.
- Deepor Beel is a permanent freshwater lake and also a bird sanctuary in Kamrup district, Assam.
- It is a riverine wetland, lying in a former channel of the Brahmaputra River, it lies to the south of the main river channel.

- It was designated as a Ramsar site in 2002 for sustaining a range of aquatic life forms besides 219 species of birds and it is the **only Ramsar site in Assam**.
- This lake is a staging site on migratory flyways and some of the largest concentrations of aquatic birds in Assam can be seen, especially in winter.
- Some globally threatened birds are supported, including **Spot-billed Pelican, Lesser Greater Adjutant Stork and Baer's Pochard**.
- The 50 fish species present provide livelihoods for many surrounding villages, and nymphaea nuts and flowers, as well as ornamental fish, medicinal plants, and seeds of the Giant water lily *Euryale Ferox*, provide major revenue sources in local markets.
- In 2021, the Environment Ministry notified it as an Eco-sensitive zone.

Rubber plantations in Tripura affecting monkeys, vegetation, suggests paper

- The report highlighted that culturing natural rubber in the last century has brought significant economic benefits for growers. But excessive rubber plantations are adversely affecting various wildlife and plant species

Natural Rubber

- Natural rubber is a polymer made up of a chemical molecule called **isoprene**.
- It is a native of the Amazon basin which was introduced to countries in the tropical belts of Asia and Africa in the late nineteenth century.
- **Climatic conditions required for Rubber**
 - Rubber trees require **moist and humid climates** with heavy rainfall of more than 200 cm.
 - It grows well in equatorial climates and temperatures above 25 degrees Celsius.
 - Rubber trees require **well-drained, weathered soils**.

Rubber plantations in India:

- India is the world's largest producer and the third-largest user of natural rubber.
- Rubber Growing Areas in India
 - **Traditional Areas:** Primarily in Tamil Nadu's Kanyakumari District and Kerala.
 - **Non-traditional regions:** Coastal Karnataka, Goa, Maharashtra's Konkan Region, coastal Andhra Pradesh and Orissa, the northeastern provinces, and the Andaman and Nicobar Islands, among other places.

Endangered Asian elephant has lost most of its optimal habitat in Nilgiri Reserve: Study

- The study said that human settlements and crop cultivation have hindered the movement of the elephants, keeping them confined to the hilly areas, considered sub-optimal habitats.
- IUCN status of Elephant: **Endangered**

- Wildlife(protection) act 1972: **Schedule 1**

NBR

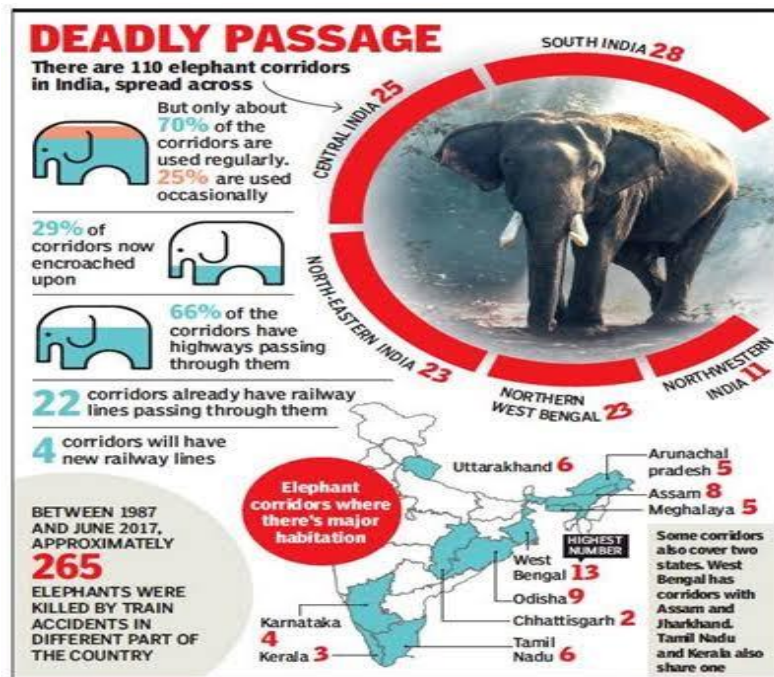
- It harbours a wide spectrum of ecosystem types such as **tropical evergreen forests**, Montane **sholas** and grasslands, **semi-evergreen forests**, moist deciduous forests, dry deciduous forests and **thorn forests**.
- The major part of the core areas spread over Kerala and Tamil Nadu States.
- This range of ecosystem occurs from hilly terrain to the meadows extending from 300 to 2670 m constituting an excellent habitat for the flora, fauna and other microbial forms.

- The varied habitats of the NBR house a sizeable number of species of animals and plants including a large number of endemics having special relevance to conservation.

- **Fauna:** Animals like Nilgiri tahr, Nilgiri langur, slender loris, blackbuck, tiger, gaur, Indian elephant and marten are found here.

- **Tribal Population:** Tribal groups like the Todas, Kotas, Irullas, Kurumbas, Paniyas, Adiyans, Edanadan Chettis, Cholanaickens, Allar, Malayan, etc., are native to the reserve.

- **Protected Areas** within the Nilgiri Biosphere Reserve are
 - The Mudumalai Wildlife Sanctuary, Wayanad Wildlife Sanctuary, Bandipur National Park, Nagarhole National Park, Mukurthi National Park and Silent Valley.



Tribal Bodies Step Up Demand To 'Free' Parasnath Hills From Jains

- Parasnath is a mountain peak in the Parasnath Range.
- It is located towards the eastern end of the Chota Nagpur Plateau in the Giridih district of the Indian state of Jharkhand.
- It has been named Parasnath after the 23rd Jain Tirthankara.
- It is a holy and revered sites for the Jain community, called it as "Sammed Sikhar".
- Out of 24 Tirthankaras of Jains, 20 got NIRVANA on Parasnath Hills.
- On the mountain, A Jain temple is believed to be constructed by Magadha King Bimbisara (543-491 BCE.)

Santhal Community

- The Santhal tribe, one of the largest Scheduled Tribe community in the country, has a sizeable population in Jharkhand, Bihar, Odisha, Assam and West Bengal.
- Santhals call parasnath hill "Marang Buru". They celebrate a hunting festival on the full moon day in Vaishakha (mid-April).

Assessment of floating solar photovoltaics potential in existing hydropower reservoirs in Africa

- **Floatovoltaics, floating solar plants, or FSPV (floating solar photovoltaic) are panel structures that are installed on water bodies like lakes, basins, and reservoirs instead of on solid structures like a roof or terraces.**
- The biggest impetus behind the rise of large-scale FSPV has been that it doesn't take up any land space, which could be then used for construction and agriculture.
- **The world's first large-scale FSPV system was installed in 2011, in Napa Valley, California.**

India

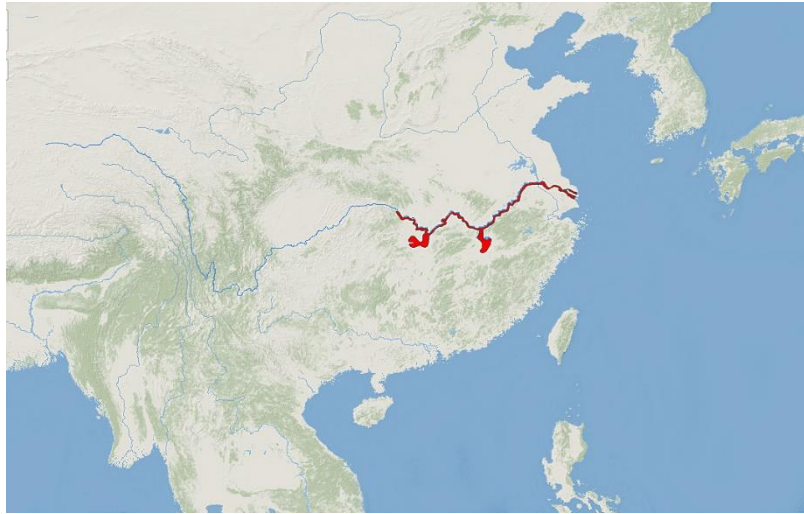
- In recent years, floating solar power plants have become part of India's plans of solar expansion.
- According to a 2020 study by TERI (The Energy and Resources Institute) reservoirs cover **18000 square Kilometer in India and can generate 280 GW through floating solar panels.**
- Currently less than **1% of solar installations are floating.**
- The largest floating solar power plant in India is currently the **Ramagundam in Peddapalli district of Telangana, with a capacity of 100 MW.**
- Currently a plant is being built on the **Narmada' Omkareshwar Dam in Khandwa, Madhya Pradesh** is being built with a capacity of 600 MW, which will soon be the **largest floating solar power plant in the world.**
- The project is touted to be worth Rs 3000 crore.
- **What are the benefits of floating solar panels?**
 - the water's cooling effect makes them more efficient than land-based ones;
 - they don't interfere with desert ecosystems; and
 - they keep precious water from evaporating.
 - Even though reservoirs are artificial ecosystems, they provide habitats for wildlife.

Critically endangered Yangtze finless porpoise return to lost lake stretches after sand mining ban: Report

- Previous reports had shown the porpoise were pushed out of certain stretches of their habitat due to sand mining.
- The Chinese government announced a crackdown on illegal sand mining along the entire length of the river Yangtze.

Yangtze finless porpoise

- The Yangtze River, the longest river in Asia is home to these porpoises.
- Yangtze finless porpoise is known for its mischievous smile and has a level of intelligence comparable to that of a gorilla.
- These are very small compared to whales and slow-moving inhabitants
- These are good indicators of the health of their environment.
- **Conservation status:**
 - IUCN Red List: **Critically Endangered**



Indian star tortoise faces twin challenges of habitat loss and genetic diversity, finds study

- The research report said the species is facing twin challenges of a threat to its habitat at one level and loss of its genetic diversity at the other.
- It calls for a proper conservation strategy to combat the fragmented distribution and explicitly recommends intensive genetic screening of founder individuals or isolated adult colonies by implementing scientific breeding.

Indian star tortoise:

- Indian star tortoise is found in the central and Southern parts of India, in West Pakistan and Sri Lanka.
- **Conservation status:**
 - **IUCN Status: Vulnerable**
 - Convention on International Trade in Species (CITES): Appendix I
 - Wild Life Protection Act 1972: Schedule IV
- **Threat:** The highly fragmented habitat of the species, is greatly influenced by an increased level of urbanisation and agricultural practices throughout its range.
- **Conservation Efforts:**
 - At the 18th Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES CoP18) held in 2019, Indian Star Tortoise was up-listed to Appendix I from Appendix II owing to its over-exploitation.

Supreme Court reserves order on interim plea on purse seine fishing

- **What is it?** Territorial waters, under the United Nations Convention on the Law of the Sea (UNCLOS), is that **area of the sea immediately adjacent to the shores of a country and subject to the territorial jurisdiction of that country.**
- **Extend:** The territorial sea extends to a **limit of 12 nautical miles from the baseline of a country's coast.**
- **Importance of Territorial waters:**
 - Within its territorial waters, a country **exercises full sovereignty over the air space above the sea and over the seabed and subsoil.**
 - The government **can legislate on matters** concerning the safety of navigation, the preservation of the environment, and the prevention, reduction, and control of pollution **within its territorial waters.**
 - **Resource use within the territorial sea is strictly reserved to the coastal nation.**
 - **All countries have the right of innocent passage** (passage that is not prejudicial to the security of the coastal country) **through the territorial sea of another country**, although there is no right of innocent air space passage.
 - The right of innocent passage **does not apply to submerged submarines nor does it include a right to fish.**

United Nations Convention on the Law of the Sea (UNCLOS):

- The UNCLOS, also known as Law of the sea was adopted in 1982.
- It lays down a comprehensive regime of law and order in the world's oceans and seas establishing rules governing all uses of the oceans and their resources.
- There are many provisions under UNCLOS which regulate and control the functioning and claims of nations on the world's oceans and seas.
- The convention was ratified by 168 parties, which included 167 states and the European Union.
- India is a state party to the UNCLOS.
- UNCLOS, as the currently prevailing law of the sea, is ultimately binding.

Exclusive Economic Zone

- Exclusive economic zone (EEZ), as defined under the UNCLOS, is an area of the ocean extending up to 200 nautical miles (370 km) immediately offshore from a country's land coast in which that country retains exclusive rights to the exploration and exploitation of natural resources.

Spot Bellied Eagle Owl was recently spotted in Seshachalam forest of Andhra Pradesh for the first time.

- **Scientific name:** Bubo nipalensis
- Spot Bellied Eagle Owl is **also known as the forest eagle-owl.**
- They are **large, very powerful and bold predatory birds.**
- It measures about **50 to 65 cm in length** and weighs **1500 to 1700 grams.**
- **Distribution:**
 - It is a **forest-inhabiting species** found in India, Sri Lanka, Nepal, Bhutan,

- Bangladesh, Myanmar, China, Thailand, Laos, Cambodia and Vietnam.
- These species occur in **altitudes from 300 to 3000 meters.**
- **Conservation:**
 - **IUCN Status: Least Concern**
 - **Wildlife (Protection) Act, 1972: Schedule IV**
 - **CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora): Appendix II.**

Seshachalam Hills:

- The Seshachalam Hills are a **part of the Eastern Ghats in Andhra Pradesh.**
- They are a **group of seven hills** namely, Seshadri, Neeladri, Garudadri, Anjanadri, Vrishabhadri, Narayanadri and Venkatadri.
- The ranges were **formed during the Precambrian era (3.8 billion to 540 million years ago)**
- The Seshachalam hills **consist of sandstone and shale along with limestone.**
- **Tirupati** which is considered as one of the major Hindu pilgrimage towns in India is located in the hills.
- The **Srivenkateshwara National Park** is also located in this mountain range.
- Seshachalam was **designated as a Biosphere Reserve in the year 2010**
- It has **large reserves of red sandalwood.**

Forest Advisory Committee (FAC) has recently asked the Arunachal Pradesh Government to review the Etalin hydropower project.

- The FAC has recently asked the Arunachal Pradesh government to file a fresh proposal for forest diversion and the construction of the Etalin hydroelectric project (EHEP) due to non-compliance to conditions stipulated by the FAC and the overwhelming pushback against the project in the region.

Etalin Hydroelectric Project (EHEP):

- It is a **3,097 MW hydropower project** planned in the **Dibang Valley of Arunachal Pradesh.**
- It is one of the largest hydropower projects proposed in the country in terms of installed capacity.
- EHEP is proposed to be developed as a **combination of two run-of-the-river schemes.**
- The project **involves the construction of concrete gravity dams on the Tangon and Dri rivers** which are **tributaries of Dibang river.**
- The project area falls under the **"richest bio-geographical province of the Himalayan zone"** and "one of the mega biodiversity hotspots of the world".
- The **project area is dominated by** indigenous population belonging to **Idu-Mishmi tribes.**

Idu-Mishmi Tribe:

- They are the **lone inhabitant tribe of Dibang Valley district,** Arunachal Pradesh.
- The Idu-Mishmi is a major **sub-tribe of the Mishmi group.**
- They are of **mongoloid race** and have a distinctive **dialect of Tibeto-Burman**

language.

- The Idu-Mishmi tribe can be **distinctively identified** by their typical hairstyle, distinctive customs and artistic pattern embedded on their clothes.
- Traditionally, **Idu-Mishmis believe in animism.**

Dibang River:

- It flows through **Arunachal Pradesh and Assam** states of India.
- It is an **upstream tributary of Brahmaputra.**
- **Origin:** The Dibang originates **near Keya pass on the Indo-Chinese border** in the **Upper Dibang Valley** district of Arunachal Pradesh.
- **Tributaries:**The **Sisar, Mathun, Tangon, Dri, Ithun and Emra** are the major tributaries of the Dibang.
- The **Mishmi Hills** is found along the upper courses of the Dibang River.

Forest Advisory Committee:

- FAC is a **statutory body of the Ministry of Environment Forests and Climate Change (MoEFCC)** formed under the **Forest Conservation Act of 1980.**
- It **considers questions on the diversion of forest land for non-forest uses** such as mining, industrial projects, townships and **advises the government on the issue of granting forest clearances.**

Rare 'Orange Bat' Spotted in Bastar's Kanger Valley National Park in Chhattisgarh

- These are often found in **unusual roosting sites** such as suspended nests of weaver finches and sunbirds, and banana leaves, these bats have been known to roost in pairs.
- It is an aerial hawk, catching insects mid-flight.
- It is generally found in Bangladesh, Brunei, Burma, Cambodia, China, Indonesia, Malaysia, Nepal, Sri Lanka, Thailand and Vietnam.
- **Conservation status:**
 - **IUCN: Near Threatened**

Kanger Valley/ Ghati National Park:

- This National Park derived its name from **the Kangar river**, which flows in its length.
- **Flora:** This park is a typically mixed humid deciduous type of forest, in which the Sal, Saugaun, teak and bamboo trees are available in abundance.
- **Fauna:** The most popular species in this area is **Bastar Maina** which emulates everyone with its human voice.
- It is home to exceptional caves and is famous for its amazing geological structures of Stalagmites and Stalactites.
- Also, **Tirathgarh Waterfall** is located in this National Park.

Paleontologists make rare discovery of 256 dinosaur egg fossils in India

- The discovery suggests that Titanosaurs displayed a notable reproductive trait unique to modern-day birds.

- Fossilised eggs provide clues on reproductive biology, nesting behaviour and parental care.
- This region falls between the easternmost Lametta exposures at Jabalpur in the upper Narmada Valley (central India) and Balasinor in the west in the lower Narmada Valley (western central India), according to the document.
- **Lametta exposure** is a sedimentary rock formation known for its dinosaur fossils. These sedimentary rocks are mostly exposed along the Narmada Valley.
- The fossil records here are largely concealed by Deccan volcanic flows, which prevents their removal by erosion.

Titanosaur:

- They belong to the **sauropod group**.
- It is a humongous plant-eating lizard with a long neck and tail.
- A recently discovered 20-meter Ninjatitan Zapata may be the oldest titanosaur to be ever discovered.
- It was found in the Neuquen province of southwest Argentina in 2014.
- It may have lived approximately 140 million years ago at the initial stages of the Cretaceous period.

Kenya declares war on millions of birds after they raid crops

- Kenya's government began to kill up to 6 million red-billed quelea birds, the world's most populous bird species which are also known as 'feathered locusts'.
- The preferred method for eradicating pests in Africa has been to spray **fenthion**, which is an **organophosphate pesticide**, but scientists have noted that the substance is toxic to people and other non-target organisms.
- Fenthion has been listed in **Annex III of the Rotterdam convention** which aims to reduce risks from hazardous chemicals in agriculture.

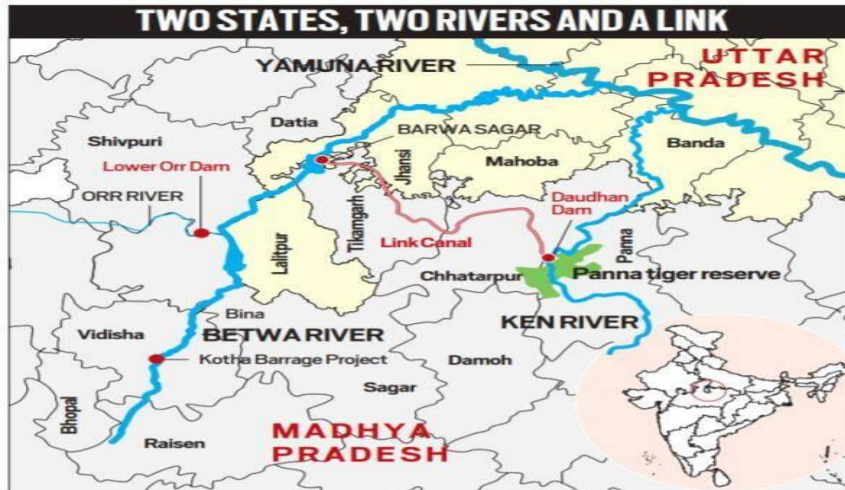
Red-Billed Quelea:

- It is a small, short-tailed weaver with a mottled back and a yellow or reddish bill.
- Large flocks are resident and nomadic in arid savanna, grassland, and cultivated areas.
- **Conservation status:**
 - **IUCN: Least Concerned**

Third Meeting of Steering Committee of Ken-Betwa Link Project

- Under this, the transfer of excess water from the River Ken to the Betwa basin through the use of a concrete canal is proposed.
- It is the first project under the **National Perspective Plan** for the interlinking of rivers.
- It aims to provide irrigation to the **Bundelkhand region**, which is one of the worst drought-affected areas in India.
- A Tripartite Memorandum of Understanding was signed between the Centre and the governments of UP and MP for the project.

- **Implementing Agency:** A Special Purpose Vehicle (SPV) called **Ken-Betwa Link Project Authority (KBLPA)** will be set up to implement the project.
- The National Interlinking of Rivers Authority (NIRA) has the power to set up SPV for individual link projects.



Workshop conducted on 'Linking Chabahar Port with INSTC'

- It is a multimodal transportation agreement formed with a trilateral agreement between India, Iran and Russia at the Euro-Asian Conference on Transport in 2000.
- It links the **Indian Ocean** to the Caspian Sea via the Persian Gulf onwards into Russia and Northern Europe.
- The corridor encompasses **sea, road and rail routes**.
- The main purpose of the corridor was to **reduce carriage costs** and transit time between India and Russia. The transit time is expected to reduce to almost half, once the corridor becomes fully functional.
- The agreement has been **ratified by 13 countries** namely, Azerbaijan, Belarus, Bulgaria, Armenia, India, Iran, Kazakhstan, Kyrgyzstan, Oman, Russia, Tajikistan, Turkey, and Ukraine.

Chabahar Port:

- It is located off the Gulf of Oman in Iran's southeastern province of Sistan-Baluchistan & is the only Iranian port with direct access to the ocean.

KVIC takes a leap forward to reduce elephant attacks on humans and farmers' crops, distributes 200 bee-boxes to farmers

- Under this project, **Bee-fences are created** by setting up bee boxes in the passageways of elephants to block their entrance to human territories.
- It is a cost-effective way of **reducing human-wild conflicts** without causing any harm to the animals.
- It is an initiative of the Khadi and Village Industries Commission (KVIC) under the

submission of the National Honey Mission.

KVIC

- It is a **statutory body** established under the Khadi and Village Industries Commission Act, of 1956.
- The KVIC is charged with the planning, promotion, organisation and implementation of programmes for the development of Khadi and other village industries in the rural areas in coordination with other agencies engaged in rural development wherever necessary.
- It works under the **Ministry of Micro, Small and Medium Enterprises**.

NGT probe into cruise operating in Bhopal Ramsar wetland

- The state government has permitted the operation of the cruise with a capacity of 50 passengers, but even broad estimates suggest that human sewage of 19,000 litres will be generated in a week alone.
- The cruise boat operates on diesel, which is a clear violation. It will also directly violate the provisions of the **Environment Protection Act, of 1986**.

Bhoj wetland:

- It consists of two contiguous human-made reservoirs, the upper and lower lakes located in the city of Bhopal, Madhya Pradesh.
- The lakes are very rich in biodiversity, particularly **for macrophytes, phytoplankton, zooplankton**, both natural and cultured fish species, both resident and migratory birds, insects, reptiles and amphibians.
- It is designated as the Ramsar site in 2002.

The Environment Protection Act, 1986:

- It was enacted to provide for the **protection and improvement** of the environment.
- It empowers the Central Government to establish authorities charged with the mandate of preventing environmental pollution in all its forms and tackling specific environmental problems.
- **One of the features of this act is:** No person shall discharge or emit or permit to be discharged or emitted any environmental pollutant in excess of such standards as may be prescribed.

Alien plants growing together threatening tiger habitats

- The research paper has deciphered many negative impacts of multiple co-occurring alien plants on biodiversity and what it means for conservation in the era of global changes.
- India's biodiverse ecosystems are threatened by a variety of alien plants like **Lantana Camara, Parthenium hysterophorous, and Prosopis juliflora** introduced during British colonisation.
- Co-occurring invasive plants like **Ageratum conyzoides, and Pogostemon benghalensis** cause ecological homogenisation in invaded regions.

- Multiple alien species together affected **soil nutrients**, which may have depleted the richness of diverse plants.
- Invasions might slowly deplete the native plant populations and might lead to **diseases in the herbivores**.

Kanha Tiger Reserve:

- It is nestled in the Maikal range of Satpuras in Madhya Pradesh, the heart of India that forms the central Indian highlands.
- This Tiger Reserve stretches over an area of 940 square km in the two districts Mandla and Balaghat in the state of Madhya Pradesh.
- Kanha is best known for its evergreen **Sal forests**.
- **Fauna: Barasingha, Tiger, Leopard, Dhole, Bear, Gaur and Indian Python** etc.

For whales, study shows gigantism is in the genes

- The findings highlight the role of four genes — **GHSR, IGFBP7, NCAPG, and PLAG1** — and suggest that they promote large body sizes.
- The researchers performed molecular evolutionary analysis on nine candidate genes: five genes from the growth hormone, and four genes associated with increased body size in hoofed animals. They assessed these genes in 19 species of whale.

Role of four genes:

- **GHSR** is a gene involved in releasing growth hormone through the pituitary gland, body weight, energy metabolism, appetite and fat accumulation. It also is associated with controlling cell proliferation and programmed cell death. Tumors essentially are formed by runaway cell growth.
- **IGFBP7** is a gene involved in promoting cell growth and division. There is evidence it acts as a cancer suppressor in prostate, breast, lung and colorectal tumors.
- **NCAPG**, a gene associated with growth in people, horses, donkeys, cattle, pigs and chickens, is linked to increased body size, weight gain, cell proliferation and cell life cycles.
- **PLAG1**, a gene associated with body growth in cattle, pigs, and sheep, is involved in embryo growth and cell survival.

Whales:

- **Cetaceans**, the marine mammal group encompassing whales, dolphins and porpoises, evolved around 50 million years ago from vaguely wolf-like land-based ancestors that belonged to a mammalian assemblage called artiodactyls that includes today's cows, pigs, sheep and many others.
- **Basilosaurus**, a toothed apex predator from about 40 million years ago, was the largest-known early whale. The baleen whale lineage dates to roughly 36 million years ago, starting modest in size.
- **Blue whales** can reach about 100 feet (30 meters) long, fin whales about 80 feet (24 meters), sperm and bowhead whales about 60 feet (18 meters), humpback and right whales about 50 feet (15 meters) and gray whales about 45 feet (13.5 meters).

Centre to send proposal to UNESCO nominating Charaideo Maidam as World Heritage site: CM Himanta Biswa Sarma

- Charaideo commonly known as **'Pyramids of Assam'** was the **original capital of the Ahom Kings**.
- **Charaideo remained the symbolic center of Ahom Kingdom** even though the capital of the kingdom moved many times.
- It was **built by Chaolung Sukhapa the founder of the dynasty in about 1229 CE**.
- **Location:** Located at the foothills of Nagaland, it's situated at a distance of around **30 KM from the historical Sivsagar town in Assam**.
- **Why is Charaideo known as 'Pyramids of Assam'?**
 - It contains sacred burial grounds of Ahom kings and queens and is also the place of the ancestral Gods of the Ahoms.
 - Some 42 tombs (Maidams) of Ahom kings and queens are present at Charaideo hillocks.
 - **Architecture:** It comprises a massive underground vault with one or more chambers having domical superstructure and covered by a heap of earthen mound and externally it appears a hemispherical mound.

Ahom Dynasty:

- It was **founded by Chaolung Sukapha**, who entered the Brahmaputra valley in 1228.
- They **ruled Assam for six centuries**.
- The Ahoms **created a new state by taking over the older political system of the bhuiyans (landlords)**.
- The Ahom **administration was a monarchical government** with democratic and aristocratic values as well.
- Ahom **society was divided into clans** and with the expansion of the kingdom, the clans moved and took charge of the designated territory.
- The Ahoms **followed stringent travel policies to protect their motherland** against the foreign invaders for inward travel.
- In the **17th century, the Ahom rule got weakened** due to multiple Burmese invasions and internal conflicts.
- Ahom Kingdom was **annexed by the British East India Company after the Treaty of Yandabo in 1826**.

First G20 Environment Meet to Be Held in February

- The discussions at ECSWG will focus on the agenda 'Promotion of Blue Economy along with Coastal Sustainability', 'Restoration of Degraded Lands and Ecosystems' and 'Enhancement of Biodiversity' and 'Strengthening of Circular Economy'.
- It is to be hosted by Ministry of Environment, Forest and Climate Change (MoEF&CC).

Initiatives by Karnataka State Forest Department:

- **e- Parihara**, an online application that helps in processing and sanction of ex-gratia claims in cases of man-animal conflicts; thus, bringing in transparency and efficiency

in the processing of claims.

- **e- Gastu** an Android based platform captures forest patrolling/field activities undertaken by frontline staff of the forest department, which can be visualized by supervisory officers over satellite imageries, on regular basis.
- **e- timber** facility provides a near real time wood stock available in government timber depots and enables e-auction facilities for timber/ other forest produce in government timber depots.
- **The Geo-Spatial Forest Information System** developed by the Karnataka Forest Department is a unique platform which uses Remote Sensing and GIS technology and provides spatial database of all notified forest lands in the State, providing access to the forest land notifications, village maps, forest maps and digitised notified forest at cadastral level.
- **The Forest Fire Management System** is a comprehensive solution for planning, mitigation and analysis of forest fire which provides forest fire risk zonation mapping, fire start vulnerability mapping, burnt area assessment along with a robust system for dissemination of active forest fire alerts to ensure that all fire incidences are addressed and mitigated in a time bound manner.

Telangana Forest department to launch two more safari tours in Amrabad Tiger Reserve

- The **Amrabad Tiger Reserve which is part of the Nallamala Forest track** has rich Biological Diversity with several endemic species of flora and fauna.
- This Forest tract is home to the largest number of Tigers in Telangana State.
- The hilly terrain of this Tiger Reserve with deep valleys and gorges forms the catchment of the Krishna River.
- This Tiger Reserve (ATR) is one of the largest tiger reserves in India that extends about 2611.4 Sq Km over **Nagarkurnool and Nalgonda districts of Telangana State.**
- This is the second-largest Tiger Reserve in terms of core area but the sixth-largest tiger reserve in terms of total area among 51 Tiger Reserves in India.
- The reserve was notified as a **sanctuary in the year 1983** and after the bifurcation of Telugu States in **2014, it was declared as Amarabad Tiger Reserve.**
- It lies in the three forest divisions of **Amarabad, Achampet in Nagarkurnool district, and Nagarjunsagar division** in Nalgonda district.
- Major reservoirs like the **Srishailam Dam and Nagarjunsagar Dam** are fed by the river Krishna and its several perennial streams that originate in the Tiger Reserve.

Delhi Air Quality Continues To Remain In "Very Poor" Category

- It stands for **System of Air Quality Forecasting and Research.**
- SAFAR is an **air quality monitoring system.** It was **introduced by the Ministry of Earth Sciences (MoES)** to provide **location specific information on air quality in near real time** and its **forecast upto 3 days in India.**
- It is **developed by Indian Institute of Tropical Meteorology (IITM), Pune,** along with India Meteorological Department (IMD) and National Centre for Medium Range Weather Forecasting (NCMRWF).
- **Objective: To increase awareness among the general public regarding the air**

quality changes in their city well in advance so that appropriate mitigation measures and systematic action can be taken up for betterment of air quality and related health issues.

- The **World Meteorological Organization has recognised SAFAR as a prototype activity** on the basis of the high quality control and standards maintained in its implementation.

Air Quality Index (AQI) calculation

- AQI is calculated **based on the average concentration of a particular pollutant measured over a standard time interval** (24 hours for most pollutants, 8 hours for carbon monoxide and ozone).
- **Eight individual pollutants** are monitored for the calculation of AQI in India. These are **PM10, PM2.5, nitrogen dioxide, sulphur dioxide, carbon monoxide, ground-level ozone, ammonia, and lead.**
- To calculate AQI, data for a **minimum of three pollutants must be present**, of which one should be either PM10 or PM2.5.

In a first, Eravikulam National Park reports birth of Nilgiri tahr in December

- **Location:** Idukki District, Kerala
- **Area:** 97 sq. Km
- It was declared as a **National Park in 1978.**
- This is also the **land of "Neelakurinji"**, the flower that blooms once in twelve years.
- The **highest peak south of the Himalayas – The Anamudi (2695 meters)** is situated in this park.
- **Topography:** The major part of the park is covered with **rolling grasslands**, but several patches of **shola forests are also found** in the upper part of the valley.
- **Flora:**
- Important flora includes **Actinodaphne bourdilloni, Microtropis ramiflora, Pittosporum tetraspermium, Eupatorium adenophorum, Strobilanthus Kunthianus (Neela Kurinji)**
- The shola grasslands are exceptionally rich in **balsams and orchids** including the long thought extinct variety *Brachycorythis wightii*.
- **Fauna:**
- **29 Species of mammals** are found here of which **5 are endemic to the Western Ghats.**
- The **Nilgiri Tahr, Gaur, Sloth Bear, Nilgiri Langur, Tiger, Leopard, Giant Squirrel and wild dog** are common.
- **Half the world population of the endangered Nilgiri Tahr** lives here.
- 140 species of birds of which 10 are unique to the Western Ghats.
- The **Atlas moth, the largest of its kind in the world** is seen in this Park.
- More than **100 varieties of butterflies and 20 species of amphibians** are also seen here.

Nilgiri Tahr:

- It is a **sure-footed ungulate that is endemic to the southern part of Western Ghats.**
- **Scientific name: Nilgiritragus hylocrius**

- It is also the **state animal of Tamil Nadu**.
- **Conservation Status:**
 - **IUCN:** "Endangered"
 - **Wildlife (Protection) Act of India, 1972 :** Schedule 1

Mass mortality of Olive Ridley turtles in Godavari region of Andhra Pradesh raises concerns

- The Olive Ridley turtles are the smallest and most abundant of all sea turtles found in the world.
- They are best known for their unique mass nesting called **Arribada**, where thousands of females come together on the same beach to lay eggs.
- They are **carnivores** and get their name from their olive-colored carapace, which is heart-shaped and rounded.
- **Habitat:**
 - They are mainly found in the warm waters of the **Pacific, Atlantic and Indian oceans**.
 - Odisha's **Gahirmatha Marine Sanctuary** is known as the world's largest rookery (a colony of breeding animals) of sea turtles.
- **Conservation status**
 - **IUCN Red List: Vulnerable**
 - Wildlife Protection Act, 1972: Schedule 1
 - CITES Appendix I

Initiatives

- **Operation Olivia:** Every year, the Indian Coast Guard's "Operation Olivia", initiated in the early 1980s, helps protect Olive Ridley turtles as they congregate along the Odisha coast for breeding and nesting from November to December.

Earth's inner core may have started spinning in the other direction, study says

- It is the **innermost layer of the Earth**.
- **Structure:**
 - It is a **solid metallic ball made mainly of iron**.
 - The **inner core is solid due to the pressure** caused by the weight put on it by the Earth's other top layers.
 - It is **distinct from the outer core, which is a liquid**.
- **Radius:**
 - The inner core has an **average radius of 1220 km**.
 - The **boundary between the inner and outer cores** is located at approximately **5150 km below the surface of the Earth**.
 - This boundary is **called the Lehman Seismic Discontinuity**.
- **Temperature:** Inner core temperatures reach extraordinary levels, estimated to be between **7,200–8,500°F (4,000–4,700°C)**.
- **Properties:**
 - It is predicted to have very **high thermal and electrical conductivity**.
 - The inner core **generates its own magnetic field and spins a bit faster**

than the rest of the planet.

Layers of Earth

- The earth is made up of **three different layers**: the crust, the mantle and the core.
 - **The crust**: This is the **outside layer of the earth** and is made of **solid rock, mostly basalt and granite**.
 - **The mantle**: It lies **below the crust and is up to 2900 km thick**. It consists of **hot, dense, iron and magnesium-rich solid rock**.
 - **The core**: It is the **center of the earth and is made up of two parts**: the **liquid outer core and solid inner core**. The **outer core is made of nickel, iron and molten rock**.

Visakhapatnam railway station receives 'Green Railway Station Certification' with highest Platinum rating

- It is a rating system developed by the **Confederation of Indian Industry and Indian Green Building Council** with the support of the Environment Directorate of Indian Railway
- It is a voluntary and consensus-based programme.
- This is the first of its kind holistic rating in India to address environmental sustainability in Indian railway stations.

Key facts about Indian Green Building Council (IGBC)

- It is part of the Confederation of Indian Industry (CII) formed in the year 2001.
- The council offers a wide array of services which include developing **new green building rating programmes**, certification services and green building training programmes.
- The council also organises Green Building Congress, its annual flagship event on green buildings.
- The council is **committee-based**, member-driven and consensus-focused. All the stakeholders, corporate, Government, academia and nodal agencies participate in the council activities through local chapters.
- The council also closely works with several State Governments, Central Government, World Green Building Council, and bilateral multi-lateral agencies in promoting green building concepts in the country.

The following steps were undertaken based on Survey and Recommendations of IGBC that conducted the Survey

1. Segregation of Waste by Constructing MRF Shed
2. Setting and Operationalization of 500KLD STP for Station & Colony Water
3. Setting up of Solar Panels to conserve Power
4. Well Developed Passenger Amenities
5. 100% fitment of LED Lightings.

Kelp forests losing unique traits due to climate change, says study

- Kelp thrives in **cold, nutrient-rich waters**.
- They attach to the seafloor and eventually grow to the water's surface and rely on sunlight to generate food and energy, kelp forests are always coastal and require shallow, relatively clear water.
- They provide underwater habitats to hundreds of species of invertebrates, fishes, and other algae and have great ecological and economic value.

Kelp forest

- Kelp forests have been observed throughout **the Arctic by the Inuit**. The Canadian Arctic alone represents 10 per cent of the world's coastlines.
- They have adapted to severe conditions. These cool water species have special strategies to survive freezing temperatures and long periods of darkness and even grow under sea ice.
- In regions with cold, nutrient-rich water, they can attain some of the **highest rates of primary production** of any natural ecosystem on Earth.
- Between Ellesmere Island and Labrador, as well as along the coasts of Lancaster Sound, Ungava Bay, Hudson Bay, Baffin Bay, and Resolute Bay in Hudson Bay and eastern Canada, kelp forests have been scientifically documented.

States fall short of targets to improve forest cover, quality

- **National Mission for a Green India (GIM) is one of the eight Missions** under the **National Action Plan on Climate Change (NAPCC)**.
- GIM was **launched** in the year **2014** as a **Centrally Sponsored Scheme**.
- **Aim: To respond to climate change** by a combination of **adaptation and mitigation** measures, which would help:
 - **enhance carbon sinks**
 - **adaptation** of vulnerable species/ecosystems **to the changing climate**
 - **adaptation of forest-dependant communities**
- **Objectives:**
 - **Increased forest/tree cover on 5 million hectares (mha) of forest/non-forest lands** and improved **quality of forest cover on another 5 mha** (a total of 10 mha).
 - **Improved ecosystem services** including biodiversity, hydrological services and carbon sequestration **as a result of treatment of 10 mha**.
 - **Increased forest-based livelihood income of about 3 million households** living in and around the forests.
 - **Enhanced annual CO2 sequestration by 50 to 60 million tonnes** in the year 2020.
- The Mission has **clear targets for different forest types** and ecosystems.
- Activities under Green India Mission will be **implemented under convergence with Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), Compensatory Afforestation Fund Management and Planning Authority (CAMPA) and the National Afforestation Programme (NAP)**.

1st image of Melanistic Asiatic golden cat captured in Bengal

- According to the experts, these are the first photographic records of the melanistic Asian golden cat, also known as the Temminck's cat, from West Bengal.

Asian golden cat:

- It is a **medium sized cat with relatively long legs.**
- **Scientific name: Catopuma temminckii**
- **Other names:** They are known as the "fire cat" in Thailand and Burma, and as the "rock cat" in parts of China.
- **Distribution:** The species occurs in **Southeast Asia**, from **Nepal** and **Tibet** to **Southern China, Sumatra and India.**
- **Habitat:** It prefers **forest habitats** that are **interspersed with rocky areas**, being found in **deciduous, tropical and subtropical evergreen rainforests.**
- Their fur ranges in color from cinnamon to various shades of brown, and also gray and black (**melanistic**).
- **Conservation status:**
 - **IUCN: "Near threatened"**
 - **Wildlife (Protection) Act of India, 1972: Schedule 1**

Buxa Tiger Reserve (BTR):

- Location: BTR lies in Alipurduar sub-division of **Jalpaiguri district of West Bengal.**
- Its **northern boundary runs along the international border with Bhutan.**
- It is the **easternmost extension of extreme bio-diverse North-East India & represents the highly endemic Indo-Malayan region.**
- The fragile "**Terai Eco-System**" constitutes a part of this Reserve.
- BTR **serves as an international corridor for elephant migration between India and Bhutan.**
- The reserve encompasses as many as eight forest types.
- **Flora:** The main species constitutes trees like **Sal, Champ, Gamar, Simul, Chikrasi.**
- **Fauna:** The main species include **Asian Elephant, Tiger, Gaur, Wild boar, Sambar, Wild dog (Dhole).**

Bird census: Black-necked stork sighted in Porbandar for second year

- The black-necked stork is a **tall long-necked wading bird** in the stork family.
- **Scientific name: Ehippiorhynchus asiaticus**
- **Distribution:** It is distributed in the **Indian Subcontinent, Southeast Asia and Australia.**
- **Habitat:** They inhabit **wetlands**, such as floodplains of rivers with large shallow swamps and pools, and deeper permanent bodies of water.
- **Features:**
 - They are **large birds, measuring 110 to 140 cm in length and weighing 4,000 grams.**
 - Their **wingspan is 190 to 220 cm.**
 - The **male and female birds look alike** but female is distinguished by its

yellow eye.

- **IUCN status: "Near Threatened"**

Bardasagar reservoir:

- It is located in the **Porbandar district, Gujarat.**
- The Bardasagar dam is **created to store rain water for agricultural purpose.**
- The Bardasagar dam and farms on its periphery are the **ideal winter escape for thousands of cranes.** Common crane and Demoiselle crane.
- Bardasagar is regular **nesting ground for elegant Great crested Grebe** like Mokarsagar. The **"weed ceremony"** and dancing ritual of Great crested Grebe can be seen here

Pair Of Sloth Bears To Be Shifted To Sariska

- **Location:** It is located in the **Aravalli hills in the Alwar district of Rajasthan**
- This area was a **hunting preserve** of the erstwhile **Alwar state.**
- It was declared as a wildlife reserve in 1955 and then a **Tiger Reserve in 1978** under Project Tiger.
- It is the **first reserve** in the world which **successfully relocated tigers.**
- Sariska is also **famous for old temples, palaces and lakes** such as Pandu Pol, Bhangarh Fort, Ajaibgarh, Pratapgarh, Siliserh Lake and Jai Samand Lake.
- **Topography:** **Grasslands, dry deciduous forests,** cliffs, and rocky landscapes.
- **Flora:** **salar, kadaya, dhak, gol,** ber , Banyan , gugal , bamboo , kair , adusta etc
- **Fauna:** **Bengal tigers, leopard, jungle cat,** Indian jackal, chital, chinkara, four-horned antelope, Indian peafowl, grey partridge, **Indian peafowl,** Indian eagle-owl etc.

Sloth Bear:

- Sloth bears are **one of the eight bear species** found across the world.
- **Scientific name: Melursus ursinus**
- **Distribution:** They mainly inhabit the region of **India, Nepal, Sri Lanka and Bhutan.**
- **Features:**
 - They have long, shaggy dark brown or black fur and curved claws, which are the longest out of any of the bear species.
 - It feeds on fruits, ants and termites.
- **Conservation Status:**
 - IUCN: "Vulnerable"
 - Indian Wildlife Protection Act, 1972: Schedule 1

Plan in place to eradicate invasive plant species from Kerala's wildlife habitat

- Based on the results of the experimental study done at the **Periyar Tiger Reserve,** the plan envisages landscape-level management of the tree.
- The two key factors considered in developing the management protocol were the **fast nature of the spread** of the tree in natural forests, and the restoration of natural

forests based on landscape.

Senna spectabilis

- Senna spectabilis is an **invasive species**.
- It is introduced as an ornamental species and for use as firewood from South and Central America.

Periyar Tiger Reserve

- It is nestled in the southern region of Western Ghats in the state of Kerala.
- It is drained by the rivers **Mullayar and Periyar**.
- **Flora:** tropical evergreen, semi-evergreen, moist deciduous forests and grasslands.
- **Fauna:** Tiger, Elephant, Lion-tailed macaque, Nilgiri Tahr etc.

INTERNATIONAL RELATIONS

Croatia to switch to euro, enter passport-free Schengen zone

- Croatia adopted the European Union's common currency, the euro, and joined the Schengen Area, Europe's visa-free travel area, on January 1.
- With this, Croatia became the fully integrated member of EU. The country had joined the EU in 2013.
 - It was the last time a country was admitted as a new member nation of EU.

Eurozone

- All European Union Member States are part of and coordinate their economic policy-making to support the economic aims of the EU. Economic and Monetary Union (EMU)
- However, a number of Member States have taken a step further by replacing their national currencies with the single currency – the euro
- These Member States form the euro area, also known as eurozone.
- In other words, it is a **geographic and economic region** that consists of the European Union countries that have fully incorporated the euro as their national currency
- As of January 2023, the **eurozone consists of 20 countries** in the European Union (EU):
 - Austria, Belgium, Croatia, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia, and Spain.

Requirements for joining the eurozone

- In order to join the eurozone and use euro as their currency, EU nations must meet certain criteria consisting of four macroeconomic indicators that focus on:
 - **Price stability** by demonstrating sustainable price performance and average inflation no more than 1.5 percent above the rate of the three best-performing member states.
 - **Sound and sustainable public finances** - the government must run a budget deficit and hold public debt no greater than 60% of GDP. no greater than 3% of GDP
 - **The durability of convergence** – It is assessed through its long-term interest rates, which cannot be more than 2 percent above the rate in the three member states with the most stable prices.
 - **Exchange rate stability** - The nation must demonstrate exchange rate stability by participating in the Exchange Rate Mechanism (ERM) II for at least two years without severe tensions and without devaluing against the euro.

Schengen area

- Schengen Area signifies a zone where 27 European countries, abolished their internal borders, for the free and unrestricted movement of people.
 - Croatia became the 27th nation in the passport free Schengen zone.
- **Member of this area include:** 23 of the 27 EU member states and all members of the European Free Trade Association (Iceland, Liechtenstein, Norway and

- Switzerland).
- Being part of this area means that countries:
 - do not carry out checks at their internal borders, except in cases of specific threats;
 - carry out harmonised controls at their external borders, based on clearly defined criteria.

Uzbekistan links child deaths to India cough syrup

- Uzbekistan has claimed that at least 18 children in the country have died after allegedly taking an India-manufactured cough syrup.
- The health ministry of Uzbekistan said that the children who died had consumed cough syrup Dok-1 Max - manufactured by Noida-based Marion Biotech.
- After the incident in Gambia, the current incident may harm the India's reputation as the pharmacy of the world.

The pharmaceutical industry in India

- The Indian Pharmaceuticals industry plays a prominent role in the global pharmaceuticals industry.
- India ranks 3rd worldwide for production by volume and 14th by value.
- India is the globally, occupying a 20% share in global supply by volume. largest provider of generic medicines
 - The pharmaceutical industry in India offers 60,000 generic brands across 60 therapeutic categories.
- It is the leading vaccine manufacturer globally. 60% of the world's vaccines comes from India.

Tragedy in Gambia

- It was alleged that 69 children died in the African nation after consuming cough syrup exported by an Indian firm.
- The World Health Organisation (WHO) issued a medical product alert in the matter stating that samples of the cough syrup had been found to contain unacceptable amounts of diethylene glycol and ethylene glycol as contaminants.
- India, however, slammed the WHO saying the deduction that India-made cough syrup was responsible for the death of children in Gambia was premature.

India's image might take a hit

- Experts believe that repeated reports of such incidents may harm the country's reputation as the pharmacy of the world.
- Therefore, renewed efforts are being made by the government to strengthen regulatory mechanisms for drug manufacturers.
- Recently, the government said it had prepared an action plan for which are identified to be at the risk of manufacturing Not of Standard Quality (NSQ)/adulterated/spurious drugs.nationwide inspection of manufacturing units

Union Minister Anurag Singh Thakur to launch Y20 Summit India's logo, website, and themes at a curtain raiser event in New Delhi today

- The Y20 is the **official youth engagement group for the G20 (Group of 20), the forum for the world's largest and most advanced economies.**
- The Y20 is a process which brings together young leaders from across the globe, to discuss and debate global challenges and agree policy recommendations they would like to see G20 leaders take forward.
- The list of policy recommendations is known as a **communiqué**, which is announced publicly at the Y20 Summit and presented to world leaders as part of the official G20 summit.
- **India is hosting the Y20 summit for the first time.**
- In Youth 20 Engagement Group, India's key focus is to bring young leaders from all across the globe together and discuss ideas for a better tomorrow and draft an agenda for action.
- The activities to be undertaken by Y20 during India's presidency will focus on global youth leadership and partnership.
- In a run-up to the final Youth-20 Summit, for the next eight months, there will be Pre summits on the **five Y20 themes** along with various discussions and seminars at different Universities across the country.

India deploys a women-only platoon of peacekeepers to the UN Mission in Abyei

- The Indian contingent, which consists of two officers and 25 other ranks, will work as a platoon in an engagement and specialise in community outreach in addition to carrying out numerous security-related duties.
- This time India is deploying the largest single unit of female Blue Helmets in a UN mission since 2007.

UNISFA

- It was established by the UN Security Council in response to the critical situation in the Abyei area of Sudan by resolution 1990 of 27 June 2011.
- Resolution 1990 made provision for the deployment of 4,200 Ethiopian troops to provide security and protect civilians under imminent threat of violence in the disputed border region.

United Nations Peacekeeping Mission

- This Peacekeeping operation is policing and peacebuilding actions carried out by the UN to bring order and stability to war-torn nations.
- The UN Peacekeepers are known as '**Blue Helmets**' or 'Blue Berets'.
- Peacekeepers are the military personnel of the UN that work alongside the UN Police and civilian colleagues to promote "stability, security, and peace processes".
- **Origin:** When the UN Security Council approved the deployment of UN military observers to the Middle East in 1948, the UN Peacekeeping Forces were established.

- **Nodal Agency:** The United Nations Charter authorises the United Nations Security Council to take collective action to maintain international peace and security.
- **Structure:** The UN Peacekeeping force is supplemented by personnel from member nations. They are added to the force on a volunteer basis.
- **India's role:** India is one of the largest troop-contributing nations to the U.N. peacekeeping missions. India is the second-highest military and fifth-highest police contributing country to the United Nations Organization Stabilization Mission in the Democratic Republic of the Congo (MONUSCO).

First Global Partnership for Financial Inclusion

- Recently, the Ministry of Finance said that the first G20 Global Partnership for Financial Inclusion (GPFI) meeting under G20 India Presidency is to be held from 9-11 January 2023 in Kolkata.

G20 Global Partnership for Financial Inclusion (GPFI)

- The meeting will be attended by G20 member countries, guest countries and international organizations invited by India.
- It will focus on topics like **digital financial inclusion, reducing remittance costs, and finance for the SME sector.**
- The three-day event will feature symposiums, exhibitions and a domestic outreach programme on digital financial literacy involving over 1,800 school students.
- 12 international speakers will attend the G20 meeting. Institutions like NABARD will highlight the rural area coverage of innovative financial products and services.

China's COVID-19 reopening set to push 2023 oil demand to new high -IEA

- **What is it?** It is an international intergovernmental organization based in Paris that was **established in 1974.**
- **Mandate:** To maintain the stability of the international oil supply.
- It was **founded in response to the 1973 oil crisis**, in which the supply chain for oil temporarily broke down.
- IEA **operates within the broader framework** of the Organization for Economic Co-Operation and Development (**OECD**).
- As of 2022, the **IEA has 31 member nations.**
- **India became an associate member of IEA** in 2017.
- According to the IEA, **a member country must maintain "crude oil and/or product reserves equivalent to 90 days of the previous year's net imports, to which the government has immediate access** (even if it does not own them directly) and could be used to address disruptions to global oil supply".

India invites Egypt's President Abdel Fattah El-Sisi as chief guest for Republic Day 2023

- **Location:** Egypt is a transcontinental country situated in **northeastern Africa** and the **Sinai Peninsula in Western Asia** (Middle East).

- **Capital: Cairo**
- **Boundaries:**
 - The country borders the **Mediterranean Sea to the north** and the **Gulf of Suez and the Red Sea to the east**.
 - It is bordered by **Libya** in the west, the **Palestinian territory (Gaza Strip)** and **Israel** in the northeast, and **Sudan** in the south.
 - It shares **maritime borders** with **Cyprus, Turkey** and **Greece** in the Mediterranean Sea, and with **Jordan** and Saudi **Arabia** in the Red Sea.
- **Independence:** Modern Egypt became independent in **1922**.
- **Population:** With **12 million inhabitants (2021)**, Egypt is the **most populous country in the Arab world**.
- **Language:** Spoken language is **Modern Standard Arabic**; the colloquial language is the Egyptian-Arabic dialect (Masri).
- **Islam is the dominant religion** in Egypt with an estimated 85-90% of the population is Sunni Muslim.
- **Major rivers:** The famous **River Nile** is the only river that flows in Egypt throughout the year. **Around 98% of the country's population resides in the Nile River Valley.**

Suez Canal:

- It is a **30 km (120 miles)-long artificial sea-level waterway located in Egypt**.
- It **connects the Mediterranean Sea with the Gulf of Suez, a northern branch of the Red Sea**.
- It provides the **shortest maritime route between Europe and the lands lying around the Indian and western Pacific oceans**.
- It is one of the world's most **heavily used shipping lanes**.

Exercise Cyclone-I

- It is the **first ever joint exercise between the special forces of the Indian Army and the Egyptian Army**.
- **Location:** Jaisalmer in **Rajasthan**

First G20 Health Working Group meeting in Thiruvananthapuram from Jan 18-20

- Various discussions are being held focussing on international cooperation for Universal health care, in the three-day conference.
- Discussions on strengthening medical value travel enabling easy travel to countries with low cost treatment facilities and also on holistic health care through the integration of traditional methods of treatment like Ayurveda were held.

Three priorities for the G20 Health Track:

- **Priority I:** Health Emergencies Prevention, Preparedness and Response (with focus on One Health & AMR).
- **Priority II:** Strengthening Cooperation in Pharmaceutical Sector with focus on Access and Availability to safe, effective, quality and Affordable Medical Countermeasures (Vaccines, Therapeutics and Diagnostics).
- **Priority III:** Digital Health Innovations and Solutions to Aid Universal Health

Coverage and Improve Healthcare Service Delivery.

History:

- The G20 Health Working Group (HWG) was established under the **German Presidency in 2017** to develop a shared international agenda on issues such as strengthening health-care systems, reducing malnutrition, health-crisis management and scaling up the fight against pandemics.
- India assumed presidency of the G20 on 1st December 2022.
- India is currently part of the G20 Troika comprising Indonesia, India and Brazil, marking the first time that the troika is consisting of three developing and emerging economies.

India did not wait, did what was right to help Sri Lanka

- It is an **outcome of the India-Sri Lanka Peace Accord of July 1987**, signed by the then Prime Minister Rajiv Gandhi and President J.R. Jayawardene.
- It was an **attempt to resolve Sri Lanka's ethnic conflict** that had aggravated into a full-fledged civil war, between the armed forces and the Liberation Tigers of Tamil Eelam.
- The 13th Amendment, **led to the creation of Provincial Councils.**
- It **assured a power sharing arrangement** to enable all **nine provinces in the country**, including Sinhala majority areas, **to self-govern.**
- **Subjects such as education, health, agriculture, housing, land and police are devolved to the provincial administrations.**
- It **made Tamil one of Sri Lanka's official languages** and English, a link language.
- The **amendment has never been fully implemented** because of the overriding powers given to the President.

Planning Meeting on G20-Chief Science Advisers Roundtable (G20-CSAR) Organised by the Office of the Principal Scientific Advisor to the Government of India

- It is a **government-to-government level initiative** conceptualised through India's G20-Presidency.
- It will be an effective platform to discuss and achieve solutions to some of the long pending as well as anticipated issues related to **scientific research, technology development and deployment.**
- Under this initiative, the Chief Science Advisers and their equivalents of G20 member countries, as well as the invited countries will discuss and develop collaborative frameworks for all involved countries.
- This initiative will also help in establishing an effective and coherent global science advice mechanism.
- The two high-level G20-CSAR meetings will be organised – the 1st G20-CSAR during 26-28 March 2023 at Hyderabad and the 2nd G20-CSAR during 27-29 Aug 2023 at Bengaluru.

5-day SCO film festival underway in India's Mumbai city

- It is being organized by the **National Film Development Corporation**, a Public Sector Undertaking of the **Ministry of Information and Broadcasting**, in association with the SCO Council of Heads of States.
- **Aim:** To build cinematic partnerships, have an exchange of programmes, nurture young filmmaking talent and act as a bridge between the cultures of the Shanghai Cooperation.
- As part of the SCO Film Festival in India, it is endeavoured to showcase selected films from the Members, Observer States and Dialogue partners States.

Shanghai Cooperation Organization

- The SCO is a permanent **intergovernmental international organisation**. It is a Eurasian political, economic, and security alliance and has been the primary security pillar of the region.
- It was established in 2001 and was preceded by the **Shanghai Five mechanism**.
- The Heads of State Council (HSC) is the supreme decision-making body in the SCO. It meets once a year and adopts decisions and guidelines on all important matters of the organisation.
- The organisation has two permanent bodies:
 - The SCO Secretariat is based in
 - The Executive Committee of the Regional Anti-Terrorist Structure (RATS) is based in Tashkent.
- **Member countries:** India, Kazakhstan, China, Kyrgyzstan, Pakistan, Russia, Tajikistan, and Uzbekistan.
- **Four observer states** Afghanistan, Belarus, Iran and Mongolia.

DEFENCE & SECURITY

Fuselage of Apache attack helicopter for Indian Army rolls out from Tata-Boeing facility

- The first Apache is scheduled to be delivered to the Army in February 2024 and training of Army Aviation pilots and technicians commenced in the U.S. recently.

AH-64E Apache:

- It is the world's **most advanced multi-role combat helicopter**.
- **Country of Origin: United States**
- **Manufacturer: Boeing**
- It is also known as **Apache Guardian**.
- The AH-64E attack helicopter is the **latest version of the AH-64, used by the US Army**.
- **Other purchasers: India, Egypt, Greece, Indonesia, Israel, Japan, South Korea, Kuwait, Netherlands, Qatar, Saudi Arabia, Singapore, UAE, UK.**
- **Features:**
 - It is designed and equipped with an **open systems architecture** to incorporate the latest communications, navigation, sensor, and weapon systems.
 - Has **greater thrust and lift, joint digital operability, improved survivability and cognitive decision aiding**.
 - The AH-64E includes a **new integrated infrared laser** that allows for **easier target designation and enhanced infrared imagery** that blends infrared and night vision capabilities.
- **Apache for Indian defence forces:** The **Indian Air Force** has a **fleet of 22 AH-64E Apache attack helicopters**, and in 2020, Boeing signed an agreement with the Government of India for the acquisition of six more Apache helicopters for the Indian Army.

Tata Boeing Aerospace Limited (TBAL):

- **It is a joint venture between Tata Advanced Systems Limited and aircraft manufacturer Boeing.**
- Boeing's first equity joint venture in India.
- **TBAL manufacturing facility is located in Hyderabad.**
- TBAL is the **sole global producer of fuselages for AH-64 Apache helicopters**

Why Indian Army Is Buying Machine Pistols Under Emergency Provision

- ASMI (meaning pride/ self-respect) is **India's first indigenous 9mm machine pistol**.
- Developed jointly by **DRDO (Defence Research and Development Organisation) and Indian Army**.
- It **weighs under 2kg** and can fire at a **range of 100 metres**.
- It has an **8-inch barrel and 33 rounds** of high-capacity magazine load.
- It would cost around **Rs 50,000 per unit**.
- The **3D printing process was used** to design and prototype the pistol's various parts, including its trigger components.

- It is **set to replace the 9mm pistols in the Indian defence forces.**

Machine pistol

- It is a relatively small, **self-loading automatic handgun with a high rate of fire and can fire in intermittent or sustained bursts.**

What Are M1 Abrams Tanks And Why They Matter To Ukraine? 5-Point Explainer

- It is the **United States main battle tank.**
- The **first M1 tank was manufactured** by General Dynamics Land Systems (GDLS) **in 1978** and was delivered to the **US Army in 1980.**
- It was **named in honor to General Abrams, commander of US forces during the Vietnam War.**
- The **export version** of the Abrams is used by the armies of **Australia, Egypt, Iraq, Kuwait, Poland, and Saudi Arabia.**
- **Features:**
 - It uses a **powerful and complex turbine engine** that produces **1,500 horsepower** and requires **four persons to operate.**
 - It is **one of the heaviest tanks** in service at nearly **62 metric tons.**
 - The M1 tanks have a **maximum speed of 45**
 - **Armement:** The Abrams is **armed with a 120 mm main gun** and .50 caliber and 7.62 mm machine guns.
 - It can **destroy tank-size targets** at a **range of 2 km** while firing **on the move.**
 - **In modern versions** of the Abrams tank, there are **layers of depleted uranium armour** which **provides substantial protection** to those inside.

D4 Drone System : To Be Showcased At Aero India 2023

- **What is it?** The Drone Detect, Deter and Destroy system (D4S) is the **first indigenously developed anti-drone system** to be inducted into the Indian Armed Forces.
- It is **developed by** Defence Research and Development Organisation (**DRDO**) and **manufactured by Bharat Electronics Limited (BEL).**
- **Purpose:** To **detect rogue drones** that are likely to attack most vulnerable places.
- **Features:**
 - D4 system can **instantly detect and jam** micro drones (**Soft kill**) and use a **laser-based kill mechanism** to terminate targets (**Hard kill**).
 - It **uses DRDO's RF/Global Navigation Satellite System (GNSS)** to **detect the frequency** which is being used by the controller and the signals are then jammed.
 - It can **detect and jam** micro-drones at a distance of **up to 3 km.**
 - It can **lase a target 1-1.25 km far** depending on the wattage of the laser weapon.

Aero India:

- It is a biennial air show and aviation exhibition held in Bengaluru, India at the

- Yelahanka Air Force Station.
- It is organised by the Defence Exhibition Organisation, Ministry of Defence.

Aatmanirbhar Bharat: DRDO's Fuel Cell-based Air Independent Propulsion system to soon be fitted onboard INS Kalvari, significantly enhancing its submerged endurance

There are two types of submarines:

- **Conventional or Diesel-electric submarine:** They need atmospheric oxygen to run the diesel generator which in turn charges the batteries.
- **Nuclear Submarine:** It is a submarine powered by a nuclear reactor, but not necessarily nuclear-armed. They have considerable performance advantages over conventional submarines.

AIP

- With the emergence of submarines, there was a **problem finding satisfactory forms of propulsion underwater.**
- 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. A typical conventional power plant provides 3 megawatts maximum, and an AIP source around 10 per cent of that. A nuclear submarine's propulsion plant is much greater than 20 megawatts.
- It **allows the submarines to stay for longer hours in water.** The submarines need to come to the surface of the water to charge their batteries. This is reduced by AIP System.
- It **decreases the noise levels made by the submarines.** This makes it hard to detect the submarines.

Types of AIP:

- Open-cycle systems
- Closed-cycle diesel engines
- Closed-cycle steam turbines
- Stirling cycle engines
- Fuel cells

DRDO is using the fuel cells-based AIP System. It is unique as the **hydrogen is generated onboard.** The plant was operated in endurance mode and max power mode as per the user requirements. The system is being developed by Naval Materials Research Laboratory (NMRL) of DRDO.

Zorawar Light Tank Rollout in April

- The Defence Acquisition Council (DAC) of the Defence Ministry recently accorded the approval for Acceptance of Necessity (AoN) for purchasing 354 of these tanks through Make in India

Light Tank Zorawar:

- It is an **indigenously designed and developed Light Tank.**
- Developed by **Defence Research and Development Organisation (DRDO)** in

collaboration with Larsen & Toubro Limited.

- **Features:**
- It is **designed to operate in varying terrain** from high altitude areas and marginal terrains to island territories.
- It will be **highly transportable** for rapid deployment to meet any operational situation.
- It will be **equipped with all the modern technologies** such as **Artificial Intelligence, Drone Integration**, a high degree of situational awareness, and **amphibious operation capability**.
- It will **weigh less than 25 tonnes** with a **high power-to-weight ratio** as well as superior firepower and protection.

Zorawar

- He was a **military general** — Zorawar Singh Kahluria, and had **served under Jammu's Raja Gulab Singh in the 19th Century**.
- He is **honoured for his conquests in the Himalayas** including Ladakh, Tibet, Baltistan and Skardu.

New NASA Nuclear Rocket Plan Aims to Get to Mars in Just 45 Days

- Bimodal nuclear propulsion is a two-part system that includes; Nuclear Thermal and Nuclear Electric Propulsion (NTP /NEP).
- It uses a wave rotor topping cycle.

Nuclear propulsion working

- The Nuclear Thermal system includes a nuclear reactor that will **heat liquid hydrogen** (LH2) propellant and turn it into **ionised hydrogen** gas (plasma) that will then be channelled through a nozzle to generate thrust.
- Nuclear Electric Propulsion depends on a nuclear reactor to provide electricity to a Hall-Effect thruster (ion engine), which will generate an electromagnetic field that will ionise and accelerate an inert gas to create thrust.
- **Advantages:** Fuel efficiency, a higher specific impulse, rating and unlimited energy density.

Webb Unveils Dark Side of Pre-stellar Ice Chemistry

- The Researchers have used the James Webb Space Telescope to prove that even complex prebiotic molecules, which are precursors to the building blocks of life, can be formed in the depths of cold, dark molecular clouds.

Molecular clouds

- **What is it?** It is an interstellar cloud of gas and dust in which molecules can form, the most common of which is hydrogen (H₂). These clouds have very **low temperatures of just 10 to 30 kelvin**.
- The **size of these clouds** can be from a **few light years up to 600 light years**. Their **total mass can reach several million solar masses**.
- **Molecular clouds** with **dimensions of more than about 15 light years** are also called **giant molecular clouds**.
- The **central regions of these clouds are completely hidden from view by dust**.

We are able to look into the core of these clouds using radio or infrared wavelengths.

- They are the **raw material of stars and planets**. These **clouds do not last for a very long time**.
- **After the new stars are born, their solar winds blow away** the remaining gas and dust. **Only a fraction, about 10%, of the original material** of the molecular cloud **gets locked up in stars and planets**.

Dark nebula (or dark cloud)

- It is a **very dense part of a bigger molecular cloud**.
- The **light extinction is caused by the high density and the presence of interstellar dust** in these clouds.
- These are the **regions where new stars are forming**. They **mainly consist of hydrogen and dust particles** which are needed to form new star systems with stars and planets.

Solar Mass

- A solar mass is the **mass of the sun**.
- It is **989 x 10³⁰ kilograms** — about **333,000 Earths**.

India's first mission to study the Sun will be launched by June-July: ISRO chairman

- **What is it?** It is the **largest payload that would fly on the Aditya-L1 mission**. It is an **internally occulted solar coronagraph** capable of **simultaneous imaging, spectroscopy and spectro-polarimetry** close to the solar limb.
- The **VELC consists of a coronagraph, spectrograph, polarimetry module and detectors**, aside from auxiliary optics.
- It is **built by the Indian Institute of Astrophysics (IIA) at its CREST (Centre for Research and Education in Science and Technology) campus at Hosakote, Karnataka**.
- **Purpose:**
 - It will observe the solar corona, which is the tenuous, outermost layer of the solar atmosphere.
 - It will analyze the coronal temperature, plasma velocity, density, etc.
 - It will also study Coronal Mass Ejections (CMEs) and the solar wind.

Aditya-L1 Mission:

- It is **India's first dedicated scientific mission to study the Sun**.
- The **spacecraft will be placed in a halo orbit around the first Lagrange point, L1**, which is 1.5 million km from the Earth towards the Sun.
- A satellite around the L1 point has the **major advantage of continuously viewing the Sun** without occultation/eclipses.
- Aditya-L1 **carries seven payloads** to observe the photosphere, chromosphere, and the outermost layers of the Sun (the corona) using electromagnetic and particle detectors.
- The satellite **will be launched by PSLV-XL launch vehicle** from Sriharikota.

Coronal Mass Ejections (CMEs):

- (CMEs) are **large expulsions of plasma and magnetic fields from the Sun's corona**.
- The blast of a CME **carries about a billion tons of material out from the Sun at**

- very high speeds** of hundreds of kilometers per second.
- A **CME contains particle radiation** (mostly protons and electrons) and **powerful magnetic fields** stronger than what is normally present in the solar wind.
 - The resulting shocks **ripple through the solar system and can interrupt satellites and power grids on Earth.**

Scientists spot 1st gamma-ray eclipses from strange 'spider' star systems

- It is a **binary star system** in which a **superdense star (pulsar) spins quickly, eats another star.**
- The super-dense object that begins to pull a matter from the companion **resembles the habits of spiders of the genus Latrodectus**, in which the female eats the male after mating, hence the name came.
- Initially, the **dense pulsar strips material from the outer atmosphere of its companion**, periodically shedding the gathered material in violent explosions.
- In the **later stage** of their lifetimes, the **energetic particles streaming out** of the pulsar can **strip the atmosphere of its companion.**
- In either case, the **pulsar slowly erodes its companion over time.**
- **Two Types:**
 - **Black widows:** Binary pulsar systems, in which the **mass of a companion star is less than 5 percent of the pulsar.**
 - **Redback:** Binary pulsar systems in which mass of the **companion star is from 10 to 50 percent of the pulsar.**

Binary star system

- A binary system is one in which **two stars orbit around a common centre of mass**, that is they are **gravitationally bound to each other.**

Pulsars

- Pulsars are **rapidly spinning neutron stars, extremely dense stars** composed almost **entirely of neutrons** and having a **diameter of only 20 km (12 miles) or less.**
- They **emit concentrated streams of radiation** far across the cosmos.

Neutron stars

- They are the **remnants of giant stars that died in a fiery explosion known as a supernova.**
- After such an outburst, the **cores of these former stars compact into an ultradense object** with the mass of the sun packed into a ball the size of a city.

SOCIETY

Fatal road accidents: National highways most deadly in India

- According to a report published by the Union Ministry of Road Transport and Highways, at least 8 out of every 10 occupants, nearly 83%, killed in accidents across India were not wearing seatbelts.

Major Highlights of the Report:

- As per the report, there were 4.12 lakh unfortunate incidences of road accidents during 2021 which **claimed 1,53,972 lives**.
 - Young adults in the age group of 18-45 years accounted for 67.6% of victims during 2021.
- During the previous year 2020, country saw an unprecedented decrease in accidents, fatalities and injuries.
 - This was due to the unusual outbreak of COVID-19 pandemic and resultant stringent nation-wide lockdown particularly during March-April, 2020.
- Major indicators related with accidents have performed better in 2021 when compared to 2019.
- Road accidents decreased by 8.1 percent and injuries decreased by 14.8 percent in 2021 compared to 2019.
 - Fatalities, however, on accounts of road accidents increased by 1.9 percent in 2021 corresponding to the same period in 2019.
- **State-wise data –**
 - Uttar Pradesh accounted for the largest share of fatalities at 13.8%, followed by Tamil Nadu (10%), Maharashtra (8.8%), Madhya Pradesh (7.8%), and Rajasthan (6.5%).
 - Of these, Tamil Nadu, Maharashtra and Madhya Pradesh have seen a rise in their share of fatalities as compared to 2019.
- **Death due to not wearing Helmets/Seatbelts –**
 - At least 8 out of every 10 occupants, nearly 83%, killed in accidents across India were not wearing seatbelts.
 - Uttar Pradesh reported the maximum deaths of car occupants for not wearing seatbelts.
 - Also, 2 out of every 3 who died in road crashes on two-wheelers were not wearing helmets.

Prime Minister has paid homage to Savitribai Phule on her birth anniversary.

- A pioneer who challenged oppressive social norms in her quest for women's education, equality and justice, Savitribai Phule is formally recognised as India's first woman teacher.
- A Dalit woman from the Mali community, Savitribai was born on January 3, 1831, at Naigaon in Satara District.
- In 1840, at the tender age of 9, she was married to Jyotirao (also known as Mahatma Jyotiba Phule one of the leading social reformers and anti-caste activists of India) is said to have educated her at home and later on admitted her to a teacher's training institution in Pune.

The Establishment Of India's First Girls' School

- At a time when education was limited mostly to the upper-class, affluent men, and women were not deemed eligible for going to school, the Phules **established a girls' school in Bhidewada, Pune, in 1948**. This was the **first girls' school in India**.

Phule's role as a social reformer

- In 1852, she **established a women's rights advocacy organisation, Mahila Seva Mandal**.
- In 1860, the Phule's organised a **barber's strike against shaving the hair of widowed women**.
- Along with Jyotirao, Savitribai started **the Balhatya Pratibandhak Griha** ('Home for the Prevention of Infanticide') for pregnant widows facing discrimination.
- Savitribai Phule also advocated inter-caste marriages, widow remarriage, and eradication of child marriage, sati and dowry systems, among other social issues.
- In 1873, the Phules **set up the Satyashodhak Samaj** ('Truth-seekers' society'), a platform open to all, irrespective of their caste, religion or class hierarchies, with the sole aim of bringing social equity.

Literary works

- Savitribai Phule published her first collection of poems, called **Kavya Phule** ('Poetry's Blossoms'), at the age of 23 in 1854.
- She published **Bavan Kashi Subodh Ratnakar** ('The Ocean of Pure Gems'), in 1892.

With over 5,000 delegates, Purple Fest set to break stereotypes

- It aims to showcase how we can come together to create a welcoming and inclusive world for everyone.
- It is aimed at furthering the spirit of inclusion, the Purple Fest will feature a variety of exciting live performances, sporting events, grand exhibitions, immersive experience zones, accessible movie screenings, & discussions on vital subjects like inclusive education, tourism, employment, & independent living.
- Who is organising Purple Fest?
 - The Purple Fest will be hosted by the Goa State Commission for Persons with Disabilities in association with the Directorate of Social Welfare and Entertainment Society of Goa.
- When is Purple Fest Goa?
 - Purple Fest Goa will be held from January 6-8, 2023, in Panjim, Goa.

Ottanthullal: A Cultural Treasure from the State of Kerala

Thullal

- It is a **recite-and-dance** art form of Kerala, which was introduced in the 18th century by the famous Malayalam poet Kunchan Nambiar (1705 - 1770).
- It is famous for its humour and social satire and is marked by its simplicity.
- It follows the classical **principles of Natyasasthra** (a treatise on art compiled in the

- 2nd century B.C.E).
- It is enacted into three separate versions
 - Ottanthullal
 - Seethankan thullal
 - Parayan thullal
 - The Ottanthullal is the most popular among the three varieties of Thullal.
 - The performance uses elaborate expressions and stories recited in verses to bring important **mythological tales** and stories to life.
 - The costume and makeup of the performer are similar to that of a Kathakali artist.
 - It is performed at **temple festivals** and cultural programmes.
 - The Thullal performer is supported by a singer who repeats the verses and is accompanied by an orchestra of **mridangam** or thoppimaddalam (percussions) and cymbals.

ASER Report 2022 Updates: Rise in number of students taking private tuitions post Covid

ASER Survey:

- It is a **citizen-led household survey** that provides estimates of the **enrolment status of children aged 3-16 and the basic reading and arithmetic levels of children aged 5-16 at the national, state and district level.**
- ASER is **published by NGO Pratham**, and the survey has been conducted every year since 2005.
- The survey **reaches children in the age group of 3-16** in almost all rural districts of India.
- It **uses household rather than school-based sampling.**

ASER 2022:

- In ASER 2022 Survey, 7 lakh candidates from 19,060 schools in 616 districts were surveyed to calculate the learning outcomes post-pandemic on school children.
- Enrollment has gone from 97.2 per cent in 2018 to 98.4 per cent in 2022.
- As many as 72.9 per cent of the surveyed students go to government schools.
- In only three states, the number of girls not going to school is above 10% – Madhya Pradesh (17%), Uttar Pradesh (15%), and Chhattisgarh (11.2%).
- Nationally, children's basic reading ability has dropped to pre-2012 levels, reversing the slow improvement achieved in the intervening years.
- In both government and private schools, only 20.5% students of Class 3 can read, compared to 27.3% in 2018.
- The proportion of Class 5 students who can read has dropped to 42.8% in 2022, compared to 50.5% in 2018.

PM distributes title deeds (hakku patra) to about fifty thousand beneficiaries of newly declared revenue villages in Kalaburagi, Karnataka

- The word '**Hakku**' means "the right", and '**Patra**' means a "paper" or "document".

- It is a legal document that states an individual's rightful inheritance of a property.
- It is **issued to the nation's underprivileged section**, including scheduled castes, scheduled tribes, urban slum dwellers, handicapped, and other disadvantaged populations.
- In most cases, **the land on which the Hakku Patra is issued is government-owned** with a specific set of conditions attached.

Hakku Patra distribution drive:

- It is a **part of the Ambedkar Rural Housing Scheme of Karnataka**.
- Under this, the **government offers free registration of Hakku Patra land in the beneficiary's name**.
- **Any house built on the Hakku Patra land should be used as the beneficiary's house and not for rental purposes**.

Benefits of Hakku Patra:

- It **makes you the legitimate owner of your land or property** by giving an up-to-date and **official record of who owns the land**.
- It is a **state-guaranteed document**.
- The title deeds **enable owners to avail of bank loans with the said document**.
- Hakku Patra **registration resolves all types of disputes** regarding the ownership or rights over the land.
- The document **helps in preventing any encroachment via trespassing on the boundaries**.

Six months to enforce law for compensating road accident victims: Delhi HC

- It is a comprehensive Act that has **replaced the Motor Vehicle Act, 1939**.
- It was **implemented on 1st July 1989**.
- The act **covers all aspects of road transport vehicles**, such as registration, licensing, regulation, claims, compensation in case of accident etc.
- The act **regulates all cases related to Motor Accidents all over India**.
- **An person injured in a motor accident or legal representatives** of a person deceased in a motor accident **can apply for compensation under Motor Vehicles Act, 1988**.
- The act was **amended in 2019 and 2022**. Both these amendments **deal with third-party insurance and claims management**, including **filing claims with the Motor Accident Claim Tribunal**.

Motor Accident Claim Tribunal:

- It was created by the **Motor Vehicles Act, 1988**.
- It has been **constituted to provide speedier remedy to the victims of accidents** by motor vehicles.
- There is **no time limit for filing motor vehicle accidents claims**.
- A **State Government can constitute one or more Motor Accidents Claims Tribunals**.
- **Civil Courts do not have jurisdiction** in the matters which concerns the Motor Accidents Claims Tribunal.
- The **appeals** against the Claims Tribunals will **lie before the High Courts**.

- The **appeal is limited by time** and has to be **filed in the High Court within 90 days** from the date of award of the Claims Tribunal.

Thousands of Indian IT professionals now jobless scrambling for options to stay in the US

H1B Visa:

- It is a **multiple entry non-immigrant visa** which **allows foreign workers employed by US companies to work in the United States.**
- The workers under H1B visas **should be engaged in specialised occupations** such as science, medicine, engineering and mathematics.
- H1B applicants **must have at least a US bachelor's degree or equivalent.**
- Generally this visa is **granted for a period of three years** and can be **extended for an additional three years** for special circumstances.
- H-1B visa **requires the employer to apply on the person's behalf.**
- **Holders of H1B visas can sell or buy property and invest in the stock market** in the United States.

L1 Visa:

- L1 Visa is an **Intra-Company Transferee Visa.**
- It **allows large multinationals (need not be a US company)** - with operations across various countries - **to shift employees in specialized positions on a temporary basis to the US.**
- There are **two types of L1 visas - L1A and L1B.**
- **Managers and executives come under the category of L1As** while **L1Bs encompass workers** with specialized knowledge.
- There is **no education requirement for the L1 visa.**
- L-1A visa holders are **allowed a maximum stay of seven years** in the U.S while **L-1B visa holders are allowed a maximum stay of five years.**

Parakram Diwas | Prime Minister names 21 Andaman islands after Param Vir Chakra awardees

- It is **India's highest military decoration** awarded for the **highest degree of valour or self-sacrifice in the presence of the enemy.**
- The Param Vir Chakra was **introduced on January 26, 1950**, on the first Republic Day with **retrospective effect from 15 August 1947.**
- Literally, Param Vir Chakra means '**Wheel (or Cross) of the Ultimate Brave**'.
- It **can be awarded posthumously.**
- It is similar to the British Victoria Cross, US Medal of Honor, or French Legion of Honor or Russian Cross of St. George.
- **Design:**
- The medal was **designed by Mrs. Savitri Khanolkar.**
- The medal is **cast in bronze and circular in shape.**
- In the centre, on a raised circle, is the **state emblem, surrounded by four replicas of Indra's Vajra, flanked by the sword of Shivaji.**

- **On its reverse**, it shall have **embossed Param Vir Chakra both in Hindi and English** with **two lotus flowers** between Hindi and English. The fitting will be swivel mounting.
- The decoration is suspended from a straight swiveling suspension bar, and is held by a **32 mm purple ribbon**.
- **First winner: Major Somanth Sharma**, from the Kumaon regiment.
- Till now, **only 21 people had been given the Param Vir Chakra** award of which **14 are posthumous**.

Gallantry Awards:

- They have been instituted by the Government of India **to honour the acts of bravery and sacrifice** of the officers/personnel of the Armed Forces, other lawfully constituted Forces and civilians.
- They are **announced twice in a year** - first on the occasion of the **Republic Day** and then on the occasion of the **Independence Day**.
- India's Gallantry Awards in the **order of precedence**:
- **Param Vir Chakra**
- **Ashoka Chakra**
- **Mahavir Chakra**
- **Kirti Chakra**
- **Vir Chakra**
- **Shaurya Chakra**.

Padma award is an honour for the Etikoppaka toy craft, says C.V. Raju

- These are **traditional toys** made by **artisans of Etikoppaka village** located on the banks of Varaha River in Visakhapatnam district of **Andhra Pradesh**.
- These toys are **made out of wood** and are **coloured with natural dyes** derived from seeds, lacquer, bark, roots and leaves.
- The artisans **mainly use the wood from trees known as 'ankudu' (Wrightia Tinctoria)** that is **soft** in nature.
- These toys have **no sharp edges**. They are **rounded on all sides**.
- Etikoppaka toys received Geographical Indication (GI) tag IN 2017.
- **Why are they called lacquer toys?**
 - While making the Etikoppaka toys, lac, a colourless resinous secretion of numerous insects, is used.
 - The already prepared vegetable dyes are further mixed to the lac, during the process of oxidation.
 - After this process, the end product obtained is rich and colored lacquer.
 - The lac dye is used for decorating the Etikoppaka toys, which are exported all over the world.
 - Thus, the toys are also called lacquer toys because of the application of lacquer coating.

Geographical Indication (GI) tag

- A geographical indication (GI) is a **sign used on products that have a specific geographical origin** and **possess qualities or a reputation that are due to that origin**.

- In order to function as a GI, a sign **must identify a product as originating in a given place.**
- Geographical Indications are **covered as a component of intellectual property rights (IPRs)** under the **Paris Convention for the Protection of Industrial Property.**
- At the International level, **GI is governed by** the World Trade Organisation's (WTO's) Agreement on Trade-Related Aspects of Intellectual Property Rights (**TRIPS**).
- In India, **Geographical Indications registration** is administered by the **Geographical Indications of Goods (Registration and Protection) Act, 1999.**
- The **first product in India** to be accorded with GI tag was **Darjeeling tea** in the year 2004-05.

All India Survey on Higher Education (AISHE) 2020-2021

- It is **conducted by the Ministry of Education since 2011.**
- **Coverage:** It covers **all higher educational institutions located in Indian Territory** and imparting higher education in the country.
- **Objectives:**
- To **identify** and capture **all the institutions of higher learning** in the country.
- **Collect the data** from all the higher education institutions **on various aspects of higher education.**
- The survey **collects detailed information on different parameters** such as student enrollment, teacher's data, infrastructural information, financial information etc.

Highlights

- **For the first time**, in AISHE 2020-21, **higher educational institutions have filled data using entirely online** data collection platform through the **Web Data Capture Format (DCF)** developed by **Department of Higher Education** through the National Informatics Centre (NIC).
- **Key Findings:**
- The **total number of Universities / University like institutions registered is 1,113**, Colleges 43,796 and Standalone Institutions 11,296.
- Number of Universities **has increased by 70**, number of Colleges has increased by 1,453, in 2020-21 over 2019-20.
- **Enrollment in higher education increases to 4.14 crore**, crossing the 4 crore mark for first time; increase of 7.5% from 2019-20 and 21% from 2014-15.
- **Female enrollment reaches 2 crore mark**, increase of 13 Lakh from 2019-20.
- **Gross Enrolment Ratio (GER) has improved** from previous year for all social groups.
- Enrollment in Distance Education has increased by 7% in 2020-21 from 2019-20.
- **Gender Parity Index (GPI) has increased** from 1 in 2017-18 to 1.05 in 2020-21 Total number of faculty/teachers increases by 47,914 from 2019-20

ART & CULTURE

Citizens to press for heritage committee's approval, stakeholders involvement in implementing PRASHAD scheme on Chamundi Hills

- It is located in the city of **Mysore, Karnataka**.
- The average **elevation is 1,060 meters**.
- The **famous Sri Chamundeshwari Temple** dedicated to the Hindu goddess Chamundeshwari is situated **on top of Chamundi hills**.
- In the earlier days, the Hill was identified as 'Mahabaladri' in honour of God Shiva** who resides in the 'Mahabaleswara Temple'. This is the oldest temple on the hills.
- These hills have been **mentioned in the ancient Hindu scriptures such as 'Skanda Purana'**.

Sri Chamundeshwari Temple:

- It is **dedicated to the Goddess Chamundeshwari (Chamundi), deity of the Mysore Royal Family**.
- This temple is **about 1000 steps from the foot of the Chamundi hills**.
- It is built in the **Dravidian style** of temple architecture.
- The temple has a **quadrangular structure**.
- It has an impressive **seven-tier tower called 'gopuram'** or 'gopura' and an equally imposing entrance which is known as 'dwara'.

Pilgrimage Rejuvenation and Spiritual Heritage Augmentation Drive (PRASHAD) Scheme

- The Government of India launched the PRASHAD scheme in the year **2014-2015 under the Ministry of Tourism**.
- Is a **Central Sector Scheme** with complete financial assistance by the Government of India.
- This scheme **focuses on developing and identifying pilgrimage sites across India** for enriching the religious tourism experience.
- It aims to integrate pilgrimage destinations in a prioritized, planned and sustainable manner to provide a complete religious tourism experience. The growth of domestic tourism hugely depends on pilgrimage tourism.

Sea winds erode 11th century Sundarbans temple

Jatar Deul temple:

- It is a **Hindu Temple dedicated to Lord Shiva**.
- **Location:** Located at Kankan Dighi Village in **South 24 Parganas District in West Bengal**.
- The Temple **stands on a small hill** in the landscape of the **southern Sundarbans settlements**.
- **A copper plate found near the temple in 1875** suggests that **Raja Joychandra constructed the temple in 975 AD**.
- The temple has been classified as a **Monument of National Importance** by the Archaeological Survey of India (ASI).
- **Structure:**
 - This temple is facing towards the east and follows the **Kalingan style of architecture**.

- The temple is built over a **raised platform**.
- It has an **arched gateway leading to the sanctum**.
- The **sanctum is situated below the ground level**.
- The **sanctum houses Lingas, pictures and idols** of various gods & goddesses of Hindu pantheon.
- The **walls of the temple were intricately decorated** with decorative bricks, but most of it is lost due to unplanned reconstruction.

Kalingan style of architecture:

- It is a style of **Hindu architecture** which flourished in the ancient Kalinga previously known as Utkal and part of the kingdom of Magadha or present **eastern Indian state of Odisha**.
- In Kalinga style – the **temple is made up of two structures: a tower and hall**. The Tower is called 'Deula', and the hall is called 'Jagmohan'.
- The style consists of **three distinct types of temples**: Rekha Deula, Pidha Deula and Khakhara Deula. .
 - **Rekha Deula**: It is a **tall building with a sikhara**. The Rekha Deula means a **shrine with different parts in a line**. Eg: Rekha Deula in the **Lingraj Temple** of Bhubneshwar.
 - **Pidha Deula**: Pidha Deula **refers to the square building with a pyramid-shaped roof, like the vimanas**. Eg: The assembly hall of the **Konark Sun Temple**.
 - **Khakhara Deula**: It is altogether a different style of architecture closely appearing **similar to the Dravidian Gopuran design**. The temples of the **feminine deities as Shakti are temple of this type**. Eg: **Baitala temple of Bhubneshwar dedicated to Chamunda**.

Shumang Leela

- The meaning of this theatre form is "courtyard performance", which is performed **in Manipur**.
- In this, the roles of women are all played by men, called **Nupi Shabis**.
- In the case of women's theatre groups, the roles of men are played by women.
- The female roles are taken up by transgender actors.
- The tradition is believed to be descended from **Lai Haraoba**, a ritual of the **Meitei** community of Manipur.
- The plays provide a vehicle for educating the public about social, political, and economic issues.
- **Types** - Shumang Leela is of two types
 - **Nupa Shumang Leela** - Performed only by men
 - **Nupi Shumang Leela** - Performed only by women

Project ELLORA: How Microsoft is helping preserve 'rare' Indian languages with AI

- Microsoft researchers under this project have been working toward creating digital ecosystems for Indian languages that do not have enough presence online,

- The main goal of the Project? To impact underserved communities through enabling language technology by creating economic opportunities, building technological skills, enhancing education and preserving local languages and cultures for future generations.
- Microsoft Research (MSR) has chosen to focus on three languages namely; Gondi, Mundari and Idu Mishmi.

Gondi Language

- Language family: Gondi is a South-Central Dravidian language.
- Script: The Gondi script is perhaps the only script in the country besides Urdu which is written right to left.
- In northern and central India, it is the only language, barring Gujarati, which has a script of its own. All other north and central Indian languages use the Devnagri script.
- Dialects: Gondi, is heavily influenced by the other local languages spoken in the respective states.
- This is spoken by close to three million speakers in Madhya Pradesh, Maharashtra, Chhattisgarh, Andhra Pradesh and Telangana.

Mundari language

- Mundari (Mundari) is a Munda language of the Austroasiatic language family spoken by the Munda tribes in the eastern Indian states of Jharkhand, Odisha and West Bengal.
- Mundari Bani, a script specifically to write Mundari, was invented by Rohidas Singh Nag.

Idu Mishmi

- The Idu Mishmi language is a small language spoken by the Mishmi people in the Dibang Valley district, of the Indian state of Arunachal Pradesh speakers in China 1994.
- It is considered an endangered language.

Ramcharitmanas of Tulsidas, and criticism of the holy book

- Tulsidas, whose real name was Ram Bola Dubey, wrote **the Ramcharitmanas** on the banks of the Ganga in Varanasi.
- The Ramcharitmanas was written in the 16th century in the **Awadhi dialect**, which is primarily spoken in the districts of Lucknow, Prayagraj, and Ayodhya.
- He was a contemporary of **Emperor Akbar** and is thought to have corresponded with Abdurrahim Khan-e-Khanan, the son of Akbar's commander Bairam Khan.
- Tulsidas popularised the story of **Lord Ram** because he wrote in the regional dialect that most people understood.
- This enraged ancient Sanskrit scholars, and Tulsidas documented his anguish in his Kavitawali.

FACTS FOR PRELIMS

Roots connect a Meghalaya village

- A farmer recently takes forward the State's traditional practice of building root bridges and connects two areas across Umkar river in Cherrapunjee.

Meghalaya's Living Root Bridge:

- Meghalaya is known for its living root bridges, locally known as **jingkieng jri**.
- They are on the **tentative list of UNESCO's World Heritage sites**.
- Many bridges across the State are over a century old.
- A living root bridge is like a suspension bridge formed by guiding the pliable roots of the **rubber fig tree (Ficus elastica)** across a stream or river and allowing the roots to grow and strengthen over time.
- They are common in the **southern part of the Northeast Indian state of Meghalaya**.

India and Japan to hold joint air exercise Veer Guardian 2023

'Veer Guardian-2023':

- The Joint Exercise which will continue **till 26th January aims at promoting Air Defence cooperation between the countries**.
- The Indian contingent participating in the air exercise will include four Su-30 MKI, two C-17 and one IL-78 aircraft, while the JASDF will be participating with four F-2 and four F-15 aircraft.
- It will include the conduct of various aerial combat drills between the two Air Forces.
- They will undertake multi-domain air combat missions in a complex environment and will exchange best practices.
- Exercise 'Veer Guardian' will fortify the long-standing bond of friendship and enhance the avenues of defence cooperation between the two Air Forces.

A new dwarf boa species from Ecuador

- Dwarf boa belongs to the family Tropicophiidae **living high in the cloud forests of northeastern Ecuador**.
- The species is **unusual for having a "vestigial pelvis" characteristic of primitive snakes** and taken as evidence by some that snakes descended from lizards that lost their limbs over millions of years.
- **Its habitat** includes tropical piedmont and lower evergreen montane forests.
- **Characteristics:**
 - The snake is alight brown in coloration with noticeable black blotches on the belly and muted blotches running down the back.
 - Dark brown pigmentiaotn is found through the center of the head.

Parshuram Kund Festival from 12-16 Jan

- It is a Hindu pilgrimage site situated on the **Brahmaputra plateau** in the lower reaches of the Lohit River and 21 km north of Tezu in the Lohit district of Arunachal Pradesh, India.
- Devotees and sadhus take a holy dip in its water each year on the occasion of Makar Sankranti, in January.
- It is also known as the Kumbh of the Northeast.
- **Religious significance:** It is dedicated to a mythological figure **sage Parshuram**. This popular festival attracts pilgrims from Nepal, from across India, and from nearby states of Manipur and Assam.
- The project "Development of Parasuram Kund is sanctioned under the Pilgrimage Rejuvenation and Spiritual, Heritage Augmentation Drive' (PRASHAD) Scheme of the Ministry of Tourism.

Director General, National Centre for Good Governance (NCGG)

- Recently, Director General, National Centre for Good Governance (NCGG), Government is working in Mission Mode to achieve 100% saturation of all Central Schemes having a huge socio-economic bearing on the common man.

National Centre for Good Governance

- It is an autonomous institute under the aegis of the **Department of Administrative Reforms and Public Grievances, Government of India**.
- It has been set up to assist in bringing about governance reforms through studies,
- It seeks to carry out policy-relevant research and prepare case studies
- It curates training courses for civil servants from India and other developing countries;
- It provides a platform for sharing existing knowledge and proactively seeking out and developing ideas for their implementation in the government, both at the National & International levels.
- It is governed by a Governing Body, under the Chairmanship of **the Cabinet Secretary**.

PM Modi to flag off world's longest river cruise, 'Ganga Vilas' in Varanasi

MV Ganga Vilas:

- The luxury cruise will cover a distance of more than **3,200 kilometres across 27 river** systems in five States in India and Bangladesh.
- The 51 days cruise is planned with visits to 50 tourist spots including **World Heritage Sights, National Parks, river Ghats**, and major cities like Patna in Bihar, Sahibganj in Jharkhand, Kolkata in West Bengal, Dhaka in Bangladesh and Guwahati in Assam.
- The MV Ganga Vilas vessel is 62 meters in length and 12 meters in width. It has three decks, and 18 suites on board with a capacity of 36 tourists, with all the amenities to provide a memorable and luxurious experience for the tourists.
- The ship follows sustainable principles at its core as it is equipped with pollution-free mechanisms and noise control technologies.

Straggler from Sedge Warbler family alights in Kannur

- The sedge warbler is a medium-sized warbler of marshes, reedbeds and wetlands that can be spotted singing from perches on reeds and willow bushes.
- The male sedge warbler introduces random phrases into its repertoire which is known for mimicking.
- The male warbler never sings the same song twice; he attracts more mates the more phrases his song has.
- These are **insectivores** in nature.
- **Conservation status:**
 - IUCN Red List: **Least concern**

Mahabali frog waiting for official recognition

- The Mahabali frog is also known as the pignose frog.
- It is endemic to the **Western Ghat**.
- **Habitat:** These frogs prefer loose, damp and well-aerated soil close to ponds and ditches or streams.
- **Specific Traits of this frog**
 - Unlike other frogs, it has **very short hind legs**, which do not allow it to leap from one spot to another.
 - It buries itself all through the year and surfaces only one day to lay eggs.
- **Conservation Status:**
 - **IUCN - Near Threatened**

Additional Tier-1 bonds, and the case against Yes Bank

- These bonds are **unsecured bonds** that have perpetual tenors, are issued by banks and have **no maturity date**.
- They have a call option, which can be used by the banks to buy these bonds back from investors. These bonds are typically used by banks to bolster their core or tier-1 capital.
- These AT1 bonds are subordinate to all other debt and only senior to common equity.

Bird watchers raise concern over 'fewer' migratory birds in Bengal sanctuary

- It was **established in 1977**.
- It is **also known as Deer Park**.
- **Location:** It is located near **Santiniketan** in Bolpur subdivision of **Birbhum District of West Bengal**.
- **Area: 200 hectares**
- **Elevation:** It has an average elevation of **56 meters**.

- **Flora:** The sanctuary has dense local vegetation of **Sal, Akashmoni, Sishoo, Cashewnut, Amlaki, Bahera and Haritaki.**
- **Fauna:** The sanctuary has a **deer conservation park** which is home to a large number of deer including **Cheetals (Spotted Deer)** and the **Blackbucks**. Other animals include **jackals, foxes** and a variety of **water birds**.
- It is home to three large lakes which **hosts a large number of migratory birds** every year.

'It just dies': Yellow-band disease ravages Thailand's coral reefs

- Yellow-band disease—named for the colour it turns corals before destroying them—was first spotted decades ago and has caused widespread damage to reefs in the
- There is **no known cure** for this disease and unlike coral, bleaching corals will not be restored once they get infected by this disease.
- Scientists believe overfishing, pollution and rising water temperatures because of climate change may be making the reefs more vulnerable to yellow-band disease.

Over the past few nights, Venus and Saturn have been gradually coming together in the sky which was visible through the naked eye.

- This is the phenomenon wherein the planets Mercury, Venus, Mars, Jupiter, and Saturn were visible to **the naked eye from Earth.**
- This planetary meet-up, also known as a **conjunction**, makes the two planets appear close together or even touch in the Earth's night sky.
- Despite being millions of kilometres apart, the planets seem to occupy the same space in the night sky because of their alignment.
- Just after sunset in the west, a conjunction of Venus and Saturn were 0.4 degrees apart as seen from earth.

Now the chestnut-winged cuckoo has more pit stops in and around Chennai

- **Scientific Name:** **Clamator coromandus**
- The chestnut-winged cuckoo is a **small bird, measuring 35 to 45 cm in length and weighing 60 to 90 grams.**
- **Distribution:** **India, Nepal, Bhutan, Bangladesh, Myanmar, southeast China, Laos, Thailand, Vietnam, Sri Lanka, , Malaysia, Indonesia and Philippines.**
- **Habitat :** Includes **tropical and temperate deciduous/evergreen forests.**
- They are **brood parasites, laying their eggs in the nests of other birds.**
- They are mostly **migratory and breed during summer in north India, Nepal, Bhutan, Bangladesh, Myanmar, southeast China, Laos, Thailand and Vietnam.**
- **They winter in south India, Sri Lanka, Andaman Islands (India), Malaysia, Indonesia and Philippines.**
- **IUCN Status:** "**Least Concern**"

13th National Voters' Day (NVD) to be celebrated on 25th January 2023

- National Voters' Day has been celebrated on January 25 every year since 2011, all across the country to mark the **foundation day of the Election Commission** of India, i.e. 25th January 1950.
- The main purpose of the celebration is to create electoral awareness amongst citizens and encourage them to participate in the electoral process.
- Dedicated to the voters of the country, National Voters' Day is also used to facilitate the enrolment of voters, especially the newly eligible young voters.
- The theme for 2023: **Nothing Like Voting, I Vote for Sure.**

Look up! You can see a bright green comet making a rare trip across the Earth's sky

- Comets are **frozen rocky or gas-filled objects** that are remnants of the formation of the solar system.
- The solid portions of a comet which is mostly water ice with embedded dust particles.
- When near the sun, the icy cometary surfaces vaporise and emit large amounts of gas and dust, resulting in a massive atmosphere and tails.
- The fluorescence of these gases, and especially the reflection of sunlight from the minute dust particles in the comet's atmosphere and tail, is what gives these objects their visual impact.
- Just like other bodies in space, comets also **have orbits**. They are sometimes pulled in close to the sun because of the sun's gravity acting on them.
- The orbit indicates this comet comes from the edge of our solar system, a distant reservoir of comets we call the **Oort cloud**.
- The Oort cloud is thought to be a big, spherical region of outer space enveloping our sun, consisting of innumerable small objects, such as comets and asteroids.
- **What is the reason for the Green colour?** Laboratory research has linked this green-like aura to a reactive molecule called **dicarbon**, which emits green light as sunlight decays it.

Doomsday Clock 2023 moved closer to midnight, global catastrophe now nearer than ever before

- **What is it?** It is a **symbolic timepiece showing how close the world is to ending**.
- The **hands of the clock are moved closer to or further away from midnight based on** the scientists' reading of **existential threats at a particular time**.
- **Purpose:**
 - It warns how many metaphorical "minutes to midnight" humanity has left.
 - It is intended to warn the public and inspire action.
- **How is the clock set?** A **Chicago-based non-profit organization called the Bulletin of the Atomic Scientists updates the time annually** based on information regarding catastrophic risks to the planet and humanity
- **Origin and History:**

- The **clock was created in 1947** by a group of **atomic scientists, including Albert Einstein**, who had **worked on the Manhattan Project** to develop the world's first nuclear weapons during World War Two.
- When it was created **in 1947**, the placement of the Doomsday Clock **was based on the threat posed by nuclear weapons.**
- **In 2007**, the **Bulletin began including catastrophic disruptions from climate change** in its hand-setting deliberations.
- The **furthest the clock has been set was 17 minutes to midnight**, in 1991, **after the collapse of the Soviet Union.**
- **What time is it now?**
 - **At 90 seconds to midnight**, the "Doomsday Clock" **is now the closest it has ever been to midnight.**
 - It is the first time it has moved since it was set at 100 seconds to midnight in 2020.
 - Its setting reflects the revived fears of a **nuclear war due to Russia's invasion of Ukraine.**

Indian Army to get robotic mules, jetpack suits, tethered drones

- A tethered drone is an **unmanned aerial vehicle tethered to the ground.**
- It **consists of a base station on the ground and the drone**, which is **connected to the station through the tether (cable).**
- The drone **can be operated remotely** to perform specific tasks.
- **Advantages:**
 - Tethered UAVs are **perfect for data capture and telemetry** due to the reliability of tethered connections.
 - Tethered drones **dramatically reduce technical and human error crashes** in flight.
 - Tethered drones **provide a secure line of communication between the ground station and the aircraft.**
 - It also **does not require GPS navigation.**
 - Many tethered drones **have longer flight times** compared to free-flying, battery-operated drones.
 - Due to the restricted movement of a tethered drone, **the operator does not need piloting skills and can mainly focus on their tasks.**

Govt to hand over 1,000 monuments to private sector under Monument Mitra Scheme

- **Nodal Ministry: Ministry of Culture** in respect of the monuments under the Archaeological Survey of India.
- It applies to all centrally protected heritage properties.
- ****Aim:****Ensuring quality & inclusive provision of amenities and facilities across heritage, natural, & tourist sites through the active participation of private and public sector organizations and individuals.
- Corporate entities will take over these monuments as part of their **Corporate Social**

Responsibility.

- These organizations would be known as **“Monument Mitras”** for their collaboration initiative.
- The government has set the target to hand over 500 sites under the revamped Monument Mitra Scheme by the end of Azadi ka Amrit Mahotsav on 15 August 2023.

Halwa Ceremony held for India's Union Budget 2023-24

- It is a **customary pre-Budget event that formally flags off the printing of different documents associated with the Budget** and marks the **final stage of the Union Budget-preparation.**
- It involves the **preparation of the traditional dessert 'halwa' in a massive kadhai (wok)** which is then **served to the entire staff in the Finance ministry.**
- The **finance minister gives the go-ahead** by stirring the kadhai and serving the sweet to officials.
- It takes place in the basement of the Finance Ministry's North Block in Central Delhi, where a special printing press is located.
- After the 'halwa ceremony', officials involved in the Budget-making process are 'locked in' at the North Block. They are kept in absolute isolation and completely cut off from the outside world till the finance minister finally presents the Budget.
- The **“lock-in”** which follows the 'halwa ceremony' is observed **to maintain the secrecy of the Budget preparation process.**

American black vulture spotted in Delhi, creates a flutter among birdwatchers

- Black vultures are most abundant at low elevations. They breed in dense woodlands but usually forage in open habitats.
- It is mainly found in the northeastern United States to Peru, Central Chile and Uruguay South America.
- They typically avoid crossing large bodies of water and do not cover long distances.
- **Conservation status**
- IUCN Red List: **Least Concern**

Arunachal yields India's newest butterfly

- It is a **swallowtail butterfly with a wingspan of 100–120 mm.**
- It has an **extra white spot in the dorsum** of the forewing.
- **Scientific name: Papilio noblei**
- **Distribution:** They are found in **Myanmar, Yunnan, Hubai (China), North Thailand, Laos, Cambodia, Vietnam.**
- The species is **known to be very rare** in occurrence in its previously known ranges.

Namdapha National Park:

- **Location:**
 - It lies on the **international border between India and Myanmar (Burma)**

- within Changlang District in the state of **Arunachal Pradesh**.
- The Namdapha protected area is **located between Dapha Bum ridge of Mishmi Hills**, of North Eastern Himalayas **and Patkai Ranges**.
 - It lies in close proximity to the **Indo-Myanmar-China trijunction**.
 - It is the **largest protected region** of the **Eastern Himalayan biodiversity hotspot**.
 - It was declared a **National Park in 1983**.
 - **Climate**: It falls within the geographical sub-tropical zone and enjoys the **sub-tropical climate**.
 - **Biodiversity**:
 - It is **only park in the World to have the four Feline species of big cat** namely the Tiger (*Panthera Tigris*), Leopard (*Panthera Pardus*), Snow Leopard (*Panthera Uncia*) and Clouded Leopard (*Neofelis Nebulosa*).
 - **Hoolock Gibbons** (*Hylobates Hoolock*), a highly endangered and **only 'ape' species found in India** is found in this national park.
 - The park is also **famous for critically endangered species like the Namdapha flying squirrel**.
 - **Flora**: **Sapria himalayana, Amentotaxus, Cephalotaxus**, *Pinus merkusii* (Sumatran pine) and *Abies delavayi* (Delavay's Fir) etc.
 - **Fauna**: **Snow leopards, clouded leopards**, common leopards, tigers, Red Panda, Himalayan bear, dholes, wolves, **Hoolock Gibbon**, hog deer etc.