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POLITY

Supreme Court puts sedition law on hold, asks govts not to register cases

- **View of Constitution:** The Constitution of India does not define the word sedition.
- **View of Indian Penal Code (IPC): Section 124-A of the IPC** defines the offence of 'Sedition' –
    - Whoever, by words (or by signs or visible representation) attempts to bring into hatred or contempt, or excites or attempts to excite disaffection towards the Government shall be punished with life imprisonment.
    - The word 'disaffection' in this section includes disloyalty and feelings of enmity.
    - However, Comments expressing disapproval of the 'Government action without attempting to excite disaffection, do not constitute an offense under this section'.
- **View of judiciary on sedition:**
    - In **Kedar Nath Singh's Case**, the Constitution bench of the Supreme Court made it clear that allegedly seditious speech and expression may be punished only if the speech is an 'incitement' to 'violence', or 'public disorder'.
    - In **Indra Das v. State of Assam and Arup Bhuyan v. State of Assam**, the Supreme Court unambiguously stated that only speech that amounts to "incitement to imminent lawless action" can be criminalised.
    - In **Shreya Singhal v. Union of India**, the famous 66A judgment, the Supreme Court drew a clear distinction between "advocacy" and "incitement", stating that only the latter could be punished.
    - Thus, words and speech can be criminalised and punished only in situations where it is being used to incite mobs or crowds to violent action. Mere words and phrases by themselves, no matter how distasteful, do not amount to a criminal offence unless this condition is met.
- **History:**
    - Sedition was not a part of original IPC in the 1860s and was even dropped from the law. It was introduced in the IPC in the year 1870.
    - British used the sedition law to quell the Indian freedom struggle and retain imperial power.
    - The first known use of Sedition law was against Jogendra Chandra Bose, was charged in 1891 for his criticism of the "Age of Consent Bill". Many Indian freedom fighters, including Mahatma Gandhi and Bal Gangadhar Tilak, were charged with sedition.

Are there anti-superstition laws in India?

- As per the 2021 report of the National Crime Records Bureau (NCRB), six deaths were linked to human sacrifices, while witchcraft was the motive for 68 killings in the country.
- The maximum number of witchcraft cases were reported from Chhattisgarh (20), followed by Madhya Pradesh (18) and Telangana (11). Kerala saw two cases of human sacrifice.
- In 2020, India saw 88 deaths due to witchcraft and 11 died as part of 'human sacrifices', the NCRB report states.

- In India, there is no central law that exclusively deals with crimes related to witchcraft, superstition, or occult-inspired activities.
- In the absence of a nationwide legislation, a few States have enacted laws to counter witchcraft and protect women from deadly 'witch-hunting'.
- **Bihar:** Bihar was the first State to enact a law to prevent witchcraft, identification of a woman as a witch and "eliminate torture, humiliation and killing of women." The Prevention of Witch (Daain) Practices Act came into force in October 1999.
  - Anyone who identifies a person as a "witch" and acts to aid this identification can face a jail term of up to three months, or a fine of ₹1,000, or both.
- **Jharkhand:** A similar law was passed in Jharkhand in 2001 — the Prevention of Witch (Daain) Practices Act.
- **Chhattisgarh:** The State enacted the Chhattisgarh Tonahi (witch) Pratadna Nivaran Act in 2005.
- **Odisha:** The Odisha Prevention of Witch-Hunting Bill was passed by the Assembly in 2013. The bill provides penalties for a witch doctor, or a person claiming to be a black magician.
- **Maharashtra:** In Maharashtra, the Maharashtra Prevention and Eradication of Human Sacrifice and other Inhuman, Evil and Aghori Practices and Black Magic Act, 2013 was passed after the murder of anti-superstition activist Dr. Narendra Dabholkar.
- **Rajasthan:** Rajasthan enacted the Rajasthan Prevention of Witch-Hunting Act in 2015 to "provide for effective measures to tackle the menace of witch-hunting and prevent the practice of witchcraft."
- **Assam:** The Assam Witch Hunting (Prohibition, Prevention and Protection) Act, 2015, which received the President's assent in 2018, prohibits witch hunting completely.
- **Karnataka:** The latest law was passed in Karnataka where the Karnataka Prevention and Eradication of Inhuman Evil Practices and Black Magic Act, 2017 came into effect in January 2020.
  - The law bans several practices related to black magic and superstition, like forcing a person to walk on fire at religious festivals and the practice of piercing rods from one side of the jaw to the other.

DECENTRALISE MGNREGS FOR BETTER IMPLEMENTATION, SAYS STUDY

- There should be a greater diversification of permissible works instead of listing the types of permissible works, broad categories of works may be listed out and flexibility should be given at ground level to select the type of works as per broad categories,
- The study also flagged the frequent delay in fund disbursal, and to deal with it suggested a "revolving fund that can be utilised whenever there is a delay in the Central funds".
- The MGNREGS wages were far below the market rate in many States, defeating the purpose of acting as a safety net.
  - At present, the minimum wage of a farm labourer in Gujarat is ₹324.20, but the MGNREGS wage is ₹229.
- The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) was enacted on August 25, 2005.
- It provides a legal guarantee for one hundred days of employment in every financial year to adult members of any rural household willing to do public work-related unskilled manual work at the statutory minimum wage.
- The **Ministry of Rural Development (MRD)** is monitoring the entire implementation of this scheme in association with state governments.

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- This act was introduced with an aim of improving the purchasing power of the rural people, primarily semi or un-skilled work to people living below poverty line in rural India.

Uttar Pradesh assembly secretariat seeks legal opinion on disqualification issue of BJP MLA Vikram Saini

- **Section 8 of the Representation of the People Act (RPA), 1951**, contains provisions aimed at decriminalising electoral politics.
- There are **two categories of criminal cases that attract disqualification upon conviction.**
- In the **first category** are offences that entail disqualification for a period of six years upon any conviction.
    - If the punishment is a fine, the six-year period will run from the date of conviction, but if there is a prison sentence, the disqualification will begin on the date of conviction, and will continue up to the completion of six years after the date of release from jail.
    - **Major IPC offences are included under this head:**
        - making speeches that cause enmity between groups (Sec.153A) and doing so in a place of worship (Sec.505), bribery and personation during elections and other electoral offences, offences relating to rape and cruelty to women by husband and latter's relatives.
        - Besides, serious provisions of special laws such as the Protection of Civil Rights Act, Customs Act, Unlawful Activities (Prevention) Act etc are among the category of offences that entail disqualification regardless of the quantum of punishment.
        - Laws for prevention of Sati, corruption, terrorism and insult to national flag and national anthem etc are also part of this group.
    - **All other criminal provisions form a separate category** under which mere conviction will not entail disqualification. A sentence of at least two years in prison is needed to incur such disqualification.
- Under Section 8(4) of the RPA, legislators could avoid immediate disqualification until 2013.
- The provision said that with respect to a Member of Parliament or a State legislator the disqualification will not take effect for three months.
- If within that period, the convicted legislator files an appeal or revision application, it will not take effect until the disposal of the appeal or application.
- In Lily Thomas vs. Union of India, the Supreme Court struck down clause (4) as unconstitutional, thus removing the protection enjoyed by lawmakers.
- The Supreme Court has the power to stay not only the sentence, but also the conviction of a person.
- In some rare cases, conviction has been stayed to enable the appellant to contest an election. However, the SC has made it clear that such a stay should be very rare and for special reasons.
- The RPA itself provides a remedy through the Election Commission.
- Under 11 of the Act, the EC may record reasons and either remove, or reduce the period of, a person's disqualification.
    - The EC exercised this power for Sikkim Chief Minister P.S. Tamang, who served a one-year sentence for corruption, and reduced his disqualification so as to contest a byelection and remain in office.

'Two-finger test' of sexual assault victims: What SC said, past attempts to stop it

- A woman who has been sexually assaulted undergoes a medical examination for ascertaining her health and medical needs, collection of evidence, etc.
- The two-finger test, carried out by a medical practitioner, involves the examination of her vagina to check if she is habituated to sexual intercourse. The practice is unscientific and does not provide any definite information. Moreover, such 'information' has no bearing on an allegation of rape.
- A handbook released by the World Health Organization (WHO) on dealing with sexual assault victims says, "There is no place for virginity (or 'two-finger') testing; it has no scientific validity".

The Supreme Court Observations:

- In 2004 SC observed that whether a woman is 'habituated to sexual intercourse' or 'habitual to sexual intercourse' is irrelevant for the purposes of determining whether the ingredients of Section 375 (rape) of the IPC are present in a particular case.
- In 2013, the SC court had held that the two-finger test violates a woman's right to privacy and asked the government to provide better medical procedures to confirm sexual assault.
- Invoking the International Covenant on Economic, Social, and Cultural Rights 1966 and the UN Declaration of Basic Principles of Justice for Victims of Crime and Abuse of Power 1985, the apex court said rape survivors are entitled to legal recourse that does not re-traumatise them or violate their physical or mental integrity and dignity.

What is the status of remote voting for NRIs?

- According to estimates, India has the largest diaspora population, with nearly 1.35 crore non-resident Indians spread across the globe.
- Many of them are in the Gulf countries, the U.S. and the U.K.
- In the 2019 Lok Sabha elections, 99,844 NRIs registered and 25,606 electors turned up to vote, with a majority hailing from Kerala (25,534).
- In the 2014 Parliamentary elections, 11,846 NRIs registered and only a fraction turned up to vote.
- Of the registered overseas electors, 90% belonged to Kerala. Others registered are from Gujarat, Punjab, and Tamil Nadu among other States.
- A major reason for low NRI registration and voting despite India amending the Representation of the People Act in 2010 to enable eligible NRIs who had stayed abroad beyond six months to vote is the condition that they have to visit the polling booth in person.
- Since the in-person proviso of the amended Act discouraged many, petitions were filed in the Supreme Court between 2013 and 2014 by NRIs.
- The Election Commission of India (ECI) formed a Committee in 2014 on the Court's direction to explore the options for overseas electors.
- The committee narrowed it down to two remote voting options —
  - e-postal ballot and
  - proxy voting.
- Electronically Transmitted Postal Ballot System (ETPBS):
  - The Electronically Transmitted Postal Ballot System (ETPBS) involves the NRI voter

sending an application to the returning officer in person or online.
  ○ The returning officer will send the ballot electronically.
  ○ The voter can then register their mandate on the ballot printout and send it back with an attested declaration.
  ○ The voter will either send the ballot by ordinary post or drop it at an Indian Embassy where it would be segregated and posted.
- Proxy voting:
  ○ Proxy voting, meanwhile, enables voters to appoint proxies to vote on their behalf.
  ○ Both ETPBS and proxy voting are currently available to only service voters, like those in the armed forces or diplomatic missions.
- In its report, the ECI said proxy voting would be a "convenient" and "doable" method.
- In 2017, however, the government introduced a Bill to amend the Representation of People Act to remove the condition of in-person voting for NRIs and enable them to vote through proxies.
- The Bill was passed in the Lok Sabha in 2018 but never introduced in the Upper House, eventually lapsing with the 16th Lok Sabha.
- In 2020, the ECI wrote to the Law Ministry that it was "technically and administratively ready" to facilitate ETPBS for NRIs in the 2021 Assembly elections in five States but the External Affairs Ministry flagged "huge logistical challenges" relating to identity verification of voters, absence of polling agents, the burden on embassy staff etc

Over 2 Years Since it Was Notified, Union Govt Appoints Law Commission Chairperson, Members

- The appointment comes after more than two years after the 22nd Law Commission was notified on February 24, 2020.
- Status: Law Commission of India is a non-statutory body and is constituted by a notification of the Government of India.
- Background:
  ○ The Charter Act 1833 which was enacted by the British Parliament provided for the establishment of a Law Commission for consolidation and codification of Indian Laws.
  ○ In 1835, Lord Macaulay was appointed as Chairman of the First Law Commission.
- Tenure: The tenure of Law Commission is for three years.
- Mandate:
  ○ The Law Commission shall, on a reference made to it by the Central Government or suo-motu, undertake research in law and review of existing laws in India for making reforms therein and enacting new legislations.
  ○ It shall also undertake studies and research for bringing reforms in the justice delivery systems for elimination of delay in procedures, speedy disposal of cases, reduction in cost of litigation etc.
- Composition & Eligibility: It has no fixed composition, no defined eligibility criteria for its chair and members, and no set functions.

CAG among most prestigious audit institutions in the world: LS Speaker

- Comptroller and Auditor General of India is the apex authority responsible for external and

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- internal audits of the expenses of the National and state governments in the country.
- The Constitution of India provides for an independent office of the Comptroller and Auditor General of India (CAG) in **Chapter V.**
- The CAG is mentioned in the Constitution of India under **Article 148 – 151.**
- **Article 148** broadly deals with the CAG appointment, oath and conditions of service.
- **Article 149** deals with duties and powers of the Comptroller and Auditor-General of India.
- **Article 150** says that the accounts of the Union and of the States shall be kept in such form as the President may, on the advice of the CAG, prescribe.
- **Article 151** says that the reports of the Comptroller and Auditor-General of India relating to the accounts of the Union shall be submitted to the President, who shall cause them to be laid before each House of Parliament.
- As per **Article 279** Calculation of "net proceeds" is ascertained and certified by the Comptroller and Auditor-General of India, whose certificate is final.
- **Third Schedule of the Constitution of India** prescribes the form of oath or affirmation to be made by the Judges of the Supreme Court and the Comptroller and Auditor-General of India at the time of assumption of office.
- **As per Article 148 of the Constitution**, there shall be a Comptroller and Auditor-General of India who shall be appointed by the President and can be removed from office only in the manner and on the grounds that a Judge of the Supreme Court is removed.
- He holds office for a period of **six years or upto the age of 65 years**, whichever is earlier.
- CAG audits the accounts related to all **expenditure from the Consolidated Fund of India, Consolidated Fund of each state and UT's** having a legislative assembly.
- He audits all expenditure from the **Contingency Fund of India and the Public Account of India as well as the Contingency Fund and Public Account of each state.**
- He audits all trading, manufacturing, profit and loss accounts, balance sheets and other subsidiary accounts kept by any department of the Central Government and the state governments.
- CAG audits the receipts and expenditure of all bodies and authorities substantially financed from the Central or State revenues; government companies; other corporations and bodies, when so required by related laws.
- He audits the accounts of any other authority when requested by the President or Governor e.g. Local bodies.
- He advises the President with regard to prescription of the form in which the accounts of the Centre and States shall be kept.

Reports by CAG:

- The CAG submits his audit reports relating to the accounts of the Centre to the President, who shall, in turn, place them before both the houses of Parliament.
- **He submits 3 audit reports to the President**
  - Audit report on appropriation accounts
  - Audit report on finance accounts
  - Audit report on public undertakings
- He also submits his audit reports relating to the accounts of a State to the Governor, who shall, in turn, place them before the state legislature.

DMK vs Governor

- **Article 155 and 156:** Under Article 155 and 156 of the Constitution, a Governor is appointed

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by the President and holds office "during the pleasure of the President".
- If this pleasure is withdrawn before completion of the five-year term, the Governor has to step down.
- As the President works on the aid and advice of the Prime Minister and the council of ministers, in effect, the Governor can be appointed and removed by the central government.
- Thus, a Governor is a representative of the Union government in states.
- **Article 163:** Article 163 of the Constitution says the Governor will normally be aided and advised by the Council of Ministers except in those functions which require his discretion.
- While the Governor's duties and responsibilities lie in a particular state, there is no provision for impeaching the Governor.
- There are no provisions laid down in the Constitution for the manner in which the Governor and the state must engage publicly when there is a difference of opinion.
- The management of differences has traditionally been guided by respect for each other's boundaries.

Cases:

- Since the Governor holds office "on the pleasure of the President", questions have been raised time and again on whether the Governor has any security of tenure, and if the President is obligated to show reasons for recalling a Governor.
  - In **Surya Narain Choudhary vs Union of India (1981),** the Rajasthan High Court held that the pleasure of the President was not justiciable, the Governor had no security of tenure and can be removed at any time by the President withdrawing pleasure.
  - In **BP Singhal vs Union of India (2010),** the Supreme Court elaborated on the pleasure doctrine. It upheld that "no limitations or restrictions are placed on the 'at pleasure' doctrine", but that "does not dispense with the need for a cause for withdrawal of the pleasure".
    - The President can remove the Governor from office "at any time without assigning any reason and without giving any opportunity to show cause", the power to remove can't be exercised in an "arbitrary, capricious or unreasonable manner".

Need to update National Population Register again to incorporate changes due to birth, death and migration: MHA annual report

- The National Population Register (NPR) is a register of usual residents of the country.
- It includes both Indian citizens as well as a foreign citizen.
- According to the Citizenship (Registration of Citizens and issue of National Identity Cards) Rules, 2003, a usual resident is a person who has resided in a local area for the past 6 months or more or a person who intends to reside in that area for the next 6 months or more.
- It is being prepared at the local (Village/sub-Town), sub-District, District, State and National level under provisions of the Citizenship Act 1955 and the Citizenship (Registration of Citizens and issue of National Identity Cards) Rules, 2003.
- The first National Population Register was prepared in 2010 and updation of this data was done during 2015 by conducting door to door survey.
- The next update of the NPR will take place next year from April to September 2020 in all the States/UTs except Assam along with the Houselisting phase of the Census 2021.
- The demographic details of every individual are required on 21 points which includes 'date

and place of birth of parents', last place of residence, Permanent Account Number (PAN), Aadhar (on a voluntary basis), Voter ID card number, Driving License Number and Mobile Number.
- In the last NPR done in 2010, the data was collected on the 15 points and it did not include 'date and place of birth of parents' and last place of residence.

'A Decade of POCSO'

- Ten years after the enactment of The Protection of Children from Sexual Offences (POCSO) Act, which deals specifically with child sexual abuse, an analysis of POCSO cases across India has found gaps in its implementation – including increasing pendency of cases and a high rate of acquittals.
- The analysis, titled **'A Decade of POCSO'**, was carried out by the Justice, Access and Lowering Delays in India (JALDI) Initiative at Vidhi Centre for Legal Policy, in collaboration with the Data Evidence for Justice Reform (DE JURE) program at the World Bank.
- **Acquittals:** The analysis has found that 43.44% of trials under POCSO end in acquittals while only 14.03% end in convictions.
- For every one conviction in a POCSO case, there are three acquittals.
- Acquittals are significantly higher than convictions for all the states studied.
    - For instance, in Andhra Pradesh, acquittals are seven times more than convictions; and in West Bengal, acquittals are five times more than convictions.
    - In Kerala, the gap between acquittal and conviction is not very high with acquittals constituting 20.5% of the total disposals and convictions constituting 16.49%.
- As per data published by the **National Crime Record Bureau in 2021, in 96% of the cases filed under the POCSO Act, 2012**, the accused was a person known to the child victim – in 48.66% of cases, the accused is either a friend or a romantic partner of the victim.
- The study has found on average, it **takes 509.78 days for a POCSO case** to be disposed of – whereas it has been stipulated under the Act that such cases need to be disposed of within a year.
- **Delhi has the highest number of POCSO trials** in the country with 13.54 cases per 100,000 population in 2018 – which does not necessarily mean the number of incidents of sexual offences is higher, but that there is increasing awareness and reporting of cases.
- Time taken:
    - **Chandigarh and West Bengal** are the only states where the average time taken for convictions is within one year.
    - States like Chhattisgarh, Haryana, Kerala, Sikkim, Chandigarh and the NCT of Delhi seem to have a much higher reporting of POCSO cases.
- Pendency:
    - Uttar Pradesh has the highest pendency with more than three-fourths (77.77%) of the total POCSO cases filed between November 2012 and February 2021 pending.
    - On the other hand, at 80.2%, Tamil Nadu has the highest disposal percentage.
- Support Persons:
    - According to the study, "support persons" are not being appointed in most POCSO cases.
    - The Supreme Court had also noted that in 96% of cases, a support person was not provided to the victim.
        - A **support person** may be a person or organisation working in the field of child rights or child protection, an official of a children's home or a shelter home having custody of the child, or a person employed by the District Child

Protection Unit (DCPU), who hand holds the victim through the entire legal process.

- POCSO courts:
  - The analysis further notes POCSO courts have not been designated in all districts.
  - As of 2022, 408 POCSO courts have been set up in 28 States as part of the Government's Fast Track Special Court's Scheme.
  - There is a lack of Special Public Prosecutors appointed specifically to handle POCSO cases.

Govt's draft Data Protection Bill proposes hefty fine for violation

The first draft of the Bill was presented by an expert panel headed by Justice B.N. Srikrishna in July 2018.

Digital Personal Data Protection Bill, 2022:

- The new Bill now being called the Digital Personal Data Protection Bill, 2022, has provisions on 'purpose limitations' around data collection, grounds for collecting and processing personal data, relaxation on cross-border data flows, and imposes significant penalties on businesses for violating provisions of the Bill.
- **Cross-border data flows:** The proposed legislation offers significant concessions on cross-border data flows, in a departure from the previous Bill's contentious requirement of local storage of data within India's geography.
  - According to the new draft, the Centre will notify regions to which data of Indians can be transferred.
- **Penalties:** The draft also proposes to impose significant penalties on businesses that undergo data breaches or fail to notify users when breaches happen.
  - Entities that fail to take "reasonable security safeguards" to prevent personal data breaches will be fined as high as Rs 250 crore.
  - If an entity fails to notify users about a data breach, the fine could go as high as Rs 200 crore.
- **Data localisation:** The new Bill would relax data localisation requirements and allow data flows to trusted geographies.
- Exemptions:
  - **National security-related exemptions** have been kept intact in the new Bill.
  - The Centre has been empowered to notify such exemptions in the interest of sovereignty and integrity of India, security of the state, friendly relations with foreign states, maintenance of public order or preventing incitement to any cognisable offence relating to any of these.
  - The government could also exempt certain **businesses from adhering to provisions of the Bill** on the basis of number of users and the volume of personal data processed by the entity.
  - This has been done keeping in mind **startups** of the country who had complained that the previous version of the Bill was too "compliance intensive".
- **Data Protection Board:** The Bill also proposes to set up a Data Protection Board to ensure compliance with the Bill.
  - It can impose a penalty of up to ₹500 crore if non-compliance by a person is found to be significant.

13

Retired IAS officer Arun Goel takes charge as Election Commissioner

- **View of Constitution:**
  - The power to appoint the CEC and the ECs lies with the President of India under **Article 324(2) of the Constitution**, which states that "the President shall fix the number of ECs in a manner he sees fit, subject to the provisions of any law made by Parliament".
  - Thus, **Article 324(2)** left it open for the Parliament to legislate on the issue.
- **Procedure:**
  - But, in the absence of any Parliamentary law governing the appointment issue, the ECs are appointed by the government of the day, without pursuing any consultation process.
  - There is no concept of collegium and no involvement of the opposition.
- **Tenure:** The Commissioners are appointed for a **6-year period, or up to the age of 65 years,** whichever is earlier.
- **Qualification:** There are no prescribed qualifications for their appointment, although convention dictates that only senior (serving or retired) civil servants, of the rank of the Cabinet Secretary or Secretary to the GoI or an equivalent rank, will be appointed.

IREDA celebrates 'Constitution Day'

- IREDA is a Mini Ratna (Category – I) Government of India Enterprise under the administrative control **of Ministry of New and Renewable Energy (MNRE).**
- It is engaged in promoting, developing and extending financial assistance for setting up projects relating to new and renewable sources of energy.
- IREDA has been notified as a "**Public Financial Institution**" under the Companies Act, 1956 and registered as **Non-Banking Financial Company (NBFC) with Reserve Bank of India (RBI).**
- **IREDA's Motto** is "Energy for Ever."

Objectives of IREDA

- To give **financial support to specific projects and schemes** for generating electricity and / or energy through new and renewable sources and conserving energy through energy efficiency.
- To maintain its position as a leading organisation to provide efficient and effective financing in renewable energy and energy efficiency / conservation projects.
- To **increase IREDA`s share in the renewable energy sector** by way of innovative financing.
- Improvement in the efficiency of services provided to customers through continual improvement of systems, processes and resources.
- To strive to be competitive institution through customer satisfaction.

Population Criteria For New Eklavya Schools 'impractical', Says

Parliamentary Committee

- The Tribal Affairs Ministry intends to go ahead with its plan to build new Eklavya Model Residential Schools (EMRS) on 15 acres of land in all sub-districts which have Scheduled Tribe communities of more than 20,000 people, who make up at least 50% of their total population, despite a Parliamentary panel saying that this criteria is "impractical".
- **Implementing ministry:** Ministry of Tribal Affairs.
- **Background**: The scheme of EMRSs was introduced in the year 1997-98 to ensure tribal students get access to quality education in the remote tribal areas.
- **Features:**
  - The schools would focus to provide quality upper primary, secondary and senior secondary level education to ST Students in these areas.
  - Apart from school building including hostels and staff quarters, provision for a playground, students' computer lab, teacher resource room etc. are also included in the EMRSs.
- **Revamp of scheme:** In 2018, Union Cabinet revamped the scheme with following features.
  - EMRSs will be setup in every block with more than 50% ST population and at least 20,000 tribal persons.
  - There will be an Autonomous Society under the Ministry of Tribal Affairs similar to Navodaya Vidyalaya Samiti to run the EMRSs.

ECONOMY

Centre formulates action plan to promote exports of millets and value-added products of millets

- According to the action plan, Indian missions abroad would be roped in branding and publicity of Indian millets.
- This include, identification of potential buyers such as departmental stores, supermarkets, and hypermarkets for organizing business-to-business meetings and direct tie-ups.
- As part of the promotion of Indian millets, Agricultural and Processed Food Products Export Development Authority has planned to showcase millets and its value-added product on various global platforms.
- The **United Nations has declared 2023 as the International Year of Millets.**
- India is one of the leading producers of millet in the world with an estimated share of around 41 percent in global production.
- The country recorded 27 percent growth in millet production in 2021-22 which stood at 15.92 million metric tonnes.
- The country's top five millet-producing states are **Rajasthan, Maharashtra, Karnataka, Gujarat, and Madhya Pradesh.**
- It is estimated that the millets market is set to grow to 12 billion US dollars by 2025 from the

current 9 billion dollars.

Why has EU's financial markets regulator derecognised six Indian clearing bodies?

- These six CCPs are
  - Clearing Corporation of India (CCIL),
  - Indian Clearing Corporation Ltd (ICCL),
  - NSE Clearing Ltd (NSCCL),
  - Multi Commodity Exchange Clearing (MCXCCL),
  - India International Clearing Corporation (IFSC) Ltd (IICC) and
  - NSE IFSC Clearing Corporation Ltd (NICCL).
- As per the European Market Infrastructure Regulations (EMIR), a CCP in a third country can provide clearing services to European banks only if it is recognized by the ESMA.
- The ESMA said it reviewed the recognition of all third country CCPs (TC-CCPs) that had been recognised prior to September 21, 2020, as per the European Market Infrastructure Regulation (EMIR) regime.
- The decision to derecognise Indian CCPs came due to 'no cooperation arrangements' between the ESMA and Indian regulators — the Reserve Bank of India (RBI), the Securities and Exchange Board of India (SEBI) and the International Financial Services Centres Authority (IFSCA).
- The EU regulator said it will defer the application of the withdrawal decisions until April 30, 2023 to mitigate the adverse impact of the move on EU market participants.
- The ESMA wants to supervise these CCPs, which the Indian regulators are not in favour of as they feel that these entities have robust risk management and there is no need for a foreign regulator to inspect them.

Central Counterparty Clearing house (CCP):

- A central counterparty clearing house (CCP) is an entity that helps facilitate trading in various European derivatives and equities markets.
- Typically operated by the major banks in each country, CCPs strive to introduce efficiency and stability into various financial markets.
- It reduces counterparty, operational, settlement, market, legal, and default risk for traders.
- A CCP acts as a counterparty to both sellers and buyers, collecting money from each, which allows it to guarantee the terms of a trade.
- CCPs perform two main functions as the intermediary in a market transaction
  - clearing and settlement and
  - guarantee the terms of a trade.
- A CCP is authorised by the RBI to operate in India under Payment and Settlement Systems Act, 2007.

SEBI amends takeover code

- The amendments to the **SEBI (substantial acquisition of shares and takeover) Regulations** were notified recently.

- The board has gone away with the rule that used to link open price offer to the last 60 days' trading volume.
- Post the latest change in Takeover Code, acquirers would enjoy flexibility in pricing their open offers for minority shareholders and not be required to calculate the open offer price linked to 60 days volume weighted average market price (VWAMP) prior to the date of public announcement.
- The earlier requirement of calculating 60 days VWAMP for determination of open offer price in case of disinvestment of PSU Companies, wherein it results in its change in control, has been dispensed with.
- The change has been made to ease strategic investments in public sector units for the Central and State governments.
- **Ease of Business:**
  - Acquirers would enjoy flexibility in pricing their open offers for minority shareholders
  - Offers level playing field with private sector
  - Provides a financial certainty to strategic investors
  - Will boost transparency in disinvestments

Moody's Cuts India's Economic Growth Projections to 7% For 2022

- The report titled 'Global Macro Outlook 2023-24: Global economy faces a reckoning over inflation, geopolitics and policy trade-offs'.
- The downward revision assumes higher inflation, high interest rates and slowing global growth will dampen economic momentum by more than previously expected.
- The weakening of the rupee and high oil prices continue to exert upward pressure on inflation, which has remained above the Reserve Bank of India's '4 per cent -/+ 2 per cent' target range for much of this year.
- Annual headline CPI inflation increased to 7.5 per cent in September, 2022 after dipping below 7 per cent in July.
- Wholesale price inflation, however, declined for four straight months, from a peak of 16.6 per cent in May to 10.7 per cent in September.
- From May to September, the RBI has raised the repo rate a cumulative 190 bps to 5.9 per cent to contain inflation risks.
- This is not the first downward revision of the Indian economy, though all the revisions are for the fiscal year.
- The **International Monetary Fund (IMF)** cut India's GDP forecast for the current fiscal (FY23) by 60 basis points to 6.8 per cent from 7.4 per cent estimated earlier.
- Before that, the **World Bank** cut the forecast by 1 percentage point to 6.5 per cent, **ADB** by 50 basis points to 7 per cent, **Fitch** by 80 basis points to 7 per cent and the **RBI** by 20 basis points to 7 per cent.
- **S&P Global and OECD** have maintained the forecast at 7.3 per cent and 6.9 per cent, respectively.

US Treasury removes India from its Currency Monitoring List

- India had been on the list for the last two years.
- China, Japan, Korea, Germany, Malaysia, Singapore, and Taiwan are the seven economies

that are a part of the current monitoring list.
- The countries that have been removed from the list have met only one out of three criteria for two consecutive reports.
- The Trade Facilitation and Trade Enforcement Act of 2015 of US requires its Treasury Department to report to the Congress in every six months if any country is manipulating its currencies to gain trade advantages over the US.
- One of the ways of manipulation involves any country artificially weakening its currency by selling it in exchange for a foreign currency, usually the US dollar.
- This artificial weakening of currency makes its own exports cheaper, thereby gaining an unfair trade advantage over another country's exports.
- There are three criteria the US Treasury looks at in placing a country on the watch list:
  - Significant trade surplus with the US (at least $20 billion in 12 months)
  - A large current account surplus (at least 2 per cent of GDP over a 12-month period)
  - "Persistent", one-sided intervention (when net purchases of foreign currency totalling at least 2 per cent of the country's GDP over a 12-month period are conducted repeatedly, in at least six out of 12 months).

The countries that meet two out of the three criteria are placed on the watch list.

Current account deficit likely to be lower at 3% this fiscal

- Balance of Payments (BoP):
  - The Balance of payments (BoP) records the transactions in goods, services and assets between residents of a country with the rest of the world.
  - There are two main accounts in the BoP –
    - the current account and
    - the capital account.
  - Current Account:
    - The current account records exports and imports in goods and services and transfer payments.
    - Trade in services denoted as invisible trade (because they are not seen to cross national borders) includes both
      - factor income (payment for inputs-investment income, that is, the interest, profits and dividends on our assets abroad minus the income foreigners earn on assets they own in India) and
      - non-factor income (shipping, banking, insurance, tourism, software services, etc.).
    - Transfer payments are receipts which the residents of a country receive 'for free', without having to make any present or future payments in return. They consist of remittances, gifts and grants. They could be official or private.
    - The balance of exports and imports of goods is referred to as the trade balance.
    - Adding trade in services and net transfers to the trade balance, we get the current account balance.

RIL awarded project to make India's first multimodal logistics park

- To set up the country's first MMLP, the Centre and Tamil Nadu government have come together to form a special purpose vehicle (SPV), which is amongst National Highways Logistics Management, Rail Vikas Nigam, Chennai Port Authority and Tamil Nadu Industrial Development Corporation.
- The estimated project cost is ₹1,424 crore and the total concession period is 45 years.
- The project would likely be monitored by the highest levels of the government, as it falls under the high-priority list of projects inaugurated by Prime Minister Narendra Modi under the Centre's project monitoring system.
- These parks will also facilitate intermodal transportation – roads, railways, and inland waterways, with the aim of strengthening and diversifying the logistics system.
- MMPLs will play a crucial role in reducing logistics costs.
- India's logistics cost as a percentage of GDP is very high at 16 per cent, while in developed countries such as the US and Europe, it is around 8 per cent.
- China's logistics costs are 10 per cent.
- The government wants to **bring down the logistics cost to 10 per cent of GDP.**
- Under the **PM Gati Shakti National Master Plan (NMP)**, launched in October 2021, the Road Ministry is developing **35 MMLPs, of which 15 MMLPs are being prioritised in the next three years.**

Retail inflation cools to 6.77% in October from 7.41% in September

- This is the tenth month in a row that inflation has been over the 6% upper tolerance threshold mandated for the Reserve Bank of India (RBI).
- The last time consumer price inflation was below the 7% mark was in July, at 6.71%.
- Rural consumers continued to face 7% inflation in October, slightly lower than the 7.6% in September, while urban India consumers' price rise eased to 6.5% from 7.3% in the previous month.
- Inflation measured by the Consumer Food Price Index moderated from 8.6% in September to 7% in October, but rural households faced 7.3% inflation while the same rate was 6.5% for their urban counterparts.
- The Union Finance Ministry attributed the significant decline in retail inflation in October mainly to a decrease in food price inflation, driven significantly by "the decline in prices of vegetables, fruits, pulses and oils & fats.
- Cereals inflation remained sticky, rising from 11.53% in September to 12.1% in October, with rural India facing nearly 12.7% inflation. Similarly, vegetables inflation dropped sharply to 7.8% from 18.05% in September, with urban and rural consumers seeing prices rise 6.6% and 8.45%, respectively.
- The Consumer Price Index is a comprehensive measure used for estimation of price changes in a basket of goods and services representative of consumption expenditure in an economy.
- It is one of the most important statistics for an economy and is generally based on the weighted average of the prices of commodities and gives an idea of the cost of living.
- The percentage change in this index over a period of time gives the amount of inflation over that specific period, i.e. the increase in prices of a representative basket of goods consumed.
- At the national level, there are four Consumer Price Index (CPI) numbers. These are:
  - **CPI for Industrial Workers (IW)** - Base Year 2016

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- ○ **CPI for Agricultural Labourers (AL) and CPI for Rural Labourers (RL)** - Base Year 1986-87
  - ○ **CPI (Rural/Urban/combined)** - Base Year 2012
- While the first three are compiled and released by the **Labour Bureau in the Ministry of Labour, the fourth one is released by the NSO in the Ministry of Statistics and Programme Implementation.**

Nine Russian banks open Vostro accounts for rupee trade

- Russia becomes first country to facilitate rupee-based export-import transactions
- The move will facilitate India's exports to sanction-hit Russia, which reported a 24% decline in the April-August period. The RBI-designed mechanism only entails trade in the Indian rupee, eliminating exchange risks.
- To facilitate trade through this route, the government, through an amendment in the foreign trade policy recently, allowed exporters to avail of incentives or duty rebates for settling trade in rupee terms.

Nostro account:

- A Nostro account is an account held by a bank in another bank.
- It allows the customers to deposit money in the bank's account in another bank. It is often used if a bank has no branches in a foreign country.
- The main difference between a deposit account and a Nostro account is that the former is held by individual depositors while foreign institutions hold the latter.

Vostro account:

- A Vostro account is just another name for a Nostro account.
- It is an account held by a bank that allows the customers to deposit money on behalf of another bank.
- A Nostro account is a Vostro account for the bank that opens the account.
- If a person deposits money in the Vostro account, it will be transferred to the account holder's bank.

In worst slide since 2020, October exports drop 16.7% to $29.78 bn

- **Merchandise exports declined 16.7% on year in October, the first drop in 20 months** and the worst slide since May 2020 when a nation-wide lockdown was imposed to contain the Covid outbreak.
- The curbs on exports of select steel products, iron ore and non-basmati rice and the ban on those of wheat to ease domestic inflation have also contributed to the export decline.
- **Exports dropped below the crucial $30-billion mark for the first time since March 2021 to hit $29.8 billion. Imports, however, rose 5.7%, to $56.7 billion.**
- Consequently, trade deficit inched up to $26.9 billion in October from $25.7 billion in the previous month; but it still remained lower than July's record level of $30 billion.
- The export decline in October was rather broad-based, as 24 of the 30 key segments–including petroleum products, engineering goods, gems and jewellery, textiles and garments,

chemicals and pharmaceuticals–witnessed contraction, due to an economic slowdown in key markets that started to weigh down demand.
- However, the sustained rise in imports, albeit at a slower pace, suggests domestic consumption still remains stronger than in many parts of the world.
- **The World Trade Organisation (WTO) recently warned of a darkened 2023 and projected that global trade growth will drop to only 1% next year from 3.5% in 2022.**

IFSCA signs MoU with RBI in the field of regulation, supervision of regulated entities

- The MoU facilitates **technical cooperation and exchange of information.**
- The agreement aims to strengthen the safety, stability and soundness of respective financial ecosystems, thereby ensuring conducive environments for optimal business development and economic growth.
- While RBI is the central bank and monetary authority of India, the International Financial Services Centres Authority is a unified regulator responsible for **development and regulation of financial products, financial services and financial institutions in the International Financial Services Centre (s),** established across the country.

International Financial Services Centres Authority (IFSCA):

- The International Financial Services Centres Authority (IFSCA) has been established on April 27, 2020 under the International Financial Services Centres Authority Act, 2019.
- It is headquartered at **GIFT City, Gandhinagar in Gujarat.**

Role of IFSCA:

- The IFSCA is a unified authority for the development and regulation of financial products, financial services and financial institutions in the International Financial Services Centre (IFSC) in India.
- At present, the GIFT IFSC is the maiden international financial services centre in India.
- Prior to the establishment of IFSCA, the domestic financial regulators, namely, RBI, SEBI, PFRDA and IRDAI regulated the business in IFSC.
- The main objective of the IFSCA is to develop a strong global connect and focus on the needs of the Indian economy as well as to serve as an international financial platform for the entire region and the global economy as a whole.

Rise and fall of crypto exchange FTX

- FTX is short for "Futures Exchange".
- FTX is one of the biggest exchanges where trading those digital assets took place, and was touted by regulators and market watchers as one of the most transparent crypto operations.
- A crypto exchange is in the business of helping customers buy and sell cryptocurrencies.
- A cryptocurrency is a digital or virtual currency that is secured by cryptography, which makes it nearly impossible to counterfeit or double-spend.
- Many cryptocurrencies are decentralized networks based on blockchain technology - a

distributed ledger enforced by a disparate network of computers.
- A distributed ledger is a database that is consensually shared and synchronized across multiple sites, institutions, or geographies, accessible by multiple people.
- It allows transactions to have public "witnesses".
- Any changes or additions made to the ledger are reflected and copied to all participants in a matter of seconds or minutes.
- A defining feature of cryptocurrencies is that they are generally not issued by any central authority, rendering them theoretically immune to government interference or manipulation.

Treaties Committee supports ratification of a further trade agreement, this time with India

- AI-ECTA needs ratification by the Australian parliament before its implementation. **In India, such pacts are approved by the Union Cabinet.**
- The agreement, once implemented, will provide **duty-free access to the Australian market for over 6,000 broad sectors of India**, including textiles, leather, furniture, jewellery and machinery.
- Under the pact, **Australia is offering zero-duty access to India for about 96.4% of exports (by value) from day one**. This covers many products that currently attract 4-5% customs duty in Australia.
- **India's goods exports stood at USD 8.3 billion** and imports aggregated to USD 16.75 billion in 2021-22. The agreement would help in taking bilateral trade from USD 27.5 billion at present to USD 45-50 billion in the next five years.
- The Agreement inter-alia covers areas like **Trade in Goods, Rules of Origin, Trade in Services, Technical Barriers to Trade (TBT), Sanitary and Phytosanitary (SPS) measures.**
- Rules of origin are the **criteria needed to determine the national source of a product.** Their importance is derived from the fact that duties and restrictions in several cases depend upon the source of imports.
- **The General Agreement on Tariffs and Trade (GATT)** has **no specific rules governing the determination of the country of origin** of goods in international commerce. Each contracting party was free to determine its own origin rules, and could even maintain several different rules of origin depending on the purpose of the particular regulation.

In last 5 years, Rs 10 lakh crore in write-offs help banks halve NPAs

- A non-performing asset (NPA) is a loan or advance for which the principal or interest payment remained overdue for a period of 90 days.
- Banks are required to classify NPAs further into Substandard, Doubtful and Loss assets.
  - **Substandard assets:** Assets which has remained NPA for a period less than or equal to 12 months.
  - **Doubtful assets:** An asset would be classified as doubtful if it has remained in the substandard category for a period of 12 months.
  - **Loss assets:** As per RBI, loss asset is considered uncollectible and of such little value that its continuance as a bankable asset is not warranted, although there may be some salvage or recovery value.

- AFTER a loan turns bad, a bank writes it off when chances of recovery are remote. It helps the bank reduce not only its NPAs but also taxes since the written off amount is allowed to be deducted from the profit before tax.
- In "Technically Written Off" accounts, loans are written off from the books at the Head Office, without foregoing the right to recovery.
- Further, write-offs are generally carried out against accumulated provisions made for such loans.
- Once recovered, the provisions made for those loans flow back into the profit and loss account of banks.

Sri Lanka exports five times more than imports under India-Sri Lanka Free Trade Agreement

- Sri Lanka's exports added up to over 140 billion Lankan rupees under the agreement.
- Imports into Sri Lanka from India stood at 28 billion rupees.
- Trade with India contributed to almost 65 percent of the total trade of Sri Lanka under four existing free trade agreements.
- The Free Trade Agreement (FTA) between India and Sri Lanka was the first-ever bilateral trade agreement for both countries, **signed in 1998 and enforced in 2000.**
- The pact is aimed at further boosting the economic ties between the two countries by liberalising trade norms.

Free Trade Agreement (FTA):

- FTA is an agreement between the countries or regional blocks to reduce or eliminate trade barriers, though mutual negotiations with a view to enhancing trade.
- It can however be comprehensive to include goods, services, investment, intellectual property, competition, government procurement and other areas.
    - On goods, the key areas covered are customs duties or tariffs, rules of origins, non-tariff measures such as technical barriers to trade (TBT), sanitary phytosanitary (SPS) measures, trade remedies etc.
    - On services, the negotiations are on barriers to various modes of supply including domestic regulations.
- **Bilateral trade agreements** occur when two countries agree to unshackle trade restrictions to expand business opportunities.
- **Plurilateral agreements** occur between a large number of countries, either in the regional context or otherwise.
- **Multilateral trade agreements** is generally referred to for WTO negotiations since it covers a large number of countries and sets global trade rules.

EAC-PM issues working paper on decline in India's rankings on number of global opinion-based indices

- The Paper has analysed three perception-based indices- Freedom in the World Index, V-DEM indices, and EIU Democracy Index.
- The paper says that these indices are primarily based on the opinions of a tiny group of

unknown experts.
● It also says, the questions that are used are subjective and are worded in a way that is impossible to answer objectively.
● The Working paper also said that certain questions used by these indices are not an appropriate measure of democracy across all countries.
● It noted that since these indices are inputs into the World Governance Indicators, the World Bank should ensure greater transparency and accountability from these institutions.

PM's Economic Advisory Council (PMEAC):

● Economic Advisory Council to the Prime Minister (PMEAC] is a **non-constitutional, non-permanent and independent body** constituted to give economic advice to the Government of India, specifically the Prime Minister.
● The Council was set up with a view to provide a sounding board for inculcating awareness in government on the different point of view on key economic issues.
● It is common for the Council to be reconstituted time and again with different organizational structures headed by various economists who are of recognized international eminence.
● It was set up in **September 2017 with a term of two years**, replacing the erstwhile PMEAC, which was headed by former RBI governor C Rangarajan during the terms of former Prime Minister Manmohan Singh.
● The PMEAC is chaired by a **Chairperson and consists of eminent economists as members**.
● After the latest reconstitution, it now has a Chairperson, Member Secretary and two part-time members.
● It is supported in its functions by a team of officials and administrators.
● There is no fixed definition on the exact number of members and staff of the PMEAC.
● For administrative, logistic, planning and budgeting purposes, the NITI Aayog replaced erstwhile Planning Commission to serves as the Nodal Agency for the PMEAC.

RBI to launch first pilot for retail digital rupee on December 1

● Eight banks have been identified for phase-wise participation in this pilot.
● The first phase will begin with four banks including **State Bank of India, ICICI Bank, Yes Bank and IDFC First Bank in four cities across the country.**
● Four more banks, including **Bank of Baroda, Union Bank of India, HDFC Bank and Kotak Mahindra Bank** will join this pilot subsequently.
● The pilot would initially cover four cities, including **Mumbai, New Delhi, Bengaluru and Bhubaneswar and later extend to Ahmedabad, Gangtok, Guwahati, Hyderabad, Indore, Kochi, Lucknow, Patna and Shimla.**
● The scope of the pilot may be expanded gradually to include more banks, users and locations as needed.
● The pilot would cover select locations in a closed user group - CUG comprising participating customers and merchants.
● The digital Rupee would be in the form of a digital token that represents legal tender.
● Users will be able to transact with digital Rupee through a digital wallet offered by the participating banks and stored on mobile phones.
● Transactions can be **both Person to Person and Person Merchant.**
● Payments to merchants can be made **using QR codes** displayed at merchant locations.
● The digital Rupee would offer features of physical cash like **trust, safety and settlement**

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finality.
- As in the case of cash, **it will not earn any interest** and can be converted to other forms of money, like deposits with banks.
- The pilot will test the robustness of the entire process of digital rupee creation, distribution and retail usage in real time.
- Different features and applications of the digital Rupee token and architecture will be tested in future pilots, based on the learnings from this pilot.

Finance Minister approves Sovereign Green Bond framework

- Green bonds are financial instruments that generate funds for investment in environmentally sustainable and climate-suitable projects.
- Also, green bonds command a relatively lower cost of capital compared to regular bonds.
- This approval will further strengthen India's commitment towards its Nationally Determined Contribution targets, adopted under the Paris Agreement. It will help in attracting global and domestic investments in eligible green projects.
- The proceeds generated from the issuance of such bonds will be deployed in Public Sector projects which help in reducing carbon intensity of the economy.
- The proceeds will be deposited to the Consolidated Fund of India (CFI) in line with the regular treasury policy, and then funds from the CFI will be made available for eligible green projects.
- Every year, the finance ministry will inform RBI about the spending on green projects for which the funds raised through these bonds will be used.
- The framework comes close in the footsteps of India's commitments under "Panchamrit" as elucidated by Prime Minister Narendra Modi at COP26 at Glasgow in November 2021.

Exception:

- The government has excluded nuclear power and large hydropower projects of over 25 MW from the ambit of investments to be made through the issuance of sovereign green bonds.
- All fossil fuel-related projects have been kept out of the framework, along with biomass-based renewable energy projects that rely on feedstock from 'protected areas'.

Medium Green rating:

- The framework has been rated 'Medium Green', with a "Good" governance score by a Norway-based independent second opinion provider CICERO. The 'Medium Green' rating is assigned 'to projects and solutions that represent significant steps towards the long-term vision, but are not quite there yet'.

Green Finance Working Committee (GFWC):

- The Union Finance Ministry has constituted a Green Finance Working Committee (GFWC) with representation from relevant Ministries and chaired by Chief Economic Adviser, Government of India.
- The committee will meet at least twice a year to support Ministry of Finance with selection and evaluation of projects.
- The allocation of the proceeds will be reviewed in a time-bound manner by the GFWC to ensure that the allocation of proceeds is completed within 24 months from the date of

issuance.

CBDT proposes one common ITR form for most taxpayers

- According to the proposal, all taxpayers, barring trusts and non-profit organisations, can use the common ITR form, which also includes a separate head for disclosure of income from virtual digital assets.
- The draft ITR form aims to bring ease of filing returns and reduce the time for filing the ITR by individuals and non-business-type taxpayers considerably.
- It proposes to introduce a common ITR by merging all the existing returns of income except ITR-7. However, the current ITR-1 and ITR-4 will continue.
- This will give an option to such taxpayers to file the return either in the existing form (ITR-1 or ITR-4), or the proposed common ITR, at their convenience.
- There are seven kinds of ITR forms, which are used by different categories of taxpayers. They are as follows:
- ITR Form 1, called 'Sahaj', is for small and medium taxpayers. Sahaj forms can be filed by individuals who have an income up to Rs 50 lakh, with earnings from salary, one house property/ other sources (interest etc).
- ITR-2 is filed by people with income from residential property.
- ITR-3 is intended for people who have income as profits from business/ profession
- ITR-4 (Sugam) is, like ITR-1 (Sahaj), a simple forms, and can be filed by individuals, Hindu Undivided Families (HUFs) and firms with total income up to Rs 50 lakh from business and profession.
- ITR-5 and 6 are for limited liability partnerships (LLPs) and businesses respectively.
- ITR-7 is filed by trusts and non-profit organisations.

Scheme for Financial Support for Project Development Expenses of PPP Projects – 'IIPDF Scheme'

- What is it? It is a Central Sector Scheme which will aid the development of quality PPP projects by providing necessary funding support to the project sponsoring authorities, both in the Central and State Governments.
- Funding:
  - The corpus of the IIPDF shall comprise of initial budgetary outlay of Rs. 100 Crore by the Ministry of Finance. This would be supplemented, should it become necessary, through budgetary support by the Ministry of Finance from time to time.
  - Funding under IIPDF Scheme is in addition to the already operational Scheme for Financial Support to PPPs in Infrastructure (VGF Scheme).
- Organisational Structure: The IIPDF will be administered by the Empowered Institution. The Empowered Institution will:
  - Select projects for which project development costs will be funded.
  - Set the terms and conditions under which the funding will be provided and recovered.
  - Set milestones for disbursing and recovering (where appropriate) the funding.
- The Public Private Partnership Cell of the DEA will provide support functions examine the applications received for assistance under IIPDF.

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ENVIRONMENT

International Energy Agency (IEA) recently published World Energy Outlook 2022.

- This flagship publication of the IEA has appeared every year since 1998.
- Its objective data and dispassionate analysis provide critical insights into global energy supply and demand in different scenarios and the implications for energy security, climate targets and economic development.
- According to the World Energy Outlook 2022, Russia's invasion of Ukraine is a historic turning point in global energy markets, providing an unprecedented incentive to accelerate the transition to clean energy sources of fuel.
- Electricity and heat demand in the winter months shoot up in the Northern Hemisphere, so it is likely to be a challenging time for the European Union for the next couple of years.
- The global energy crisis has sparked desperate attempts from governments to promote energy security.
- Oil currently comprises 80 per cent of the global energy mix, but it may drop to 75 per cent by 2030 and around 60 per cent by 2050.
- **IEA's report talks mostly in terms of two models –**
1. **stated policies scenario (STEPS) and**
2. **announced pledges scenario (APS).**
   - **STEPS** provides a more conservative benchmark for the future, because it does not take it for granted that governments will reach all announced goals.
     - Instead, it takes a more granular, sector-by-sector look at what has actually been put in place to reach these and other energy-related objectives, taking into account not just existing policies and measures but also those that are under development.
   - **APS** aims to show to what extent the announced ambitions and targets, including the most recent ones, are on the path to deliver emissions reductions required to achieve net zero emissions by 2050.
- **India:**
   - India's coal generation and oil imports are going to peak in 2030, while gas imports will double around the same time.
   - India became the world's second- largest coal producer in 2021 (in energy terms), overtaking Australia and Indonesia, and that it plans to increase domestic production by more than 100 million tonnes of coal equivalent (Mtce) by 2025 from the current levels.
   - At present, India accounts for just over 10 percent of global coal consumption, after China which accounts for 55 percent.

What is the doctrine of pleasure?

- The pleasure doctrine is a concept derived from English common law, under which the crown can dispense with the services of anyone in its employ at any time.
- In India, **Article 310 of the Constitution** of India says every person in the defence or civil service of the Union holds office during the pleasure of the President, and every member of the civil service in the States holds office during the pleasure of the Governor.

- However**, Article 311** imposes restrictions on the removal of a civil servant.
- It provides for civil servants being given a reasonable opportunity for a hearing on the charges against them.
- There is also a provision to dispense with the inquiry if it is not practicable to hold one, or if it is not expedient to do so in the interest of national security.
- In practical terms, the pleasure of the President referred to here is that of the Union government, and the Governor's pleasure is that of the State government.
- Under **Article 164,** the Chief Minister is appointed by the Governor; and the other Ministers are appointed by the Governor on the CM's advice.
- It adds that Ministers hold office during the pleasure of the Governor.
- In a constitutional scheme in which they are appointed solely on the CM's advice, the 'pleasure' referred to is also taken to mean the right of the Chief Minister to dismiss a Minister, and not that of the Governor.
- In short, the Governor of an Indian State cannot remove a Minister on his own.

HARIT Aaykar initiative by Income Tax Department for increasing greenery and creating micro forests

- It was launched on the occasion of National Unity Day to increase greenery and create micro forests.
- Under this initiative, the Income Tax Department resolves to increase the green cover by planting trees and creating micro-forests in and around Income Tax Department's buildings and other public areas.

Micro forests:

- A micro-forest is a small, planted forest that maximises tree density and biodiversity.
- The Miyawaki method, which was devised by Japanese botanist Akira Miyawaki in the 1980s, is a technique to create micro forests over small plots of land.
- Achieving this goal requires planting a wide variety of plants in a fairly dense manner so that the plot of land has different layers of a forest such as shrubs and canopies and not just trees.
- Plants typically require anywhere between eight to nine months of care before reaching a point where the micro forest becomes self-sustaining.

Curious collage shows rhino horns are shrinking due to the impact of hunting

- The recent study analysed artwork and photographs of the animal spanning more than five centuries.
- Rhinos have long been hunted for their horns. The five surviving rhino species are threatened by habitat loss and hunting.
- The study found that the rate of decline in horn length was highest in the critically endangered Sumatran rhino and lowest in the white rhino of Africa, the most commonly found species in the wild and in captivity.
- This observation follows patterns seen in other animals, such as tusk size in elephants and

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horn length in wild sheep, which have been driven down by directional selection due to trophy hunting.

The Greater One-horned Rhinoceros:

- The greater one-horned rhino (or "Indian rhino") is the largest of the rhino species.
- It is identified by a single black horn and a grey-brown hide with skin folds.
- It is one of the five species of Rhinos.
    - The other four species are:
        - **White rhino:** It is native to northern and southern Africa
        - **Black rhino:** It is native to eastern and southern Africa
        - **Javan rhino:** It is also known as Sunda rhino or lesser one-horned rhino
        - **Sumatran rhino:** Critically Endangered species of rhino
    - **Habitat:**
        - Greater one-horned rhinos are grazers. When not grazing on land, they like to immerse themselves in water, where they also graze on aquatic plants.
        - This species of rhino is commonly found in Nepal, Bhutan, Pakistan and in Assam, India.
    - **Protection Status:**
        - IUCN Red List: Vulnerable
        - CITES: Appendix I
        - Wildlife Protection Act, 1972: Schedule I

Cabinet okays mechanism for ethanol procurement by public oil companies

- The Ethanol Blending Programme (EBP) seeks to achieve blending of Ethanol with motor sprit with a view to reducing pollution, conserve foreign exchange and increase value addition in the sugar industry enabling them to clear cane price arrears of farmers.
- The EBP programme was launched by the Ministry of Petroleum and Natural Gas in 2003, to promote the use of alternative and environment friendly fuels.
- Under this programme, starting with 5% blending, the government later increased the target of 10% ethanol blending by 2022.
- India's goal is to grow this ratio to 20% by 2030, but when the NITI Aayog released the ethanol roadmap in 2021, that deadline was advanced to 2025.

Home Ministry asks States to appoint Child Welfare Police Officers

- According to the Juvenile Justice (Care and Protection of Children) Act, 2015, there should be at least one officer, not below the rank of an Assistant Sub-Inspector, as CWPO in every station.
- National Commission for Protection of Child Rights had requested that a Special Juvenile Police Unit in each district and city, which is headed by an officer not below the rank of a Deputy Superintendent of Police, be established.
- The unit would comprise CWPOs and two social workers having experience of working in the field of child welfare, of whom one shall be a woman, to co-ordinate all functions of police in relation to children.
- The contact particulars of the CWPOs should be displayed in all police stations for the public

to contact.

A gold-mushroom combo to ease drug delivery

- Cordy gold nanoparticles (Cor-AuNPs) is the outcome of a collaborative experiment by scientists from four Indian institutions, has earned an international patent from Germany.
- These nanoparticles, derived from the synthesis of the extracts of Cordyceps militaris and gold salts, could make drug delivery in the human body faster and surer.
- Cordyceps militarisis a high value parasitic fungus, lab-grown at the Department of Biotechnology's Technology Incubation Centre (TIC) in Bodoland University, one of the collaborators of the patented research work.
- Gold salts are ionic chemical compounds of gold generally used in medicine.
- Wild Cordyceps mushroom is found in the eastern Himalayan belt.

Penetration:

- Penetration in the cells is more when the drug particles are smaller.
- Cordyceps militaris, called super mushroom because of its tremendous medicinal properties, adds bioactive components to the synthesis of gold nanoparticles for better penetration.

First celebration of the International Day for Biosphere Reserves

- The 3 November 2022 will be the first International Day for Biosphere Reserves
- Biosphere Reserve (BR) is an international designation by UNESCO for representative parts of natural and cultural landscapes extending over large area of terrestrial or coastal/marine ecosystems or a combination thereof.
- They are sites for testing interdisciplinary approaches to understanding and managing changes and interactions between social and ecological systems, including conflict prevention and management of biodiversity.
- Biosphere reserves are nominated by national governments and remain under the sovereign jurisdiction of the states where they are located.

World Network of Biosphere Reserves:

- The World Network of Biosphere Reserves (WNBR) was formed in 1971, as a backbone for biodiversity conservation, ecosystem restoration, and living in harmony with nature.
- The World Network of Biosphere Reserves of the MAB Programme consists of a dynamic and interactive network of sites of excellence.
- The World Network of Biosphere Reserves promotes North-South and South-South collaboration and represents a unique tool for international co-operation through sharing knowledge, exchanging experiences, building capacity and promoting best practices.
- There are now 738 properties in 134 countries, including 12 in India, four in Sri Lanka, and three in the Maldives.

South Asia:

- In South Asia, over 30 biosphere reserves have been established.
- The first one was the **Hurulu Biosphere Reserve**, in Sri Lanka, with 25,500 hectares of tropical dry evergreen forest.

- In India, the first biosphere reserve was designated by UNESCO in 2000, namely, the **blue mountains of the Nilgiris stretching over Tamil Nadu, Karnataka and Kerala.**

Strategies planned to halt spread of invasive species over 800 hectares of Mudumalai Tiger Reserve buffer zone

- Senna spectabilis is an invasive species.
- It is introduced as an ornamental species and for use as firewood from South and Central America.
- The species has become highly invasive in the Sigur plateau in both the core and buffer zones of the MTR.
- Senna spectabilis, along with Lantana camara, is among five major invasive weeds that had taken over vast swathes of the Nilgiris.
- Eucalyptus and pine, though exotic, do not spread as quickly as the other species and are considered easier to manage.

Mudumalai Tiger Reserve:

- Mudumalai Tiger Reserve is located in the Nilgiris District of Tamil Nadu.
- It is at the tri-junction of three states, viz, Karnataka, Kerala and Tamil Nadu and it plays an unique role by forming part of the Nilgiris Biosphere Reserve, the first Biosphere Reserve in India, declared during 1986.
- It has a common boundary with Wyanad Wildlife Sanctuary (Kerala) on the West, Bandipur Tiger Reserve (Karnataka) on the North, and the Nilgiris North Division on the South and East and Gudalur Forest Division on the South West, together forming a large conservation landscape for flagship species such as Tiger and Asian Elephant.

Mathura-Vrindavan aims to become a carbon neutral tourist destination by 2041

- Tourist vehicles will be banned from the entire Braj region, which includes famous pilgrim centres such as Vrindavan and Krishna Janmabhoomi.
- Instead, only electric vehicles used as public transport will be allowed into the area.
- All 252 waterbodies and 24 forests in the area will also be revived.
- According to the plan, the Braj region's annual pilgrim-tourist footfall is expected to multiply from the current level of 2.3 crore to six crore by 2041.
- To attain a net zero carbon emission status, greenhouse gas emissions must be reduced to as close to zero as possible, with any remaining emissions re-absorbed from the atmosphere, by oceans and forests for instance.
- To facilitate this in Mathura-Vrindavan, the plan divides the entire region into four clusters, each containing two of the eight key cities.
- The plan proposes to form small circuits called 'Parikrama Paths' which the pilgrim can undertake either on foot or using electric vehicles.

Mathura-Vrindavan:

- It is located on the banks of the river Yamuna.
- It is situated the birthplace of Lord Krishna.

- The entire land is dotted with magnificent temples, dedicated to various aspects of his life.
- Some of the famous temples are:Govind Dev Temple, Rangaji Temple, Dwarikadhish Temple, Bankey Bihari Temple and the ISKCON Temple.
- Gokul, Barsana and Goverdhan are the other township associated with the legend of Lord Krishna.

Global mortality of snakebite envenoming between 1990 and 2019

- The study used data from verbal autopsy and vital statistics (civil registration) to estimate snakebite deaths from the Global Burden of Disease 2019 study.
- The global estimate of deaths due to snakebite comes 14 years after the previous one in 2008 and provides a more robust estimate.
- **Snakebite (a neglected tropical disease) is a public health problem in India** and many other low- and middle-income countries has been long known.
- Within India, **Uttar Pradesh has the highest number of deaths**, estimated to be up to 16,100, followed by Madhya Pradesh (up to 5,790 deaths), and Rajasthan (up to 5,230 deaths).
- The study estimated that the **age-standardised death rate** (which accounts for different age-structures in different countries, thus allowing comparison between countries) in India, at 4.0 per 1,00,000, is also among the highest globally, and many times over than the global figure of 0.8 deaths per 1,00,000.
- Only Somalia has a higher age-standardised death rate than India at 4.5 per 1,00,000.
- Within India, Chhattisgarh, Uttar Pradesh, and Rajasthan have even higher age-standardised death rates, at 6.5, 6.0, and 5.8 per 1,00,000, respectively.

Treatment:

- Anti-snake venom (ASV) are effective treatments to prevent or reverse most of its harmful effects.
- Steps by WHO:
  - In June 2017, WHO added snakebite envenoming to its priority list of neglected tropical diseases (NTDs).
  - Anti-snake venom (ASV) is included in the WHO Essential Medicines List.

A third of world heritage glaciers under threat, warns UNESCO study

- The study said it was still possible to save the other two-thirds if the rise in global temperature did not exceed 1.5°C compared to the pre-industrial era.
- In addition to drastically reduced carbon emissions, the UNESCO is advocating for the creation of a new international fund for glacier monitoring and preservation.
- Such a fund would support comprehensive research, promote exchange networks between all stakeholders and implement early warning and disaster risk reduction measures, the study said.
- Half of humanity depends directly or indirectly on glaciers as their water source for domestic use, agriculture, and power.
- Glaciers are also pillars of biodiversity, feeding many ecosystems.
- This study highlights the urgent need to cut greenhouse gas emissions and invest in nature-

based solutions, which can help mitigate climate change.
- As many as 50 UNESCO World Heritage sites are home to glaciers, representing almost 10% of the Earth's total glacierised area.
- The UNESCO study, in partnership with the International Union for Conservation of Nature (IUCN), showed that these glaciers have been retreating at an accelerated rate since 2000 due to CO2 emissions, which are warming temperatures.
- They are currently losing 58 billion tonne of ice every year — equivalent to the combined annual water use of France and Spain — and are responsible for nearly 5% of observed global sea level rise.

MNRE notifies National Bio Energy Programme

- The Ministry of New and Renewable Energy (MNRE) notified the National Bioenergy Programme on November 2, 2022.
- The Programme has been recommended for implementation in **two Phases**. The Phase-I of the Programme has been approved with a budget outlay of Rs. 858 crore.
- The programme will aid the use of huge surplus biomass, cattle dung, and industrial and urban biowaste available in the country for energy recovery.
- The National Bioenergy Programme will include the three Sub-schemes:
    - Waste to Energy Programme (Programme on Energy from Urban, Industrial and Agricultural Wastes /Residues) to support setting up of large Biogas, BioCNG and Power plants (excluding MSW to Power projects).
    - Biomass Programme (Scheme to Support Manufacturing of Briquettes & Pellets and Promotion of Biomass (non-bagasse) based cogeneration in Industries) to support setting up of pellets and briquettes for use in power generation and non-bagasse based power generation projects.
    - Biogas Programme to support setting up of family and medium size Biogas in rural areas.

Where is COP venue Sharm el-Sheikh, and how are climate conference hosts decided?

- Sharm el-Sheikh, often called just Sharm, is a resort town in Egypt, situated at the southern tip of the Sinai peninsula where the Gulf of Aqaba joins the Red Sea.
- It is a major tourist centre in Egypt, and also, like Cancun in Mexico, a preferred venue for international conferences.
- The venue for the COP meeting rotates among the five UN-identified regions:
    - Africa, Asia-Pacific, Eastern Europe, Latin America and Caribbean, and Western Europe and Others.
- The countries in the region propose a candidate, and a host is usually decided at least two years in advance.
- If no country agrees to be the host, Bonn, where the UNFCCC secretariat is headquartered, steps in as host.
- The rotation cycle has not been followed very strictly.
- The first and second COPs were held in western Europe (Berlin and Geneva), and so were the fifth and sixth (Bonn and the Hague).

- After the 2012 COP in Doha, the event has not yet returned to Asia.
- Countries are sometimes not enthusiastic to host the event. This is mainly due to two reasons.
  - **One,** the host city incurs huge expenditure on the event, not all of which is reimbursed.
  - There are many thousands of participants, a large number of high-profile visits by international dignitaries, and frequent disruptions by protesters who come from all over the world — all of which stretch the city's resources and are sometimes more trouble than they are worth.
  - **Two,** the host country, which presides over the conference, is expected to demonstrate leadership in taking steps to combat climate change.
  - This is the reason why countries like the US, China, or Russia, or even Japan, Australia, or Canada, are not keen to host COP.
  - Japan hosted the 1997 event that produced the Kyoto Protocol, but it was also the first country to walk out of it in 2011.
  - Australia, which too withdrew from the Kyoto Protocol, has never hosted the conference.
- India, the third largest emitter, hosted the 2002 COP in New Delhi, much before climate change became a big thing.

A few billionaires have carbon footprint the size of France

- This report is based on the fact that every human on Earth has a carbon footprint, which can be divided into "personal consumption emissions, emissions through government spending and emissions linked to investments".
- An analysis of the investments of 125 of the world's richest billionaires was conducted by Oxfam International, and the report was published in November, 2022.
- It demonstrated that on average, billionaires are responsible for emitting "3 million tonnes" of carbon a year, which is, "more than a million times the average for someone in the bottom 90% of humanity".
- It further found out that the 125 billionaires taken as a sample fund about 393 million tonnes of CO2e (carbon dioxide equivalent) per year.
- This is equivalent to the "annual carbon emissions of France," which is a nation of 67 million people.
- In comparison, it said, "it would take 1.8 million cows to emit the same levels of CO2e as each of the 125 billionaires," and "almost four million people would have to go vegan to offset the emissions of each of the billionaires".
- The report comes at a time when discussions to meet the globally agreed target of limiting the world's temperature to below 1.5℃ is underway at COP 27 in Egypt and has significant implications for climate policymaking.
- It takes a critical look at the relationship between economic inequality and climate crisis.
- The idea is that since billionaires hold significant wealth and stakes in globally recognised corporations, they hold the power to influence the ways in which those corporations behave.
- As people from low and middle-income backgrounds do not exercise much control over their energy choices, the report says it is imperative for world leaders to ensure that "those who emit the most carbon also do the most to reduce those emissions".
- The report suggests that a wealth tax on the richest could aid the urgent climate finance needs of developing countries and "raise hundreds of billions of dollars to help and protect

those already suffering the impacts of catastrophic climate change".

CSIR-NGRI working on early warning systems in Himalayan States

- The scientists in the institute have identified a few locations in the higher reaches of Uttarakhand for "densification" of seismometers and river gauges to take the total number to 100 from 60.
- The objective is to closely monitor the river flows in specific areas along the catchment to detect any sudden rise in water levels or flooding threshold that can lead to a hazard.
- Scientists have decided to take cognisance of the vibrations or "noise" recorded by the seismometers, which need not be due to earthquakes but can also be because of vehicular traffic, animal movement, rain, river flows and so on.
- These instruments are crucial for the safety of large infrastructure projects and hydroelectric power plants in this region.
- Currently, scientists are able to detect and assess a sudden flow 30-40 km away since the seismic wave is faster than the flow, and hence, the advance warning comes at least half an hour before.
- The NGRI has started utilising Machine Learning to detect these observations faster than the normal approach.
- Scientists at the Geological Survey of India (GSI), a scientific agency established under the Ministry of Mines to conduct geological surveys and studies of India, in collaboration with the British Geological Survey, have been evaluating a prototype to predict landslides in the Darjeeling district of West Bengal and the Nilgiris in Tamil Nadu.
- If the model proves successful, it is likely to be deployed in some parts of India as early as 2025.

Early warning systems:

- Early warning systems have been recognized as an effective tool to reduce vulnerabilities and improve preparedness and response to hazards, according to the United Nations Development Programme.
- The Sendai Framework for Disaster Risk Reduction (2015–2030), an international document adopted by United Nations (UN) member states in 2015, requires countries to set out an early warning system with a multi-hazard approach by 2030.

Kolkata has revealed that aerosol pollution in West Bengal is anticipated to rise by 8% and continue to remain in the "highly vulnerable" red zone in 2023.

- Aerosols are fine particulates that float in the atmosphere.
- Aerosol pollution refers to particles in the air emitted by vehicles and factories that burn fossil fuels.
- High aerosol amounts include particulate matter (PM2.5 and PM10) among other pollutants as well as sea salt, dust, black and organic carbon.
- **Primary aerosols** like dust, soot, or sea salt, come directly from the planet's surface. They get lifted into the atmosphere by gusty winds, shot high into the air by exploding volcanoes,

or they waft away from smokestacks or flames.
- **Secondary aerosols** form when different things floating in the atmosphere—like organic compounds released by plants, liquid acid droplets, or other materials—crash together, culminating in a chemical or physical reaction.
- If inhaled they can be harmful.
- This pollution contributes to asthma, bronchitis, and long-term irritation of the respiratory tract, which can lead to cancer.
- **Aerosols influence climate in two primary ways:**
  - by changing the amount of heat that gets in or out of the atmosphere, or
  - by affecting the way clouds form.

Aerosol optical depth (AOD):

- Aerosol optical depth (AOD) is the quantitative estimate of the aerosol present in the atmosphere and can be used as a proxy measurement of PM2.5.
- AOD is measured on the basis of how much light is getting attenuated due to the presence of particulate matter.
- More particulates present means more light will be absorbed and hence more will be the AOD. It is measured with the help of remote sensing using satellites.
- The values of AOD range from 0 to 1.0.
- While 0 indicates a crystal-clear sky with maximum visibility, a value of 1 indicates very hazy conditions.
  - AOD values less than 0.3 fall under the green zone (safe),
  - 3-0.4 is blue zone (less vulnerable),
  - 4-0.5 is orange (vulnerable), and
  - Over 0.5 is the red zone (highly vulnerable).

What is the Mangrove Alliance for Climate, and what does it aim to achieve?

- The alliance will raise awareness about the role of mangroves as a "nature-based solution to climate change".
- The alliance will be amplified at the G20 Summit that will be held between November 15 and 16, 2022 in Bali under the presidency of Indonesia.
- The MAC seeks to scale up, accelerate conservation, restoration and growing plantation efforts of mangrove ecosystems for the benefit of communities globally, and recognize the importance of these ecosystems for climate change mitigation and adaptation.

Mangroves:

- A mangrove is a shrub or a small tree that grows along the coastlines and has roots in salty sediments, often underwater. They also grow in swamps.
- Mangrove forests can survive extreme weather conditions and require low oxygen levels to survive.
- The mangroves cannot survive freezing temperatures and thus are found mainly in tropical and subtropical latitudes.
- UNESCO celebrates July 26 as the International Day for the Conservation of the Mangrove Ecosystem to raise awareness about mangrove ecosystems and to promote their conservation.

- According to MAC, Mangrove forests can store ten times more carbon per hectare than terrestrial forests. Also, they can store carbon up to 400 per cent faster than land-based tropical rainforests.
- According to Global Mangrove Alliance (GMA), when the mangroves are cut, the carbon stored in these plants gets released into the air. So, preserving them to keep the carbon emissions levels low is necessary.
- Once the plants die, they take the stored carbon into the soil. This is called "Blue Carbon".
- Moreover, Mangrove forests act as natural barriers against rising tides and storms. Each year, they prevent property damages of over $65 billion.

Mangroves in India:

- India contributes to nearly half of the total mangrove cover in South Asia.
- According to the Forest Survey report 2021 released in January, mangroves cover in the country is 4,992 square km, which is 0.15 per cent of the country's total geographical area. Since 2019, the cover has risen by only 17 sq km.
- West Bengal has the highest percentage of mangrove cover in India, mainly because it has Sundarbans, the largest mangrove forest in the world. It is followed by Gujarat and Andaman, and Nicobar islands.
- Other states that have mangrove cover are Maharashtra, Odisha, Andhra Pradesh, Tamil Nadu, Goa and Kerala.

CDRI announces $50-mn fund to support global action on disaster resilience infra systems

- It is a multi-donor trust fund, established with the support of the United Nations Development Programme (UNDP) and United Nations Office for Disaster Risk Reduction (UNDRR).
- It will be managed by the United Nations Multi-Partner Trust Fund Office (UN MPTFO) to support global action on disaster resilience of infrastructure systems, especially in developing countries and Small Island Developing States (SIDS).
- Around $50 million in financial commitments have already been announced for IRAF over an initial duration of five years.
- IRAF will play a crucial role in equipping the Coalition to deliver improved infrastructure governance, inclusive infrastructure services, diversified knowledge, and financing for resilient infrastructure globally.
- One of the first initiatives to be supported by the IRAF is the Infrastructure for the Resilient Island States (IRIS).
- Supported by the Governments of India, the United Kingdom, Australia, and the European Union, IRAF's multi-pronged program focus will offer customised technical assistance, capacity building, research, knowledge management, and advocacy across the infrastructure life cycle for countries at all stages of development.

Coalition for Disaster Resilient Infrastructure (CDRI):

- CDRI was launched by the Prime Minister of India, Narendra Modi at the UN Climate Action Summit in New York in 2019.
- It is a partnership of national governments, UN agencies and programmes, multilateral development banks and financing mechanisms, the private sector, and knowledge institutions.

- It aims to promote the resilience of new and existing infrastructure systems to climate and disaster risks in support of sustainable development.
- CDRI promotes rapid development of resilient infrastructure to respond to the Sustainable Development Goals' imperatives of expanding universal access to basic services, enabling prosperity and decent work.

Yearbook of Global Climate Action 2022: Marrakech Partnership for Global Climate Action

- This Yearbook of Global Climate Action, the sixth of the series, reviews the state and scope of global climate action in 2022.
- It outlines what is needed to accelerate sectoral systems transformation, features case studies of real-world climate action projects, highlights some key global climate action topics – particularly regionalization and accountability – and presents the High-Level Champions' contribution to these issues.

Marrakech Partnership for Global Climate Action:

- The Marrakech Partnership for Global Climate Action supports implementation of the Paris Agreement by enabling collaboration between governments and the cities, regions, businesses and investors that must act on climate change.
- It was launched in November 2016 at COP 22.
- Its main objective is to strengthen collaboration between governments and key stakeholders to immediately lower emissions and increase resilience against climate impacts.
- These actions will be guided by the long-term goals of the Paris Agreement and undertaken in the context of the 2030 Agenda for Sustainable Development.

UN Climate Change High-Level Champions:

- At the COP21 United Nations Climate Change Conference in Paris, governments agreed that mobilizing stronger and more ambitious climate action is urgently required to achieve the goals of the Paris Agreement.
- To connect the work of governments with the many voluntary and collaborative actions taken by cities, regions, businesses and investors, nations decided to appoint two High Level Champions.

Level of groundwater extraction lowest in 18 years, finds study

- The assessment was carried out jointly by Central Ground Water Board (CGWB), States and Union Territories.
- Such joint exercises between the CGWB and States/Union Territories were carried out earlier in 1980, 1995, 2004, 2009, 2011, 2013, 2017 and 2020.
- The total annual groundwater recharge for the entire country is 437.6 billion cubic metres (bcm) and annual groundwater extraction for the entire country is 239.16 bcm.
- Out of the total 7,089 assessment units in the country, 1,006 units have been categorised as "over-exploited" in the report.

- By comparison, an assessment in 2020 found that the annual groundwater recharge was 436 bcm and extraction 245 bcm.
- In 2017, recharge was 432 bcm and extraction 249 bcm. The 2022 assessment suggests that groundwater extraction is the lowest since 2004, when it was 231 bcm.
- The analysis indicates increase in ground water recharge which may mainly be attributed to increase in recharge from canal seepage, return flow of irrigation water and recharges from water bodies/tanks & water conservation structures.
- The improvement in ground water conditions in 909 assessment units in the country when compared with 2017 assessment data.
- In addition, overall decrease in number of over-exploited units and decrease in stage of groundwater extraction level have also been observed.

J&K's Doda district to be recognised as role model in lavender farming: Union minister Jitendra Singh

- Lavandula (common name lavender) is a genus of 47 known species of flowering plants in the mint family, Lamiaceae.
- The flowers may be blue, violet or lilac in the wild species, occasionally blackish purple or yellowish.
- Lavender has been used over centuries in traditional medicine and cosmetics.
- These flowers grow in temperate areas and are drought-resistant crops.
- A single Lavender plant bears flowers for 15 years, needs low maintenance and can be used from the second year of plantation.

AROMA Mission

- **CSIR-AROMA Mission, under the Ministry of Science & Technology** aims to develop and disseminate the aroma-related science and technology to reach the end user/clients of CSIR: Farmers, industry and society.
- Under the Centre's 'One District, One Product' scheme, Lavender has been designated as the Doda brand product.
- Bhaderwah, which is also known as 'Chhota Kashmir', has a mild cold climate during summers that is ideal for Lavender.
- Bhaderwah is the birthplace of India's Purple Revolution.
- India's first National Institute of High Altitude Medicine is also being built in Bhaderwah.
- Bhaderwah (also Bhadarwah Valley) is a town, tehsil and sub-division in the district Doda of Jammu.

Certain mangrove species may disappear from India's east & west coasts

- According to a study published in the journal Ecological Informatics, certain mangrove species in Chilika and Sundarbans along the east coast and Dwarka and Porbandar along the west coast of India is likely to reduce and shift landward by 2070 due to decline in suitable habitats in response to precipitation and sea level changes.
- Scientists at the **BSIP, an autonomous institution of the Department of Science and**

Technology (DST), used Ensemble species distribution model to study the past and current state of two mangrove species and predict their future.
- They found **significant reduction and landward shift of mangroves in the future (2070)** due to decline in suitable habitats, specifically along the east and west coast of India in response to precipitation and sea level changes in the future.
- In contrast, the maximum range expansion of the mangroves was mapped in the past, which was validated by fossil pollen data.
- The findings would be useful in the implementation of mitigation and adaptation strategies in the identified hotspots for conserving the coastal wetlands and reducing the impact of climate change on the coastal vegetation along the Indian coastline.
- The Indian coastline is vulnerable to the impact of climate and sea level changes, and there is not much attempt for the coastal wetland species prediction and management, with limited research carried out for their future habitat mapping.
- To fill this gap, this study tried to project the potential impact of climate change on mangroves as coastal wetland species.
- The study suggests that establishing effective buffer zones in these conserved areas can narrow down the effect of non-conservative areas on the core conservative zone, and adopting preventive measures can turn some areas into highly suitable regions for facilitating the growth of these mangrove species.
- Mangroves support numerous ecosystem services and help reduce coastal ecological risks, yet they are one of the severely endangered ecosystems declining rapidly due to climate change, sea level fluctuations, and human activities.

India Submits its Long-Term Low Emission Development Strategy to UNFCCC

- The focus will be on the rational utilization of national resources with due regard to energy security. The transitions from fossil fuels will be undertaken in a just, smooth, sustainable and all-inclusive manner.
  - The **National Hydrogen Mission launched in 2021** aims to make India a green hydrogen hub.
- Increased use of biofuels, especially ethanol blending in petrol, the drive to increase electric vehicle penetration, and the increased use of green hydrogen fuel are expected to drive the **low carbon development of the transport sector**.
- **Smart city initiatives, integrated planning of cities for mainstreaming adaptation** and enhancing energy and resource efficiency, effective green building codes and rapid developments in innovative solid and liquid waste management.
- Improving energy efficiency by the **Perform, Achieve and Trade (PAT) scheme, National Hydrogen Mission**, high level of electrification in all relevant processes and activities, enhancing material efficiency and recycling leading to expansion of circular economy, and exploring options for hard-to-abate sectors, such as steel, cement, aluminium and others.
- India is on track to fulfilling its NDC commitment of **5 to 3 billion tonnes of additional carbon sequestration in forest and tree cover by 2030.**
- Provision of **climate finance by developed countries** will play a very significant role and needs to be considerably enhanced.

India's approach is based on the following four key considerations that underpin its long-term low-carbon development strategy:

- India has contributed little to global warming, its historical contribution to cumulative global GHG emissions being minuscule despite having a share of ~17% of the world's population.
- India has significant energy needs for development.
- India is committed to pursuing low-carbon strategies for development and is actively pursuing them, as per national circumstances
- India needs to build climate resilience.

The two themes of **"climate justice" and "sustainable lifestyles"**, alongside the principles of Equity and Common But Differentiated Responsibilities and Respective Capabilities (CBDR-RC), in the light of national circumstances, that India had emphasized at Paris, are at the heart of a low-carbon, low-emissions future.

Subarctic boreal forest, vital for the planet, is at risk

- The boreal forest (or "taiga") is the **world's largest land biome.**
- **Boreal Ecozone**:
  - **It principally spans 8 countries:**
  - **Canada, China, Finland, Japan, Norway, Russia, Sweden and the United States.**
- Boreal forests are defined as forests growing in high-latitude environments where freezing temperatures occur for 6 to 8 months and in which trees are capable of reaching a minimum height of 5 m and a canopy cover of 10%.
- It is typically comprised of **coniferous tree species** such as pine, spruce and fir with some broadleaf species such as poplar and birch.
- The circumboreal belt of forest represents **about 30% of the global forest area**, contains more surface freshwater than any other biome.
- The forest -- named for Boreas, the Greek god of the north wind -- **covers 10 percent of the world's land surface** and has a decisive impact on the globe's northern oceans and overall climate.
- The boreal forest is second only to the Amazon in terms of its vital role in ensuring the future of the planet.
- The boreal forest holds twice as much carbon as all tropical forests combined, and also helps purify a massive amount of freshwater.

Threats:

- increasing forest fires,
- the melting of permafrost,
- intensifying insect infestations and
- warming temperatures.

Drunken trees:

- They are tilted sideways **due to melting permafrost.**
- Eventually, the soil will completely erode away from the roots, and the trees will tumble.
- This buckling and sinking is because of the degradation of the permafrost, ground that has remained frozen for at least two years in a row.

Sweet, not protein, in bamboo fruits triggers rat boom: study

- The Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI), Thiruvananthapuram, conducted the study between 2009 and 2022 at its Bambusetum where the species was introduced during 1988-1996.
  - The study was funded by the Science and Engineering Research Board (SERB), the Department of Science and Technology, the Government of India, and the Kerala State Council for Science, Technology and Environment (KSCSTE) under the Kerala government.

Melocanna baccifera:

- It is a **tropical bamboo species** known for its association with the **occurrence of 'bamboo death,' 'rat floods' and famines in northeast India.**
- Researchers detected a correlation between the **sugar content in the fruit of Melocanna baccifera** and the frenzied feeding and population boom in rats during **'Mautam'**, the cyclical, mass bamboo flowering that occurs once in 48 years.
- **Called 'Muli' in northeast India**, Melocanna baccifera is the largest fruit-producing bamboo and is native to the northeast India-Myanmar region.
- During its gregarious flowering, the bamboo produces large fruits which draw animal visitors/predators.
  - They include pollen predators (honey bees), fruit predators (millipedes, slugs and snails, fruit borers, monkeys, rats, porcupines, wild boars and palm civets), seedling predators (rabbits, deer), and insect/pest predators (ants, mantis).
  - During this period, they also multiply rapidly, a phenomenon dubbed as **'rat flood.'**
  - Once the fruits are gone, they start devouring standing crops, causing famines that have claimed thousands of human lives.
- Earlier, it was presumed that 'high protein in fruits/seeds' was attracting the rats. However, a JNTBGRI study in 2016 that was part of the research found that the fruit actually contains very little protein. **The predation is mainly due to the high content of sugars.**

What is carbon border tax, which India opposed at COP27

- A carbon border adjustment tax is a duty on imports based on the amount of carbon emissions resulting from the production of the product in question. As a price on carbon, it discourages emissions.
- The carbon border tax involves imposing an import duty on a product manufactured in a country with more lax climate rules than the one buying it.
- The European Union (EU) has proposed a policy — called the Carbon Border Adjustment Mechanism — to tax products such as cement and steel, that are extremely carbon intensive, with effect from 2026.
- EU claimed that the tax will benefit the environment and provide a level playing field to companies, those opposing it call the tax unfair and protectionist.

BASIC group's stand:

- They say it puts the burden of climate compliance on developing countries, when historically, they have done much less to pollute the environment and yet are often more vulnerable to

effects of climate change.

'Carbon leakage':

- Some developed nations, in efforts to cut emissions, impose high costs on carbon-intensive businesses in their own countries.
- Businesses can potentially sidestep this simply by moving production to a country with less stringent rules, a practice called carbon leakage.

COP27 establishes 'Loss and Damages' fund for climate reparations

- It refers to costs the rich and developed countries, who are majorly responsible for industrial emissions that pollute the environment, should pay to poorer nations that have made negligible contribution to pollution but are more vulnerable to extreme climate events.
- The expected monetary compensation from the L&D fund is estimated to be nearly $500 billion and rising by $200 billion annually.
- Crucial questions such as who will manage this fund, whether contributions are expected from large developing countries and what the fair share of contributors will be — have been left to a "transitional committee" that will make recommendations for the adoption of the fund at the next Conference of the Parties (COP) of the UN's Framework Convention for Climate Change, to be held in the UAE in 2023.
- **UN Framework Convention on Climate Change (UNFCCC):**
  - The UN Framework Convention on Climate Change (UNFCCC), the 1994 international agreement that lays down the broad principles of the global effort to fight climate change, acknowledges the differentiated responsibility of nations.
  - It makes it clear that rich countries must provide both the finance and the technology to developing nations to help tackle climate change.
  - However, the UNFCCC does not mention loss and damage.
- In 2009, developed countries agreed to provide US$ 100 billion every year from 2020 to help developing nations fight climate change.
- **Warsaw International Mechanism (WIM):**
  - The Warsaw International Mechanism (WIM) for Loss and Damages, set up in 2013, was the first formal acknowledgment of the need to compensate developing countries struck by climate disasters.

Great knot sighting untangles a migration mystery

- A great knot from Russia, belonging to the endangered Calidris tenuirostris (Horsfield, 1821), has found its way to Kerala's coast, flying over 9,000 km for a winter sojourn. Recently many juvenile great knots have been tagged with MOSKVA rings in the Kamchatka peninsula in eastern Russia.
- The Great Knot is an international migratory wading bird that travels vast distances between the northern hemisphere breeding grounds and southern hemisphere summer feeding grounds.
- The Great Knot is a medium-sized shorebird with a straight, slender bill of medium length and a heavily streaked head and neck.

Scientific name: Calidris tenuirostris

Species author: (Horsfield, 1821)

- Great Knots occur around coastal areas in many parts of Australia during the southern summer.
- They breed in eastern Siberia, and when on migration they occur throughout coastal regions of eastern and South East Asia.

Habitat:

- In Australia, Great Knots inhabit intertidal mudflats and sandflats in sheltered coasts, including bays harbours and estuaries.
- They forage on the moist mud, and they often roost on beaches or in nearby low vegetation, such as mangroves or dune vegetation.
- IUCN Red List of Threatened Species: Endangered

Department of Fisheries celebrates 'World Fisheries Day'

- **World Fisheries Day is celebrated on 21st November every year** to demonstrate solidarity with all fisher folk, fish farmers and concerned stakeholders throughout the world.
- It started in 1997 where "World Forum of Fish Harvesters & Fish Workers" met at New Delhi leading to formation of "World Fisheries Forum" with representatives from 18 countries and signed a declaration advocating for a global mandate of sustainable fishing practices and policies.
- The event aims to draw attention to overfishing, habitat destruction and other serious threats to the sustainability of our marine and freshwater resources.
- The celebrations serve to focus on changing the way the world manages global fisheries to ensure sustainable stocks and healthy ecosystems.

Pradhan Mantri Matsya Sampada Yojna (PMMSY):

- It is a flagship scheme focused on the development of the fisheries sector and doubling the incomes of fishers and fish farmers.
- It is announced as a part of the **Aatmanirbhar Bharat Abhiyan in May 2020.**
- The scheme is an Umbrella scheme for various other government initiatives and projects by the Government in the fisheries sector.
- The scheme aims for the **adoption of 'Cluster or Area-based Approaches'** and ultimately creating fisheries clusters through backward and forward linkages.
- The scheme targets enhancement in fish production by an additional 70 lakh tonne and increase fisheries export earnings **to 1,00,000 crore by 2024-25.**
- The scheme also envisioned **generating employment opportunities** through seaweed and ornamental fish cultivation and to bring new interventions such as fishing vessel insurance, support for upgradation of fishing vessels/boats, integrated aqua parks, e-trading/marketing, etc.

Climate change to strengthen El Niño by 2030

- The combination of El Niño, La Niña, and the neutral state between the two opposite effects is called the El Niño Southern Oscillation (ENSO).
- Southern oscillations are large-scale changes in sea level pressure in the tropical Pacific region.

El Niño phenomenon:

- El Niño is the **warming of sea water in the central-east Equatorial Pacific** that occurs every few years.
- During El Niño, surface temperatures in the equatorial Pacific rise, and trade winds — east-west winds that blow near the Equator — weaken.
- Normally, easterly trade winds blow from the Americas towards Asia.
- Due to El Niño, they falter and change direction to turn into westerlies, bringing warm water from the western Pacific towards the Americas.
- **The phenomena of upwelling**, where nutrient-rich waters rise towards the surface, is reduced under El Niño.
- This in turn **reduces phytoplankton**. Thus, fish that eat phytoplankton are affected, followed by other organisms higher up the food chain.
- Warm waters also carry tropical species towards colder areas, disrupting multiple ecosystems.
- Since the Pacific covers almost one-third of the earth, changes in its temperature and subsequent alteration of wind patterns disrupt global weather patterns.
- **Impacts:**
  - **El Niño causes dry, warm winter in Northern U.S. and Canada and increases the risk of flooding in the U.S. gulf coast and south-eastern U.S. It also brings drought to Indonesia and Australia.**

La Niña:

- La Niña is the **opposite of El Niño.**
- La Niña sees **cooler than average sea surface temperature (SST)** in the equatorial Pacific region.
- Trade winds are stronger than usual, pushing warmer water towards Asia.
- On the American west coast, upwelling increases, bringing nutrient-rich water to the surface.
- Pacific cold waters close to the Americas push jet streams — narrow bands of strong winds in the upper atmosphere — northwards.
- **Impacts:**
  - This leads to drier conditions in Southern U.S., and heavy rainfall in Canada.
  - La Niña has also been associated with heavy floods in Australia.
  - Two successive La Niña events in the last two years caused intense flooding in Australia, resulting in significant damage.

Impact on India's monsoons:

- In India, El Niño causes weak rainfall and more heat, while La Niña intensifies rainfall across South Asia, particularly in India's northwest and Bangladesh during the monsoon.
- At present, India, like the rest of the globe, is witnessing an extended **'triple dip' La Niña.**

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India's proposal for enhanced protection to Leith's softshell turtle adopted at wildlife summit in Panama

- Leith's Softshell Turtle is a **large fresh water soft-shelled turtle which is endemic to peninsular India** and it inhabits rivers and reservoirs.
- **Distribution**: Restricted to southern peninsular India (Andhra Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, and Tamil Nadu) in the Cauvery, Thungabhadra, Ghataprabha, Bhavani, Godavari, and Moyar drainages.
- **Threats**:
  - The species has been subject to **intensive exploitation over the past 30 years**. It has been poached and illegally consumed within India. It has also been illegally traded abroad for meat and for its calipee.
  - The population of this turtle species is estimated to have declined by 90% over the past 30 years such that the species is now difficult to find.
- **Conservation Status:**
  - It is classified as '**Critically Endangered' by the IUCN.**
  - It is listed on **Schedule IV of the Wild Life (Protection) Act, 1972.**
- **Benefits of listing in The CITES Appendix I**
  - The CITES Appendix I listing of this Turtle species would ensure that legal international trade in the species does not take place for commercial purposes.
  - It would also ensure that international trade in captive-bred specimens only takes place from registered facilities and further that higher and more proportionate penalties are provided for illegal trade of the species.

Betting for exotic meat, gambling dens in Manipur descend further into illegality

- Police and forest officials in the Manipur's Ukhrul town have been scanning "gambling dens" following reports of wild animals — dead or alive — being offered as prizes for raffle draws. Apart from wild boars and deer, animals such as binturong (an arboreal mammal also known as bearcat), squirrels and flying foxes (bats) have been found to be on offer.
- The binturong (Arctictis binturong) is a medium-sized mammal, also known as a bearcat, of the Viverridae family, which includes civets, linsangs and genets.
- Its nine subspecies are the sole occupants of the genus Arctictis.
- They can weigh up to 50 pounds, but most often weigh in at between 25 and 35 pounds.
- Binturongs live in the rainforests of Southeast Asia.
- Its range extends from Nepal, India, and Bhutan southward to the Indonesian islands of Sumatra and Java and eastward to Borneo.

Prehensile Tail:

- The animals spend most of their time hanging out in the treetops.
- The animal uses its tail—which is almost as long as its body—like a fifth limb as it climbs through the forest.
- This tail is prehensile, which means it's capable of gripping things.
- **The binturong is one of only two carnivores that has a prehensile tail.**
  - **The other is the kinkajou.**

- They are classified as a **vulnerable species by IUCN.**

NITI Aayog releases study report on 'Carbon Capture, Utilisation, and Storage (CCUS) Policy Framework and its Deployment Mechanism in India'

- **Carbon Capture Utilisation and Storage (CCUS)** is the technology for decarbonising carbon dioxide (CO_2) from high polluting sectors such as steel, cement, oil, gas, petrochemicals, chemicals and fertilisers, has a critical role to play for the country to halve CO_2 emissions by 2050
- The **purpose of CCUS policy framework** is to develop and implement a practicable framework to accelerate research and development on carbon capture, utilisation and storage in India.
- It is key to ensuring sustainable development and growth in India, particularly for the production of clean products and energy, leading to an **Atmanirbhar Bharat.**
- CCUS also has an important role to play in enabling **sunrise sectors** such as coal gasification and the nascent hydrogen economy in India.
- CCUS projects will also lead to a **significant employment generation**. It estimates that about 750 mtpa of carbon capture by 2050 can create employment opportunities of about 8-10 million on full time equivalent (FTE) basis in a phased manner.
- On the policy framework, the NITI Aayog report suggested that in the near term, **CCUS policy should be carbon credits or incentives based**, to seed and promote the CCUS sector in India through tax and cash credits.
- As India is the third largest emitter of CO_2 in the world after China and the US about 2.6 gigatonne per annum, carbon capture utilisation and storage is an essential imperative for India to reach its Decarbonisation Goals.

Emission Reduction:

- At COP 26 late year in Glasgow, Prime Minister Narendra Modi announced panchamrit to mitigate climate change including achieving net zero by 2070.
- The government of India has also committed to reducing CO_2 emissions by 50 percent by 2050.

Himalayan Yak gets FSSAI tag

- The Himalayan yak has recently earned the food animal tag from the Food Safety and Standard Authority of India (FSSAI).
- The categorisation is expected to help check the decline in the population of the high-altitude bovine by making it a part of the conventional milk and meat industry.
- Yaks belong to the genus Bos and are therefore related to cattle (Bos primigenius species).
- **Domestic Yak (Bos Grunniens) descended from the wild yak (Bos mutus).**
- **Distribution:**
  - Yak is found throughout the Himalayan region -- Arunachal Pradesh, Sikkim, North Bengal, Uttarakhand, Himachal Pradesh, Ladakh and Jammu and Kashmir -- while wild Yak is found in Tibet.

- ○ It is also found as far north as Mongolia and Russia.
- **National Research Centre on Yak:**
  - ○ The Government of India established the ICAR-National Research Centre on Yak, in 1989 at Dirang, Arunachal Pradesh as a dedicated centre for research into yak husbandry.
- **Yak Census 2019:**
  - ○ According to a census carried out in 2019, India has some 58,000 yaks – a drop of about 25% from the livestock census of 2012.
  - ○ The drastic decline could be attributed to less remuneration from the bovid and discouraging the younger generations from continuing with nomadic yak rearing.
  - ○ The sale of yak milk and meat is limited to local consumers.

Indian scientists receive international award on behalf of snow leopard conservation alliance

- Indian snow leopard experts received the Madrid-based BBVA Foundation's **Worldwide Biodiversity Conservation Award** on behalf of a 12-nation intergovernmental alliance -**The Global Snow Leopard Ecosystem Protection Program (GSLEP)**.

The Global Snow Leopard Ecosystem Protection Program (GSLEP)

- The GSLEP is a first-of-its-kind **intergovernmental alliance for the conservation of the snow leopard** and its unique ecosystem.
- It is **led by the environment ministers of 12 countries in Asia** that form the home range of the snow leopard. These are Afghanistan, Bhutan, China, India, Kazakhstan, Kyrgyzstan, Mongolia, Nepal, Pakistan, Russia, Tajikistan and Uzbekistan. The total range spans two million square kilometres.
- **The GSLEP Program's secretariat is based in Bishkek,** and is **hosted by the Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz Republic**.
- **GSLEP was created in 2013** when officials, politicians and conservationists arrived at a common conservation strategy enshrined in the **Bishkek Declaration (2013)** to cooperate in the conservation of this species and its habitat.

CITES COP19: Rare Jeypore Ground Gecko listed in Appendix 2 to stall its trafficking

- The proposal to include the gecko in Appendix II was made by India at the recently-concluded 19th Conference of Parties (COP19) to CITES in Panama City. The proposal was adopted by the members of the Working Group.
- The animals listed under Appendix II may not necessarily be threatened with extinction, but trade in such species should be controlled to ensure it does not threaten their existence.

International Union for Conservation of Nature (IUCN):

- In 2019, the Jeypore Ground Gecko was assessed for the International Union for Conservation of Nature (IUCN)'s Red List of Threatened Species and **was listed as**

'endangered'.

Distribution:

- This reptile is endemic to India.
- The wild reptile species is found in the **Eastern Ghats and is known to be present in four locations including southern Odisha and northern Andhra Pradesh.**
- Its occurrence is estimated in less than 5,000 square kilometres of fragmented geographical area.
- The species resides below rock boulders in high forested hills at an altitude of 1,100-1,400 metres.
- Habitat loss and degradation, forest fires, tourism, quarrying and mining activity among the reasons for the species' decline.

Camera traps give hope for snow leopard in Kashmir

- Snow leopard surveys have often focused in neighbouring areas of Ladakh, Himachal Pradesh and Uttarakhand. The survey was expanded to the **Baltal-Zojila region of Kashmir**
- Camera trapping exercises also raised hopes for other important and rare species such as the Asiatic ibex, brown bear and Kashmir musk deer in the upper reaches of the northernmost part of India.
- Snow Leopard population estimation is part of the **Snow Leopard Population Assessment of India (SPAI).**
- The **Department of Wildlife Protection** has been conducting surveys with partner NGOs to understand presence and abundance of snow leopards under the **SPAI project funded by the Ministry of Environment Forests and Climate Change.**
- The Snow Leopard Population Assessment of India (SPAI) has been concluded so far in Himachal Pradesh and Uttarakhand. The estimated population of the great cat is 50 and 100 in these two States respectively.
- **Snow Leopard Population Assessment in India (SPAI):**
  - It was launched on **International Snow Leopard Day on 23rdOctober 2019.**
  - It has evolved from international effort to develop a global protocol for PAWS under the aegis of GSELP.
  - **Objective –** To help the snow leopard double its population.
  - Under SPAI, a two-step process is undertaken to estimate the snow leopard population.
    - **First step–** An occupation-based assessment of snow leopard distribution, which involves identifying the area where the study will be conducted based on conducting preliminary surveys and using interview or sign-based methods.
    - **Second step–** Population sampling for regional density estimation by carrying out a thorough review of already sampled areas.
  - Online tools including a data-sharing portal, training app for identifying individual leopards through photographs and threat mapping tool would be utilized.
- **Global Snow Leopard and Ecosystem Protection Program (GSLEP):**
  - The GSLEP is a world first joint initiative that aims to conserve the endangered snow leopard within the broader context of also conserving valuable high mountain ecosystems.

- ○ It unites all 12 range country governments, nongovernmental and inter-governmental organisations, local communities, and the private sector around this aim.

INTERNATIONAL RELATIONS

SCO Member states re-affirm commitment to multipolar world order based on international law and multilateralism

- 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.
- **History:**
  - ○ It was established in 2001. It 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 based in Beijing.
  - ○ the Executive Committee of the Regional Anti-Terrorist Structure (RATS) based in Tashkent.
- **Membership:**
  - ○ Eight member states: India, Kazakhstan, China, Kyrgyzstan, Pakistan, Russia, Tajikistan, and Uzbekistan.
  - ○ India and Pakistan joined as full members in 2017.
  - ○ **Four observer states:** Afghanistan, Belarus, Iran and Mongolia.

Ninth Round of India-ROK CEPA Up-Gradation Negotiation held

- India raised serious concerns on the growing trade deficit between the two countries and discussed market access issues. Both sides agreed to work closely to address tariff and non-tariff barriers and deepen the relationship in the services sector.
- It was agreed that the 10th round of CEPA upgradation negotiations will be hosted by India in early 2023.

India – ROK Comprehensive Economic Partnership Agreement (CEPA)

- ROK and India signed a CEPA in Seoul on 7th August , 2009.
- It commits both countries to lower or eliminate import tariffs on a wide range of goods, over the next 10 years. ROK is reducing tariffs on 90 percent of Indian goods while India will do so

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on 85 percent of Korean goods.

Types of Trade Agreements:

- Free Trade Agreement: It is an agreement in which two or more countries agree to provide preferential trade terms, tariff concession etc. to the partner country. Here a negative list of products and services is maintained on which the terms of FTA are not applicable.
- Preferential Trade Agreement: In this, two or more partners give preferential right of entry to certain products. This is done by reducing duties on an agreed number of tariff lines. India signed a PTA with Afghanistan.
- Comprehensive Economic Partnership Agreement: It is comprehensive than an FTA. CECA/CEPA also looks into the regulatory aspect of trade.
- Comprehensive Economic Cooperation Agreement: CECA generally covers negotiation on trade tariff and TQR rates only. It is not as comprehensive as CEPA. India has signed CECA with Malaysia.
- Framework agreement: It primarily defines the scope and provisions of orientation of the potential agreement between the trading partners. It provides for some new area of discussions and set the period for future liberalisation. India has previously signed framework agreements with the ASEAN, Japan etc.
- Early Harvest Scheme: It is a precursor to an FTA/CECA/CEPA between two trading partners. At this stage, the negotiating countries identify certain products for tariff liberalization pending the conclusion of actual FTA negotiations.

PM to unveil the logo, theme and website of India's G20 Presidency on 8th November

- G20 Presidency offers India an opportunity to contribute to the global agenda on pressing issues of international importance.
- What is G20? G20 is the premier forum for international economic cooperation representing around 85% of the global GDP, over 75% of the global trade, and about two-thirds of the world population.
- Origin and Evolution:
  ○ The G20 was formed in 1999 in the backdrop of the financial crisis of the late 1990s that hit East Asia and Southeast Asia in particular. Its aim was to secure global financial stability by involving middle-income countries.
  ○ The first G20 Summit took place in 2008 in Washington DC, US.
- The members of the G20 are: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Türkiye, the United Kingdom, the United States, and the European Union.
- Organizational Structure of G20
  ○ The G-20 operates without a permanent secretariat or staff.
  ○ The chair rotates annually among the members and is selected from a different regional grouping of countries.
  ○ The chair is part of a revolving three-member management group of past, present and future chairs referred to as the
- Working of G20: The preparatory process for the G20 Summit is conducted through the established Sherpa and Finance tracks that prepare and follow up on the issues and

commitments adopted at the Summits.

- The Sherpas' Track focuses on non-economic and financial issues, such as development, anti-corruption and food security, while addressing internal aspects such as procedural rules of the G20 process.
- The Finance Track focuses on economic and financial issues

Year 2022 declared as ASEAN-India Friendship year

- ASEAN stands for the Association of Southeast Asian Nations.
- It is a political and economic union of 10 Asian countries aimed at promoting the economic growth, political stability of individual countries, and regional stability among its members.
- Apart from economic and political growth it also focuses on social progress, social-cultural evolution among member countries, and provision of mechanisms and strategies to resolve differences peacefully.
- History: It was formed in 1967, by Thailand, Singapore, Philippines, Malaysia, and Indonesia. Membership has been extended to include Vietnam, Burma/Myanmar, Laos, Cambodia, and Brunei.
- It includes eight dialogue partners -- India, China, Japan, the Republic of Korea, Australia, New Zealand, the United States and Russia.
- Secretariat: Jakarta, Indonesia.

Issues on table at terror funding meet: Use of dark web and crowdfunding

- It is organised by Union Ministry of Home Affairs.
- It aims to progress the discussions on combating terrorist financing held by the international community in the previous two Conferences in Paris (2018) and Melbourne (2019).
- It also intends to include discussions on technical, legal, regulatory and cooperation aspects of all facets of terrorism financing.
- It attempts to also set the pace for other high level official and political deliberations, focused on countering terrorist financing.
- The Conference intends to bring together representatives of 75 countries and international bodies for extended deliberations over two days.
- Discussions at the 3rd 'No Money For Terror' Conference will be focussed on global trends in terrorism and terrorist financing, use of formal and informal channels of funds for terrorism, emerging technologies and terrorist financing and requisite international co-operation to address related challenges.
- India was host to two global events in October, 2022 - the annual General Assembly of the Interpol in Delhi and a special session of the UN Counter Terrorism Committee in Mumbai and Delhi.

Vice President Jagdeep Dhankhar highlights East Asia Summit role in free Indo-Pacific

- Beginning in 2005, 16 participating countries comprised this grouping, with their first meeting in Kuala Lumpur, Malaysia.
- These members were the **10 ASEAN countries, Australia, China, India, Japan, New Zealand, and the Republic of Korea.**
- **ASEAN's 10 member countries are Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam.**
- The **United States and the Russian Federation** joined at the 6th East Asia Summit in 2011.
- The EAS is an ASEAN initiative and refers to the annual Meeting of Heads of States/Governments of these countries, where they are able to discuss common concerns and interests.
- Its creation was based on the idea of enhancing cooperation among East Asian countries and those in the neighbouring regions.
- **Six priority areas of cooperation were identified** – environment and energy, education, finance, global health issues and pandemic diseases, natural disaster management, and ASEAN Connectivity.
- In the past, the issues of claims over the South China Sea, the United Nations Convention on the Law Of the Sea, terrorism, the actions of North Korea and the conflict situation in Myanmar have been discussed by the countries.

EAS's links with India:

- This year marks the 30th anniversary of ASEAN-India relations and is being celebrated as the ASEAN-India Friendship Year.
- Vice President recently announced an additional contribution of USD 5 million to the ASEAN-India science and technology fund to enhance cooperation in sectors of public health, renewable energy and smart agriculture.

G20: Odisha's renowned sand sculptor Sudarsan Pattnaik thanks PM Modi for mentioning 'Bali Jatra' in Bali

- It literally means 'voyage to Bali'.
- It is one of the country's largest open-air fairs that commemorates the 2,000-year-old maritime and cultural links **between ancient Kalinga (today's Odisha) and Bali and other South and Southeast Asian regions like Java, Sumatra, Borneo, Burma (Myanmar) and Ceylon (Sri Lanka).**
- This year's Baliyatra, which concluded recently also found a place in the Guinness World Records for achieving an impressive feat of origami, the creation of beautiful paper sculptures.
- The festival is organised by the Cuttack district administration and Cuttack Municipal Corporation in association with several other government agencies.

Origins of the festival:

- The origins of the festival, which begins on Kartik Purnima (full moon night in the month of Kartik) can be traced back more than 1,000 years.
- The Bay of Bengal region had several ports, and sadhavas (traders) traditionally began their voyage across the sea on this auspicious day, when the winds were favourable for the boats, known as boita, to sail.
- According to historians, popular items of trade between Kalinga and Southeast Asia included

pepper, cinnamon, cardamom, silk, camphor, gold, and jewellery.
● Even today, thousands of people across Odisha sail decorative miniature boats made of banana stems, paper, or thermocol to celebrate boita bandana, or the worshipping of the boats.

India, Gabon hold first Foreign Office Consultations in New Delhi

● Both sides carried out a comprehensive review of the existing bilateral relations, including strengthening of cooperation in trade and economic relations, defence and maritime.
● The two sides also exchanged views on regional and international issues of mutual interest, including cooperation in the UN and other multilateral fora, climate change, International Solar Alliance and sustainable development.
● India and Gabon have traditionally enjoyed warm and friendly relations, which are based on shared democratic values and vision.
● The bilateral relationship has further strengthened in the past few years with opening of the Gabonese Mission in New Delhi and exchange of high-level visits.
● The bilateral trade between India and Gabon is growing at a healthy rate and has touched 1.12 billion dollars in 2021-22 from 440 million dollars in 2017-18.
● India is now the second-largest destination for Gabonese exports.
● Over 50 Indian companies have set up manufacturing units in the Gabon Special Economic Zone.
● Gabon is a central African country, is rich in natural resources.
● **Located on the Atlantic Ocean, it borders Cameroon, Equatorial Guinea, and the Republic of Congo.**
● It is sparsely populated, with a population of 2.3 million (2021) and forests covering 85% of its territory.
● Gabon, the **fourth largest oil producer in Sub-Saharan Africa**, posted strong economic growth over the past decade, driven mainly by oil and manganese production.

2022 edition of the indo-pacific regional dialogue (iprd-2022)

● IPRD is an apex level international annual conference of the Indian Navy.
● The idea of an annual IPRD was first conceptualised and conducted in 2018, as the apex level conference of the Indian Navy.
● The **National Maritime Foundation is Navy's knowledge partner** and chief organizer of each edition of the event.
● **The theme of IPRD-2022** is the 'Operationalising the Indo-Pacific Oceans Initiative'.
● **Objective:** To provide a platform to focus attention on the Indo-Pacific, as a maritime geographical-entity, while deliberating aspects of great relevance to regional geopolitics.
● **Previous sessions:**
    ○ The first two editions of IPRD were held in 2018 and 2019 respectively in New Delhi, however, IPRD 2020 was cancelled due to Covid-19.
    ○ The third edition of IPRD was held in 2021 in online mode.
● **Permanent theme:** Review of India's opportunities and challenges in the Indo-Pacific region.
● It is focused on **seven interconnected spokes or pillars:**
    ○ **Maritime Security,**

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- ○ **Maritime Ecology,**
  - ○ **Maritime Resources,**
  - ○ **Disaster Risk-reduction and Management,**
  - ○ **Trade-Connectivity and Maritime Transport,**
  - ○ **Capacity-building and Resource sharing, and**
  - ○ **Science, Technology and Academic Cooperation.**
- ● **The six sessions of the IPRD-2022 are:**
  - ○ Weaving the Fabric of Holistic Maritime Security in the Indo-Pacific: Multilateral Options,
  - ○ Constructing Holistic-Security Bridges across the Western and Eastern Maritime Expanse of the Indo-Pacific,
  - ○ Building maritime Connectivity: Ports, Trade, and Transport,
  - ○ Capacity-building and Capability Enhancement Leveraging the Physical and Social Sciences,
  - ○ Practical approaches to a Regional Blue Economy,
  - ○ Disaster Risk-reduction and Management, Solutions for Small Island Developing States (SIDS) and Vulnerable Littoral States.

SCIENCE & TECH

Lunar Eclipse on November 8

- ● An eclipse of the Moon (or lunar eclipse) can only occur at Full Moon – when Earth is located directly between the Sun and the Moon –, and only if the Moon passes through some portion of Earth's shadow.
- ● That shadow is composed of two cone-shaped components -
  - ○ The outer or penumbral shadow is a zone where the Earth blocks part but not all of the Sun's rays from reaching the Moon.
  - ○ The inner or umbral shadow is a region where the Earth blocks all direct sunlight from reaching the Moon.
- ● **Types:**Astronomers recognize three basic types of lunar eclipses –
- ● **Penumbral Lunar Eclipse:**The Moon passes through Earth's penumbral shadow. These events are of only academic interest because they are subtle and hard to observe.
- ● **Partial Lunar Eclipse:**A portion of the Moon passes through Earth's umbral shadow. These events are easy to see, even with the unaided eye.
- ● **Total Lunar Eclipse:**The entire Moon passes through Earth's umbral shadow. These events are quite striking due to the Moon's vibrant red colour during the total phase (totality).

ISRO's cryogenic engine, indigenously developed for LVM3, passes hot

test

- According to ISRO, CE20 cryogenic engine is indigenously developed for LVM3.
- This will enhance the LVM3 payload capability up to 450 kg with additional propellant loading.
- The Launch Vehicle Mark-III went through the hot test at an uprated thrust level of 21.8 tonnes for the first time.
- The major modifications carried out on this test article compared to previous engines was introduction of Thrust Control Valve (TCV) for thrust control.
- In addition to the hot test, a 3D printed LOX and LH2 turbine exhaust casings were inducted in the engine for the first time.
- The LVM3 is the heaviest launch vehicle of ISRO.

Cochin Shipyard Ltd to build India's first hydrogen fuel cell vessel

- The Shipyard also signed another MoU for the construction of six electric catamaran vessels for Uttar Pradesh and two such vessels for Guwahati.
- The air-conditioned hydrogen fuel cell catamaran vessel will have a seating capacity for 100 passengers.
- It will be deployed at Varanasi after test and trial in Kochi.
- The air-conditioned electric hybrid vessels, designed for short-distance commute in riverine waters, will have seating capacity for 50 passengers.
- The vessels will provide onboard accommodation for the crew, besides toilet and washroom facilities for the passengers.
- The vessels will significantly contribute to the reduction in pollution levels in the National Waterways.

Global Dashboard for Vaccine Equity

- According to the Global Dashboard for Vaccine Equity recent data only one in four people has been vaccinated with at least one dose in low and middle income countries as of November 9, 2022. In comparison, in high income countries, three in four people have got at least one dose of the vaccine.
- The Global Dashboard for Vaccine Equity is a joint effort by the United Nations Development Programme (UNDP), the World Health Organization (WHO) and the University of Oxford with cooperation across the UN system.
- It combines the latest data on the global roll-out of COVID-19 vaccines with the "most recent socio-economic information to illustrate why accelerating vaccine equity is not only critical to saving lives but also to driving a faster and fairer recovery from the pandemic with benefits for all".
- Vaccine equity It means everyone in the world has the same access to vaccines.
- The COVID-19 Vaccine Delivery Partnership (COVAX), a collective international effort with 'One Country Team', 'One Plan', and 'One Budget'.
- It was launched by WHO, UNICEF, and Gavi and the World Bank, to intensify country readiness and delivery support.
- It aimed at accelerating COVID-19 vaccination coverage in 34 low coverage countries, along

with their governments.

'Substantial' pre-symptomatic monkeypox spread found

- The researchers have estimated that 53% of monkeypox virus transmission have occurred during the pre-symptomatic phase.
- Pre-symptomatic transmission of monkeypox virus will mean that many infections cannot be prevented by isolating peopleshowing symptoms. Also, the effectiveness of contact tracing and subsequent quarantine will not be sufficient to break the transmission chain since by the time all the contacts have been traced, they might have already spread the virus to other people.

Monkeypox virus:

- The monkeypox virus is an orthopoxvirus, which is a genus of viruses that also includes the variola virus, which causes smallpox, and vaccinia virus, which was used in the smallpox vaccine.
- Monkeypox causes symptoms similar to smallpox, although they are less severe.
- While vaccination eradicated smallpox worldwide in 1980, monkeypox continues to occur in a swathe of countries in Central and West Africa, and has on occasion showed up elsewhere.
- According to the World Health Organisation (WHO), two distinct clade are identified:
  - the West African clade and
  - the Congo Basin clade, also known as the Central African clade.
- Monkeypox is a zoonosis, that is, a disease that is transmitted from infected animals to humans.
- Cases occur close to tropical rainforests inhabited by animals that carry the virus.
- Monkeypox virus infection has been detected in squirrels, Gambian poached rats, dormice, and some species of monkeys.
- Human-to-human transmission is, however, limited. Transmission, when it occurs, can be through contact with bodily fluids, lesions on the skin or on internal mucosal surfaces, such as in the mouth or throat, respiratory droplets and contaminated objects.

Personalised cell 'editing' used to treat cancer patients

- CRISPR is short for Clustered Regularly Interspaced Short Palindromic Repeats, which is a reference to the clustered and repetitive sequences of DNA found in bacteria, whose natural mechanism to fight some viral diseases is replicated in this gene-editing tool.
- Its mechanism is often compared to the 'cut-copy-paste', or 'find-replace' functionalities in common computer programmes.
- A bad stretch in the DNA sequence, which is the cause of disease or disorder, is located, cut, and removed — and then replaced with a 'correct' sequence.
- And the tools used to achieve this are not mechanical, but biochemical — specific protein and RNA molecules.
- The technology replicates a natural defence mechanism in some bacteria that uses a similar method to protect itself from virus attacks.

Jitendra Singh dedicates first Indian Biological Data Center to the nation

- The government has for the first time set up a digitised repository where Indian researchers will store biological data from publicly funded research, reducing their dependency on American and European data banks.
- The digitised data will be stored on a four-petabyte supercomputer called 'Brahm'.
  - A petabyte equals 10,00,000 gigabytes (gb).
- The government has mandated that data from all publicly funded research should be stored in this central repository.
- So it will not only provide a platform to researchers to securely store their data within the country, it will also provide access to a large database of indigenous sequences for analyses.
- At present, most Indian researchers depend on the European Molecular Biology Laboratory (EMBL) and National Center for Biotechnology Information databases for storing the biological data.
- There are other smaller datasets available with some institutes, but those are not accessible to all. This will be the first national data repository, where the data will not only be submitted from across India but can be accessed by researchers from across India.
- The bio-bank, which cost about Rs 85 crore to set up, currently accepts neucleotide sequences — the digitised genetic makeup of humans, plants, animals, and microbes.
- There are now 200 billion base pair data in the bio-bank, including 200 human genomes sequenced under the '1,000 Genome Project', which is an international effort to map the genetic variations in people.
- The database also contains most of the 2.6 lakh Sars-Cov-2 genomes sequenced by the Indian Sars-CoV-2 Genomic Consortium (INSACOG).
- The database will also store the 25,000 sequences of mycobacterium tuberculosis.
- The database currently also stores the genomic sequences of crops such as rice, onion, tomatoes and mustard, among others.
- The database currently offers two mechanisms for data submission to researchers.
  - **One**, open access where the data uploaded can be immediately used by other researchers from across the country and
  - **two**, controlled access where the data will not be openly shared for a number of years before being opened up to all.
- The biobank also has a backup data '**Disaster Recovery' site at National Informatics Centre (NIC)-Bhubaneshwar.**

Lift off! Artemis Moon rocket launch kicks off new era of human exploration

- It is only a lunar Orbiter mission even though, unlike most Orbiter missions, it has a return-to-Earth target — it is intended to lay the foundations for more complex and ambitious missions.
- The CubeSats it will carry are equipped with instruments meant for specific investigations and experiments, including searching for water in all forms and for hydrogen that can be utilised as a source of energy.
- Biology experiments will be carried out, and the impact of deep space atmosphere on humans will be investigated through the effect on dummy 'passengers' on board Orion.
- The Space Launch System (SLS) rocket, the most powerful ever built, will also be on test for its potential for more ambitious missions in the future.
- It's been a half century since the six Apollo human Moon landings between 1969 and 1972.

● Since then, spacecraft have travelled beyond the solar system, exploratory missions have probed Mars, Jupiter, and Saturn, more than 500 astronauts have made return trips to space, and permanent space labs have been set up.

Google's 1,000 language AI model

● Google is developing a model that can support the **1,000 most spoken languages of the world.**
● The company claimed this model had the "largest language coverage" among existing speech models.
● Google's plan is to build one gigantic model for the 1,000 languages so that both widely used and rarer languages can co-exist, interact, and grow together.
● Google doesn't have a specific use case for the language model.
● However, the end goal is to enable Google users to experience better searches, more accurate auto-generated captions, natural online translation, and faster calculations.
● The project is under development and researchers are now collecting linguistic data to train the model.
● Through AI language models, companies aim to automate manual processes, generate new insights based on existing data, and reduce reliance on human labour in fields like translation, customer service, or computation. For instance, website chatbots etc.

Other language models:

● AI research firm, **OpenAI built the GPT-3 (Generative Pre-trained Transformer 3)** set of models named **Davinci, Curie, Babbage, and Ada** that can generate "natural" text responses and perform tasks like classification, simple summaries, address correction, answering questions, and more.
● **Meta is also working on AI-based language translation.**
● Facebook AI claims the M2M-100 model to be the first multilingual translation model that does not use English as the default language when it translates directly between 100 languages. It is also open source.
   ○ It is further focusing on AI-based translation for not just text, but primarily oral languages like **Hokkien**.

ISRO to make history with maiden private rocket launch

● VKS rocket is developed by the the non-government entity/startup, Skyroot Aerospace Pvt Ltd (SAPL).
● Apart from being the **nation's first private launch**, it will also be the maiden mission of Skyroot Aerospace, named '**Prarambh**'. It will carry a total of **three payloads in space, including one from the foreign customers.**

VKS rocket

● It is a **single stage spin stabilized solid propellant rocket** with mass of approx. 550 kilograms.
● The rocket goes to the **max altitude of 101 kilometers** and splashes into the sea and the overall duration of launch is 300 seconds only.

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- Skyroot was the first startup to sign a Memorandum of Understanding with ISRO for launching its rockets.

Court gives nod for narco test on Aftab Poonawalla, What is a narco test?

- The term narco analysis is derived from the Greek word narko (meaning anaesthesia or Torpor) and is used to describe a diagnostic and psychotherapeutic technique that uses psychotropic drugs, particularly barbiturates.
- In a 'narco' or narcoanalysis test, a drug called **sodium pentothal** is injected into the body of the accused, which transports them to a hypnotic or sedated state, in which their imagination is neutralised.
- In this hypnotic state, the accused is understood as being incapable of lying, and is expected to divulge information that is true.
- **Sodium pentothal or sodium thiopental:**
  - Sodium pentothal or sodium thiopental is a fast-acting, short duration anaesthetic, which is used in larger doses to sedate patients during surgery.
  - It belongs to the barbiturate class of drugs that act on the central nervous system as depressants.
  - Because the drug is believed to weaken the subject's resolve to lie, it is sometimes referred to as a "truth serum", and is said to have been used by intelligence operatives during World War II.

Polygraph test:

- A polygraph test is based on the assumption that physiological responses that are triggered when a person is lying are different from what they would be otherwise.
- A polygraph test does not involved injecting drugs into the body; rather instruments like cardio-cuffs or sensitive electrodes are attached to the suspect, and variables such as blood pressure, pulse rate, respiration, change in sweat gland activity, blood flow, etc., are measured as questions are put to them.
- A numerical value is assigned to each response to conclude whether the person is telling the truth, is deceiving, or is uncertain.

Supreme Court Judgements:

- In **'Selvi & Ors vs State of Karnataka & Anr' (2010),** a Supreme Court ruled that no lie detector tests should be administered "except on the basis of consent of the accused".
  - Those who volunteer must have access to a lawyer, and have the physical, emotional, and legal implications of the test explained to them by police and the lawyer.
  - The **'Guidelines for the Administration of Polygraph Test on an Accused' published by the National Human Rights Commission in 2000**, must be strictly followed.
  - The subject's consent should be recorded before a judicial magistrate.
  - Any information or material subsequently discovered with the help of such a voluntarily-taken test can be admitted as evidence
- **Cases:**
- The narco analysis test was most notably used in the 2002 Gujarat riots case, Abdul Karim Telgi fake stamp paper scam, the Nithari killings case in 2007 and the 26/11 Mumbai terror attack case on captured terrorist Ajmal Kasab.

Prof. Venu Gopal Achanta Elected as a Member of International Committee for Weight and Measures

- The CIPM is a supreme international committee which functions under the authority of General Conference on Weights and Measures (CGPM).

General Conference on Weights and Measures (CGPM):

- CGPM is a highest intergovernmental international organisation created as diplomatic treaty called **Meter Convention signed on 20th May 1875 in Paris.**
- It is responsible for development and implementation of International Systems of Unites, universally abbreviated as SI, its wide dissemination; make necessary modifications time to time for the advancement of science and technology.
- Advancement of Industry in the country is directly dependent on the state of its metrology capabilities.
- This year CGPM has adopted **7 important resolutions** including new SI prefixes ronna (10^{27}), quetta (10^{30}), ronto (10^{-27}) and quecto (10^{-30}).
- With this nomenclature**, mass of the electron (1 quectogram) and weight of earth (1 ronnagram) can be expressed easily in SI units.**
- At present, CGPM is represented by **64 member countries and meets every 4th year** at International Bureau of Weight and Measure (BIPM), France.
- The CIPM advises and recommends the amendments, changes, alterations to the SI to the CGPM for formal adoption.
- It can also pass resolutions and recommendations about the basic units of measurements, if needed, at its own authority.
- The primary objective of the CIPM, **comprised of 18 members from 18 member states** (nations), is to promote international harmonization of SI, meets annually, deliberate reports sent by its 18 Consultative Committees (CCs), among other matters brought to its notice as per mandate.
- Each member of the CIPM takes the **responsibility of Chairmanship of one CC.**

India's Standards of Weights and Measures Act:

- The Government of India enacted the **"Standards of Weights and Measures Act" for the first time in 1956** to ensure that every citizen has access to uniform standards of weights and measures those are traceable to the SI units.
- **During the year 1957, India became member of the CGPM.**

World's first Intranasal vaccine iNCOVACC gets Approved by DCGI

- It is developed by **Bharat Biotech International Limited.**
- It was developed in partnership with **Washington University, St Louis**, which had designed and developed the recombinant adenoviral vectored construct and evaluated in pre-clinical studies for efficacy.
- The approval is under Restricted Use in **Emergency Situation for ages 18 and above in India, for heterologous booster doses.**

- iNCOVACC is a **recombinant replication deficient adenovirus vectored vaccine with a pre-fusion stabilised SARS-CoV-2 spike protein.**
- It is the world's first intranasal vaccine to receive both primary series and heterologous booster approval.
- The vaccine candidate was evaluated in Phases I, II and III clinical trials with successful results and has been specifically formulated to allow intranasal delivery through nasal drops.
- It is stable at 2-8 degrees Celsius for easy storage and distribution.

What is bluebugging, and how is it used to hack Bluetooth-enabled devices?

- It is a form of hacking that lets attackers access a device through its discoverable Bluetooth connection.
- Once a device or phone is bluebugged, a hacker can listen to the calls, read and send messages and steal and modify contacts.
- It started out as a threat for laptops with Bluetooth capability.
- Later hackers used the technique to target mobile phones and other devices.
- Bluebugging attacks work by exploiting Bluetooth-enabled devices.
- The device's Bluetooth must be in discoverable mode, which is the default setting on most devices.
- The hacker then tries to pair with the device via Bluetooth.
- Once a connection is established, hackers can use brute force attacks to bypass authentication.
- They can install malware in the compromised device to gain unauthorised access to it.
- Bluebugging can happen whenever a Bluetooth enabled device is within a 10-metre radius of the hacker.
- However, according to a blog by VPN service provider NordVPN, hackers can use booster antennas to widen the attack range.

Devices that are most susceptible to such attacks

- Any Bluetooth-enabled device can be bluebugged.
- Wireless earbuds are susceptible to such hacks.
- Apps that enable users to connect to their TWS (True Wireless Stereo) devices or earbuds can record conversations.
- The apps of these TWS devices can record conversations.
- Once hacked, the attacker can make and listen to calls, read and send messages, and modify or steal your contacts.

Demand grows, but DNA tests fall under a grey area

- **Deoxyribonucleic Acid (DNA)** is a set of instructions found in a cell.
- These instructions are used for the growth and development of an organism.
- The DNA of a person is unique, and variation in the sequence of DNA can be used to match individuals and identify them.
- DNA technology, therefore allows for accurate establishment of an individual's identity.

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- In addition, DNA-based technology helps in identification of victims in the event of terrorist attacks or natural disasters such as earthquakes.
  - For example, DNA technology has been used to identify victims of terrorist attacks on the World Trade Centre in 2001, and disasters such as the Asian tsunami in 2004.
- Further, DNA profiling can be used in civil matters, such as parentage related disputes.

Precedents set by court:

- **Bhabani Prasad Jena, 2010 & Banarsi Dass, 2005:** Precedents set by the Supreme Court through the years show that judges cannot order genetic tests as a "roving enquiry" (Bhabani Prasad Jena, 2010) and they must balance "the interests of the parties" (Banarsi Dass, 2005).
- DNA tests should also not be ordered if there was other material evidence at hand to prove the case.
- **Ashok Kumar v. Raj Gupta 2021:** The court said judges, before ordering a genetic test, should examine "proportionality of the legitimate aims" being pursued.

Ban use of aceclofenac on cattle to save vultures, demands vet researchers

- Aceclofenac is the prodrug of the non- steroidal anti- inflammatory drug (NSAID) diclofenac.
- Aceclofenac in water buffaloes poses the same threat to vultures as it is a pro-drug of diclofenac.
- Aceclofenac turns into diclofenac soon after it enters the livestock.
- Vulture Action Plan 2020-2025 also mentions the aceclofenac as 'toxic', along with other drugs like nimesulide and ketoprofen.
- Diclofenac is an anti-inflammatory drug.
- It was banned for veterinary use by the Government of India in 2006.
- It was found to be the main cause of a dramatic decline (99 per cent) of the vulture population across Asia.
- The drug caused accidental poisoning in raptors after they fed on carcasses of cattle injected with it.

Why the sun was 'smiling' in an image shared by NASA

- These are regions on the sun's surface from where fast solar wind gushes out into space. Because they contain little solar material, they have lower temperatures and thus appear much darker than their surroundings.
- Here, the magnetic field is open to interplanetary space, sending solar material out in a high-speed stream of solar wind.
- Coronal holes can last between a **few weeks to months.**
- The holes are not a unique phenomenon, appearing throughout the sun's approximately 11-year solar cycle.
- They can last much longer during solar minimum – a period of time when activity on the Sun is substantially diminished, according to NASA.
- While it is unclear what causes coronal holes, they correlate to areas on the sun where

magnetic fields soar up and away, without looping back down to the surface as they do elsewhere.

- These 'coronal holes' are important to understanding the space environment around the earth.
- Scientists study these fast solar wind streams because they sometimes interact with earth's magnetic field, creating what's called a **geomagnetic storm**, which can expose satellites to radiation and interfere with communications signals.

Commerce Minister applauds the Gujarat Government for spearheading several wide-ranging initiatives to promote the Lab Grown Diamonds Sector

- The government had brought in is that it has permitted 100 per cent foreign direct investment (FDI) in the sector under the automatic route.
- Gujarat Government is offering 100% exemption on electricity duty for 5 years under the provisions of the electricity act.
- According to Budget 2019-20, the GST rate has been reduced from 18 per cent to 5 per cent.
- Interest subsidy and net SGST reimbursement upto a 100% is also being offered to MSMEs, large and mega players.

Lab-made diamonds:

- Lab-made diamonds are developed from a carbon seed placed in a microwave chamber and superheated into a glowing plasma ball.
- The process creates particles that crystallize into diamonds in weeks.
- The only difference between lab-grown diamond and natural diamond is that instead of digging the earth, it is created in a lab under a machine.
- This tech-based manufacturing directly cuts down the capital and labour-intensive factors of the mined diamond chain and so lab-grown diamonds cost 30-40 per cent cheaper than mined despite being 100 per cent diamond.
- There are **two types of lab-grown diamonds** –
  - **CVD and**
  - **HPHT**
- India particularly specialises and leads in the **chemical vapour decomposition (CVD) technology** that is certified as the purest type of diamonds.
- According to the report, the Gemological Institute of America predicted the total annual sales of laboratory diamonds will be well over $100 billion in the not too distant future, from about $20 billion today.
- This segment of the diamond is growing at an annual growth rate of 15-20 per cent.
- Nine out of 10 diamonds in the world are estimated to be polished in Surat.
- Currently, 25-30 per cent of diamond polishing units in Surat service lab-grown diamonds, with 15 per cent of units dealing only in the lab-created commodity.

Centre restricts use of common weedicide glyphosate citing health hazards

- Glyphosate is a widely used herbicide that can kill certain weeds and grasses.
- Glyphosate works by blocking an enzyme essential for plant growth.
- In India, glyphosate use was approved only for tea crop and non-crop areas for control of weeds.
  - Assam, West Bengal, Tamil Nadu and Kerala are the major tea plantation states in India.
- But glyphosate consumption is higher in states that do not have tea crops.
- It is being widely and indiscriminately used in paddy fields by farmers.
- The surface casting activity of vertically burrowing earthworms almost ceased after three weeks and reproduction of soil dwellers reduced by 56 per cent within three months after herbicide application.
- There are long-term negative consequences for honey bee navigation, contamination of water bodies and serious health hazards.

DEFENCE

India's first 'spy' satellite Risat-2 re-enters Earth after 13.5-yr job, lands near Jakarta

- It was launched on 20 April 2009 by a PSLV C-12 rocket following the 2008 Mumbai terror attacks.
- It was India's first "eye in the sky" to keep surveillance on the country's borders as part of anti-infiltration and anti-terrorist operations.
- It was also used to track enemy ships at sea.
- The main sensor of RISAT-2, which was able to observe in all weather conditions day and night, was Israel Aerospace Industries' X-band Synthetic Aperture Radar.
- It carried 30 kg of fuel for an initial designed life of four years.
- Due to proper maintenance of orbit and mission planning by the spacecraft operations team in ISRO and by economical usage of fuel, RISAT-2 provided very useful payload data for 13 years.

Navy chiefs of Quad countries meet in Japan ahead of Malabar multilateral exercise

- Malabar is a multilateral naval exercise that began in 1992 as a bilateral exercise between the navy fleets of India and the United States.
- It includes simulated war games and combat manoeuvres.
- Since 2007, MALABAR has been held alternatively off Indian Coast and in the Western

Pacific.
- The exercise has been held every year since 2002 (there was a gap after the 1992, 1995, and 1996 editions due to India's nuclear testing).
- It was expanded into a trilateral format with the inclusion of Japan in 2015.
- Currently, the Malabar exercise is among the navies of India, Japan, the US and Australia.

DRDO launches testing and evaluation facility for Indian Navy's Sonar systems at NPOL Kochi

- What is it? It is a state-of-the-art testing and evaluation facility for sonar systems developed for use by the Indian navy onboard various platforms, including ships, submarines and helicopters.
- Design and Construction:
  - The SPACE facility is based on the concept design and requirements projected by NPOL and has been constructed by M/s L&T Shipbuilding, Chennai.
  - The design and construction of the platform meet all the statutory needs of Indian Register of Shipping and the vessel classifying authority and strictly adhere to the inspection and registration criteria as per Kerala Inland Vessel Rules.
- Use: This will be mainly utilized for evaluating Sonar systems, allowing for quick deployment and easy recovery of scientific packages such as sensors and transducers.
- Feature: The uniqueness of this facility lies in the specially designed submersible platform, which can be lowered up to depths of 100 meters using a series of synchronously operated winches.

Chiefs of Indian, French Air Forces join ongoing Garuda-VII air exercise

- It is a bilateral exercise between Indian Air Force (IAF) and French Air and Space Force (FASF).
- It provides a unique opportunity for both Air Forces to learn and imbibe each other's best practices during operations while also highlighted the growing interoperability between the two Air Forces.
- Ex Garuda-VII is also the first occasion for the light combat aircraft (LCA) Tejas and the light combat helicopter (LCH) Prachand to participate in any international exercise.
- It includes four Rafale fighters and one A-330 multi-role tanker transport aircraft from the French side.
- Apart from the LCA and LCH, the IAF contingent consists of Su-30 MK-I, Rafale and Jaguar fighter aircraft, as well as Mi-17 helicopters.
- This is the seventh edition of the bilateral exercise.
- The first, third and fifth editions were conducted in India in 2003, 2006 and 2014 at Air Force Stations Gwalior, Kalaikunda and Jodhpur, respectively.
- The second, fourth and sixth editions were conducted in France in 2005, 2010 and 2019.

Amid rampant illegal fishing, Navy monitors more than 200 Chinese

vessels in Indian Ocean

- Illegal, unreported and unregulated (IUU) fishing continues to rise beyond India's Exclusive Economic Zone (EEZ).
- Chinese fishing vessels, fishing vessels from European Union countries and other countries from outside the region were observed to be fishing in the Indian Ocean.
- Chinese deep sea trawlers have been a matter of concern for countries in the region, including India, as they are operating far from the Chinese coast and impacting local marine ecology.
- Most of the illegal activity is found in the Northern Indian Ocean Region (IOR).
- IUU fishing depletes fish stocks, destroys marine habitats, puts fishermen at disadvantage and impacts coastal communities, especially in developing countries.

Information Management and Analysis Centre (IMAC):

- The presence of extra-regional distant water fishing fleets has been monitored by Information Management and Analysis Centre (IMAC).
- The **Quad, comprising India, Australia, Japan and U.S**., in May 2022 announced a major regional regional effort under the ambit of **Indo-Pacific Maritime Domain Awareness (IPMDA).**
- It aims to provide a more accurate maritime picture of "near-real-time" activities in the region.
- It is expected to catalyse joint efforts of India and other Quad partners towards addressing IUU in Indo-Pacific region.
- All vessel movements on the high seas are monitored by the **Indian Navy's IMAC in Gurugram and the Information Fusion Centre-Indian Ocean Region (IFC-IOR)** which is co-located with it.
- **IFC-IOR** has been collaborating with other regional monitoring centres across the globe to enhance maritime safety and security, including efforts to monitor IUU.

Regional fisheries management organisations:

- As per **United Nations Convention on the Law of the Sea (UNCLOS),** coastal nations are responsible for addressing IUU fishing issues within their respective EEZ.
- There are **regional fisheries management organisations** such as the **Indian Ocean Tuna Commission, Southern Indian Ocean Fisheries Agreement operating under the mandate of UNCLOS as regulatory bodies to monitor IUU fishing on the high seas.**

Global Regulations:

- There are **two main regulations globally on IUU fishing:**
  - **the Cape Town Agreement and**
  - **the Agreement on Ports State Measures.**
- So far, **India is not a signatory of either agreement**.
- Fishing vessels across the world are supposed to have **vehicle management systems** installed which not only identify their position, but also requires them to record the volume and location of their catch, helping to tackle the issue of IUU fishing.
  - For instance, the European Union has made it mandatory to provide this information for all fish imports.
- In India, while larger vessels, over 20 metres in length, have such **Automatic Identification Systems installed**, similar efforts for sub-20 metre vessels have been delayed.

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THIRD EDITION OF LARGEST NATIONWIDE COASTAL DEFENCE EXERCISE 'SEA VIGIL-22' COMMENCES

- This National Level Coastal Defence Exercise was **conceptualised in 2018** to validate various measures that have been instituted towards enhancing maritime security since '26/11'.
- The concept of 'Sea Vigil' is to activate the Coastal Security apparatus across India and assess the overarching Coastal Defence mechanism.
- The exercise will be undertaken **along the entire 7516 km coastline and Exclusive Economic Zone of India** and will involve all the Coastal States and Union territories along with other maritime stakeholders, including the fishing and coastal communities.
- The exercise is being conducted by the **Indian Navy in coordination with the Coast Guard and other ministries** entrusted with the task of maritime activities.
- The exercise is a build up towards the major Theatre Level Readiness Operational Exercise (TROPEX), which the Indian Navy conducts every two years.
- Sea Vigil and TROPEX together will cover the entire spectrum Maritime Security challenges.

Yudh Abhyas

- The 15-day-long exercise will focus on high altitude and extremely cold climate warfare.
- Exercise Yudh Abhyas is conducted annually between India and US with the aim of exchanging best practices, Tactics, Techniques and Procedures between the Armies of the two nations.
- The previous edition of the exercise was conducted at Joint Base Elmendorf Richardson, Alaska (USA) in October 2021.
- The schedule will include all operations related to peacekeeping and peace enforcement.
- The troops from both nations will work together to achieve common objectives.
- The joint exercise will also focus on Humanitarian Assistance and Disaster Relief (HADR) operations.
- US Army soldiers of 2nd Brigade of the 11th Airborne Division and Indian Army soldiers from the Assam Regiment will be participating in the exercise.

Poland likely to invoke NATO's Article 4, will raise missile blast with UN

- If the missile's origins are Russian, this is the first time since the start of the conflict in Ukraine in late February that Russian weaponry has impacted a NATO country.

North Atlantic Treaty Organisation (NATO)

- It came into being **after World War II** as a **counter to the Soviet Union's** possible expansion attempts in Europe. Then-**US President Harry S Truman signed the 12-member treaty** on April 4, 1949.
- After the collapse of USSR in 1991, several eastern European nations previously members of the Soviet Union joined NATO. As of now, **NATO comprise 30 members.**

Differences between Articles 4 and 5 of the NATO

- **Under Article 4**, any member state can **convene a meeting of NATO members to "consult" when it feels its independence or security are threatened**. It sends a strong political symbol to the greater world that NATO is concerned about a particular situation.
- **Article 5** is known as the "**one-for-all and all-for-one**" article. It states that **an "armed attack" against one member is an attack against all** and sets in motion the possibility of collective self-defense.
- In theory, **Articles 4 and 5 can only be invoked at the request of a NATO member**. However, Article 5 has only been invoked once -- immediately following the September 11, 2001, terrorist attacks against the United States.
- **Article 5** was **not invoked when Russia invaded Ukraine**, because **Ukraine is not a NATO member.** But Poland is a NATO member, so if an investigation found any evidence it was a deliberate attack, it could have invoked Article 5.

DRDO has recently conducted a successful maiden flight-test of Phase-II Ballistic Missile Defence (BMD)

About:

- The AD-1 is a long-range interceptor missile designed for both low exo-atmospheric and endo-atmospheric interception of long-range ballistic missiles as well as aircraft.
- It is propelled by a two-stage solid motor and equipped with indigenously-developed advanced control system, navigation and guidance algorithm to precisely guide the vehicle to the target that move at very high speeds.
- The fully functional ballistic missile defence system contained high-power radars and could potentially protect large areas from the adversary missile or other air attacks.
- The development of anti-ballistic missiles is said to have started by the DRDO around the 2000s in view of the development of ballistic assets by Pakistan and China.
- The phase-1 of the programme is said to have been completed towards the end of 2010s and consisted of the advanced air defence systems and air defence systems based on the Prithvi missile.
- The second phase, according to sources, focuses on the development of anti-ballistic defence systems like the US's Theatre High-Altitude Area Defence system, which can neutralise intermediate-range ballistic missiles.
- The AD-II, which is capable of neutralising missiles of even higher ranges, is also said to be under development.

CULTURE

Bonalu festival in Telangana

- Bonalu is a Hindu Festival where Goddess Mahakali is worshiped.
- It is an annual festival celebrated in the twin Cities Hyderabad and Secunderabad and other parts of Telangana state, India.
- Bonalu is celebrated usually during Ashada Masam that falls in July/August.
- Special poojas are performed for goddess Yellamma during the first and last day of the festival.
- The festival is considered as a form of thanksgiving to the Goddess after the fulfillment of vows.
- Bonam literally means Meal in Telugu, which is an offering to the Mother Goddess.
- Every year, the festival starts at Golconda Fort, and on the second Sunday, it moves to the Balkampet Yellamma temple in Balkampet, and the Ujjaini Mahakali Temple in Secunderabad. On the third Sunday, it moves to the Pochamma and Katta Maisamma temple of Chilkalguda and the Mateshwari temple of Lal Darwaza in Hyderabad.

Meghalaya to host 3-day 'Wangala Festival' from Nov 10

- The Wangala Festival, also known as the 100 drum festival is celebrated with much zeal and enthusiasm in India's north-eastern state of Meghalaya.
- Celebrated since 1976, it's the most important festival of the Garo tribe and attracts a lot of tourists.
- During the Wangala, tribals offer sacrifices to please their deity Saljong, the Sun God.
- It marks the end of the long harvest season.
- The celebration also signifies the end of a long toil period in the field for the Garo tribe before the start of the winters.
- The first day of the festival is celebrated with a ceremony called Ragula which is performed in the house of the village's chief.

President's greetings on the eve of birthday of Guru Nanak Dev

- It will be observed as the 553rd birth anniversary of Guru Nanak Dev Ji. It is observed annually on the full moon date of the Kartik month or Kartik Purnima
- Guru Nanak (1469 – 1539), also referred to as Baba Nanak was the founder of Sikhism and is the first of the ten Sikh Gurus.
- He was born on April 15, 1469 in Rai Bhoi di Talvandi, now Nankana Sahib, Pakistan.
- Guru Nanak Dev spread the message of 'Ek Omkar' which means that God is one and is present everywhere.
- Guru Nanak Dev Ji believed one can connect to the almighty through sincere prayers. All his teachings are composed together to form the sacred book called Guru Granth Sahib - the central holy religious scripture of Sikhism.

Elephant herd gets 'drunk' consuming fermented water in Odisha. Forest officials beat drums to wake them up

- The flowers of Mahua tree (Madhuca longifolia) are fermented to produce an alcoholic drink also called Mahua.
- Tribal men and women in various parts of India traditionally make this liquor.
- It is found in West Bengal, Odisha, Chhattisgarh, Jharkhand, Bihar, in parts of northern and central India, in Maharashtra, Gujarat, Telangana, Tamil Nadu and Kerala.
- Mahua is considered holy amongst the tribes of India.
- It is called the 'Tree of Life'. Not just the flower, each and every part of the tree is used for something or the other. Even the shell of the fruit is used at the time of funeral rites.

Mahua Nutra beverage:

- TRIFED in association with Foundation for Innovation and Technology Transfer (FIIT) has developed this value added product Mahua nutra beverage made out of Mahua flower so that the tribals can benefit maximum from the value addition of MFPs and development of technologies.
- This is the first of its kind of initiative in the State of Jharkhand and the country by TRIFED.
- The Mahua Nutra beverage in its improvised form is blended with Pomegranate fruit juice, which enhances the nutritional value and masks the flavour of Mahua beverage by improving its aroma and texture.

Sangeet Natak Akademi of Culture Ministry organises colourful and vibrant cultural programmes at India Gate today

- Under Kalanjali , cultural programmes are to be organised at Central Vista every week. The programmes organised included **Chenda Melam, Kathak Dance, Puppet Show, Manipuri Dance.**
    - **Panchari Melam** is a percussion ensemble, performed during temple festivals in Kerala, India. Panchari Melam (or simply panchari), is **one of the major forms of Chenda Melam** (ethnic drum ensemble), and is the best-known and most popular in the kshetramvadyam (temple percussion) genre.
    - **Kathak** is one of the eight major forms of Indian classical dance. It is the classical dance form of **Uttar Pradesh.**
    - **Puppetry** is a form of theatre or performance that involves the manipulation of puppets – inanimate objects, that are animated or manipulated by a human called a puppeteer.
    - **Manipuri Dance: Manipuri dances** encompasses both classical and folk dance forms. The Raas Leela is one of the major Indian classical dance forms.
- Sangeet Natak Akademi – The national Academy of Music, Dance and Drama was created by a resolution of the (then) Ministry of Education dated 31 May 1952. The Akademi became functional the following year, with the **appointment of its first Chairman, Dr P.V. Rajamannar.**
- Financed by the government of India, the Akademi functions as an autonomous organization under **Ministry of Culture**, and is registered under the **Societies Registration Act**.
- The scheme of Financial Assistance to Cultural Institution is one of several schemes

formulated by the Akademi to further its objectives.

SOCIETY

More than 20,000 schools closed in India during 2020-21; number of teachers declined by 1.95%: Ministry of Education

- According to the report, Gross Enrollment Ratio (GER) has improved at primary, upper primary, and higher secondary levels of school education in 2021-22 as compared to 2020-21.
- GER in higher secondary has made a significant improvement from 53.8 percent in 2021-21 to 57.6 percent in 2021-22.
- In 2021-22, the Pupil Teacher Ratio (PTR) stood at 26 for primary, 19 for upper primary, 18 for secondary, and 27 for higher secondary showing an improvement since 2018-19.
- In 2021-22, over 12.29 crore girls are enrolled in primary to higher secondary showing an increase of 8.19 lakh as compared to the enrolment of girls in 2020-21.
- More than 20,000 schools were closed across the country during 2020-21 while the number of teachers also declined by 1.95% in comparison to the previous year.
- It pointed out that only 44.85% schools had computer facilities while nearly 34% had internet connection.
- While only 27% schools have special toilets for children with special needs (CSWN), more than 49% of them have ramps with handrails

Unified District Information System for Education Plus (UDISE):

- The UDISE+ system of online data collection from the schools was developed by Department of School Education & Literacy in the year 2018-19 to overcome the issues related to erstwhile practice of manual data filling in paper format.
- In UDISE+ system, improvements have been made particularly in the areas related to data capture, data mapping and data verification.
- In UDISE+ 2021-22, additional data on important indicators viz., digital library, peer learning, hard spot identification, number of books available in school library, etc have been collected for the first time to align with the National Education Policy 2020 initiatives.

WHO recommends groundbreaking malaria vaccine for children at risk

- It took more than 30 years and approximately $700 million for this breakthrough.
- Malaria kills nearly 600,000 people every year, the majority of whom are children under the age of five in sub-Saharan Africa.
- Malaria is a disease caused by the **Plasmodium parasite**.
- The parasite can be spread to humans through the bites of infected mosquitoes.
- There are many different types of plasmodium parasite, but only 5 types cause malaria in humans.
    - **Plasmodium falciparum** – mainly found in Africa, it's the most common type of malaria parasite and is responsible for most malaria deaths worldwide.
    - **Plasmodium vivax** – mainly found in Asia and South America, this parasite causes milder symptoms than Plasmodium falciparum, but it can stay in the liver for up to 3 years, which can result in relapses.
    - **Plasmodium ovale** – fairly uncommon and usually found in West Africa, it can remain in your liver for several years without producing symptoms.
    - **Plasmodium malariae** – this is quite rare and usually only found in Africa.
    - **Plasmodium knowlesi** – this is very rare and found in parts of Southeast Asia.
- **Transmission:**
    - The plasmodium parasite is spread by female Anopheles mosquitoes, which are known as "night-biting" mosquitoes because they most commonly bite between dusk and dawn.

What is partial stubble burning and why do many farmers resort to this

- After harvesting, farmers opting for partial burning let the loose straw dry for a couple of days and then they set these dumps on fire to prepare the field for the next crop.
- In such cases, the standing stubble, which is mostly green, does not get burnt fully but it gets scorched close to those places in the field where loose straw is burnt.
- And in the case of air pollution, it will be around 40-50% less as they only burn around 50% to 60% of the total stubble in such cases.

Stubble management machines:

- The state has distributed 1.05 lakh stubble management machines and a large number of individual farmers and groups of farmers have purchased these machines on subsidy.
- Farmers who do not have these machines but want to manage the stubble, get these on rent from farmers groups and cooperative societies.
- However, even after having three main machines such as Happy Seeder, Smart Seeder and Super seeder, many farmers are resorting to partial burning.
- The three machines ensure that there is no need for partial burning even after harvesting as stubble clearing is not required to sow wheat.

MHA completes mother tongue survey project across India with field

videography of 576 mother tongues

- According to the report, the Mother Tongue Survey of India is a project that "surveys the mother tongues, which are returned consistently across two and more Census decades".
- It also documents the linguistic features of the selected languages.
- The report states that the NIC and the National Film Development Corporation (NFDC) will be documenting and preserving the linguistic data of the surveyed mother tongues in audio-video files.
- Video-graphed speech data of Mother Tongues will also be uploaded on the NIC survey for archiving purposes.
- Linguistic Survey of India (LSI) is a regular research activity in the country since the 6th Five Year Plan.
- As per an analysis of 2011 linguistic census data in 2018, more than 19,500 languages or dialects are spoken in India as mother tongues.
- The category "mother tongue" is a designation provided by the respondent, but it need not be identical with the actual linguistic medium.
- After subjecting the 19,569 returns to linguistic scrutiny, edit and rationalisation, they were grouped into 121 mother tongues.
- According to the 2011 linguistic census, Hindi is the most widely spoken mother tongue, with 52.8 crore people or 43.6 per cent of the population declaring it as the mother tongue.
- The next highest is Bengali, mother tongue for 9.7 crore individuals, and accounting for 8 per cent of the population.

Education of children:

- The new National Curriculum Framework (NCF) for the foundational stages of education, has recommended that mother tongue should be the primary medium of instruction in schools for children up to eight years of age.
- The focus on mother tongue as the medium of instruction, especially for primary schooling, has been a feature of education policies for years.
- The new NCF, which deals with pre-school and classes I-II, emphasises the virtues of the mother tongue as the primary medium of instruction, saying that by the time children join pre-school, they acquire significant competence in the "home language".
- According to the NCF, evidence from research confirms the importance of teaching children in their mother tongue during the foundational years and beyond.
- NCF also states that since children learn concepts most rapidly and deeply in their home language, the primary medium of instruction would optimally be the child's home language/ mother tongue/ familiar language in the Foundational Stage.

Bhopal Railway Station gets 4-star 'Eat Right Station' certificate

- This certification is granted by FSSAI to railway stations adhering to standard food storage and hygiene practices.
- The 'Eat Right Station' certification is awarded by FSSAI to railway stations that set benchmarks in providing safe and wholesome food to passengers.
- The station is awarded a certificate upon a conclusion of an FSSAI-empanelled third-party audit agency with ratings from 1 to 5.
- The 4-star rating indicates full compliance by the station to ensure safe and hygienic food is available to passengers.

- The other railway stations with this certification include Anand Vihar Terminal Railway Station; (Delhi), Chhatrapati Shivaji Terminus; (Mumbai), Mumbai Central Railway Station; (Mumbai), Vadodara Railway Station, Chandigarh Railway Station.

Eat Right India:

- The certification is part of the 'Eat Right India' movement- a large-scale effort by FSSAI to transform the country's food system to ensure safe, healthy and sustainable food for all Indians.
- Eat Right India adopts a judicious mix of regulatory, capacity building, collaborative, and empowerment approaches to ensure that our food is suitable both for the people and the planet.

Janjatiya Gaurav Diwas: President Murmu pays homage to Bhagwan Birsa Munda in Khunti, Jharkhand

- Janjatiya Gaurav Divas dedicated to the memory of brave tribal freedom fighters so that coming generations could know about their sacrifices about the country.
- India's freedom struggle was strengthened by several movements by tribal communities such as Santhals, Tamars, Kols, Bhils, Khasis and Mizos to name a few.
- **November 15 is the birth anniversary of Birsa Munda** who is revered as Bhagwan by tribal communities across the country.
- Birsa Munda fought bravely against the country against the exploitative system of the British colonial system and spearheaded movement against British oppression giving a call for 'Ulgulan' (Revolution).
- The declaration acknowledges the glorious history and cultural heritage of tribal communities.
- The day will be celebrated every year and would recognize the efforts of the tribals for preservation of cultural heritage and promotion of Indian values of valour, hospitality and national pride.

Indian Cities Need To Invest $840 Billion In Infrastructure

- Its latest report, titled **'Financing India's Urban Infrastructure Needs: Constraints to Commercial Financing and Prospects for Policy Action'**, puts forth the urgent requirement to leverage greater private and commercial investments to meet the emerging financial gaps.
- Financing on a repayable basis can be done either through debt, private lending or public-private partnership investments.
- These require a recurrent source of revenue to meet obligations, thus, mandating raising adequate resources.
- Much of the urban infrastructure in India is financed by tied intergovernmental fiscal transfers, that is, vertical and horizontal transfer of finance for attaining certain objectives sub-nationally.
- Of the finances needed to fund capital expenditures for Indian cities, 48% is derived from State governments, 24% from the Central government and 15% from urban local bodies' own surplus.
- The rest includes public-private partnership (3%), commercial debt (2%) and loans from Housing and Urban Development Corporation, or HUDCO (8%).

- The report argues that the overall funding base to raise commercial revenues "appears to be low" owing to weak fiscal performance of cities and low absorptive capacity for execution of projects.
- The report states that city agencies have been unable to expand their resource and funding base to support private financing for services such as water supply, sewerage networks and bus services, as they are highly subsidised.

Uda Devi

- On November 16, events to commemorate the martyrdom of Uda Devi, a freedom fighter from the Pasi community, were held at various places in Uttar Pradesh.
- She was born in Ujirao, Lucknow.
- She was part of the royal guard of Begum Hazrat Mahal of Awadh.
- Uda Devi is remembered not only for her stories of valour but also for her skill as a leader who managed to mobilise people — specially Dalit women — to take up arms against the British.
- On November 16, 1857, Uda Devi was among the soldiers who clashed with the British regiment stationed near the Gomti River.
- She formed an all-women battalion, today called the Dalit Veeranganas, to take part in armed uprisings against the British.
- Devi belonged to the Pasi community, which was labelled a 'criminal caste' by the British administration under the Criminal Tributes Act, 1871.
- Pasis are traditionally pig-herders and toddy tappers and were listed as the second-largest Dalit group in Uttar Pradesh after the 2001 census.

Union Health Ministry rolls out country's first suicide prevention policy

- It is the first of its kind in the country, with **time-bound action plans and multi-sectoral collaborations to achieve reduction in suicide mortality by 10% by 2030.**
- The strategy broadly seeks to establish effective surveillance mechanisms for suicide within the next three years.
- It aims to establish **psychiatric outpatient departments** that will provide suicide prevention services through the **District Mental Health Programme in all districts** within the next **five years.**
- It also seeks to integrate a **mental well-being curriculum** in all educational institutions within the next eight years.
- It envisages developing guidelines for **responsible media reporting of suicides**, and restricting access to means of suicide.
- The stress is on developing **community resilience and societal support** for suicide prevention.
- While the strategy is in line with the **WHO's South East-Asia Region Strategy for suicide prevention**, it says it will remain true to India's cultural and social milieu.
- In India, **more than one lakh lives are lost every year** to suicide, and it is the top killer in the 15-29 years category.
- In the past three years, **the suicide rate has increased from 10.2 to 11.3 per 1,00,000 population**.

- The most common reasons for suicide include family problems and illnesses, which account for 34% and 18% of all suicide-related deaths.

FRO killed allegedly by Gutti Koya tribals in Bhadradri Kothagudem district

- The Koya population is concentrated in **Telangana, Andhra Pradesh, Chhattisgarh and Odisha.**
- The Koyas speak the **Koya language**, which is a Dravidian language.
- Most important fair celebrated by Koyas is the **Sammakka Saralamma Jatra** once in two years on full moon day of the Magha Masam (January or February) at Medaram village in Mulug taluk of Warangal district.
- Podu is a form of shifting cultivation, as practiced by various tribal groups in forest areas has for long been an economical survival versus environmental sustenance issue.

400th birth anniversary celebrations of Assam's legendary war hero Lachit Barphukan begin

- Lachit Borphukan was a commander and councillor in the **Ahom Kingdom.**
- The Ahom Kingdom resisted the invasion of the Mughal Empire several times and reigned in present-day Assam for over 600 years.
- The Ahom Dynasty was founded in **1228 in Assam's Brahmaputra Valley**.
- The first King of the Ahom Kingdom was **Chaolung Sukaphaa**, who crossed the Patkai mountainous region to reach the Brahmaputra valley.
- In 1615, the Ahom Dynasty engaged in its first significant conflict with the Mughal Empire.
- The **Mughals** conquered the **Ahom capital of Garhgaon in 1662** but were defeated in later battles.
- Finally, during the **battle of Saraighat in 1671, the Ahoms led by Lachit Borphukan successfully defeated the Mughals.**
- **Borphukan is mainly known for his leadership in this battle.** By 1682, the Mughal influence in the region was completely eradicated.

Imphal's Ima market, which minister Jaishankar called 'a great example of Nari Shakti'

- Ima Keithel, or Mothers' Market, is an all-women market, said to be the largest such shopping complex in Asia.
- It is a unique all women's market, having 3,000 "Imas" or mothers who run the stalls, it is split [into] two sections on either side of road.
- Vegetables, fruits, fish and household groceries are sold on one side and exquisite handlooms and household tools on the other. Not far away is a street where beautiful wicker works and basketry are sold.
- Male vendors and shopkeepers are barred here.

- In 2018, the state government announced that legal action would be taken under the Manipur Municipalities Act, 2004 if any male vendor was found selling goods at the market.

History:

- The Ima Market is centuries-old, and has its origins in Lallup Kaba, an ancient bonded labour system.
- Under the system, Meitei men had to compulsorily serve some time working in the military and on other civil projects, keeping them away from home.
- The women, thus, were left to manage on their own, and they developed a market system which is today the Ima Keithel.
- While the system is centuries-old, it had continued till the time of the British.
- Policies of the British government had interfered with the functioning of the Ima market too, but were met with stiff resistance from the women.

FACTS FOR PRELIMS

This year, saffron fields to spice up tourists' reel life in Kashmir

- The **unique characteristics of Kashmir saffron** are its longer and thicker stigmas, natural deep-red colour, high aroma, bitter flavour, chemical-free processing, and high quantity of crocin (colouring strength), safranal (flavour) and picrocrocin (bitterness).
- It is the **only saffron in the world grown at an altitude of 1,600 m to 1,800 m AMSL** (above mean sea level).
- **Pampore region, in India, commonly known as Saffron bowl of Kashmir**, is the main contributor to saffron production, followed by Budgam, Srinagar, and Kishtiwar districts.
- Kashmir saffron is a very precious and costly product.
- Kashmir saffron is renowned globally as a spice.
- It rejuvenates health and is used in cosmetics and for medicinal purposes. It has been associated with traditional Kashmiri cuisine.
- **In 2020, Union Government has issued a certificate of Geographical Indication (GI) registration** for Saffron grown in the Kashmir Valley.
- **National Mission on Saffron** is focused on several measures to improve its farming.

Panamaram heronry set to get a new lease of life

- Panamaram heronry is the largest breeding ground of different species of herons in the Malabar region.
- The heronry, formed on a sandbank on the Panamaram River, is a breeding ground for nine

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species of waterbirds.
- The tiny islet is a haven for globally threatened waterfowls, including the black headed-ibis, purple heron, large egret, median egret, little egret, pond heron, night heron, and little cormorant.
- The site is also the only location in State where the cattle egret breeds.

When will Mauna Loa, the volcano in Hawaii, erupt?

- Mauna Loa is one of five volcanoes that together make up the Big Island of Hawaii, which is the southernmost island in the Hawaiian archipelago.
- It's not the tallest (that title goes to Mauna Kea) but it's the largest and makes up about half of the island's land mass.
- It sits immediately north of Kilauea volcano, which is currently erupting from its summit crater.
- Kilauea is well-known for a 2018 eruption that destroyed 700 homes and sent rivers of lava spreading across farms and into the ocean.
- Mauna Loa last erupted 38 years ago.
- In written history, dating to 1843, it's erupted 33 times.

New Scottish fossil sheds light on the origins of lizards

- The skeleton is of Bellairsia gracilis, a primitive squamate.
- Squamates are a group of reptiles that includes more than 10,000 living species descended from a shared common ancestor that lived 240 MYA.
- The fossil may improve our understanding of the anatomical transformations that led to the establishment of the body plan of reptiles such as modern lizards.
- If the anatomical interpretation is correct, then primitive squamates survived for tens of millions of years after the first lizards and snakes evolved and lived alongside them.

Nagaland to host Tokhü Emong Bird Count from November 4

- It is the first avian documentation exercise taken by Nagaland to go beyond Amur falcons.
- The event is being held during the Tokhü Emong post-harvest festival of the Lotha Nagas to spread awareness about Nagaland's bird diversity.
- This event is being organised in collaboration with the Wokha Forest Division and the Divisional Management Unit, Nagaland Forest Management Project (NFMP), Wokha, and Bird Count India.
- The TEBC falls within the Salim Ali Bird Count, a nationwide event conducted by the Bombay Natural History Society.

Threatened pirarucu returned to the Amazon

- It can weigh up to 200 kilos (440 pounds), by far the largest of 2,300 known fish species in the Amazon.

- It is found primarily in floodplain lakes across the Amazon basin, including the region of Medio Jurua.
- It is one of the few fish species in the world that surfaces to breathe. It does that with a big splash, flashing its red tail out of the water.
- The giant fish not so long ago nearly vanished from Jurua, due to unregulated fishing.
- The illegal and unsustainable fishing left river and Indigenous communities struggling to catch their staple food.
- And it left pirarucu designated as threatened with extinction, unless trade in the fish is closely controlled by the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

New honeybee species, endemic to Western Ghats, found

- The new species has been named Apis karinjodian and given the common name Indian black honeybee.
- It is after a gap of more than 200 years that a new species of honeybee has been spotted in the Western Ghats.
- The last honeybee described from India was Apis indica in 1798 by Fabricius. Although Fabricius named the Indian bee Apis indica, it was not considered a valid species till now.
- The research team restored the status of Apis indica based on a new measure for species discrimination in honeybees termed 'Radio-Medial Index (RMI)'.
- While proving the distinct identity of Apis indica, led to the discovery of Apis karinjodian.
- Apis karinjodian has evolved from Apis cerana morphotypes that got acclimatised to the hot and humid environment of the Western Ghats.
- The distribution of Apis karinjodian ranges from the central Western Ghats and Nilgiris to the southern Western Ghats, covering the States of Goa, Karnataka, Kerala and Tamil Nadu.

Altitude decides simian attitude to diet

- The Himalayan Gray Langur or the Chamba Sacred Langur (Semnopithecus ajax) is a colobine, meaning leaf-eating monkey.
- It is considered an endangered species globally as its population is estimated to be less than 1,500 mature individuals in 15-20 groups.
- They inhabit areas between 2,200-4,000 metres above mean sea level in the subtropical, tropical moist temperate, alpine, coniferous and broadleaved forests and scrublands.
- It is endemic to the Jammu and Kashmir and Himachal regions of western Himalayas, where the ecosystem is vulnerable and susceptible to the impact of anthropogenic pressures.
- It is also reported from Pakistan and Nepal.

The strange case of the Indian skimmer

- Indian skimmer is seen in huge flocks during winter in Coringa wildlife sanctuary (Kakinada).
- A thick, orange-yellow bill with a slightly longer lower mandible (jaw) is one of the most striking features of the Indian skimmer (Rynchops albicollis).

- The Indian skimmer grows to a length of 40-43 cm.
- More widespread in winter, the Indian skimmer is found in the coastal estuaries of western and eastern India.
- It occurs primarily on larger, sandy, lowland rivers, around lakes and adjacent marshes and, in the non-breeding season, in estuaries and coasts.
- About 20% of the total population of fewer than 2,500 birds nest along river Chambal.
- Its population is declining primarily because of the degradation of wetland and riverine habitats.
- The damming of the Chambal River, in upstream Rajasthan, has adversely affected its population at National Chambal Sanctuary, Uttar Pradesh, due to the dropping water levels allowing predators and livestock access to breeding islands.
- IUCN: Endangered
- In 2020, Bombay Natural History Society (BNHS) have initiated a 'Guardians of the Skimmer' programme, which is a community-based conservation initiative.
- BNHS in collaboration with Bird Count India have also initiated 'Indian Skimmer Count'-a citizen science initiative.

"In our LiFEtime" Campaign launched by India at COP 27, Sharm El-Sheikh

- **National Museum of Natural History (NMNH),** under the Ministry of Environment Forest and Climate Change and United Nations Development Programme (UNDP), jointly launched "In Our LiFEtime" campaign.
- It aims to encourage youth between the **ages of 18 to 23 years** to become message bearers of sustainable lifestyles.
- This campaign envisions to recognize youth from around the world taking climate action initiatives that resonate with the concept of LiFE.
- The campaign will involve more youth in the conversation about climate change, adaptation and mitigation, and provide them a platform to share their concerns, issues and solutions with the leaders of the world.

The world's biggest active volcano, Hawaii's Mauna Loa, erupts after 38 years

- Mauna Loa is one of five volcanoes that together make up the Big Island of Hawaii, which is the southernmost island in the Hawaiian archipelago.
- It's not the tallest (that title goes to Mauna Kea) but it's the largest and makes up about half of the island's land mass.
- It sits immediately north of Kilauea volcano, which is currently erupting from its summit crater.
- Kilauea is well-known for a 2018 eruption that destroyed 700 homes and sent rivers of lava spreading across farms and into the ocean.
- Mauna Loa last erupted 38 years ago.
- In written history, dating to 1843, it's erupted 33 times.

volcanoes

- Any volcano that has erupted within the Holocene period (in the last 11,650 years) is considered to be "active" by scientists.
- "Dormant" volcanoes are those active volcanoes which are not in the process of erupting currently, but have the potential to do so in the future.
- Mauna Loa was a dormant volcano for the last 38 years.
- "Extinct" volcanoes are ones which scientists predict will never face any further volcanic activity.
- Ben Nevis, the tallest mountain in the UK, is an extinct volcano.

Krakatoa, Indonesia

- One of the most catastrophic volcanic eruptions ever occurred in Krakatoa in 1883.

Mount Vesuvius, Italy

- In 79 CE, Mount Vesuvius erupted in one of the deadliest eruptions in European history, killing as many as 16,000 and destroying the town of Pompeii.

Mount Fuji, Japan

- It last erupted in 1707-1708 and had a devastating effect on the local population.

Eyjafjallajökull, Iceland

- Sometimes referred to as E15, it is one of the many volcanic features of Iceland.
- In 2010, a relatively small eruption managed to bring air traffic in Europe to a complete standstill.

Kīlauea, Hawaii

- Adjacent to the Mauna Loa, this is one of the most active volcanoes on the planet.
- It has been erupting intermittently since recorded history, with its eruption lasting from 1983 to 2018 being the longest continuous eruption ever recorded.

Mount St Helens, USA

- Located in Washington State, Mount St. Helens was a major eruption that occurred on May 18, 1980 and it remains the deadliest and most economically destructive volcanic event in U.S. history.

International Jaguar Day celebrated at National Zoological Park

- International Jaguar Day is observed annually on **November 29.**
- International Jaguar Day was created to raise awareness about the increasing threats facing the jaguar and the critical conservation efforts ensuring its survival.
- It celebrates the Americas' largest wild cat as an umbrella species for biodiversity conservation and an icon for sustainable development and the centuries-old cultural heritage of Central and South America.
- This is the third largest Cat Predator of the World and an important species of Amazon Rainforest.

- International Jaguar Day also represent the collective voice of jaguar range countries, in collaboration with national and international partners, to draw attention to the need to conserve jaguar corridors and their habitats as part of broader efforts to achieve the United Nation's Sustainable Development Goals.

Jaguars (Panthera onca):

- Jaguars (Panthera onca) are often mistaken for leopards, but can be differentiated due to the spots within the rosettes on their coats.
- While many cats avoid water, jaguars are great swimmers, and have even been known to swim the Panama Canal.
- Jaguars once roamed broadly from central Argentina all the way up to the southwestern United States.
- Since the 1880s, they've lost more than half their territory.
- Their main stronghold today is the **Amazon Basin**, though they still exist in smaller numbers through Central America as well.
- They're typically found in **tropical rainforests but also live in savannas and grasslands.**
- Jaguars are classified as **Near-threatened by the International Union for the Conservation of Nature.**
- The species has national protections in almost every country it's found, and trade in its parts is banned by **CITES**.

Perfect storm: What is the Fujiwhara Effect?

- The Fujiwhara Effect **is any interaction between tropical storms formed around the same time** in the same ocean region **with their centres or eyes at a distance of less than 1,400 km**, with intensity that could vary between a depression (wind speed under 63 km per hour) and a super typhoon (wind speed over 209 km per hour).
- The interaction could **lead to changes in the track and intensity** of either or both storms systems. In rare cases, the two systems could merge, especially when they are of similar size and intensity, to form a bigger storm.
- There **are five different ways in which Fujiwhara Effect can take place.**
  - The first is elastic **interaction in which only the direction of motion of the storms change**s and is the most common case. These are also the cases that are difficult to assess and need closer examination.
  - The second **is partial straining out in which a part of the smaller storm is lost to the atmosphere.**
  - The third is **complete straining out in which the smaller storm is completely lost to the atmosphere**. The straining out does not happen for storms of equal strengths.
  - The fourth type is **partial merger in which the smaller storm merges into the bigger one**.
  - Fifth is **complete merger which takes places between two storms** of similar strength.
- **Fujiwhara effect was identified by Sakuhei Fujiwhara,** a Japanese meteorologist whose first paper recognising the Fujiwhara cases was published in 1921.

Education ministry releases report on Performance Grading Index for states

- It is a unique index for evidence-based comprehensive analysis of school education systems across States and UTs.
- The prime objective of PGI is to promote evidence-based policy-making and highlight course correction to ensure quality education for all.
- As per the index, a total of seven States and Union Territories namely Kerala, Punjab, Chandigarh, Maharashtra, Gujarat, Rajasthan, and Andhra Pradesh have attained Level -2 grading in 2020-21.
- Gujarat, Rajasthan, and Andhra Pradesh are the new entrants with the highest achieved level.
- Union Territory Ladakh has made significant improvements in PGI from Level 8 to Level 4 in 2020-21.
- No state, however, has been able to attain the highest level of L1 so far.
- PGI 2020-21 classified the States and UTs into ten grades of which the highest achievable Grade is Level 1 for the states scoring more than 950 points out of a total of 1000 points.
- The lowest grade is Level 10 which is for a score below 551.
- The PGI structure comprises 1000 points across 70 indicators grouped into 2 categories viz.,
    - Outcomes,
    - Governance Management (GM).
- These categories are further divided into 5 domains, viz.,
    - Learning Outcomes (LO),
    - Access (A),
    - Infrastructure and Facilities (IF),
    - Equity (E) and
    - Governance Process (GP).

Aibawk cluster in the Aizwal, Mizoram becomes the first cluster to be completed under the Shyama Prasad Mukherji Rurban Mission

- What is SPMRM? It was launched by the Prime Minister in February 2016 with a vision to provide amenities to rural areas which are perceived to be urban and have the potential to stimulate local economic development.
- The Mission aim: Development of 300 Rurban clusters, in the next five years.
- What is a 'Rurban Cluster'? It is a cluster of geographically contiguous villages with a population of about 25000 to 50000 in plain and coastal areas and with a population of 5000 to 15000 in desert, hilly or tribal areas.
- Selection of the 'Rurban Clusters'
- There are two categories of clusters under SPMRM: Non-Tribal and Tribal. The process of selection varies for each of these categories.
- While selecting the Rurban cluster, the State may identify a large village/gram panchayat that are growth centers with resources available in the area that could potentially lead the economic transformation of the region. These growth centres could also be block headquarter, villages or census towns.
- The clusters could then be formed by identifying geographically contiguous villages/gram panchayats within a radius of 5–10 km (or radius appropriate to the population density and geography of the region) around the identified growth centre.

Odd-even vehicle rationing scheme — history, efficacy, expert views

- 'Odd-even' was first introduced in 2016 by the AAP government to control vehicular pollution and bring down increasing particulate matter levels.
- Under it, private vehicles with registration plates ending in odd numbers could ply on odd dates, and even numbers on even dates.
- Studies and research done on its impact in Delhi suggest positive results — from reduction in congestion to a slight drop in pollution levels and consequent improvement in air quality.
- According to a study done by Delhi Technological University (DTU) published in 2016, when the scheme was implemented for a roughly two-week period, concentration of PM 2.5 and PM 1 saw a drop.
- Studies have also shown that on an average, there was a reduction in PM 2.5 of 5.73 per cent and 4.70 per cent in PM 1 levels.

What's known about the Russian volcano that may be about to erupt?

- Shiveluch is one of the largest and most active volcanoes in **Kamchatka**, having erupted at least 60 times in the past 10,000 years.
- **It has two main parts:**
  - **Old Shiveluch**, which tops 3,283 metres (10,771 ft), and
  - **Young Shiveluch** – a smaller, 2,800-metre peak protruding from its side.
    - Young Shiveluch lies within an ancient caldera – a large crater-like basin that likely formed when the older part underwent a catastrophic eruption at least 10,000 years ago.
  - The volcano has been continuously erupting since August 1999, but occasionally undergoes powerful explosive events, including in 2007.

Kamchatka:

- Kamchatka is home to 29 active volcanoes, part of a vast belt of Earth known as the "Ring of Fire" which circles the Pacific Ocean and is prone to eruptions and frequent earthquakes.
- Most of the peninsula's volcanoes are surrounded by sparsely populated forest and tundra.
- Six volcanoes in Russia's northeast are currently showing signs of increased activity, including Eurasia's highest active volcano Klyuchevskaya Sopka.

Over 1 lakh welfare projects completed in mining areas under PMKKKY so far

- The Ministry of Mines launched PMKKKY in 2015 for the welfare of areas and people affected by mining-related operations, using the funds generated by District Mineral Foundations (DMFs).
- to implement various developmental and welfare projects in mining affected areas, complementing the existing ongoing schemes of State and Central Government;

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- to minimize/mitigate the adverse impacts, during and after mining, on the environment, health and socio-economics of people in mining districts; and
- to ensure long-term sustainable livelihoods for the affected people in mining areas.
- It will be implemented by DMFs of the respective districts using the funds accruing to the DMF. The Mines and Minerals (Development & Regulation) Amendment Act, 2015, mandated the setting up of DMFs in all districts in the country affected by mining related operations.
- The Central Government has notified the rates of contribution payable by miners to the DMFs.
  - In case of all mining leases executed before 12th January, 2015 miners will have to contribute an amount equal to 30% of the royalty payable by them to the DMFs. If mining leases are granted after 12.01.2015, the rate of contribution would be 10% of the royalty payable.
- Utilisation of Funds:
  - At least 60% of PMKKKY funds to be utilized for High priority areas such as Drinking water supply, Health care, Education, Environment preservation etc.
  - Up to 40% of the PMKKKY to be utilized for other priority areas such as- Physical infrastructure,Irrigation, Energy and Watershed Development etc.

Indian Army launches single-window facility for welfare, grievance redressal of 'veer naris'

- The system caters to registering grievances with tracking, monitoring, and regular feedback to the applicant.
- Veernaris / Next of Kin will have multiple means for approaching the VSK through telephone, SMS, WhatsApp, Post, e-mail and walk-ins to seek assistance.
- Stakeholders can monitor the status of grievances through Customer Relationship Management (CRM) software.
- The facility has been launched as Veer naris are employed as VSK staff to maintain inherent connection and empathy with the beneficiaries.
- The VSK is one of its kind initiatives by the Indian Army towards extending genuine care and support to its widows and veer naris and NoKs.
- Veerangana Sewa Kendra (VSK) will be available as a service to the Indian Army Veterans Portal

DigiLocker users can now digitally store health records

- DigiLocker has successfully completed its second-level of integration with Ayushman Bharat Digital Mission (ABDM). The secure cloud-based storage platform of DigiLocker can be used now as a health locker for storing and accessing health records such as vaccination records, doctor prescriptions, lab reports, hospital discharge summaries etc.
- DigiLocker is a flagship initiative of Ministry of Electronics & IT (MeitY) under Digital India programme.
- DigiLocker aims at 'Digital Empowerment' of citizen by providing access to authentic digital documents to citizen's digital document wallet.
- The issued documents in DigiLocker system are deemed to be at par with original physical documents as per Rule 9A of the Information Technology (Preservation and Retention of Information by Intermediaries providing Digital Locker facilities) Rules, 2016.
- Benefits to Citizens:

- ○ Important Documents Anytime, Anywhere!
- ○ Authentic Documents, Legally at Par with Originals.
- ○ Digital Document Exchange with the consent of the citizen.
- ○ Faster service Delivery- Government Benefits, Employment, Financial Inclusion, Education, Health.

Corporates pitch in to play key role in 'Naan Mudhalvan' scheme

- It is an initiative of Tamil Nadu State government.
- Naan Mudhalvan platform aims to provide dynamic information for college students on courses and relevant information about industry specific skill offerings.
- This will enable the students of TamilNadu to get training in their chosen field of interest that will help them in achieving their career goals.
- The objective of this scheme is to identify potential training providers, to impart various skill trainings based on current industry gaps.
- Through this flagship program the students will be able to get trained and ensure they get jobs according to their skill sets.

'75 Creative Minds of Tomorrow' this year's IIFI awards in Goa

- The 75 Creative Minds of Tomorrow initiative is the brainchild of Union Minister for Information and Broadcasting and Youth Affairs and Sports, Anurag Singh Thakur.
- The initiative aims to identify, encourage and nurture young creative talent in filmmaking, from the entire length and breadth of the country.
- The segment is an annual platform at the International Film Festival of India held in Goa, to identify, encourage and nurture young creative talents from across various aspects of filmmaking.
- The initiative is in its second year, having been launched in 2021 to mark the 75th year of India's independence as part of the 'Azadi Ka Amrit Mahotsav' celebrations.
- The 75 creative minds will be shortlisted and selected on the basis of their submissions by an eminent jury, under the aegis of the National Film Development Corporation ahead of the 53rd edition of International Film Festival of India.

National Workshop on Localization of Sustainable Development Goals (LSDGs) in Gram Panchayats

- A three-day National Workshop on Localization of Sustainable Development Goals in Gram Panchayats through Adopting Thematic Approaches: Theme 1: Poverty Free and Enhanced Livelihood Gram Panchayats is being organised during 14 – 16 November, 2022 at CIAL Convention Centre, Kochi, Kerala.
- The workshop aims to create awareness on the national level importance of addressing
  - ○ **marginalisation** – inclusion and access to basic services, social safety nets and protection systems – leveraging National Social Assistance Programme (NSAP), Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and

National Rural Livelihoods Mission (NRLM) through Panchayats, and
  - ○ **livelihoods** – the role of Panchayats in addressing income inequality & poverty, eradicating extreme poverty and improving employment opportunities for poor, vulnerable and marginalized sections and
  - ○ **building resilience of vulnerable communities** against the sudden shocks brought about by disasters and extreme climate events.
- Sustainable Development Goals adopted by United Nations came into effect from January 1, 2016.
- Ministry of Panchayat Raj, Government of India has adopted thematic approach to SDGs – It is approach to ensure 'local action' for achieving 'global plan'.
- The approach aims to localise SDGs in rural areas through PRIs, especially Gram Panchayats by clubbing 17 'Goals' into '9 Themes'.
- Appropriate policy decisions and revisions have followed resulting into revamping of Rashtriya Gram Swaraj Abhiyan (RGSA) and Gram Panchayat Development Plan (GPDP) Guidelines which smoothens the process of Localisation of Sustainable Development Goals (LSDGs) in Gram Panchayats.

Ministry of Youth Affairs & Sports announces National Sports Awards 2022

- India's Table Tennis star **Achanta Sharath Kamal** has been conferred with the **Major Dhyanchand Khel Ratna Award for 2022.**
- Seema Punia and Lakshya Sen were amongst the **Arjuna Award** winners for this year.
- Eldhose Paul, Avinash Mukund Sable, and Nikhat Zareen were also conferred with **Arjuna Awards.**
- The **Dronacharya Award for outstanding coaches in Sports and Games Regular category** went to Jiwanjot Singh Teja (Archery), Mohammad Ali Qamar (Boxing), Suma Siddharth Shirur (Para Shooting) and Sujeet Maan (Wrestling).

Awards:

- **Rajiv Gandhi Khel Ratna:** It is the highest sporting honour of India. It was instituted in 1991–92. The recipient(s) is/are honoured for their outstanding performance in the field of sports over a period of four years at international level.
- **Dronacharya Awards:** It was instituted in 1985 to honour eminent Coaches for producing medal winners at prestigious International sports events.
- **Arjuna awards:** It was instituted in 1961. To be eligible for the Award, a sportsperson should have had not only good performance over the previous four years at the International level but also should have shown qualities of leadership, sportsmanship and a sense of discipline.
- **Dhyan Chand Award:** It was instituted in 2002. It is an award for life-time achievements in sports.
- **Tenzing Norgay National Adventure Award:** It is the highest national recognition for outstanding achievements in the field of adventure on land, sea and air.
- **Maulana Abul Kalam Azad (MAKA) Trophy:** It was instituted in 1956-57 to honour the top overall performing university in the Inter-University Tournaments.
- **Rashtriya Khel Protsahana Purushkar:** It was instituted from 2009 to recognize the corporate entities (both in private and public sector) and individuals who have played a visible role in the area of sports promotion and development.

National Conclave on Technical Textiles "Protech" under National Technical Textiles Mission

- Technical Textiles are textile products which are **manufactured primarily for their functionality and use rather than the aesthetic appeal.**
- These products are broadly classified into **12 different categories-** Agrotech, Oekotech, Buildtech, Meditech, Geotech, Clothtech, Mobiltech, Hometech, Sportstech,Indutech, Protech, Packtech.

Technical Textiles Mission in India

- **The Ministry of Textiles** has launched NTTM to increase the penetration level of technical textiles in India while leveraging the extraordinary growth rate of the sector.
  - The Indian Technical Textiles Sector has an Annual Average Growth Rate (AAGR) of 12% which is three times the world average of 4%.
- **The aim of the mission** is to position India as a global leader in Technical Textiles.
- **The mission will comprise of the following four components:**
  - Research, Innovation and Development
  - Promotion and Market Development
  - Export Promotion
  - Education, Training, Skill Development
- **Implementation:** The NTTM has been approved with an implementation period of four years starting from FY 2020-21 till FY 2023-24. The total outlay of the mission is INR 1480 Cr.
- **Target:** The Mission has a target to take domestic market size of technical textile sector to **$ 40-50 Bn by the year 2024** with an **average growth rate of 15-20% per annum.**

PM Kisan Samman Nidhi: 11th instalment of funding has fallen by 67%, says reports

- PM Kisan is a **Central Sector scheme with 100% funding from Government of India**.
- **Objective**: The scheme aims to supplement the financial needs of the farmers in procuring various inputs to ensure proper crop health and appropriate yields, commensurate with the anticipated farm income.
- **Benefits and Eligibility conditions:**
  - Under the scheme an **income support of 6,000/- per year in three equal instalments will be provided to all land holding farmer families**.
    - Definition of family for the scheme is **husband, wife and minor children.**
  - State Government and UT administration will identify the farmer families which are eligible for support as per scheme guidelines.
  - The **fund will be directly transferred to the bank accounts of the beneficiaries.**

Exclusion Categories:

The following **categories of beneficiaries shall not be eligible for benefits under the scheme:**

- All **Institutional Land holders.**

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- Farmer families which belong to one or more of the following categories:.
  - Former and present **holders of constitutional posts**
  - Former and present Ministers/ State Ministers and former/present Members of LokSabha/ RajyaSabha/ State Legislative Assemblies/ State Legislative Councils,former and present Mayors of Municipal Corporations, former and present Chairpersons of District Panchayats.
  - **All serving or retired officers and employees of Central/ State Government Ministries /Offices/Departments** and its field units Central or State PSEs and Attached offices /Autonomous Institutions under Government as well as regular employees of the Local Bodies (Excluding Multi Tasking Staff /Class IV/Group D employees)
  - **All superannuated/retired pensioners whose monthly pension is Rs.10,000/-or more** (Excluding Multi Tasking Staff / Class IV/Group D employees) of above category
  - **All Persons who paid Income Tax** in last assessment year
  - **Professionals like Doctors, Engineers, Lawyers**, Chartered Accountants, and Architects registered with Professional bodies and carrying out profession by undertaking practices.

Royal black: Pink City's indelible *kali syahi* has written reams of history

- The fourth generation of the family now produces the ink every Deepavali.
- While the erstwhile royal family used the ink for its official transactions, the businessmen of the princely State used it to write their accounts.
- Even universities established after Independence awarded degrees written with this ink. The ink was believed to ward off evil and bring prosperity to its users.
- The ink was made of natural ingredients using a traditional procedure handed down from generations.
- The black ink is prepared on a no-moon night with the chanting of mantras.
- It is made of kaajal (homemade mascara), gondh (edible gum) and other locally sourced herbal ingredients.
- The ink has medicinal properties, as some of its ingredients were used in the traditional Ayurvedic system for the treatment and healing of wounds.

Modi gifts Italian PM a Patan Patola scarf

- The ancient art of **double ikat or Patola woven in pure silk** dates back to the 11th century. The Patola fabrics bear an **equal intensity of colours and design on both sides.**
- This peculiar quality has its origins in an intricate and difficult technique of dyeing or knot dyeing, known as '**bandhani'**, on the warp and weft separately before weaving.
- One of the major practitioners of the dwindling art form is the **Salvi family from North Gujarat.**
- **The weaving process:** Patola is woven on primitive hand-operated harness looms made out of rosewood and bamboo strips. The loom lies on a slant. The other commonly worn Patola is the Rajkot Patola, woven on a flat loom.
- **Price:** The base price of a Patola saree in the Patan weave starts from Rs 1.5 lakh up and

can go up to Rs 6 lakh.

SpaceX's Falcon Heavy is scheduled to launch again after three years

- This is considered as a National Security Space Launch for the U.S. military.
- This is the fourth launch of the giant rocket system, and the first one in nearly three years since its last launch in 2019.
- SpaceX claims Falcon Heavy to be the most powerful rocket in the world today by a factor of two.
- With a lifting capacity of around 64 metric tonnes into orbit, Falcon Heavy can lift more than twice the payload of the next closest operational vehicle, the Delta IV Heavy.
- Falcon Heavy has 27 Merlin engines which together generate more than five million pounds of thrust at lift-off, equalling around eighteen 747 aircraft at full power.
- The rocket can lift the equivalent of a fully loaded 737 jetliner, complete with passengers, luggage and fuel, to orbit.
- Merlin is a family of rocket engines developed by SpaceX for use on its Falcon 1, Falcon 9 and Falcon Heavy launch vehicles.
- Merlin engines use RP-1 and liquid oxygen as rocket propellants in a gas-generator power cycle.
- These engines were designed for recovery and reuse.

Skyroot's first rocket set for launch from Sriharikota

- India's first privately developed rocket, Vikram-S, is poised to create history as it undergoes final preparations at the ISRO (Indian Space Research Organisation) launchpad in Sriharikota for launch between November 12 and 16.
- It was developed by the Hyderabad-based Skyroot Aerospace.
- The mission named 'Prarambh' (the beginning), since it is the first mission for Skyroot.
- With this maiden mission, Skyroot is set to become the first private space company in India to launch a rocket into space.
- The launch mission will be a suborbital spaceflight, and will carry three customer payloads to the intended orbit.
- Suborbital spaceflight:
    - A suborbital spaceflight refers to a height of around 100km from the Earth's surface, and is done at a lower altitude than an orbital flight, which reaches at least a low-Earth orbit — between around 200km to 2,000km from Earth.
    - Suborbital flights are known to be important for conducting tests of space missions, before final commercial missions take place.
- Among the three payloads is a 2.5kg satellite of another space startup, Space Kidz India, which has been built by students from India, the US and Indonesia.
- Skyroot, a two-time national award winner, is the first start-up to sign a Memorandum of Understanding (MoU) with ISRO in this regard.
- The Vikram series, named after the founder of India's space programme Dr Vikram Sarabhai, are all-carbon-fibre structures that can launch up to 800 kg of payloads to the Low Earth Orbit.
- Skyroot has designed the series for the small satellite market at low costs and with

capabilities for multi-orbit insertion.

Indian National Space Promotion and Authorisation Centre (IN-SPACe):

- The establishment of IN-SPACe was announced in June 2020.
- It is an autonomous and single window nodal agency in the Department of Space for the promotion, encouragement and regulation of space activities of both government and private entities.
- It also facilitates the usage of ISRO facilities by private entities.
- The programme also witnessed the exchange of MoUs between IN-SPACe and private sector companies working in the field of space-based applications and services.

Emissions Gap Report 2022: Pledges to cut greenhouse gas emissions way off track

- The report was released by the United Nations Environment Programme (UNEP).
- It is managed by the UNEP Copenhagen Climate Centre.
- It serves as a "scientifically authoritative source of timely and policy-relevant information to key decision-makers," guiding the UNFCCC process and implementing the Paris Agreement.
- The Paris Agreement, adopted by 196 countries in 2015 at COP 21, was aimed at limiting global warming and maintaining the average global temperature rise, ideally, to below 1.5°C.
- The report found that the updated pledges by countries, also known as nationally determined contributions (NDC) under the Paris Agreement, only reduce the projected greenhouse emissions by 1 per cent by 2030.
- It is roughly equivalent to 0.5 gigatonnes of CO2.
- This is when a 45 per cent reduction is required for the world to limit global warming to 1.5°C above pre-industrial levels.
- The pre-industrial period is generally considered to be between 1850 and 1900.

Zojila Day commemorated at Zojila War Memorial near Drass to celebrate action

- It aims to celebrate the gallant action by Indian troops in **'Operation Bison' in 1948** which was launched on the icy heights of Zojila pass, the gateway to Ladakh.
- This day marked the Indian Army's historic win over the Pakistani regulars and infiltrators, and helped recapture the strategic Zojila Pass
- **This battle was also historic for the reason that tanks were used for the first time at such heights.**
- Zojila is a pass connecting the Kashmir Valley with the cold Indus valley desert in Ladakh region through the 434-km strategic Srinagar-Leh National Highway.
- It runs at an elevation of approximately 3,528 metres (11,575 ft), and is the second highest pass on the Srinagar-Leh National Highway after Fotu La.
- It is often closed during winter. The Beacon Force unit of the Border Roads Organisation (BRO) is responsible for its clearing and maintenance during Winter.

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Hyderabad based CDFD initiates approach to decode Paediatric Rare Genetic Disorders

- The 'Mission on Paediatric Rare Genetic Disorders (PraGeD)' is a PAN-India initiative funded by the Department of Biotechnology (DBT), Ministry of Science and technology, Government of India.
- The centre will be collaborating with paediatrics departments of medical colleges besides, DBT's own diagnostic centres set up under the Unique Methods of Management of Inherited Disorders (UMMID) programme and others across India to analyse samples from children with rare genetic disorders and their parents.
- CDFD is developing a state of the art facility to study the Pediatric Rare Genetic Diseases.
- Scientists at the CDFD will perform high-throughput Whole Exome Sequencing (WES)/ Whole Genome Sequencing (WGS), analysis of sequence data, functional validation of the novel genes/variants, a database of phenotype-genotype to determine which gene/mutation(s) cause rare disease condition

Rare Genetic Disorders:

- The rare genetic diseases are a global public health concern with 350 million people affected worldwide and about 70 million Indians.
- They are common in South Asia and underestimated.
- About 95% of the rare genetic diseases do not have a single approved drug for treatment with about 30% children suffering and many may not live till the age of five.

Pashmina shawls have Shahtoosh guard hair, say Customs officials; all fluff, counter traders and artisans

- Pashmina refers to a fine variant of spun cashmere (the animal-hair fibre), that is derived from the downy undercoat of the Changthangi.
- Pashmina is obtained from a breed of mountain goats (Capra hircus) found on the Changthang Plateau in Tibet and parts of Ladakh.
- Shahtoosh, on the other hand, is the fine undercoat fibre obtained from the Tibetan antelope, known locally as chiru, a species living mainly in the northern parts of the Changthang Plateau in Tibet.
- As they offer high levels of smoothness and warmth, Shahtoosh shawls is a highly expensive commodity.
- However, when their population declined dramatically from commercial poaching, CITES (Convention on International Trade in Endangered Species of Wild Fauna & Flora) listed the Tibetan antelope in 1979, leading to a ban on sale and trade of Shahtoosh shawls and scarves.
- In today's terminology, pashmina can refer to either the material or a particular type of Kashmir shawl made from it.

Production of Pashmina shawls:

- In the spring, the goats naturally shed their undercoat, which regrows in winter. This undercoat is collected by combing the goat (not by shearing, as in other fine wools).
- A traditional producer of pashmina wool in the Ladakh region are a people known as the

Changpa (nomadic people inhabit the Changthang plateau of Tibet).
- China accounts for 70% of the world's cashmere production (followed by Mongolia (20%) and the remaining by others like Afghanistan, Australia, India, Iran, etc).
- India contributes only about 1% of the world's Pashmina, but the Pashmina produced in India is considered the best of the lot.

Geographical Indication (GI) label on Kashmir Pashmina:

- The original 'Kashmir Pashmina' fabric and its products were given GI tag (by the Government of India, under the 1999 Act), in order to preserve the centuries old art of spinning and weaving fabric.

Lunar Eclipse on November 8

- An eclipse of the Moon (or lunar eclipse) can only occur at Full Moon – when Earth is located directly between the Sun and the Moon –, and only if the Moon passes through some portion of Earth's shadow.
- That shadow is composed of two cone-shaped components -
    - The outer or penumbral shadow is a zone where the Earth blocks part but not all of the Sun's rays from reaching the Moon.
    - The inner or umbral shadow is a region where the Earth blocks all direct sunlight from reaching the Moon.
- **Types:**Astronomers recognize three basic types of lunar eclipses –
- **Penumbral Lunar Eclipse:**The Moon passes through Earth's penumbral shadow. These events are of only academic interest because they are subtle and hard to observe.
- **Partial Lunar Eclipse:**A portion of the Moon passes through Earth's umbral shadow. These events are easy to see, even with the unaided eye.
- **Total Lunar Eclipse:**The entire Moon passes through Earth's umbral shadow. These events are quite striking due to the Moon's vibrant red colour during the total phase (totality).