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CONTENTS

CURRENT AFFAIRS

ENVIRONMENT

SCIENCE & TECHNOLOGY

SOCIAL ISSUE

HEALTH

CULTURE

MISCELLANEOUS

PRELIMS FACT

POLITY & GOVERNANCE

INTERNATIONAL RELATIONS

CURRENT AFFAIRS

POLITY & GOVERNANCE

100 EPISODES OF PM MODI'S MANN KI BAAT: UNDERSTANDING THE POWER OF RADIO
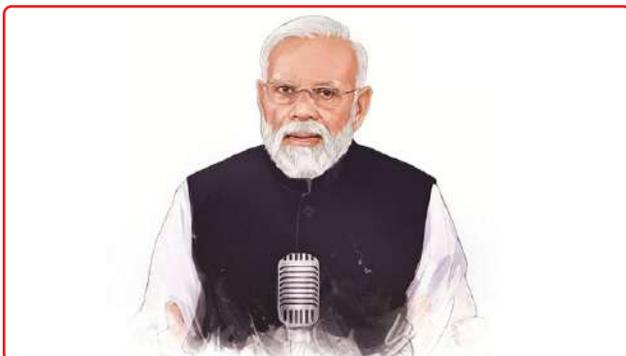
Why in news?

- Recently, 'Mann Ki Baat', Prime Minister Narendra Modi's popular radio programme, completed 100 episodes.
- Over the last almost nine years, the broadcast experiment that had a global history but no significant Indian precedents, has become a successful element in the communications strategy of the Prime Minister, a leader who believes in talking directly to the masses.

In terms of similar global examples of radio broadcasts, what came before Mann ki Baat?

Franklin D Roosevelt:

- The earliest example of the use of radio broadcasts by a national leader remains the "Fireside Chats", a series of 30 radio addresses, each typically 20-30 minutes long, delivered by United States President Franklin D Roosevelt between 1933 and 1944.
- The chats were popular, and played a role in shaping American public opinion on a range of issues at a time when the US battled with crises ranging from the Great Depression to World War II.
- He also used the chats to counter criticisms from the conservative media and to unpack his policies to the American public without the use of intermediaries.

Ronald Reagan:

- Decades later, Ronald Reagan used a daily radio commentary that ran from 1975 to 1979 to build a reputation as a "great communicator", and to prepare the ground for his successful presidential run in 1980.

- He gave 1,027 addresses, reaching an estimated audience of 20-30 million listeners every week.
- The radio commentaries helped Reagan transition from a national public figure appreciated more for his acting ability than his political acumen into a serious political figure.

S.C. Bose:

- Earlier, in an entirely different context, Subhas Chandra Bose had started Azad Hind Radio as part of Germany's radio service, first broadcasting on January 7, 1942.
- The programmes were meant to create bonds between Indians living abroad with those in the motherland under British colonial rule.

What are the issues/ themes that the PM has referred to most frequently?

- Yoga, women-led initiatives, youth, and cleanliness have been among the most touched-upon topics on Mann ki Baat since it began in October 2014.
- The PM has also frequently spoken of the valour and sacrifice of India's soldiers, the nation's cultural heritage, and recounted the stories of the life and work of Padma awardees and other achievers. He has also spoken on issues of science and environment.
- The PM has dwelt on khadi at length, transcripts of episodes show. He had casually asked people to wear khadi during the first episode of the programme.

Has Mann ki Baat been a political/ electioneering tool of the PM?

- One of the salient features of the programme is its non-partisan approach to social issues. It has helped to widen and deepen its reach, and allowed the PM to convey his ideas to a broad spectrum of people.
- During the two years of the Covid-19 pandemic and lockdowns, almost all episodes had a health-related capsule.
- The PM repeatedly underlined the need for socially responsible and Covid-appropriate behaviour, and widespread vaccinations as the country battled the coronavirus.
- The PM has also used the platform extensively to spread awareness about government schemes and initiatives; exports, the e-marketplace initiative, Pradhan Mantri Sangrahalaya, Azaadi ka Amrit Mahotsav, Har Ghar Tiranga, digital payments, startups and unicorns, and advancements in the space sector.

What are the chords that Mann ki Baat strikes with listeners?

➲ Mann ki Baat is consciously not a monologue by the PM. The design of the programme is participative, and involves the engagement of citizens.

➲ A backend communications network involving people writing in, and the PM personally engaging with ordinary people on the show, has increased interest.

➲ Almost every show includes some new and interesting little-known information about India's arts, craft, folk culture and heroes, etc. that inform and educate, and evoke and sustain listener interest.

SUPREME COURT RULES IT CAN DIRECTLY GRANT DIVORCE TO COUPLES
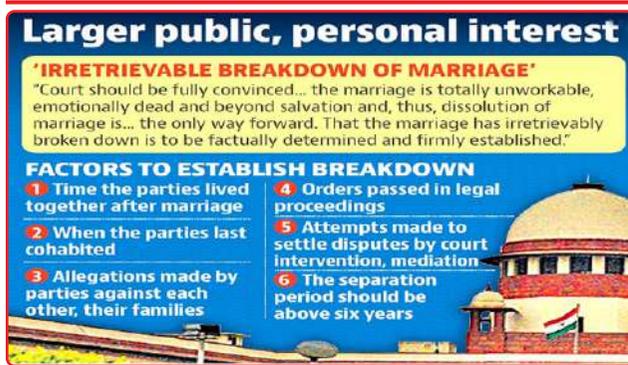
Why in news?

➲ Recently, a constitution or five-judge bench of the Supreme Court held that it can exercise its powers under Article 142 of the Constitution to directly grant a decree of divorce to consenting parties.

➲ It is possible in cases of irretrievable breakdown of marriage, without referring the parties to a family court where they must wait for 6 to 18 months for a decree of divorce by mutual consent.

What is the current procedure for getting a divorce under the Hindu Marriage Act (HMA)?

➲ Under Section 13B of the Hindu Marriage Act, 1955, the procedure to obtain a divorce by mutual consent is laid down.

➲ Section 13B (1) states that both parties can file a petition for dissolution of their marriage by presenting a decree of divorce to the district court, on the grounds that they have been living separately for a year or more or that they have not been able to live together or have mutually agreed to dissolve their marriage.

➲ Further, under Section 13B (2) of the HMA, both parties seeking divorce have to wait between 6 to 18 months from the date on which they presented their petition to obtain the divorce decree. The six-month period is given so that the parties have ample time to withdraw their plea.

➲ After the passage of the mandated period and hearing both parties, if the court is satisfied, it may conduct an inquiry and pass a decree of divorce, dissolving the marriage with effect from the date of the decree. However, these provisions apply when at least one year has elapsed since the marriage took place.

➲ Additionaly, divorce can be sought by either spouse on grounds like adultery, cruelty, desertion, religious conversion, insanity, leprosy, venereal disease, renunciation, and presumption of death.

Can the process happen quickly in certain cases?

➲ In circumstances of exceptional hardship or depravity, a divorce petition may be allowed under Section 14, even before the lapse of one year since marriage.

➲ The mandatory six-month waiting period under Section 13B (2) of the HMA can also be waived by filing an exemption application before a family court in a motion for the court to pass a decree of divorce.

➲ In its 2021 ruling in Amit Kumar vs. Suman Beniwal, the apex court said, "Where there is a chance of reconciliation, however slight, the cooling period of six months from the date of filing of the divorce petition should be enforced. However, if there is no possibility of reconciliation, it would be meaningless to prolong the agony of the parties to the marriage."

➲ Thus, if the marriage has broken down irretrievably, the spouses have been living apart for a long time unable to reconcile their differences, and then they mutually decided to part, it is better to end the marriage to enable both spouses to move on with their lives.

What was the case that took the Supreme Court route under Article 142?

➲ In 2014, a case was filed in the SC, titled Shilpa Sailesh vs. Varun Sreenivasan, where the parties sought a divorce under Article 142, stating that their marriage had irretrievably broken down. This is one of the legally recognised grounds for divorce, available to both the husband and the wife.

➲ In a recent SC judgment in the Shri Rakesh Raman vs. Smt Kavita case, the court said "irretrievable breakdown of marriage" can be read under the grounds of cruelty, under S13 (1) (a) of the Hindu Marriage Act.

SC Verdict:

➲ In the present case, the court granted divorce to the parties using its Article 142 powers. However, it clarified that the question of whether it can directly grant divorce under Article 142 without referring the parties to a family court would remain open. This was done in light of the multiple similar petitions pending before the top court on the same question.

➲ In 2021, the court said that it would determine what rules should be followed while dissolving marriages directly under Article 142.

- The court also aims to clarify whether the application of its power under Article 142 would extend to all divorce cases; and whether it could be used in cases where one of the parties is not consenting to the divorce.
- For this, the court appointed senior advocates Dushyant Dave, Indira Jaising, Meenakshi Arora, and V. Giri as amicus curiae, for assistance in the case.

WHAT IS BEHIND MANIPUR'S WIDESPREAD UNREST?

Why in news?

- Manipur has been restive since February when the BJP-led government launched an eviction drive seen as targeting a specific tribal group.
- The drive led to protests but not on the scale of the one on May 3 triggered by the Manipur High Court's direction to the State to pursue a 10-year-old recommendation to grant Scheduled Tribe (ST) status to the non-tribal Meitei community.

What is Manipur's ethnic composition?

- The Imphal valley, which comprises about 10% of Manipur's landmass, is dominated by the non-tribal Meitei who account for more than 64% of the population of the State and yields 40 of the State's 60 MLAs. The hills comprising 90% of the geographical area are inhabited by more than 35% recognised tribes but send only 20 MLAs to the Assembly.
- While a majority of the Meiteis are Hindus followed by Muslims, the 33 recognised tribes, broadly classified into 'Any Naga tribes' and 'Any Kuki tribes' are largely Christians.

What is the Meitei argument?

- Hearing a petition by eight people representing the Meetei (Meitei) Tribe Union, the Manipur High Court on April 19 directed the State government to submit, a 10-year-old recommendation to the Union Tribal Affairs Ministry for the inclusion of the Meitei community in the ST list.
- The court referred to the Ministry's letter in May 2013 to the Manipur government seeking specific recommendation along with the latest socio-economic survey and ethnographic report.

- The letter followed a representation submitted by the Scheduled Tribe Demand Committee of Manipur (STDCM), which began demanding ST status for the Meiteis in 2012.
- The petitioners told the High Court that the Meiteis were recognised as a tribe before the merger of the State with the Union of India in 1949. They argued that the ST status is needed to "preserve" the community and "save the ancestral land, tradition, culture, and language" of the Meiteis.

Why are tribal groups against ST status for Meiteis?

- The Meiteis have a demographic and political advantage besides being more advanced than them academically and in other aspects. They feel the ST status to the Meiteis would lead to loss of job opportunities and allow them to acquire land in the hills and push the tribals out.
- Groups such as the All Tribal Students' Union of Manipur point out that the language of the Meitei people is included in the Eighth Schedule of the Constitution and many of them have access to benefits associated with the SC, OBC or EWS status.

What led to the unrest?

- Pro-government groups in Manipur claim some tribal groups with vested interests are trying to scuttle Chief Minister Nongthombam Biren Singh's crusade against drugs.
- The anti-drug drive began with destroying poppy fields and the theory that "illegal settlers" from Myanmar are behind clearing forests and government lands to grow opium and cannabis.
- The first violent protest on March 10 was against the eviction of the residents of a Kuki village. This made the State government withdraw from the suspension of operations with two Kuki extremist groups accused of inciting the protesters.
- The large-scale arson and violence claiming the life of at least one person on May 3 and 4 followed a "tribal solidarity rally" against the reported move to include the Meiteis in the ST list.

42 LOST PARLIAMENT MEMBERSHIP SINCE 1988, MAXIMUM 19 IN 14TH LOK SABHA

Why in news?

- The recent disqualification of Rahul Gandhi from Lok Sabha has put the spotlight on provisions of an Act which has been used to removed 42 members from Parliament since 1988.
- The 14th Lok Sabha witnessed the ouster of 19 lawmakers in connection with the cash-for-query scam and cross-voting.
- The disqualification of these lawmakers have been on various grounds like changing political allegiances, for conduct unbecoming of a parliamentarian and

after being convicted by a court for crimes that have a jail term of two years or more.

Latest disqualifications:

➲ The latest round of disqualification of Congress leader Gandhi, NCP leader Mohammad Faizal P. P, and BSP leader Afzal Ansari came after their conviction by courts with jail terms of more than two year, invoked the provisions of the Representation of the People Act.

➲ The Act deals with automatic disqualification of MPs and state legislators upon being convicted and sentenced for two years or more in a criminal case.

➲ The disqualification of Faizal, who represents Lakshadweep in the Lok Sabha, was revoked after he obtained a stay over his conviction and sentence, in an attempt to murder case, from the Kerala High Court.

➲ Rahul Gandhi has moved the Gujarat High Court to seek relief in the criminal defamation case involving the 'Modi surname' in which a Surat court had sentenced him to two years in jail.

Earlier disqualifications:

➲ The first disqualification of a Lok Sabha member after the anti-defection law was enacted in 1985 was that of Lalduhoma, a Congress member, who filed his nomination papers for the Mizoram Assembly elections as a candidate of the Mizo National Union, a party founded by him.

➲ The ninth Lok Sabha, when the then Janata Dal leader V P Singh formed a coalition government, saw nine Lok Sabha members fall foul of the anti-defection law, which led to their disqualification.

➲ However, it was the 14th Lok Sabha which saw ouster of maximum members from the House 10 for unbecoming conduct as member for accepting bribe for raising questions in Parliament and nine for cross-voting during the Vote of Confidence sought by the UPA-I government in July 2008 after the Left front withdrew support to it over the civil nuclear deal with the US.

➲ Six members of the BJP, two from BSP and one each from the Congress and RJD were expelled from the Lok Sabha in 2005 over the 'cash for query' scam. One Rajya Sabha member from BSP too was expelled from the House.

➲ The expulsions were upheld by the Supreme Court. None of these cases were referred to the President for approving the expulsions since the legislature itself is competent to do so, Devendra Singh Aswal, former Additional Secretary, Lok Sabha.

➲ The 10th Lok Sabha, when then Prime Minister P V Narasimha Rao led a coalition government, saw four members being disqualified from the House under the anti-defection law.

Disqualifications from Rajya Sabha:

➲ The Rajya Sabha also has its share of disqualifications under the anti-defection law - Mufti Mohammad Sayeed (1989), Satyapal Malik (1989), Sharad Yadav (2017) and Ali Anwar (2017).

➲ Jharkhand Mukti Morcha leader Shibu Soren and Samajwadi Party member Jaya Bachchan were disqualified from the Rajya Sabha in 2001 and 2006 respectively for holding an office of profit. While Soren was the Chairman of the Jharkhand Area Autonomous Council, Bachchan was the Chairperson of the Uttar Pradesh Film Development Council.

➲ A disqualification petition against the then Congress President Sonia Gandhi, for holding an office of profit of Chairperson of the National Advisory Council, became infructuous as she quit as member of the Lok Sabha.

2006 Amendment & afterwards:

➲ To avoid possible political upheaval, the Parliament (Prevention of Disqualification) Act, 1959, was amended in 2006 retrospectively w.e.f. April 4, 1959 and similar petitions became infructuous.

➲ A judgment of the apex Court, referred to as the Lily Thomas case, laid down the legal position making it clear that any conviction which carries a sentence of two years or more will automatically result in disqualification of an elected representative.

➲ The Lok Sabha Secretariat only has to notify the vacancy by issuing a notification so that the Election Commission can start the process for a bypoll.

➲ As a result of the judgement, Rajya Sabha member of the Congress, Rasheed Masood was disqualified from the upper house due to his conviction in a corruption case.

➲ RJD supremo Lalu Prasad and JD(U) member Jagdish Sharma were disqualified from the Lok Sabha following their conviction in the fodder scam.

EC TO PILOT FACIAL RECOGNITION AT POLLING BOOTHS FOR EASE OF VOTING

Why in news?

➲ The Election Commission of India has worked out a way to ensure a smooth polling process for voters in Karnataka.

Details:

➲ In Bengaluru, polling booths will be equipped with facial recognition technology after concerns were raised by activists about privacy.

➲ The first-of-its-kind system will be piloted in one polling station; Room no. 2, Government Ramnarayan Chellaram College on Palace Road, near the office of the Karnataka Chief Electoral Officer.

How will it work?

➲ To be a part of the system, voters will be required to use EC's Chunavana mobile application following which they will enter their Elector's Photo Identity Card (EPIC) number, and mobile number and an OTP will be sent to their registered numbers. After this, voters will have to upload a selfie on the app.

➲ After the registration process, voters will undergo a facial recognition scanner once they reach the polling booth.

➲ If the photo matches that in the EC's database, they would no longer need to provide documents and will be cleared to cast their votes.

➲ With this system, cases of bogus voting and electoral malpractices while reducing long queues.

Advantages:

➲ It will cut down the queue/waiting time for voting.

➲ Less manpower is needed. For instance, instead of four polling officers at a booth, only three can be deployed because there's no need for further checks/verification due to this face recognition technology.

➲ The novel idea was brought about after students of the Department of Computing Technologies from SRM University won a 30-hour offline hackathon to tackle voting apathy.

➲ Apart from escaping long waiting lines, the Chunavana mobile application will also tell voters about the available parking spaces near the polling booth. They can also check the queue status on the app in real-time.

WHAT ARE THE REGULATIONS TO CURTAIL MISLEADING FOOD ADS?

Why in news?

➲ Recently, the Advertisement Monitoring Committee at the Food Safety and Standards Authority of India (FSSAI) flagged 32 fresh cases of food business operators (FBOs) making misleading claims and advertisements.

➲ As per the regulator, the count of such offences has shot up to 170 in the last six months.

What are the regulations?

➲ There are varied regulations to combat misleading advertisements and claims, some are broad, while others are product specific.

➲ For example, FSSAI uses the Food Safety and Standards (Advertising & Claims) Regulations, 2018 which specifically deals with food (and related products) while the Central Consumer Protection Authority (CCPA)'s regulations cover goods, products and services.

➲ Further, the Programme and Advertising Codes prescribed under the Cable Television Network Rules, 1994 stipulate that advertisements must not imply that the products have "some special or miraculous or supernatural property or quality, which is difficult of being proved."

➲ The FSSAI seeks that the advertisements and claims be "truthful, unambiguous, meaningful, not misleading and help consumers to comprehend the information provided".

➲ The claims must be scientifically substantiated by validated methods of characterising or quantifying the ingredient or substance that is the basis for the claim.

➲ Product claims suggesting a prevention, alleviation, treatment or cure of a disease, disorder or particular psychological condition is prohibited unless specifically permitted under the regulations of the FSS Act, 2006.

When can a product be referred to as 'natural' and 'fresh'?

➲ A food product can be referred to as 'natural' if it is a single food derived from a recognised natural source and has nothing added to it. It should only have been processed to render it suitable for human consumption. The packaging too must be done sans chemicals and preservatives.

➲ Composite foods, which are essentially a mixture of plant and processed constituents, cannot call themselves 'natural', instead, they can say 'made from natural ingredients'.

⮞ 'Fresh' can be used for products which are not processed in any manner other than washing, peeling, chilling, trimming, cutting or irradiation by ionising radiation not exceeding 1 kGy or any other processing such that it remains safe for consumption with the basic characteristics unaltered.

⮞ Those with additives (to increase shelf life) may instead use 'freshly frozen', 'fresh frozen', or 'frozen from fresh' to contextualise that it was quickly frozen while fresh.

What about 'pure' and 'original'?

⮞ 'Pure' is to be used for single-ingredient foods to which nothing has been added and which are devoid of all avoidable contamination, while unavoidable contaminants are within prescribed controls.

⮞ 'Original' is used to describe food products made to a formulation, with a traceable origin that has remained unchanged over time.

⮞ They do not contain replacements for any major ingredients. It may similarly be used to describe a unique process which has remained unchanged over time, although the product may be mass-produced.

What about 'nutritional claims'?

⮞ Nutritional claims may either be about the specific contents of a product or comparisons with some other foodstuff.

⮞ Claims of equivalence such as "contains the same of (nutrient) as a (food)" or "as much (nutrient) as a (food)" may be used in the labelling provided that it gives the equivalent nutritional value as the reference food.

⮞ Most complaints of misleading ads were related to the nutrition of a product, its benefits and the ingredient mix not being based on adequate evidence.

50 PERCENT VILLAGES ARE NOW ODF PLUS UNDER SWACHH BHARAT MISSION GRAMEEN PHASE II

Why in news?

⮞ India has achieved yet another major milestone under the Swachh Bharat Mission Gramin (SBM-G) with half of the total villages in the country i.e., 50% villages achieving ODF Plus status under phase II of the Mission.

Details:

⮞ An ODF Plus village is one which has sustained its Open Defecation Free (ODF) status along with implementing either solid or liquid waste management systems.

⮞ As on date, more than 2.96 lakh villages have declared themselves ODF Plus, which is a significant step towards achieving the SBM-G phase II goals by 2024-25.

Top performing states/UTs:

⮞ The top performing states in terms of percentage of ODF Plus villages are - Telangana (100%), Karnataka (99.5%), Tamil Nadu (97.8%) & Uttar Pradesh (95.2%) among the big states and Goa (95.3%) and Sikkim (69.2%) among small states, are the top performer.

⮞ Among UTs – Andaman & Nicobar Islands, Dadra Nagar Havelli & Daman Diu and Lakshadweep have 100% ODF Plus Model villages.

⮞ These States & UTs have shown remarkable progress in achieving the ODF Plus status, and their efforts have been instrumental in reaching this milestone.

Background:

⮞ Between 2014-15 and 2021-22, the Central Government has allocated a total of INR 83,938 crore to Swachh Bharat Mission Grameen. The allocation for the year 2023-24 is Rs. 52,137 Crore.

⮞ In addition to the SBM(G) funds there is clear allocation of 15th FC funds for sanitation. These funds have been utilized to build sanitation assets, promote behavior change, and implement solid and liquid waste management systems.

⮞ This year marks 9 years of the Swachh Bharat Mission. The achievement of 50% ODF Plus villages is a significant milestone for India as it is going beyond just construction and use of toilets towards complete and absolute cleanliness i.e., from ODF to ODF Plus.

Major components:

⮞ The major components of the Phase-II of SBM (G) are Sustaining Open Defecation Free Status (ODF-S), Solid (Bio-degradable) Waste Management, Plastic Waste Management (PWM), Liquid Waste Management (LWM), Faecal Sludge Management (FSM), GOBARdhan, Information Education and Communication/Behavior Change Communication (IEC/BCC) and Capacity Building.

⮞ The SBM-G program has been instrumental in improving the health and well-being of millions of people across the country. Several reports in the past few years have exhibited the ground impact of SBM-G programme.

⮞ In terms of Plastic waste management, 831 Plastic Waste Management Units and 1,19,449 waste collection & segregation sheds have been set-up.

⮞ The plastic is cleaned, shredded, bailed and transported for use in road construction as per the

guidelines issued by the Ministry of Road Transport & Highways and also as a fuel in cement factories etc. More than 1 lakh Gram Panchayats have passed resolution for ban on Single Use Plastic (SUP).

Community compost pits constructed

- For Bio-degradable waste management at household level, people are being encouraged to segregate their dry and wet (organic) waste at source for composting at community level. 3,47,094 Community compost pits have been constructed, as on date.
- GOBARdhan, which stands for Galvanising Organic Bio-Agro Resources-dhan, is an initiative to support biodegradable waste recovery, conversion of waste into resources and for creating clean & green village.
- It is a 'waste to wealth' initiative wherein waste generated in villages is used to generate bio-gas/CBG as well as bio-slurry/bio-fertilizer and is in tune with the circular economy and Mission LiFE initiatives of GoI.

Constructed To Manage Grey Water:

- For Grey water management, which is the wastewater generated from everyday household chores- cleaning, cooking, bathing etc, in villages that do not have drainage systems, soak pits/leach pits or magic pits at household and community level can effectively treat grey water.
- A special campaign Sujlam was undertaken and approximately 2.2 million (22 lakh) soak pits (community & household pits) were made to manage grey water. Now, Sujalam 3.0 has been launched for holistic and convergent Greywater Management.

Way Forward:

- SBM(G) is a shining example of what can be achieved when there is a concerted effort to improve sanitation and hygiene.
- Department of Drinking Water & Sanitation, Ministry of Jal Shakti congratulates and applauds the contribution of all villages, Gram Panchayats, Districts, States/UT on this proud achievement.

SC VERDICT ON CONTROL OVER SERVICES: WHAT TILTED SCALES IN DELHI'S FAVOUR

Why in news?

- Drawing the curtains on an eight-year-long legal battle between the Aam Aadmi Party-led Delhi government and the Centre, the Supreme Court recently ruled that the Delhi government has legislative and executive powers over administrative services in the national capital.
- The unanimous ruling by a five-judge Constitution Bench, headed by Chief Justice of India said the decision would further "the basic structure of federalism".

What was the issue before the Court?

- In 2015, a Union Home Ministry notification said that the Lieutenant Governor of Delhi shall exercise control over "services". The Delhi government challenged this before the Delhi High Court, which in 2017 upheld the notification. On appeal, a two-judge Bench of the Supreme Court referred the issue to a larger constitution Bench.
- In 2018, a five-judge Constitution Bench, headed by then CJI Dipak Misra, in a unanimous verdict laid down the law that governs the relationship between Delhi and the Centre. The ruling was in favour of the Delhi government.
- In 2019, two judges, (who were also part of the larger 5-judge Bench in 2018), Justices Ashok Bhushan and AK Sikri, delivered a split verdict on the specific issue of "services." The split verdict then went to a three-judge Bench and eventually a five-judge Constitution Bench, which has now delivered its verdict.

What was the bone of contention?

- The court had to decide if it was the Delhi government or the Union government that had legislative and executive control over the capital's bureaucracy.
- The court had to interpret clause (3)(a) of Article 239AA (Special provisions with respect to Delhi) of the Constitution.
- It reads: "Subject to the provisions of this Constitution, the legislative assembly shall have power to make laws for the whole or any part of the National Capital Territory with respect to any of the matters enumerated in the State list or in the Concurrent list in so far as any such matter is applicable to union territories except matters with respect to…."

What was the Centre's argument?

- The Centre's argument was that in the 2018 ruling, the court did not analyse two crucial phrases in Article 239AA(3)(a). First was " insofar as any such matter is applicable to union territories" and the second was "subject to the provisions of this Constitution."
- The Centre argued that since no Union Territory has power over services, Delhi too could not exercise such power. Essentially, Delhi could only legislate on issues that other Union Territories are explicitly allowed to legislate upon.

What did the court decide?

➲ First, the court concluded that Delhi under the constitutional scheme is a Sui Generis (or unique) model, and is not similar to any other Union Territory. It said Delhi presents a special constitutional status under article 239AA.

➲ It quoted from the 2018 judgement, where Justice Chandrachud had said that "having regard to the history in background, it would be fundamentally inappropriate to assign to the NCT status similar to other union territories."

➲ On the second phrase, "subject to the provisions of this Constitution," the court said that it is not unique to Article 239AA and cannot be a limitation on Delhi government.

What is the extent of Delhi's powers now?

➲ Article 239AA specifically excludes land, police and public order from the purview of the legislative powers of the Delhi government. The court acknowledged that these three issues can also have some overlap with "services".

➲ The court held that the legislative and executive power of Delhi over Entry 41 (services) shall not extend over to services related to public order, police and land. However, legislative and executive power over such services such as Indian administrative services, or joint card of services, which are relevant for the implementation of policies and vision of NCT of Delhi in terms of day to day administration of the region, shall live with Delhi.

KEY TAKEAWAYS FROM SUPREME COURT'S MAHARASHTRA VERDICT

Why in news?

➲ Passing a unanimous judgement on the various issues related to the split in Shiv Sena in June 2022, the Supreme Court recently made strong observations about the role of the then Governor of Maharashtra and the Speaker of the Legislative Assembly.

➲ The court, however, refrained from interfering with the proceedings related to disqualifying 16 MLAs, including Chief Minister Eknath Shinde.

Key Highlights:

Speaker to decide disqualification:

➲ Not intervening in the proceedings, the SC said the issue of disqualification ought to be decided as per established procedures in law and the Speaker is the appropriate authority for this under the Tenth Schedule of the Constitution, which lays down the anti-defection law.

➲ The Bench said in the present case, there were "no extraordinary circumstances" warranting the court adjudicating in the matter.

➲ It also clarified that an MLA has the right to participate in proceedings of the House regardless of pendency of any petitions for disqualification.

Speaker must consider Shiv Sena constitution

➲ The SC said that while deciding disqualification pleas, the Speaker must consider the constitution of the Shiv Sena, which was submitted to the Election Commission (EC) with the consent of both the factions. It said that as the Tenth Schedule's third paragraph has been removed, the 'split' in the party will no longer be a defence available to MLAs facing the proceedings.

➲ Paragraph 3 of the Tenth Schedule protected defectors as long as one-third of the members of a political party formed a separate group.

➲ It was removed by the Constitution (91st Amendment) Act, 2003, which came into effect on January 1, 2004. The Court asked the Speaker to first determine which of the factions constitute the political party and take the call without being influenced by the ECI order in that regard.

➲ The Bench said the Speaker must not decide which faction constitutes the political party on the "blind appreciation" of which group had a majority in the Assembly.

Governor didn't act in accordance with law:

➲ The court said that then Maharashtra Governor Bhagat Singh Koshyari was not justified in calling for a floor test on June 30, 2022, as he did not have objective material to show that the incumbent government had lost the confidence of the House.

➲ The court said the Governor had acted upon an inference that a section of the Shiv Sena wished to withdraw their support to the government, even though the communication by some of the MLAs only expressed discontent about the Maha Vikas Aghadi alliance.

➲ It said that the power of the Governor to act without the aid and advice of the Council of Ministers is of an extraordinary nature, and must be exercised with circumspection within the limits of law.

➲ It also said that the Governor is not empowered to enter the political arena and play a role in inter or intra party disputes.

Can't reinstate Uddhav govt as he resigned

➲ The Thackeray group had sought to restore the situation prior to June 29, 2022, seeking a ruling that Uddhav Thackeray's government be reinstated. However, the court said Thackeray did not face the floor test on June 30 and resigned.

➲ The SC held that despite the Governor not having reasons to reach the conclusion that Thackeray had lost the confidence of the House, it could not quash a resignation submitted voluntarily. The court said had Thackeray refrained from resigning, it could have considered a remedy to reinstate his government.

Appointment of whip from Shinde group illegal

➲ As the Shiv Sena MLAs' rebellion was unfolding, on June 21, 2022, the party chief whip, Sunil Prabhu, issued a whip directing all the MLAs to attend a meeting at CM Uddhav Thackeray's residence. Those in attendance passed a resolution to remove Eknath Shinde as Group Leader of its legislative party.

➲ The Shinde-led faction then issued its own resolution, removing Prabhu as the whip and appointing Bharat Gogawale in his place. After assuming office, Speaker Rahul Narvekar recognised Gogawale as the whip.

➲ The SC said the Speaker did not attempt to identify which of the two persons were authorised by the political party, adding the Speaker should have conducted an independent inquiry based on the rules of the party.

➲ It deemed the Speaker's decision recognising Gogawale as the whip to be illegal, as he had not verified if it was the decision of the political party.

Legislature party, political party distinct:

➲ While the Shinde-led faction argued that the legislature party and the political party are inextricably intertwined, the court said the two could not be conflated.

➲ The court said that as per provisions of the Representation of the People Act, an association of individuals calling itself a political party has to be registered with the EC.

➲ The court said that Parliament had recognised the independent existence of a legislature party to the limited extent of providing a defence to actions of legislators of the political party. For instance, the freedom of expression of legislators in the House, or intra-party dissent, cannot fall within the purview of anti-defection laws.

➲ The court said that a whip interacts with members of the legislature party to communicate the directions of the political party. It held that "it is the political party and not the legislature party which appoints the Whip and the Leader of the party in the House".

➲ Therefore, it said the Speaker must recognise only the whip and leader who are duly recognised by the political party.

Speaker and EC can adjudicate issues concurrently

➲ The court said it could not accept the Thackeray group's contention that the EC was barred from deciding on the party symbol dispute until the Speaker decided the disqualification pleas before him.

➲ The court said this would amount to "indefinitely staying proceedings before the ECI", as the Speaker's decision would attain finality only after the appeals against his decision were disposed of.

Referral of Nabam Rebia case to larger bench:

➲ The five-judge Bench referred certain issues related to its 2016 judgment in the Nabam Rebia case to a larger Bench. One of the issues is whether a notice for removal of a Speaker would restrict the powers of the Speaker to issue disqualification notices to MLAs.

LACK OF COMMITTEES AGAINST SEXUAL HARASSMENT IS DISQUIETING, SAYS SC
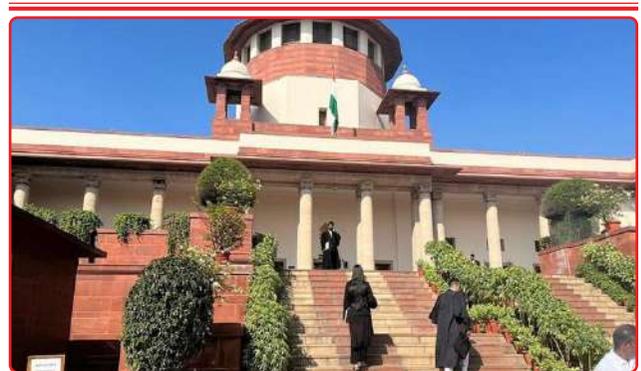
Why in news?

➲ The Supreme Court recently in a judgment, said there are "serious lapses" and "uncertainty" in the implementation of the Protection of Women from Sexual Harassment (PoSH) Act, leaving many working women no choice but to leave their jobs.

Case before SC:

➲ The judgment came in an appeal filed against a March 15, 2012 judgment of the Bombay High Court dismissing a Goa University employee's writ petition against a disciplinary authorities' decision to dismiss him from services on the basis of complaints of sexual harassment.

➲ The case has been remanded back to the complaints committee.

Key Highlights of the judgement:

➲ A Bench of Justices A.S. Bopanna and Hima Kohli, said the "sorry state of affairs" concerning the anti-sexual harassment at workplace law even after a decade of its introduction was "disquieting", and it was time for the Centre and States to take affirmative action.

➲ Working women were reluctant to report instances of sexual harassment either due to uncertainty about whom to approach or because of their lack of confidence in the process itself and its outcome.

- However salutary this enactment may be, it will never succeed in providing dignity and respect that women deserve at the workplace unless and until there is strict adherence to the enforcement regime and a proactive approach by all the State and non-State actors. If the working environment continues to remain hostile, insensitive and unresponsive to the needs of women employees, then the Act will remain an empty formality.
- It referred to a newspaper survey which revealed that out of 30 national sports federations in the country, only 16 had constituted Internal Complaints Committees mandated under the 2013 Act.

Directives:

- The court directed the Union, States and Union Territories to undertake a time bound exercise to verify whether Ministries, Departments, government organisations, authorities, public sector undertakings, institutions, bodies, etc. had constituted Internal Complaints Committees (ICCs), Local Committees(LCs) and Internal Committees(ICs) under the Act.
- These bodies have been ordered to publish the details of their respective committees in their websites. They were given eight weeks to comply and file affidavits in the Supreme Court.

ALLAHABAD HC ALLOWS CARBON DATING OF GYANVAPI SHIVLING

Why in news?

- The Allahabad High Court recently ordered a "scientific survey", including carbon dating, of a "Shivling" said to have been found at the Gyanvapi mosque complex in Varanasi after setting aside a lower court order on the issue.

Background:

- In May 2022, a court-ordered videographic survey of the Kashi Vishwanath temple-Gyanvapi mosque was completed by a Commission appointed by a local court.
- During the survey proceedings, a structure – claimed to be a "Shivling" by the Hindu side and a "fountain" by the Muslim side – was found inside the mosque premises.

- In their plea before the High Court, the Hindu petitioners had requested "to make scientific investigation by carbon dating or otherwise to determine the age, nature and other constituents of the Shivlingam."

What is carbon dating?

- Carbon dating is a widely-used method to establish the age of organic materials, things that were once living. Living things have carbon in them in various forms.
- The dating method is based on the fact that Carbon-14 (C-14), an isotope of carbon with an atomic mass of 14, is radioactive, and decays at a well known rate.
- The most abundant isotope of carbon in the atmosphere is C-12. A very small amount of C-14 is also present. The ratio of C-12 to C-14 in the atmosphere is almost static, and is known.
- Plants get their carbon through photosynthesis; animals get it mainly through food. Because plants and animals get their carbon from the atmosphere, they too acquire C-12 and C-14 in roughly the same proportion as is available in the atmosphere.
- When they die, their interactions with the atmosphere stops. While C-12 is stable, the radioactive C-14 reduces to one half of itself in about 5,730 years, known as its 'half-life'.
- The changing ratio of C-12 to C-14 in the remains of a plant or animal after it dies can be measured, and can be used to deduce the approximate time when the organism died.

But what about non-living things, like the purported Shivling in Varanasi?

- It cannot be used to determine the age of non-living things like rocks, for example.
- The age of things that are more than 40,000-50,000 years old cannot be arrived at through carbon dating. This is because after 8-10 cycles of half-lives, the amount of C-14 becomes almost very small and is almost undetectable.
- But there are other methods to calculate the age of inanimate things, many of which are based on the same principle as carbon dating. So, instead of carbon, decays of other radioactive elements that might be present in the material become the basis for the dating method. These are known as radiometric dating methods.
- Many of these involve elements with half-lives of billions of years, which enable scientists to reliably estimate the age of very old objects.

Methods for dating rocks:

- Two commonly employed methods for dating rocks are potassium-argon dating and uranium-thorium-lead dating. The radioactive isotope of potassium decays into argon, and their ratios can give a clue about the age of rocks.

- Uranium and thorium have several radioactive isotopes, and all of them decay into the stable lead atom. The ratios of these elements present in the material can be measured and used to make estimates about age.
- There are also methods to determine how long an object has remained exposed to sunlight. These apply different techniques, but are again based on radioactive decays and are particularly useful in studying buried objects or changes in topology.
- The most common of these is called cosmogenic nuclide dating, or CRN, and is regularly applied to study the age of ice cores in polar regions.

Indirect use:

- In some situations, carbon dating can be used indirectly as well. For example, a way in which the age of ice cores in glaciers and polar regions is determined by studying carbon dioxide molecules trapped inside large ice sheets.
- The trapped molecules have no interaction with the outside atmosphere, and are found in the same state as when they were trapped. Determining their age gives a rough estimate of the time when the ice sheets were formed.
- How long a rock has been at a particular place can also be determined similarly, organic materials like dead plants or insects trapped underneath can give an indication of when that rock reached that place.

So how does all of this fit into the Gyanvapi case?

- In the Gyanvapi case, the Hindu petitioners claim that the Gyanvapi mosque was built on an ancient Hindu temple.
- The purported "Shivling" is being cited by the Hindu cite as evidence for the existence of the temple. In this case, the petitioners' purpose would likely be served if it was established that the "Shivling" existed at that place before the mosque came up in 1669.
- But there will be specific limitations. The structure cannot be uprooted or disrupted, as per orders of the Supreme Court, so methods like looking for trapped organic material beneath it might not be feasible.

TAMIL NADU AMENDED LAW ON JALLIKATTU VALID, SC

Why in news?

- The Supreme Court recently termed jallikattu a "type of bovine sport" existing in Tamil Nadu for at least a century.
- It did not interfere with the State legislature's finding that the bull-taming event is part of the cultural heritage and tradition of the people.

Key Highlights:

- A Constitution Bench headed by Justice K.M. Joseph upheld the validity of the Prevention of Cruelty to Animals (Tamil Nadu Amendment) Act of 2017,

and Prevention of Cruelty to Animals (Conduct of Jallikattu) Rules of 2017.
- The court also found similar laws passed by Karnataka and Maharashtra, allowing bullock cart races and buffalo racing 'kambala', valid.
- The Constitution Bench held that the jallikattu law "substantially minimises" the pain and suffering of the animals participating in the event.

- The judgment however directed that the district administrations and competent authorities in Tamil Nadu would be responsible to ensure that jallikattu events are conducted in strict compliance of the safeguards laid out in the 2017 Amendment Act and Rules.
- The court described jallikattu as an event during which "a bull is set free in an arena and human participants are made to grab its hump to score in the game".

Claims by petitioners:

- Jallikattu was banned in 2014 by the Supreme Court in the A. Nagaraja case and called "cruel". But that was before the State passed the Amendment Act in 2017, introducing several measures to prevent any abuse to the participating bulls or loss of human life.
- The Bench held that the State was empowered to enact the 2017 law.

Conclusion:

- The SC held that amendments had been passed by the state governments after the apex court had banned Jallikattu and similar activities in 2014 in the case Animal Welfare Board of India vs A Nagaraja & Ors.
- The state legislature had the legislative power to make these amendments in accordance with Entry 17 to List III of the Seventh Schedule of the Indian Constitution.
- It added that the laws provided enough safeguards against the infliction of cruelty to animals and punishments. Since these amended laws had received presidential assent, they could not be faulted.

ELECTIONS AND THE AIRWAVES

Why in news?

- In the recently-concluded Karnataka Assembly elections, political parties were provided free airtime

on public broadcasters, All India Radio (Akashvani) and Doordarshan during elections.

Details:

◌ The allotment was available to six recognised national parties — the Bharatiya Janata Party (BJP), the Indian National Congress (INC), the Bahujan Samaj Party (BSP), the National People's Party (NPP), the Aam Aadmi Party (AAP) and the Communist Party of India (Marxist) and one recognised State party, the Janata Dal (Secular).

◌ The parties were allocated a base time of 45 minutes and additional slots based on performance in previous polls. A total of 630 minutes of free airtime was issued under this allotment.

What is the rationale of the scheme?

◌ The facility to provide free airtime for political parties during elections was given statutory basis through the 2003 amendment to the Representation of People Act, 1951.

◌ The Supreme Court, in its famed judgment (The Secretary, Ministry of Information and Broadcasting vs Cricket Association of Bengal and ANR, 1995), held that airwaves are public property and its use should serve the greater public good.

◌ Elections being the lifeblood of a democracy, the misuse or abuse of airwaves to gain unfair electoral advantage is a key regulatory apprehension of governments around the world.

Global practices:

◌ In the U.S., for example, the Federal Communications Commission, which regulates the electronic media in the country, devised the fairness doctrine to keep electioneering on the airwaves equitable.

◌ The now defunct fairness doctrine placed a positive obligation on broadcasters who carry political content of one candidate on its programme to extend the same to another candidate in the electoral fray.

◌ In the U.K. too, political parties are allocated designated slots by Parliament, called the party political broadcasts (PPBs) to convey important political information to the people.

◌ The British Communication watchdog, Ofcom, is responsible for ensuring that PPBs are included in

every licensed public service television channel and commercial radio services.

◌ Similar requirements are adopted in Singapore, Brazil and Japan.

What is the working of the scheme?

◌ In the Karnataka elections, the BJP received 167 minutes of broadcast time on both DD and Akashvani, while the Congress got 174 minutes and the JD(S) got 107 minutes.

◌ Time vouchers are distributed by a lottery system by the Election Commission in a transparent process to obviate any preferential treatment in getting primetime slots.

◌ The transcripts of political parties are vetted to ensure that they adhere to relevant codes. These codes proscribe any content which are inter alia critical of other countries, attack religions or other communities or incites violence and personal attacks.

◌ In case of any disagreements over the content of the script as vetted by the public broadcaster, it is referred to an Apex Committee comprising members from Akashvani and DD whose decision is final.

◌ In the Indian media landscape, due to the pattern of ownership of media houses, the public generally identify a broadcaster as being affiliated with one political party or the other. In this regard, State-sponsored airtime provides more diversity and colour to the electoral process.

◌ The guidelines by the Election Commission of India (ECI) also require that a maximum of two panel discussions are also aired by Akashvani and DD.

◌ These discussions provide an excellent platform for parties, both big and small, to debate and criticise each other's policies and manifestos, and in general promote an informed citizenry.

What are the operational challenges?

◌ The fact that the scheme is available to national and recognised State parties may attract arguments that it is not truly equitable.

◌ In light of the recent retraction of the national party status for the Nationalist People's Coalition (NPC) and the Trinamool Congress (TMC), this observation becomes important. However, the ECI is constrained by the considerations of practicality and the fact that airwaves are not an infinite resource.

◌ The Apex Committee comprises officials from Akashvani and DD and are expected to sit in review of their own decision in case of conflict with the political party on the content of the transcript. This leaves scope for conflicts of interest and therefore, a more representative committee may be constituted.

◌ There are also calls for extending the provision to cover private broadcasters akin to the fairness doctrine of the U.S.

◌ A designated slot may be mandated for private channels to air content equitably and provide a

platform for smaller parties and candidates. The political broadcast may be clearly differentiated from regular news broadcasts and programmes.

Way Forward:

➲ The 2024 General Elections will witness unprecedented levels of electioneering in the media.

➲ As spaces for sober, fair, considered and thoughtful debates shrink in a frenzy to grab attention, it is imperative that airwaves are used to nourish and enrich the Indian democracy and set standards for other electoral democracies.

ANDHRA PRADESH BEGINS FREEING 2 LAKH ACRES OF 'DOTTED LANDS'

Why in news?

➲ Recently, the Andhra Pradesh government has started removing "dotted lands" in the state from the prohibited list, restoring full rights of selling or pledging these lands to the farmers who own them.

➲ Over 2 lakh acres of these British-era dotted lands have been identified for permanent denotification.

What kind of lands are dotted lands?

➲ Dotted lands are disputed lands for which there are no clear ownership documents. Typically, one or more individuals as well as the government's Revenue Department lay claim over the land.

➲ These lands came to be known as "dotted lands" because when, during the British era, land ownership surveys and resettlement of land records were taken up, local revenue officials who were tasked with identifying government-owned and privately-owned lands put dots in the ownership column if more than one person claimed ownership, or if ownership could not be clearly established.

➲ These lands were also noted as disputed lands in the resettlement register or land records register. The dots on the land documents indicated their disputed status.

How did these ownership disputes arise?

➲ This could happen if landowners did not leave clear wills passing on land to their heirs or children, and if a dispute arose because more than one heir lay

claim over the land. Also, land could be deemed by the government to belong to the state, but was under occupation by private parties.

➲ Some of the land records in question are more than 100 years old, and had been locked up in the prohibited list in and registers.

➲ During subsequent surveys, government officials left the ownership column blank indicating their disputed status as per Section 22A of the Registration Act.

Identified land:

➲ The state government has so far identified 2,06,171 acres as dotted lands, and has decided to remove them from the prohibited list.

➲ There could be more than 10 lakh acres of dotted lands in the state.

➲ Nellore district has the largest number of dotted land parcels (43,000 acres), followed by Prakasam district (37,000 acres).

How will this step benefit landowners/farmers?

➲ During the Assembly session held in March, the government introduced a Bill to amend the Revenue Act to grant titles to farmers who have been cultivating dotted lands for more than 12 years.

➲ The dots, and entries in land registers, will be removed and these farmers will be given clear land ownership documents. At least 97,000 farmers will get land ownership documents for the 2,06,171 acres of denotified dotted lands.

➲ While these farmers were using the land, they could not procure loans from banks and financial institutions by putting up the land as collateral. Financial institutions do not recognise dotted land documents as clear ownership documents.

➲ With the lands now being taken off the prohibited list, landowners/farmers will get full rights over the lands, and enjoy all usual rights as land owners.

➲ More importantly, they can apply for financial assistance for crop support, purchase seeds and fertilisers, and procure farm equipment. The landowners/farmers can also sell the lands or gift to kin or relatives.

Why did the state government take up this exercise?

➲ Over 1 lakh applications had been received by the Chief Commissioner of Land Ceiling (CCLA) over the past years to resolve dotted land disputes.

➲ In urban areas, dotted lands have been illegally sold and houses have been constructed, which cannot be taxed. With lakhs of acres under dispute, the government also loses on stamp duty revenue.

➲ The registration value of the 2,06,171 acres is over Rs 8,000 crore while the land value is over Rs 20,000 crore.

Ongoing scheme:

➲ The exercise to free dotted lands was part of a comprehensive resurvey of lands taken up by the YSRCP government by implementing the YSR Jagananna Saswatha Bhu Hakku and Bhu Raksha scheme.

➲ Under the scheme, the government has provided 7,92,238 permanent title deeds to farmers in 2,000 villages in the first phase.

➲ The second phase of the programme will take off from next month.

CENTRE SEEKS REVIEW OF SC VERDICT ON DELHI GOVT. POWERS

Why in news?

➲ The Centre has sought a review of a Supreme Court verdict upholding the Delhi government's power to make laws and wield control over Civil Services in the National Capital.

Review plea by Centre:

➲ The Centre said the judgment by a Constitution Bench headed by Chief Justice of India D.Y. Chandrachud had the effect of declaring Delhi a "full-fledged State" when it is actually a Union Territory.

➲ The Union government said Delhi has never been elevated to the level of a State. The Centre said the judgment was self-contradictory, terming that Delhi had a sui generis or special status while at the same time treating it as a 'State'.

➲ The Centre argued that for a Union Territory, the Parliament is the sole legislative body.

➲ The judgment, though accepting the superior legislative authority of the Parliament over Delhi, had gone on to recognise extensive legislative and executive powers to the Delhi Council of Ministers and the Legislative Assembly.

➲ The review plea said the legislative powers are distributed between Parliament and State Legislatures and not between Parliament and Legislative Assemblies of Union Territories.

Contradiction:

➲ The petition further said the five-judge Bench judgment contradicts a 1997 nine-judge Bench

decision of the Supreme Court in New Delhi Municipal Corporation vs State of Punjab, in which it was "clearly held that notwithstanding the 69th Amendment introducing a Legislative Assembly for Delhi, the NCT of Delhi remains a Union Territory".

➲ The Centre said Article 309 of the Constitution clearly distinguished between the Centre and State services. The civil services in a Union Territory clearly belonged to the Centre.

➲ The appointments and transfers are made in the Delhi administration in accordance with the Central recruitment rules approved by the President through Lieutenant-Governor (LG) under Article 309.

How does a review petition get heard in court?

➲ A judgment of the Supreme Court becomes the law of the land, according to the Constitution. However, the Constitution, under Article 137, gives the Supreme Court the power to review any of its judgments or orders.

➲ This departure from the Supreme Court's final authority is entertained under specific, narrow grounds. So, when a review takes place, the law is that it is allowed not to take fresh stock of the case but to correct grave errors that have resulted in the miscarriage of justice

➲ The court has the power to review its rulings to correct a "patent error" and not "minor mistakes of inconsequential import".

➲ In a 1975 ruling, Justice Krishna Iyer said a review can be accepted "only where a glaring omission or patent mistake or like grave error has crept in earlier by judicial fallibility".

On what grounds can a petitioner seek a review of an SC verdict?

➲ In a 2013 ruling, the Supreme Court itself laid down three grounds for seeking a review of a verdict it has delivered:

a) The discovery of new and important matter or evidence which, after the exercise of due diligence, was not within the knowledge of the petitioner or could not be produced by him;

b) Mistake or error apparent on the face of the record;

c) Or any other sufficient reason. In subsequent rulings, the court specified that "any sufficient reason" means a reason that is comparable to the other two grounds.

➲ In another 2013 ruling (Union of India v. Sandur Manganese & Iron Ores Ltd), the court laid down nine principles on when a review is maintainable. A review is by no means an appeal in disguise whereby an erroneous decision is reheard and corrected but lies only for patent error. It added that the mere possibility of two views on the subject cannot be a ground for review.

What happens if a review petition fails?

➲ As the court of last resort, the Supreme Court's verdict cannot result in a miscarriage of justice.

➲ In Roopa Hurra v Ashok Hurra (2002), the court itself evolved the concept of a curative petition, which can be heard after a review is dismissed to prevent abuse of its process.

➲ A curative petition is also entertained on very narrow grounds like a review petition, and is generally not granted an oral hearing.

THE TUSSLE OVER 'SERVICES' IN DELHI

Why in news?

➲ A Constitution Bench headed by the Chief Justice of India D.Y. Chandrachud on May 11 held that the Delhi government can make laws and administer civil services in the national capital.

➲ The court limited the role of the Lieutenant Governor (LG), an arm of the Centre, over bureaucrats in the capital to three specific areas — public order, police and land.

➲ However, on May 19, the President promulgated the Government of National Capital Territory of Delhi (Amendment) Ordinance, 2023 to make a fresh claim of power over the services in the capital.

What does the Ordinance say?

➲ The government has used the Ordinance route to indirectly return to its original position which it had taken in May 21, 2015 through a Home Ministry notification.

➲ The notification, which formed the bone of contention between the Aam Aadmi Party (AAP) government and the Centre for the past eight years, gave the Lieutenant Governor (LG) power over the services. It required the LG to consult the Chief Minister only at his "discretion". The notification had excluded Entry 41 (services) of the State List from the scope of powers of the Delhi government.

NCCSA:

➲ The Ordinance forms a "permanent" National Capital Civil Service Authority (NCCSA) with the Chief Minister as chairperson, and the Chief Secretary and Principal Home Secretary as Member and Member Secretary, respectively.

➲ The NCCSA exercises authority over civil service officers working in all Delhi government departments except those in public order, police and land.

➲ It would decide transfers, postings, prosecution sanctions, disciplinary proceedings, vigilance issues, etc, of civil service officers deputed to Delhi government departments by majority of votes of the members present and voting. The Lieutenant Governor's decision, in case of a difference of opinion, would be final.

➲ This throws open a scenario in which bureaucrats in the NCCSA could possibly veto the Chief Minister. The Ordinance explains that the Chief Secretary would represent "the will of the officers of GNCTD" (Government of the National Capital Territory of Delhi).

Neutral path by Supreme Court:

➲ The Supreme Court had envisaged a "neutral civil service" carrying out the day-to-day decisions of the Council of Ministers. The NCCSA attempts to bring civil service officers out of the administrative control of the elected Ministers, who embody the will of the people, and transform them into a power lobby.

➲ The Ordinance, by creating the NCCSA, skirts the emphasis laid down in the judgment on the "triple chain of command" in the governance of Delhi. The court had held that the civil services were accountable to the Ministers of the elected government, under whom they function.

➲ The Ordinance also does not heed the President's own Transaction of Business Rules of the Government of National Capital Territory of Delhi, 1993.

➲ The Supreme Court had held in 2018 that "a significant aspect of the Rules is that on matters which fall within the ambit of the executive functions of the Government of National Capital Territory of Delhi (NCTD), decision-making is by the government comprising the Council of Ministers with the Chief Minister at its head". This view was reinforced on May 11, 2023.

K. Balakrishnan Committee:

➲ The court had also dismissed the K. Balakrishnan Committee's specific recommendation that the "services" should not be included within the legislative and executive ambit of the NCTD.

➲ The court held that the committee report was not relevant as it preceded the insertion of Article 239AA — the provision that deals with the governance structure of Delhi, in the 69th Constitution Amendment, 1991.

Does the Ordinance go against the Supreme Court judgment?

➲ The Ordinance is based on the argument that the Supreme Court has itself acknowledged the superior authority of Parliament to make laws for the national capital.

- A review petition filed by the Centre in the Supreme Court claimed that Delhi is not a "full-fledged State" but only a Union Territory which is an extension of the Union. The Parliament is Delhi's true legislature, the Centre has argued.
- However, the May 11 judgment addresses this contention by acknowledging that though Delhi is not a full-fledged State, its Legislative Assembly is constitutionally entrusted with the power to legislate upon the subjects in the State List and Concurrent List.
- The unanimous judgment held that though Delhi is not a State under the First Schedule to the Constitution, it is conferred with power to legislate upon subjects "to give effect to the aspirations of the people of NCTD". It has a democratically elected government which is accountable to the people of the NCTD.
- Under the constitutional scheme envisaged in Article 239AA(3), NCTD was given legislative power which though limited, in many aspects is similar to States. In that sense, with the addition of Article 239AA, the Constitution created an "asymmetric federal model" with the Union of India at the centre, and the NCTD at the regional level.

What does the Ordinance and the judgment say about the LG's powers?

- The Ordinance has put the LG back in the driver's seat by giving him the power to take a final call on any decision taken by the NCCSA regarding services. This is despite the fact that the LG's powers were curtailed way back in 2018 by another Constitution Bench judgment.
- On May 11, the court had agreed with its conclusions in 2018 that the LG was bound by the aid and advice of the Council of Ministers under Article 239AA(4) while exercising executive powers in relation to matters falling within the legislative domain of the legislative assembly of NCTD.
- The court had held that even the "limited discretionary power" afforded to the LG "ought to be exercised in a careful manner in rare circumstances such as on matters of national interest and finance. The Lieutenant Governor could not refer every matter to the President".

What lies ahead?

- An Ordinance is not beyond judicial review of the apex court. If the 2023 Ordinance is challenged separately, the Union would have to prove the "extraordinary or emergent situation" which necessitated it to promulgate an Ordinance merely days after a Constitution Bench settled the law.
- A Constitution Bench in DC Wadhwa versus State of Bihar had held that the power of the Executive to promulgate an Ordinance should not be "perverted to serve political ends".

CJI CONDEMNS 'FORUM SHOPPING'

Why in news?

- The Chief Justice of India (CJI) DY Chandrachud on Friday said that he will not permit 'forum shopping'.
- The CJI made this remark to a litigant appearing before him, who sought a hearing, however, he (the litigant) mentioned the same case a day ago before Justice KM Joseph.

What is forum shopping?

- According to a Supreme Court judgment, dated March 22, 2022, the term 'forum shopping' has not been rendered an exclusive definition in any Indian statute.
- The apex court cited Merriam Webster dictionary and said, 'The practice of choosing the court in which to bring an action from among those courts that could properly exercise jurisdiction based on the determination of which court is likely to provide the most favourable outcome'.
- The SC further stated that a classic example of 'forum shopping' is when a litigant approaches one court but does not get desired relief and then approaches another court to obtain relief in the same matter.
- As part of their litigation strategy, the lawyers think about which would be the appropriate forum to approach. For Instance, a litigant can directly approach the top court instead of the High Court through the route of Public Interest Litigation (PIL) in order to grab more eyeballs for the issue.

Global practice:

- The practice of forum shopping has also been criticised by the US and UK courts and has been termed as something that needs to be avoided or prohibited.
- However, most common law countries use the "forum non-conveniens" principle to prevent forum shopping. It gives the court discretionary powers to refuse to exercise its jurisdiction over a matter where another court, or forum, may more conveniently hear a case.
- The Supreme Court in its 1988 ruling in Chetak Construction Ltd. vs. Om Prakash said, "A litigant cannot be permitted a choice of the forum," and that

every attempt at forum shopping "must be crushed with a heavy hand.

Supreme Court's view:

➲ According to the court's judgment, 'forum shopping' has been termed a disreputable practice by the courts and has no sanction and paramountcy in law.

➲ In the judgment, the court highlighted that one of the respondents filed three complaints, two in Delhi and one in Kolkata. Looking at the timeline of the complaints filed, the court said that it had specified the malafide intention of the respondent, which was to harass the petitioners and "pressurise them into shelling out the investment."

➲ In its 2022 ruling, the court referred to a 2017 ruling in 'Union of India & Ors. vs Cipla Ltd.', in which a "functional test" was laid down to be adopted for forum shopping.

Actions by HCs:

➲ On March 28, the Jammu, Kashmir, and Ladakh High Court in 'Dr. Khair-Un-Nisa and Ors vs. UT of Jammu and Kashmir and Ors' imposed costs worth one lakh rupees on the petitioners for indulging in forum shopping by filing multiple petitions before different wings of the court, albeit having the same cause of action.

➲ On April 26, 2022, the Jodhpur Bench of the Rajasthan High Court in the case of 'Dhanwantri Institute of Medical Science vs. The State of Rajasthan' upheld an order imposing costs worth 10 lakh rupees on a party for engaging in forum shopping.

THE TELANGANA A.P. WATER DISPUTE

Why in news?

➲ The nagging dispute over the water share of the Krishna River between Andhra Pradesh (A.P.) and Telangana remains unresolved, even nine years after the bifurcation of the combined State.

What is the origin of the Krishna water dispute?

➲ The dispute dates back to the formation of Andhra Pradesh in November, 1956. Before the formation of Andhra Pradesh, four senior leaders each from different regions of Andhra, including the Rayalaseema Region and the Telangana region, signed a Gentlemen's Agreement on February 20, 1956.

➲ Among others, one of the provisions of the agreement was the protection of Telangana's interests and needs with respect to the utilisation of water resources with equitable distribution based on treaties followed globally.

➲ However, the focus of the combined dispensation with respect to irrigation facilities was on Andhra, which already had systems developed by the British at the cost of in-basin drought-prone areas in Telangana, a fact which was argued by the leaders of the latter region from the beginning.

Bachawat Tribunal:

➲ Further on, in 1969, the Bachawat Tribunal (KWDT-I) was constituted to settle the dispute around water share among the riparian States of Maharashtra, Karnataka and Andhra Pradesh (before bifurcation). The Tribunal allocated 811 tmcft dependable water to Andhra Pradesh.

➲ The A.P. government later apportioned it in the 512:299 tmcft ratio between Andhra (including parts of Rayalaseema which comprise the Krishna Basin) and Telangana, respectively, based on the command area developed or utilisation mechanism established by then.

➲ The Tribunal had also recommended taking the Tungabhadra Dam (a part of the Krishna Basin) water to the drought-prone Mahabubnagar area of Telangana.

➲ However, this was not followed through, giving birth to discontent among the people. Telangana had time and again reiterated how it had been meted out with injustice in Andhra Pradesh when it came to the matter of distributing water resources.

What was the arrangement for water sharing after the bifurcation?

➲ There is no mention of water shares in the Andhra Pradesh Reorganisation Act, 2014, since the KWDT-I Award, which was still in force, had not made any region-wise allocation.

➲ At a meeting convened by the then Ministry of Water Resources in 2015, the two States had agreed for sharing water in the 34:66 (Telangana:A.P.) ratio as an ad hoc arrangement with the minutes clearly specifying that it has to be reviewed every year.

➲ The arrangement in the Act was only for the management of water resources by setting up two Boards, the Krishna River Management Board (KRMB) and the Godavari River Management Board (GRMB).

➲ The KRMB, however, continued the same ratio year after year in spite of the opposition by Telangana. In October 2020, Telangana raised its voice for an equal share, till water shares are finalised.

➲ At a Board meeting held earlier this month, Telangana put its foot down for an equal share and refused to continue the existing arrangement. Unable to convince the member States, the river Board has

referred the matter to the Ministry of Jal Shakti (MoJS).

What does each State claim?

➲ Telangana has been asking the Centre to finalise water shares from day one of its formation. Citing treaties and agreements followed globally in sharing river waters, Telangana has been arguing that as per the basin parameters, it is entitled for at least a 70% share in the allocation of the 811 tmcft.

➲ Besides, it has been highlighting how A.P. has been diverting about 300 tmcft water to the areas outside the basin from fluoride-affected and drought-prone areas within the basin in Telangana.

➲ On the other hand, A.P. has also been staking claim for a higher share of water to protect the interests of command areas already developed.

What is the stand of the Centre?

➲ The Centre has convened two meetings of the Apex Council comprising the Union Minister and Chief Ministers of Telangana and A.P. in 2016 and 2020 without making any attempt to deal with the issue.

➲ Following a suggestion made by the MoJS in 2020, Telangana has withdrawn its petition over the issue in the Supreme Court as the Ministry had assured to refer the matter of water shares to a Tribunal.

➲ However, the Centre has been sitting over the issue for over two years now even as the two States continue to spar over the matter day in and day out.

GOVT'S POWER TO PROMULGATE, REPROMULGATE ORDINANCES

Why in news?

➲ Recently, the central government promulgated an Ordinance that undid the unanimous verdict of a five-judge Constitution Bench of the Supreme Court, which on May 11 gave the Aam Aadmi Party (AAP) government of Delhi control over the transfer and posting of officials in the National Capital Territory (NCT), except with regard to public order, police, and land.

Details:

➲ The Ordinance promulgated by President gave the Lieutenant Governor of Delhi, who is appointed by the Centre, power over services.

➲ It established a "National Capital Civil Service Authority" comprising the Chief Minister and two senior IAS officials, which would decide matters "by majority of votes of the members present and voting" essentially creating a situation in which the view of the elected CM could potentially be overruled.

Ordinance in Constitution:

➲ Under Article 123 of the Constitution (Power of President to promulgate Ordinances during recess of Parliament), "if at any time, except when both Houses of Parliament are in session, the President is satisfied that circumstances exist which render it necessary for him to take immediate action, he may promulgate such Ordinances as the circumstances appear to him to require."

➲ An Ordinance "shall have the same force and effect as an Act of Parliament". But the government is required to bring an Ordinance before Parliament for ratification and failure to do so will lead to its lapsing "at the expiration of six weeks from the reassembly of Parliament".

➲ The Ordinance may lapse earlier if the President withdraws it, or if both Houses pass resolutions disapproving it. (Rejection of an Ordinance would, however, imply the government has lost majority.)

➲ Also, if an Ordinance makes a law that Parliament is not competent to enact under the Constitution, it shall be considered void.

➲ Since the President acts on the advice of the Council of Ministers, it is in effect the government that decides to bring the Ordinance. The President may return the recommendation of the Cabinet once if she feels it warrants reconsideration; if it is sent back (with or without reconsideration), she has to promulgate it.

➲ Article 213 deals with the broadly analogous powers of the Governor to promulgate/ withdraw an Ordinance when the state legislature is not in session.

➲ An Ordinance is valid for six weeks, or 42 days, from the date on which the next session starts. If the two Houses start their sessions on different dates, the later date will be considered, say the explanations in Articles 123 and 213.

Repromulgation of Ordinance:

➲ If, for whatever reason, an Ordinance lapses, the only option for the government is to reissue or repromulgate it.

➲ In 2017, the Supreme Court examined a case where the state of Bihar re-promulgated an Ordinance several times without placing it before the legislature. (Krishna Kumar Singh and Another v. State of Bihar)

➲ A seven-judge Bench of the court, which included now Chief Justice of India (CJI) D Y Chandrachud, reiterated that legislation should normally be done by the legislature, and the Governor's power to issue an Ordinance is in the nature of an emergency power.

- The court clarified that there might be circumstances permitting the re-promulgation of an Ordinance, however, it said, repeated re-promulgations without bringing the Ordinance to the legislature would usurp the legislature's function, and will be unconstitutional.
- The court declared the actions in that case to be "a fraud on constitutional power", and said that the Ordinances were repromulgated in violation of the SC judgment in Dr D C Wadhwa and Ors v. State of Bihar and Ors (1986).

D.C. Wadhwa Case:

- In D.C. Wadhwa, a challenge was mounted against the power of the Governor to repromulgate various Ordinances in Bihar, after 256 Ordinances were promulgated between 1967 and 1981, out of which 69 were repromulgated several times and kept alive with the permission of the President.
- A Constitution Bench of the Supreme Court headed by then CJI P N Bhagwati held that "an Ordinance promulgated by the Governor to meet an emergent situation shall cease to be in operation at the expiration of six weeks from the reassembly of the Legislature."
- If the government wishes for the Ordinance to continue in force beyond the six-week period, it "has to go before the Legislature", which is the constitutional authority entrusted with law-making functions.
- The court also said that it would "most certainly be a colourable exercise of power for the Government to ignore the Legislature" and "repromulgate the Ordinance" while continuing to regulate the life and liberty of its citizens through Executive-made Ordinances.

INTERNATIONAL RELATIONS

ON THE WASHINGTON DECLARATION

Why in news?

- Recently, South Korean President Yoon Suk Yeol arrived in the U.S. to commemorate the 70th anniversary of U.S.-South Korea bilateral relations.
- A highlight of the visit was the signing of the "Washington Declaration" as a nuclear deterrence strategy.

What prompted the U.S. visit?

- The successful launch of North Korea's Hwasong-8 solid-fuel intercontinental ballistic missile (ICBM), a vital component for nuclear weapons delivery, seems to have triggered the U.S. visit of the South Korean President.
- He aimed to advance the strategic partnership, drawing an alliance over an extended nuclear deterrence plan against the regional aggression of North Korea.

What does the Washington Declaration say?

- According to the declaration,
  a) an American nuclear ballistic submarine would be deployed in the Korean peninsula;
  b) a nuclear consultative group would be formed to formulate principles of joint response tactics;
  c) South Korea would receive Intel from the U.S. regarding nuclear advancements; and
  d) The U.S. will strengthen South Korea's nuclear deterrence capabilities through joint military training programs and an annual intergovernmental simulation.

Deterrence:

- The declaration reaffirmed the non-proliferation Treaty implying that South Korea would not venture into the creation of its own independent nuclear capabilities and would instead focus on deterrence measures through an alliance-based approach.
- It also mandates the U.S. President as the only 'sole authority' to use the nuclear arsenal of the U.S. in the event of a nuclear confrontation.
- While the existence of the agreement is based on the security needs of South Korea, the policy reflects big power politics where the interests of the larger power (U.S.) takes precedence.

Why is the U.S. not keen on S.Korea having a nuclear arsenal?

- South Korea's nuclear development programme supported by former president Park Chung Hee was hindered due to U.S. pressure. In the 1990s, the U.S. withdrew one hundred nuclear weapons from South Korea as part of their "Strategic Arms Reduction Treaty".
- The U.S. made an erroneous assumption that it could deter the weapons production of North Korea by extracting South Korea's nuclear capacity.
- The Nuclear Posture Review 2022 reflects a shift in the U.S. narrative where it is now concerned about the progressing nuclear capacities of North Korea.
- The report states that North Korea creates "deterrence dilemmas for the United States and its Allies and partners," and that "a crisis or conflict on the Korean Peninsula could involve a number of nuclear-armed actors, raising the risk of broader conflict."

- And finally, the U.S. wants to control global nuclear arms production. It has been reluctant to allow South Korea to develop their own nuclear arsenal as it would hinder the prolonged efforts of controlling nuclear production in the world.
- The assurance that the U.S. and its nuclear weapons would protect its allies by being responsible for maintaining stability in the region aligns with the larger goal of non-proliferation.

JAPAN, SOUTH KOREA AGREE TO TAKE TIES FORWARD IN A LANDMARK REGIONAL SHIFT

Why in news?
- Japan and South Korea recently agreed to take forward ties and move past lingering historical disputes, pledging to transform a relationship that could have broad implications for the region.
- Japanese Prime Minister Fumio Kishida became the first Japanese leader to visit Seoul in 12 years. The visit followed a trip to Japan in March by South Korean President Yoon Suk Yeol.

Shuttle diplomacy:
- What has been dubbed "shuttle diplomacy" promises to transform ties between two U.S. allies that have been bogged down over historical issues, chiefly Japan's reluctance to apologise for atrocities committed during its occupation.
- Both have, however, been brought together by shared concerns not only over North Korea's nuclear programme but over China's regional muscle-flexing.

March agreement:
- Despite differences over Japan's wartime actions, which remain an emotive issue in South Korea and China, South Korean President has risked domestic political fallout by making a case for moving forward and arguing that while historical issues continue to be resolved, relations still needed to look to the future.
- To that end, both sides in March agreed to come up with a fund to compensate South Koreans who suffered under Japanese forced labour programmes.
- Under the March agreement, the compensation will be paid by a joint fund, and not, as many in South Korea had demanded, funded entirely by Japanese

companies, two of which had, in 2018, faced legal action in South Korea over their record during the 1910-45 occupation. Tens of thousands of Korean women were also forced into sexual slavery by the Japanese Army.

Way Forward:
- South Korean President's March trip broke the ice, and took forward a rapprochement that both leaders have backed strongly.
- The current visit has seen both sides explore closer economic and defence ties. The Japanese leader also invited South Korean President to the G-7 Summit to be hosted in Tokyo in May 2023, which would have been an unlikely prospect in the recent past.

NORWAY TAKES COMMAND OF ARCTIC COUNCIL FROM RUSSIA

Why in news?
- Norway took over the presidency of the Arctic Council from Russia amid growing questions about the urgent need to protect the polar region badly hit by climate change.
- The fate of the Arctic Council has been under threat amid the ongoing war between Russia and Ukraine that had promoted Western countries to suspend cooperation with Russia.

Impact of Ukraine War:
- The eight member countries of the Arctic Council, including Russia and the United States, have cooperated on climate-change research and social development across the ecologically sensitive region.
- The Arctic Council, which doesn't deal with security issues but makes binding agreements on environmental protection and gives a voice to the Indigenous peoples of the Arctic region, was one of the few settings where Western countries and Russia worked together closely.
- All seven countries; United States, Canada, Denmark, Finland, Iceland, Norway, and Sweden had paused their work with Russia in the council shortly after Moscow launched the full-scale war in February 2022. The impact was that research on issues ranging from climate change to polar bears had been put on

hold, and scientists lost access to important facilities in the Russian Arctic.

➲ An ineffective Arctic Council could have dire implications for the region's environment and its 4 million inhabitants who face the effects of melting sea ice and the interest of non-Arctic countries in the region's mostly untapped mineral resources.

Role of Arctic Council:

➲ The Arctic Council in the past has produced binding agreements on environmental protection and preservation. It is also a rare platform giving a voice to the region's Indigenous peoples.

➲ The Arctic is warming about four times as fast as the rest of the world. As sea ice vanishes, polar waters are opening to shipping and other industries eager to exploit the region's bounty of natural resources, including oil, gas, and metals such as gold, iron, and rare earths.

Way Forward:

➲ Norway has now vowed to keep the council's work moving forward as it assumed the rotating two-year chairmanship from Russia.

FIRST TRADE AND TECH COUNCIL SIGNIFICANT MILESTONE IN INDIA EU TIES

Why in news?

➲ The first meeting of the India-EU TTC in Brussels marks a significant milestone in the strategic partnership between India and the EU due to its focus on critical domains.

Focus area:

➲ The meeting, co-chaired on the Indian side by the External Affairs Minister (EAM), Commerce and Industry Minister and Communications, Electronics and, covered key focus areas of strategic technologies, digital governance and green energy technologies.

Key Highlights:

➲ The joint statement released by the two trade partners said that India and the European Union will cooperate on quantum and high-performance computing research and development projects to help address challenges including climate change.

➲ Both regions also committed to seek cooperation on trustworthy Artificial Intelligence and coordinate their policies with regard to the strategic semiconductors sector through a dedicated Memorandum of Understanding.

➲ They will work together on bridging the digital skills gap and promoting exchange of digital talent.

➲ Both partners will engage on 5G, telecoms and Internet of Things standardisation, which will enhance the interoperability of their respective digital public infrastructures.

➲ They will focus on wastewater management, including plastic litter and waste to hydrogen; recycling of batteries for e-vehicles and standards through pre-normative research.

Trade:

➲ On trade, the two countries have agreed to deepen their common work on resilient value chains, work to resolve bilateral market access issues and exchange information on each other's mechanisms on foreign direct investment screening.

➲ They will also address global and multilateral trade issues, with particular emphasis on the World Trade Organization.

➲ The two sides have also agreed to intensify their engagement on carbon border measures.

About India- European Union Trade and Technology Council (TTC):

➲ The TTC was launched by Prime Minister Narendra Modi and the President of the European Commission, Ursula von der Leyen, during her visit to India in April 2021.

➲ It led to the creation of three Working Groups under the TTC: Working Group on Strategic Technologies, Digital Governance and Digital Connectivity; Working Group on Green and Clean Energy Technologies; and Working Group on Trade, Investment and Resilient Value Chains.

Way Forward:

➲ In the joint statement, it has been announced that the TTC will take place at least once a year, with the venue alternating between the EU and India.

➲ The next ministerial meeting is planned for early 2024 in India.

G20 RIIG CONFERENCE AT DIU

Why in news?

➲ The need for sharing of nations' best practices and policy models for sustainable blue economy were deliberated at the G20 Research Innovation and Initiative Gathering (RIIG) Conference on Scientific Challenges and Opportunities for a Sustainable blue-economy.

Key Highlights:

➭ India has a multi-pronged plan for coastal area development comprising transforming the blue economy, improving coastal infrastructure, and protecting the marine ecosystem.

➭ India pointed out that the ocean and its resources do not recognise international boundaries and called on the collective responsibility of all countries to protect, conserve, and sustainably utilise ocean resources.

➭ The India's initiatives in recent years to enhance the National Blue Economy, such as the Deep Ocean Mission and the Maritime India Vision 2030 were highlighted.

Stakeholders:

➭ A total of 35 foreign delegates and 40 Indian experts and invitees from various scientific departments/ organisations of Govt of India participated in the conference.

➭ The Indian Presidency also presented the first draft of the Research Ministers declaration for discussion during the meeting. The Ministerial Declaration shall be adopted at the Research Ministers meeting scheduled to take place in Mumbai on 5th July 2023.

RIIG:

➭ The Research Innovation Initiative Gathering (RIIG) is a new initiative of the G20 Forum, which was initiated during the Indonesian Presidency in 2022.

➭ India is taking the RIIG initiative forward during its G20 Presidency in 2023 under the main theme of "Research and Innovation for Equitable Society".

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10 POINT ACTION PLAN PM MODI GAVE AT G7

Why in news?

➭ The 49th G7 summit was held from 19 to 21 May 2023 in Hiroshima, Hiroshima Prefecture, Japan.

Participants:

➭ The G7 currently consists of the United States, Canada, Japan, the United Kingdom, France, Germany and Italy, plus the European Union as a "non-enumerated member," but the forum has over the years invited participation by non-member countries such as India, Poland and Spain.

➭ In 2023, leaders from 16 countries, plus the EU, attended the three-day summit.

➭ Apart from the G7 members and the EU, leaders are attending from India, Brazil, Indonesia, Vietnam, Australia, South Korea and Comoros and Cook Islands – the latter two also representing the African Union and Pacific Islands Forum, respectively, as their current chairs.

Why does the G7 want to expand ties with developing countries?

➭ While the G7 is looking to promote a united front in its efforts to pressure Russia to end its war in Ukraine, most of the international community has declined to take a side in the conflict.

➭ With the exception of Japan, the sanctions campaign against Russia has been a Western-led effort.

➭ While Russia's trade with G7 countries has plummeted, China, India and Turkey have picked up much of the slack through increased imports of Russian coal, oil and gas. Russia's economy only contracted by about 2.2 percent in 2022, far less than expected.

➭ Although the G7 is still influential, its share of the global economy has declined from about 70 percent during the 1980s to 44 percent today – meaning that it has limited scope to tighten the screws on Russia without buy-in from the wider international community.

10-point action plan by PM Modi:

➭ Inclusive food systems that protect the most vulnerable: In his address, he emphasised the need for developing an inclusive food system that targets the most vulnerable population across the globe, especially marginal farmers.

➭ Depoliticise global fertiliser supply chains: Without naming any country, he called for checking the expansionist mentality surrounding fertiliser resources. He further said that there is a need to remove political obstacles in strengthening the global fertilizer supply chains.

➭ Develop an alternative model to fertilizers: Highlighting the importance of natural farming, he gave a call to reduce reliance on fertilisers.

➭ Stop food wastage to strengthen food security: He also emphasised the need to prevent the wastage of food

saying it should be our collective responsibility to check wastage for a sustainable global food security.

- Development models inspired by the needs of Global South: He pitched for democratising technology to bridge the gap between development and democracy. He pitched for a development model that facilitates developing countries rather than creating hindrances for them.

- Promote holistic healthcare: He stressed the need to adopt a holistic approach towards healthcare that includes the traditional systems of medicine.

- Adopting Millet: He discussed how millets simultaneously address the challenges of nutrition, climate change, water conservation and food security. He made a case for promoting more awareness around the benefits of adopting millets.

- Resilient healthcare systems: He raised the importance of developing a resilient healthcare system globally in his 10-point action plan.

- Promote digital healthcare: He also emphasised on the need to promote and facilitate digital healthcare to ensure universal health coverage globally.

- Ensure mobility of healthcare professionals: Along with holistic healthcare development and the need for digital healthcare, he also pitched for better mobility for healthcare professionals to improve access to healthcare globally.

3RD FIPIC SUMMIT IN PAPUA NEW GUINEA

Why in news?

- Recently, PM Modi and Papua New Guinea's PM James Marape led the third India-Pacific Islands Cooperation (FIPIC) Summit 2023. 14 countries from the Pacific Islands (PICs) attended the summit.

What is FIPIC?

- The Forum for India–Pacific Islands Cooperation (FIPIC) was launched during PM Modi's visit to Fiji in November 2014.

- FIPIC includes 14 island countries – Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu – that are located in the Pacific Ocean, to the northeast of Australia.

What was the idea behind FIPIC?

- Despite their relatively small size and considerable distance from India, many of these islands have large exclusive economic zones (EEZs).

- EEZs is the distance up to which a coastal nation has jurisdiction over the ocean, including both living and non-living resources. It generally goes to 200 nautical miles or 230 miles (around 370 km) beyond a nation's territorial sea.

- India's larger focus is on the Indian Ocean where it has sought to play a major role and protect its strategic and commercial interests. The FIPIC initiative then marks a serious effort to expand India's engagement in the Pacific region as well.

- Based on 2021-22 data, the total annual trade between India and Pacific Island countries is valued at $570 million, in commodities such as plastics, pharmaceuticals, sugar, mineral fuel and ores. Among them, Papua New Guinea is the biggest trade partner in terms of value.

FIPIC summit:

- FIPIC-I, in 2014, took place at Suva, Fiji's capital city. India announced various development assistance initiatives and other cooperation projects in areas of climate change, trade, economy, telemedicine and teleeducation, IT, grants for community development projects, etc.

- At FIPIC-II in 2015 in Jaipur, India again announced similar initiatives. India also approached the event from a large diplomatic perspective, calling for a "dedicated seat for Small Island Developing States in an expanded and reformed UN Security Council in both categories".

- In 2019, the India-Pacific Small Island Developing States (PSIDS) Leaders' Meeting (comprising delegations of 12 out of the 14 Pacific Islands countries) was held on September 24, 2019 in New York on the sidelines of the 74th UN General Assembly.

- The Indian government then announced an allocation of $12 million grant ($1 million to each PSIDS) towards implementation of high-impact developmental projects in the area of their choice.

- In addition, a concessional Line of Credit of $150 million, which can be availed by the PSIDS for undertaking solar, renewable energy and climate related projects based on each country's requirement, was announced.

What happened at the FIPIC summit 2023?

- The third FIPIC summit was to be held in early 2020 but was postponed because of the Covid-19 pandemic.

- During his concluding remarks, the Indian Prime Minister announced initiatives such as:

- Establishment of a super-specialty cardiology hospital in Fiji. The Indian government will bear the full cost of this mega greenfield project.

- Sea ambulances will be provided to all the 14 Pacific island countries.
- He noted that in 2022, a Jaipur Foot Camp was conducted in Fiji where prosthetic limbs were provided free of cost to more than 600 people. He said another similar camp will be set up in Papua New guinea in 2023 and starting from 2024, two such camps will be organised every year in the Pacific island countries.
- The PM also pledged to provide desalination units for the people of every Pacific Island country.

ECONOMY

MUSHROOM FARMERS UPBEAT OVER COMMERCIAL FARMING OF SHIITAKE IN J&K

Why in news?
- Farmers engaged in mushroom cultivation in Jammu and Kashmir are upbeat over the government announcement to introduce one of the costliest mushrooms 'Shiitake' for commercial farming in the Union Territory.
- The agriculture department will launch commercial farming Shiitake in September after successful field trials of the cultivation of this Japanese-origin variety.

Details:
- The cultivation trials were carried out successfully for spawn production and cultivation of Shiitake mushrooms in a spawn production laboratory in Jammu as well as in fields.
- It was done on sawdust of broad leaves in polypropylene bags as per the guidelines of the Directorate of Mushroom Research (ICAR), Solan.
- All trials turned out to be a success with the growth of fruiting bodies first and full growing up of mushrooms.

Shiitake mushrooms:
- Shiitake mushroom (Lentinus edodes), which is native to Japan, is a type of edible fungus and contains a chemical called lentinan, which some medical professionals use to boost the immune system.

- It will be considered a move to bring an economic boom in the farming sector with regard to mushroom cultivation in J&K.
- The fresh mushroom sells for Rs 1,500 per kilo in the market. If dried, it is sold at Rs 15,000 per kilo in the market.
- Their farming will be diversified, apart from growing three mushroom varieties - Button, Dingri and Milky mushrooms. The fourth, Shiitake mushroom, will be introduced.
- It will diversify cropping as well as the farming system. It will benefit economically to all, even small mushroom growers.
- It has anti-carcinogenic properties, used in the treatment of cancer.

Way Forward:
- Aiming to support small-scale farmers, the J&K government is going to implement a full-fledged project at a cost of Rs 42 crore in the next three years for the promotion of round-the-year mushroom cultivation for sustainable and profitable crops.

DE-DOLLARISATION, THE RACE TO ATTAIN THE STATUS OF GLOBAL RESERVE CURRENCY

Context:
- Countries have tried to dethrone the dollar as the global reserve currency for many decades now for various reasons. But of late, attempts to de-dollarise have picked up pace in the aftermath of Russia's invasion of Ukraine in 2022.
- Currently, the Chinese yuan is seen as the primary alternative to the U.S. dollar owing to China's rising economic power.

What is De-dollarisation?
- De-dollarisation refers to the replacement of the U.S. dollar by other currencies as the global reserve currency.
- A reserve currency refers to any currency that is widely used in cross-border transactions and is commonly held as reserves by central banks.

Background:
- Other currencies such as the British pound and the French franc have served as international reserve currencies in the past.

- It is the currencies of economic superpowers that have usually ended up being used as the global reserve currency. As the economic clout of these countries waned, their currencies faced a similar downfall.
- This was the case, for example, with the British pound which was gradually replaced by the U.S. dollar as Britain lost its status as a global economic superpower in the first half of the 20th century.

Advantages of reserve currency:

- When a country's fiat currency enjoys reserve currency status, it gives the country the power to purchase goods and other assets from the rest of the world by simply creating fresh currency out of thin air. However, such irresponsible expansion of the money supply can cause the debasement of the currency and eventually threaten its status as a reserve currency.
- But the U.S. Federal Reserve is not the only central bank in the world that has been debasing its currency by engaging in expansionary monetary policy over several decades.
- Other countries have also been expanding their respective money supplies to address their domestic economic problems.
- As long as the U.S. does not debase its currency at a faster pace than other countries, the dollar may manage to hold its value against other currencies and hence its reserve currency status may not come under serious threat.

The popularity of the U.S. dollar:

- The U.S. dollar is widely used in international transactions because people actually prefer to use the American currency over others for various economic reasons. Other currencies that have tried to compete against the U.S. dollar are not as popular as the greenback for carrying out international transactions.
- For example, a recent attempt by India and Russia to carry out trade between the two countries in Indian rupees rather than in U.S. dollars has hit a roadblock because the value of India's imports from Russia far outweighs its exports to the country.
- This left Russia with excess rupees in hand which it was unwilling to spend on Indian goods or assets, and led to Russian demands for the settlement of bilateral trade in U.S. dollars.

Global acceptability of the U.S. dollar:

- The global acceptability of the U.S. dollar has primarily been attributed to the popularity of U.S. assets among investors.
- The U.S. has been running a persistent trade deficit for decades now (in fact the last time the U.S. ran a trade surplus was way back in 1975). That is, the value of its imports has for a long time exceeded the value of its exports to the rest of the world.
- The excess dollars that the rest of the world accumulates due to the U.S.'s trade deficit has been

invested in U.S. assets such as in debt securities issued by the US government.
- The high level of trust that global investors have in the U.S. financial markets, perhaps owing to the 'rule of law' in the U.S., is considered to be a major reason why investors prefer to invest in U.S. assets.

Case of Yuan:

- It is not necessary that a country must run a trade deficit for its currency to be accepted as a reserve currency.
- China which supplies the world with huge volumes of goods and runs a trade surplus, has been trying to make the yuan a reserve currency.
- However, restrictions placed by the Chinese government on foreign access to China's financial markets and doubts over 'rule of law' in China have adversely affected global demand for the yuan.

INDIA SLIPS IN PRESS FREEDOM INDEX, RANKS 161 OUT OF 180 NATIONS

How India, neighbours fare in press freedom

Country	Ranking
Nepal	95
Pakistan	150
Sri Lanka	135
India	161
Myanmar	173

Source : World Press Freedom Index

Indian media landscape has more than 100,000 newspapers, including 36,000 weeklies and 380 TV channels.

Mukesh Ambani owns more than **70 media outlets** that are followed by at least **800 million Indians**

Why in news?

- India's ranking in the 2023 World Press Freedom Index has slipped to 161 out of 180 countries, according to the latest report released by the global media watchdog Reporters Without Borders (RSF).

India's neighbors:

- In comparison, Pakistan has fared better when it comes to media freedom as it was placed at 150, an improvement from last year's 157th rank. In 2022, India was ranked at 150.
- Sri Lanka also made significant improvement on the index, ranking 135th this year as against 146th in 2022.

Top/Bottom scorers:

- Norway, Ireland and Denmark occupied the top three positions in press freedom, while Vietnam, China and North Korea constituted the bottom three.

About World Press Freedom Index:

- Reporters Without Borders (RSF) comes out with a global ranking of press freedom every year. RSF is an international NGO whose self-proclaimed aim is to defend and promote media freedom.

- Headquartered in Paris, it has consultative status with the United Nations.
- The objective of the World Press Freedom Index, which it releases every year, "is to compare the level of press freedom enjoyed by journalists and media in 180 countries and territories" in the previous calendar year.
- RSF defines press freedom as "the ability of journalists as individuals and collectives to select, produce, and disseminate news in the public interest independent of political, economic, legal, and social interference and in the absence of threats to their physical and mental safety".

Concerns:

- The Indian Women's Press Corps, the Press Club of India, and the Press Association released a joint statement voicing their concern over the country's dip in the index.
- The constraints on press freedom due to hostile working conditions like contractorisation have to also be challenged. Insecure working conditions can never contribute to a free press.

KARNATAKA MOST INNOVATIVE STATE IN MANUFACTURING FOLLOWED BY TELANGANA, FINDS GOVT SURVEY

Why in news?

- Recently, the National Manufacturing Innovation Survey (NMIS) 2021-22 was released.

Details:

- The survey was conducted by the government's Department of Science and Technology in collaboration with the United Nations Industrial Development Organisation (UNIDO) on the level of innovation in manufacturing in India.
- It has carried out its survey across over 8,000 firms in 28 states and 6 Union Territories (UTs), covering manufacturing and related service sector and MSMEs.

Key Highlights:

- It has found that the state of Karnataka is not only the most innovative in its manufacturing sector but also has the highest number of companies in manufacturing that carry out innovations.

- It also found that innovation in manufacturing is the lowest in the Northeastern states (excluding Assam), followed by Bihar.
- DST ranked Karnataka, followed by Telangana, Tamil Nadu, Maharashtra, and Haryana as high innovation states.
- Uttarakhand has the highest score among the hill states, while Dadra and Nagar Haveli and Daman and Diu has the highest score among the UTs.
- Apart from Northeastern states, low-performing states include Jharkhand, Odisha and Andhra Pradesh. Andhra Pradesh is one of the lowest-ranking states despite being next to Telangana, and that's because Hyderabad is now in Telangana.

Innovative firms:

- The report states that only 25.01 per cent of the 8,074 firms surveyed were considered innovative. Telangana, Karnataka, and Tamil Nadu had the highest share of innovative firms at 46.18 per cent, 39.10 per cent and 31.90 per cent, respectively, among the total manufacturing firms surveyed from the respective states.
- Odisha, Bihar, and Jharkhand reported the least share of innovative firms at 12.78 per cent, 13.47 per cent and 13.71 per cent, respectively.

Background:

- The Indian government first conducted the National Innovation Survey in 2011 which found that the role of innovations in creating a competitive advantage for firms was rather underdeveloped.
- In 2019, the Department of Science and Technology decided to follow up with a second nationwide innovation survey and assigned the innovation survey to the United Nations Industrial Development
- Organization (UNIDO), with a view to focus on manufacturing and associated services spread across large, medium, small, and micro-enterprises.

Way Forward:

- The survey have been carried out so that both the centre and state governments, as well as industry, can identify the gaps in manufacturing and remedy them to be able to compete on a global stage.
- A focus on innovation in manufacturing will also push India's ranking up in the Global Innovation Index. India ranked 40 out of 132 countries on the Index in 2022.

INDIA'S 1ST GREEN CREDIT SCHEME TO REWARD ECO-FRIENDLY ACTIONS BY INDIVIDUALS, INDUSTRIES

Why in news?

- After Union Finance Minister's announcement in the 2023-24 Budget, the Ministry of Environment, Forest and Climate Change (MoEFCC) has readied the

draft contours for rolling out India's first Green Credit Programme (GCP).

⤷ Aimed at incentivising voluntary environmental actions, the green credits will be tradable on a proposed domestic market platform.

Implementation:

⤷ The MoEFCC has proposed that a steering committee headed by the environment secretary and comprising officials from concerned ministries or departments, domain experts and industry associations will govern the implementation of GCP.

Activities included:

⤷ The Ministry has identified eight select activities under the Environment (Protection) Act for which green credit can be earned.

⤷ These include
  a) tree plantation;
  b) water conservation, water harvesting and water use efficiency/savings;
  c) promoting natural and regenerative agricultural practice;
  d) waste management;
  e) air pollution reduction;
  f) mangrove conservation and restoration;
  g) ecomark-based green credit; and
  h) construction of buildings and other infrastructure using sustainable technology and material.

⤷ Individuals, private sectors, industries, farmer groups, forest enterprises, urban local bodies (ULB), zila and gram panchayats can earn green credit for undertaking these specified activities.

⤷ In case of violation of the provisions contained in the notification, these entities will also have to pay environmental compensation.

How it will work?

⤷ The GCP administrator will collect the environmental compensation and deposit it in a separate dedicated account.

⤷ This fund shall be utilised for taking measures for market stabilisation along with other activities related to the implementation of GCP, as approved by the steering committee.

⤷ There will be a monetary value put to each green credit.

⤷ The green credits can be bought by environment-conscious companies or industries wanting to avail loan at a cheaper rate of interest for undertaking environment-friendly interventions. The trading platform will connect all players, who are suppliers of green credit.

⤷ Thresholds and benchmarks will be developed for each green credit activity/process for generating and issuance of green credit.

⤷ Allocation of one unit of GC in respect of each activity will be determined based on the environmental outcome achievable, equivalence of resource requirement, parity of scale, scope, size and other relevant parameters.

⤷ The government will also develop and establish digital processes for the GCP, including self-assessment of eligible green credit activities, registration of projects, issuance of green credits and monitoring performance.

Role of steering committee:

⤷ The steering committee will not only approve procedures for institutionalising the GCP, but also approve its rules and regulations and recommend to the central government for issuance of Green Credit Certificate.

⤷ It will also determine the type and amount of fees and charges for the purpose of meeting the cost and expense towards implementation of GCP.

Administrator:

⤷ The Indian Council of Forestry Research and Education (ICFRE) will be the administrator of GCP and will manage, monitor and operate the entire programme.

⤷ It will register the green credits and maintain records of all transactions and ensure that trade happens with requisite discipline.

⤷ The ICFRE will constitute technical or sectoral committees for each different activity to facilitate in developing methodologies and standards and processes for registration of GC projects and grant of GCs.

⤷ ICFRE will also issue guidelines for the establishment of the trading platform for the exchange of green credit certificates with the approval of the steering committee.

Trading platform:

⤷ The trading platform for the exchange of Green Credit Certificates shall be established by the Trading Service Provider accredited by the GCP administrator.

PMJJBY, PMSBY & APY COMPLETE 8 YEARS OF PROVIDING SOCIAL SECURITY COVER

Why in news?

⤷ Recently, three social security (Jan Suraksha) schemes; Pradhan Mantri Jeevan Jyoti Bima Yojana

(PMJJBY), Pradhan Mantri Suraksha Bima Yojana (PMSBY) and Atal Pension Yojana (APY), completed 8 years of providing social security cover.

Details:

- In order to ensure that the people from the unorganised section of the country are financially secure, the Government launched two insurance schemes; PMJJBY and PMSBY; and also introduced APY to cover the exigencies in the old age.
- PMJJBY, PMSBY and APY were launched by Prime Minister on 9th May, 2015 from Kolkata, West Bengal.

Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY)

- Scheme: PMJJBY is a one-year life insurance scheme renewable from year to year offering coverage for death due to any reason.
- Eligibility: Persons in the age group of 18-50 years having an individual bank or a post office account are entitled to enroll under the scheme. People who join the scheme before completing 50 years of age can continue to have the risk of life covered up to age of 55 years upon payment of regular premium.
- Benefits: Life cover of Rs. 2 Lakh in case of death due to any reason against a premium of Rs. 436/- per annum.
- Enrolment: Enrolments under the scheme can be done by visiting the branch/ BC point or website of the bank of the account holder or at the post office in case of post office savings bank account. The premium under the scheme is auto debited every year from the subscriber's bank account based on a one-time mandate from the account holder.
- Achievements: As on 26.04.2023, the cumulative enrolments under the scheme have been more than 16.19 crore and an amount of Rs. 13,290.40 crore has been paid for 6,64,520 claims.

Pradhan Mantri Suraksha Bima Yojana (PMSBY):

- Scheme: PMSBY is a one-year accidental insurance scheme renewable from year to year offering coverage for death or disability due to accident.
- Eligibility: Persons in the age group of 18-70 years having an individual bank or a post office account are entitled to enroll under the scheme.

- Benefits: Accidental death cum disability cover of Rs.2 lakh (Rs.1 lakh in case of partial disability) for death or disability due to an accident against a premium of Rs.20/- per annum.
- Enrolment: Enrolment under the scheme can be done by visiting the branch/ BC point or website of the bank of the account holder or at the post office in case of post office savings bank account. The premium under the scheme is auto debited every year from the subscriber's bank account based on a one-time mandate from the account holder.
- Achievements: As on 26.04.2023, the cumulative enrolments under the scheme have been more than 34.18 crore and an amount of Rs. 2,302.26 crore has been paid for 1,15,951 claims.

Atal Pension Yojana (APY):

Background:

- The Atal Pension Yojana (APY) was launched to create a universal social security system for all Indians, especially the poor, the under-privileged and the workers in the unorganised sector.
- It is an initiative of the Government to provide financial security and cover future exigencies for the people in the unorganised sector.
- APY is administered by Pension Fund Regulatory and Development Authority (PFRDA) under the overall administrative and institutional architecture of the National Pension System (NPS).
- Eligibility: APY is open to all bank account holders in the age group of 18 to 40 years who are not income tax payers and the contributions differ, based on pension amount chosen.
- Benefits: Subscribers would receive the guaranteed minimum monthly pension of Rs. 1000 or Rs. 2000 or Rs. 3000 or Rs. 4000 or Rs. 5000 after the age of 60 years, based on the contributions made by the subscriber after joining the scheme.

Disbursement of the Scheme Benefits:

- The monthly pension is available to the subscriber, and after him to his spouse and after their death, the pension corpus, as accumulated at age 60 of the subscriber, would be returned to the nominee of the subscriber.
- In case of premature death of subscriber (death before 60 years of age), spouse of the subscriber can continue contribution to APY account of the subscriber, for the remaining vesting period, till the original subscriber would have attained the age of 60 years.

Contribution by Central Government:

- The minimum pension would be guaranteed by the Government, i.e., if the accumulated corpus based on contributions earns a lower than estimated return on investment and is inadequate to provide the minimum guaranteed pension, the Central Government would fund such inadequacy.

- Alternatively, if the returns on investment are higher, the subscribers would get enhanced pensionary benefits.
- Payment frequency: Subscribers can make contributions to APY on monthly/ quarterly / half-yearly basis.
- Withdrawal from the Scheme: Subscribers can voluntarily exit from APY subject to certain conditions, on deduction of Government co-contribution and return/interest thereon.
- Achievements: As on 27.04.2023 more than 5 crore individuals have subscribed to the scheme.

HARIT SAGAR THE GREEN PORT GUIDELINES 2023 LAUNCHED

Why in news?

- To meet the larger vision of achieving Zero Carbon Emission Goal, Ministry of Ports, Shipping & Waterways has launched 'Harit Sagar' the Green Port Guidelines.

Details:

- Harit Sagar Guidelines - 2023 envisages ecosystem dynamics in port development, operation and maintenance while aligning with 'Working with Nature' concept and minimizing impact on biotic components of harbor ecosystem.
- It lays emphasis on use of Clean / Green energy in Port operation, developing Port capabilities for storage, handling and bunkering Greener Fuels viz. Green Hydrogen, Green Ammonia, Green Methanol / Ethanol etc.
- These Guidelines provides a framework for the Major Ports for drawing out a comprehensive action plan for achieving targeted outcomes in terms of quantified reduction in carbon emission over defined timelines, through focused implementation and close monitoring of Green Initiatives and to achieve Sustainable Developmental Goals (SDG).

Objective:

- The objective of guidelines is to minimize waste through Reduce, Reuse, Repurpose and Recycle to attain zero waste discharge from port operations and promote monitoring, based on Environmental Performance Indicators.
- This also covers aspects of National Green Hydrogen Mission pertaining to ports, development of green hydrogen facility, LNG bunkering, Offshore Wind Energy etc and provides provision for adopting global Green Reporting Initiative (GRI) standard.

'Sagar Shreshtha Samman' awards:

- The award for the best Absolute Performance for the year 2022-23 conferred to the Deendayal Port, Kandla for handling highest cargo of 137.56 MMT.
- The Jawaharlal Nehru Port received award for achieving major milestone in Turn Around Time while Paradip Port got performance shield on Ship Berth Day Output.
- The Kamarajar Port got recognized in pre-berthing detention time while Cochin Port received performance shield in turn-around-time (non-container port).
- The award for best incremental performance was bagged by Paradip Port for attaining the highest cargo growth rate of 16.56% last year. In the incremental category another award was conferred to Mormugao Port for best Ship Berth Day Output while award was conferred to Kamarajar Port for best Pre-Berthing Detention time.
- The award for the best port was conferred to Paradip Port on overall annual performance based upon cargo handling, average turnaround time, ship birthday output, and idle time at berth, operating ratio, pre berthing detention.

NEW GST COMPLIANCE MEASURES

Why in news?

- In two significant measures to curb tax evasion and increase compliance under the Goods and Services Tax (GST) regime, the government has decided to lower the threshold for businesses to generate e-invoice for business-to-business (B2B) transactions, from Rs 10 crore to Rs 5 crore, and has rolled out the automated return scrutiny module for GST returns in a backend application for central tax officers.
- Amid rising instances of GST frauds and cases of fake invoices, these changes are expected to broaden the

compliance mandate for more businesses, especially small and medium enterprises and also help boost the GST revenue collections.

What is the automated return scrutiny module?

- It will enable the officers to scrutinise GST returns of centre-administered taxpayers selected on the basis of data analytics and risks identified by the system.
- Discrepancies on account of risks associated with a return will be displayed to the tax officers.
- They will interact with the taxpayers through the GSTN common portal for communication of discrepancies noticed in returns and subsequent action in form of either issuance of an order of acceptance of reply or issuance of show cause notice or initiation of audit/investigation.
- The automated return scrutiny module has already commenced with the scrutiny of GST returns for FY 2019-20, with the requisite data already with the tax officers.

What are the changes for e-invoicing?

- The government has also lowered the threshold for businesses to generate e-invoice for business-to-business (B2B) transactions to Rs 5 crore from Rs 10 crore under GST. The changes will come into effect from August 1.
- At present, businesses with turnover of Rs 10 crore and above are required to generate e-invoice for all B2B transactions.

What does the e-invoicing envisage?

- The GST Council in its 37th meeting in September 2019 had approved the standard of e-invoice with the primary objective to enable interoperability across the entire GST ecosystem.
- Under this, a phased implementation was proposed to ensure a common standard for all invoices, that is, an e-invoice generated by one software should be capable of being read by any other software and through machine readability, an invoice can then be uniformly interpreted.
- With a uniform invoicing system, the tax authorities are able to pre-populate the return and reduce the reconciliation issues.
- E-invoicing was initially implemented for large companies with turnover of over Rs 500 crore, and within three years the threshold has now been lowered to Rs 5 crore.

Way Forward:

- While the reduction in the e-invoicing threshold is seen as an important factor for boosting GST revenue collections and checking frauds, it will also increase compliance requirements for smaller businesses.

BHOPAL BECOMES FIRST INDIAN CITY TO TRACK PROGRESS TOWARDS MEETING SDGS

Why in news?

- Bhopal in Madhya Pradesh has become the first city in India to adopt the localisation of the United Nations-mandated sustainable development goals (SDG).
- It will now have voluntary local reviews (VLR) demonstrate local government's capacity and commitments.

Details:

- Recently, the Chief Minister launched an 'Agenda for Action: Sustainable Urban Transformation in Bhopal'.
- The SDGs localisation is translating the agenda, Transforming our world: the 2030 Agenda for Sustainable Development (known as Agenda 2030), into local actions and impacts that contribute to the global achievement of the goals.

Voluntary Local Reviews (VLR):

- Bhopal's VLR is the result of a collaboration between the Bhopal Municipal Corporation, UN-Habitat and a collective of over 23 local stakeholders to measurably demonstrate the city's aspirations for a sustainable and inclusive urban transformation.
- It incorporated a mix of quantitative and qualitative approaches to the review of SDGs, with qualitative mapping of 56 developmental projects.

Agenda 2030:

- In 2015, all 193 member states of the UN adopted the Agenda 2030, comprising 17 SDGs and 169 targets as a plan of action for people, planet and prosperity.
- The member states report their progress towards achieving the goals through a voluntary national review (VNR) to UN's high-level political forum (HLPF).
- Local and regional governments are increasingly engaging in their own subnational reviews, so-called VLRs, which have proven useful for cities and regions, according to the UN.
- Unlike the VNRs, local reviews do not directly have an official basis in the 2030 Agenda or other intergovernmental agreements, even though the 2030 Agenda underlines in several places the importance of governments working closely with regional and local authorities on its implementation.

➲ Cities and regions have a pivotal role in achieving Agenda 2030 as at least 60 per cent of the 169 targets could not possibly be achieved.

Outcome:

➲ VLRs have emerged as a powerful tool that forefronts local action.

➲ New York City became the first city to present its VLR to the HLPF in 2018. By 2021, some 33 countries had made 114 VLRs or similar review documents publicly available.

WHY ARE FINANCIAL REGULATORS TRANSITIONING FROM LIBOR?

Why in news?

➲ Recently, the RBI stated that some banks and financial institutions were yet to facilitate an absolute transition away from the London Interbank Offered Rate (LIBOR) benchmark.

➲ They had not inserted fallback clauses into all their financial contracts that reference U.S.$ LIBOR or the corresponding domestic Mumbai Interbank Forward Outright Rate (MIFOR).

➲ Both LIBOR and MIFOR would cease to be a representative benchmark from June 30, 2023.

What is LIBOR?

➲ LIBOR is a global benchmark interest rate that combines individual rates at which banks opine they may borrow from each other (for a particular period of time) at the London interbank market.

➲ It is used as a benchmark to settle trades in futures, options, swaps and other derivative financial instruments in over-the-counter markets (participants engaging directly without using an exchange) and on exchanges globally.

➲ Further, consumer lending products including mortgages, credit cards and student loans, among others, too use it as a benchmark rate.

How it works?

➲ Every business day before 11 a.m. (London time), banks on the LIBOR panel make their submissions to news and financial data company, Thomson Reuters.

➲ The panel consists of commercial bankers such as J.P. Morgan Chase (London branch), Lloyds Bank, Bank of America (London branch), Royal Bank of Canada and UBS AG, among others. Following the submission, the contributed rates are ranked.

➲ Extreme quartiles, on the top and bottom, are excluded and the middle quartiles are averaged to derive the LIBOR. The idea is to be as close to the median as possible.

What was the controversy around it?

➲ The central flaw in the mechanism was that it relied heavily on banks to be honest with their reporting disregarding their commercial interests.

➲ The rates were made public. Therefore, it would not be particularly useful to impress upon potential and current customers the various disadvantages in obtaining funds. The phenomenon was particularly on display during the 2008 financial crisis when submissions were artificially lowered (amid the crisis).

➲ In 2012, Barclays admitted to the misconduct and agreed to pay $160 million in penalties to the U.S. Dept of Justice.

➲ The Wall Street Journal too had studied in May 2008 that several panelists were paying "significantly lower borrowing costs" than what other market measures were suggesting.

➲ Another observed phenomenon was the tendency to alter (higher or lower) the submission as per the entities' trading units' derivative positions to acquire more profits.

SOFR:

➲ In 2017, the U.S. Federal Reserve announced the Secured Overnight Financing Rate (SOFR) as a preferred alternative.

➲ Accordingly, in India, new transactions were to be undertaken using the SOFR and the Modified Mumbai Interbank Forward Outright Rate (MMIFOR), replacing MIFOR.

➲ It is based on observable repo rates, or the cost of borrowing cash overnight, which is collateralised by U.S. Treasury securities.

➲ Thus, making it a prevailing transaction-based rate and drifting away from the requirement of an expertise judgement as in LIBOR. This would make it potentially less prone to market manipulation.

How India is responding to the regime change?

➲ The RBI had stated in its November 2020 bulletin that, in India, exposures to LIBOR are from loan contracts linked to it and Foreign Currency Non-Resident Accounts (FCNR-B) deposits with floating rates of interest and derivatives.

➲ In August 2020, it had asked banks to assess their LIBOR exposures and prepare for the adoption of alternative references rates. Contracts entered after (or before, if possible) December 31, 2021, were not to use the LIBOR as reference rate.

➲ More importantly, contracts entered before the date were to have fallback clauses, that is, an agreement for revised considerations when the reference rate is no more published, important for transparency and consistency.

WHAT ARE RBI REGULATIONS ON GREEN DEPOSITS?

Why in news?

➲ Recently, the Reserve Bank of India (RBI) came up with a regulatory framework for banks to accept green deposits from customers.

Under the new framework, banks that accept green deposits will have to disclose more information on how they invest these deposits.

What are green deposits?

- Green deposits are not very different from the regular deposits that banks accept from their customers. The only major difference is that banks promise to earmark the money that they receive as green deposits towards environment-friendly projects.
- For example, a bank may promise that green deposits will be used towards financing renewable energy projects that fight climate change. A bank may also avoid using green deposits to invest in fossil fuel projects that are considered harmful to the climate.
- A green deposit is just one product in a wide array of other financial products such as green bonds, green shares, etc., that help investors put money into environmentally sustainable projects.

What does the RBI's regulatory framework say?

- The RBI's framework for the acceptance of green deposits lays down certain conditions that banks must fulfill to accept green deposits from customers.
- Firstly, banks will have to come up with a set of rules or policies approved by their respective Boards that need to be followed while investing green deposits from customers.
- These rules need to be made public on the banks' websites and banks will also have to disclose regular information about the amount of green deposits received, how these deposits were allocated towards various green projects, and the impact of such investments on the environment.
- A third-party will have to verify the claims made by banks regarding the projects in which the banks invest their green deposits as well as the sustainability credentials of these business projects.
- The RBI has come up with a list of sectors that can be classified as sustainable and thus eligible to receive green deposits. These include renewable energy, waste management, clean transportation, energy efficiency, and afforestation.
- Banks will be barred from investing green deposits in business projects involving fossil fuels, nuclear power, tobacco, gambling, palm oil, and hydropower generation.

The new rules are aimed at preventing greenwashing, which refers to making misleading claims about the positive environmental impact of an activity.

Will green deposits help depositors/investors and the environment?

- Depositors who care about the environment may get some satisfaction from investing their money in environmentally sustainable investment products. However, there are challenges, for the range of projects in which green funds can be invested by the bank is limited by design.
- When it comes to protecting the environment, green investing enthusiasts believe that putting money into green projects may be one of the best ways to help the environment.
- Critics, however, argue that green investment products are often just a way to make investors feel good about themselves and that these investments don't really do much good to the environment.

S&P AFFIRMS INDIA SOVEREIGN RATING AT BBB, WITH STABLE OUTLOOK

	FY23	FY24	FY25	FY26	FY27
Real GDP (YoY in %)	7.0	6	6.9	6.9	7.1
Debt (as % of GDP)*	84.4	84.9	84.1	83.8	83.1
Retail inflation (YoY in %)	6.8	5.0	4.3	4.4	4.7
Fiscal deficit (as % of GDP)*	10.0	8.9	8.1	7.6	7.3
Investment (as % of GDP)	32.3	31.4	31.5	31.0	30.5
Exports (as % of GDP)	22.6	21.8	21.8	21.3	21
CAD (as % of GDP)	2.9	2.2	1.5	1.6	1.6

Note: S&P forecasts (except FY23); *Figures for Centre+states   Source: S&P

Why in news?

- S&P Global Ratings recently affirmed India's sovereign rating at 'BBB' for the long term and 'A-3' for the short term, with a stable outlook, as sound economic fundamentals were expected to underpin growth over the next two to three years.

Key Highlights:

- S&P expects India to register a real growth rate of 6 per cent in 2023-24, with investments and consumer momentum helping growth prospects over the next few years, as the country is expected to grow at 6.9 per cent in 2024-25 and 2025-26.
- Though wary of the country's public finances, it expressed its confidence in India's strong growth in capital expenditure (capex) allocations, which might boost the quality of the government's fiscal programmes.
- It said fiscal consolidation in India, despite strong revenue gains, had been behind regional peers with similar rating levels. But it expected the central government to gradually pare down its sizeable

deficits over the next few years to about 7.3 per cent of gross domestic product (GDP) by 2026-27.

➲ S&P forecast overall net general government debt stabilising just below 85 per cent of GDP over the next three years, which would be higher than the pre-pandemic level of 75 per cent of GDP but well below the pandemic peak of over 90 per cent.

UNDESA report:

➲ Earlier, the United Nations Department of Economic and Social Affairs (UNDESA), in its mid-year update to its World Economic Situation and Prospects report, retained its growth forecast for India at 6.7 per cent for calendar year 2024.

➲ India's economy is expected to expand by 5.8 per cent in 2023 and 6.7 per cent in 2024, supported by resilient domestic demand. As the (South Asian) region is highly vulnerable to extreme climate conditions; potential droughts and floods also pose a significant risk to the economic outlook.

Fitch Ratings:

➲ Earlier, Fitch Ratings had also reiterated its lowest investment grade rating 'BBB-' with a stable outlook for India's long-term sovereign debt, saying growth prospects in India had brightened as the private sector appeared poised for stronger investment growth.

➲ It had said that India would be one of the fastest-growing sovereigns globally, with a forecast of 6 per cent GDP growth for 2023-24, supported by resilient investment prospects.

➲ It said there were headwinds from elevated inflation, high interest rates, and subdued global demand, along with fading pandemic-induced pent-up demand.

OPEN NETWORK FOR DIGITAL COMMERCE

Why in news?

➲ The Union government is looking to formally launch the Open Network for Digital Commerce (ONDC) this year to "democratise e-commerce" and "to provide alternatives to proprietary e-commerce sites".

➲ While it has urged companies to join the ONDC platform, major e-commerce players such as Amazon and Flipkart have been reluctant to get on board.

What is the ONDC?

➲ The government wants to change the fundamental structure of the e-commerce market from the current "platform-centric model to an open-network model". The ONDC is modelled after the Unified Payments Interface (UPI) project that is seen as a success by many.

➲ The UPI project allows people to send or receive money irrespective of the payments platforms on which they are registered. Similarly, the government wants to ensure that buyers and sellers of goods in the e-commerce market can transact regardless of the platforms on which they are registered.

➲ So under ONDC, a buyer registered on Amazon, for example, may directly purchase goods from a seller who sells on Flipkart. To make such transactions a reality, the government has ordered companies to list themselves on the ONDC.

➲ The pilot version of ONDC was launched in 2021 in a few major cities and thousands of sellers have already been on-boarded onto the platform. Amazon and Flipkart, however, have not on-boarded their main shopping platforms onto the ONDC network yet.

Why is the Centre pushing for it?

➲ The government believes that the ONDC will put an end to the domination of the e-commerce market by a few large platforms. It says that the e-commerce market is currently broken into "silos" operated and dominated by private platforms.

➲ Amazon and Flipkart, for instance, have been accused of promoting certain seller entities in which they hold indirect stakes. Food delivery apps such as Swiggy and Zomato have also been accused of charging high commissions from sellers.

➲ With an open network like ONDC that connects buyers and sellers across platforms, the government hopes to level the playing field and make private platforms redundant.

What lies ahead?

➲ The capacity of the government's technocrats to come up with an efficient alternative to e-commerce platforms that can work seamlessly will be tested as the government rolls out the ONDC. It remains to be seen if and how the government's open network will list products offered by various sellers.

➲ Competition generally pushes e-commerce platforms to prominently list products that are most likely to catch the fancy of buyers. Their on-boarding and listing of sellers is also heavily influenced by the ability of sellers to fulfil customer orders.

➲ In fact, platforms may invest money to build exclusive on-boarding and listing processes. If the open network's rules prevent platforms from benefiting from such investments, they may cease to make them anymore.

➲ This will eventually affect the quality of services available to consumers. Building an efficient marketplace for the sale of goods and services may turn out to be the key challenge for ONDC.

INTERNAL SECURITY

MINIMISING THE THREAT FROM IEDS

Context:

➲ Why are improvised explosive devices potent tools in the hands of militants? What can be done beyond standard operating procedures to take on terrorists in Kashmir or Maoists in central India?

Recent incidents:

➲ On May 5, five soldiers were killed and another was injured in a gunfight with militants in the Rajouri-Poonch sector of Jammu division.The gunfight broke out after an explosive device was triggered.

➲ On April 26, an IED (improvised explosive device) killed 10 security personnel of the District Reserve Guard in Chattisgarh's Dantewada area. The jawans were out on an anti-Maoist mission when they were ambushed.

Were any tactical mistakes made?

➲ Militants, whether they are the Lashkar-e-Taiba in Kashmir or the Maoists in central India, have the 'first mover advantage', on triggering a landmine or an IED on a mobile Army vehicle or opening burst fire with an AK- 47 on a static CRPF sentry post.

➲ In all such scenarios, particularly in landmine/IED ambushes, the reaction or the response time available for what is called "Immediate Action (IA) or Counter Ambush drill" is a few seconds, and that too, if a few of the security personnel are lucky enough to survive the initial IED ambush.

➲ Hence, all standard operating systems and procedures, technological measures etc. are directed towards identification and detection of IEDs/landmines and to avoid being caught in them.

How can errors be minimised?

➲ The first thing that must be kept in mind is to avoid travel by vehicle. The safest mode of travel is on foot in a region where left-wing extremism is active.

➲ Studies show that over 60% of casualties/fatalities in Maoist territories are because of vehicles ambushed in landmines/IEDs, as also seen in the recent Chhattisgarh incident.

➲ Routine operations like area domination, cordon-and-search, long range patrolling, ambush-cum-patrolling and so forth should only be undertaken on foot. Vehicle travel should be undertaken rarely and that too, only for urgent operational reasons, after exercising due diligence.

➲ If vehicle travel is absolutely essential, the onward and return journeys should never be by the same route, nor undertaken during the day time.

➲ Maoists, to avoid the risk of civilian casualties, neither trigger IEDs during night time, nor use anti-personnel/pressure induced mines.

Will moving around in camouflage help?

➲ Stealth, camouflage and concealment are integral to anti-terrorist operations.

➲ Olive green vehicles of the Army and light green vehicles of the CRPF are easily identified from a distance, giving adequate time and opportunity to terrorists to organise an IED ambush.

➲ If vehicle travel is absolutely essential, security forces are expected to take civilian or State Road Transport Corporation buses. To avoid easy identification, they must travel with civilians in mufti with weapons carefully concealed.

What about armoured vehicles and other protective gear?

➲ In certain war zones, vehicular deployment is inevitable. Security forces working in such areas should be equipped with appropriate protective gear, such as blast-resistant clothing, helmets, and eye protection.

➲ Their vehicles should also be equipped with V-shaped and armour-plated hull, blast-resistant technology and proper sandbagging to minimise damage in the event of an explosion.

➲ Machine guns and other weapons should be mounted on top of the vehicles with outward facing rotatory seats, from where the men can have a 360-degree observation outside.

➲ Also, security forces should always travel in a convoy of minimum two to three vehicles, maintaining a distance of at least 40 to 50 metres between them, so that even if one vehicle is caught in a landmine, the personnel in other vehicles are able to take positions and neutralise the threat.

How can a region be made safe for travel?

➲ Rigorous and regular implementation of various detection methods, such as metal detectors, ground-penetrating radar, and trained sniffer dogs, to locate and clear landmines and IEDs, is essential.

➲ Road opening parties play an important role in detection of ambushes. Aerial surveillance carried out

through drones and road opening parties equipped with UGVs (Unmanned Ground Vehicles).

➲ Based on the above inputs, areas known or suspected to contain landmines or IEDs can be mapped and contingency plans prepared for them. This includes establishing safe routes, setting up checkpoints, and creating evacuation plans as part of both preventive and mitigation measures.

What can be learnt from an explosion?

➲ An IED ambush is not an insular, standalone event. There is a whole ecosystem behind it, comprising of financiers, suppliers, transporters, builders and triggermen.

➲ It is pertinent to mention here that in just one year alone (2008-9) in Afghanistan, the U.S. forensic investigation teams picked up a mindboggling 5,000 finger prints from the remnants of IEDs and explosives, recovered from the scenes of bomb blasts.

➲ This enabled identification and detection of hundreds of suspects and accomplices involved in IED ambushes.

➲ Diligent and scientific investigation, establishment of linkages through meticulous collection and marshalling of evidence, framing of chargesheets, followed by speedy trials and conviction, serve as a strong deterrent to terrorism.

What are some of the other measures that need to be undertaken?

➲ Several measures need to be undertaken at the government level, both at the Centre and States.

➲ These include collaboration with international organisations, NGOs, and other countries to share information, resources, and best practices for landmine and IED prevention, detection, and clearance; implementation and enforcement of national and international laws, policies, and regulations aimed at preventing the use, production, and trade of landmines and IEDs.

➲ Legislative measures are required for mandatory addition of odoriferous chemicals and/or biosensors to explosives used in industry and mining etc. for their easy detection during transport.

➲ Likewise, legislative measures are required for stricter controls on manufacture, supply and sale of explosives and detonators. Other countries have taken several counter-IED measures spending billions.

➲ The U.S., for example, set up the Joint Improvised-Threat Defeat Organization to "prevent, identify and defeat IEDs" and has spent about $20 billion on counter IED measures since 2005.

➲ NATO's Counter-IED Centre of Excellence is based in Madrid; a small unit exists in India under the National Security Guard.

Way Forward:

➲ But given that IEDs have been causing major setbacks to fighting militants in India, it is high time that an overarching agency is created under the Ministry of Home Affairs to coordinate the efforts of both the Government of India and the State governments, and to provide legislative, technological and procedural support to law enforcement agencies.

COMMON UNIFORMS AT HIGHER RANKS OF THE ARMY

Why in news?

➲ A decision has been taken at the recent Army Commanders Conference that from August 1, all officers of the rank of Brigadier and above; Major Generals, Lieutenant Generals, and General will wear common uniform items irrespective of their regimental or corps affiliation.

How will the uniforms worn by these senior Army officers change?

➲ All officers of the rank of Brigadier, Maj General, Lt General, and General will now wear berets (caps) of the same colour, common badges of rank, a common belt buckle, and a common pattern of shoes.

➲ They will no longer wear regimental lanyards (cords) on their shoulders. They will also not wear any shoulder flashes like 'Special Forces', 'Arunachal Scouts', 'Dogra Scouts', etc.

➲ Thus, there will be no item of uniform that will identify them as belonging to a particular Regiment or Corps. All officers of these higher ranks will dress alike in the same pattern of uniform.

What is the present position on wearing such items in the Army?

➲ As of now, all officers from the rank of Lieutenant to General wear uniform accoutrements (additional items of dress or equipment) as per their regimental or corps affiliation.

➲ Therefore, Infantry officers and Military Intelligence officers wear dark green berets; armoured corps officers wear black berets; Artillery, Engineers, Signals, Air Defence, EME, ASC, AOC, AMC, and some minor corps officers wear dark blue berets; Parachute Regiment officers wear maroon berets; and Army Aviation Corps officers wear grey berets.

- The ceremonial headgear also varies — while most Infantry regiments, Armoured Corps regiments, and other arms and services have a peak cap with the regimental badge, the Gorkha Rifles regiments, Kumaon Regiment, Garhwal Regiment, and Naga Regiment officers wear a kind of slouch hat which is called Terai Hat or Gorkha Hat colloquially.
- Each Infantry Regiment and Corps has its own pattern of lanyard which they wear around the shoulder and which tucks into the right or left shirt pocket as the tradition may be.
- The badges of rank also differ — the rifle regiments wear black coloured badges of rank, while some regiments wear gilt and silver coloured badges. There are different coloured backings, which are worn with these badges of rank as per individual traditions and customs of the Regiment or Corps.
- The buttons on the uniform also vary in accordance with the regimental tradition. The rifle regiments wear black buttons while officers of the Brigade of The Guards wear golden buttons.
- The belt has varied buckles as per regimental traditions, and each carries its own crest.

So what is the reason for making the change?

- Regimental service in the Army ends at the rank of Colonel for most officers who rise further. Thus, all uniform affiliations with that particular Regiment or Corps must also end at that rank, so that any regimental parochialism that may exist is not promoted to the higher ranks.
- Since appointments at higher ranks can often mean commanding troops of mixed regimental lineage, it is only appropriate that the senior officers commanding these troops should present themselves in a neutral uniform rather than a regimental one.

Is this the first time that this is being done?

- In fact, the Army is now reverting to the practice that was followed almost 40 years ago, when the changes towards wearing regimental affiliations took hold in the service.
- Until about the mid-1980s, the regimental service was till the rank of Lt Colonel. Officers of the rank of Colonel and above had common uniform patterns and insignia. Colonels and Brigadiers shed their regimental insignia and wore the Ashoka emblem on their cap badges. The colour of beret was khaki.
- However, a decision was taken in the mid-1980s to upgrade the command of a Battalion or Regiment to the rank of Colonel. Thus, Colonels again started wearing the regimental insignia.
- In addition, Brigadiers were allowed to wear the cap badge of General officers which comprises crossed sword and baton with a wreath of oak leaves.

What is the tradition in other armies?

- In the British army, from where the Indian Army derives its uniform pattern and associated heraldry, the uniform worn by officers of the rank of Colonel and above is referred to as the Staff uniform, to distinguish it from the Regimental uniform.
- The wearing of any item of Regimental uniform, particularly headdress, with the Staff uniform is not authorised.
- Among neighbouring countries, the Pakistan and Bangladesh armies follow the same pattern as the British army. All regimental uniform items are discarded beyond the rank of Lt Colonel. All officers of the rank of Brigadier and above wear similar pattern uniforms.

UK TO GIVE LONG RANGE STORM SHADOW CRUISE MISSILES TO UKRAINE

Why in news?

- The United Kingdom will provide long-range Storm Shadow cruise missiles to Ukraine, which it has been requesting in a bid to push back invading Russian forces.

Details:

- Ukraine has so far received a wide variety of weapons and ammunition, including anti-tank missiles, anti-aircraft systems and artillery, since Russia invaded it in February 2022.
- The Storm Shadow missiles, each costing around £2 million, will give Ukrainian forces the ability to strike Russian military targets located well behind the front lines; especially in Crimea, which Moscow illegally occupied in 2014.

What are the capabilities of long-range Storm Shadow cruise missiles?

- Storm Shadow is a long-ranged, air-launched, conventionally armed, deep-strike missile, which is manufactured by the France-based MBDA Missile Systems.
- It was first produced after the "UK Ministry of Defence (MoD) placed a €1.13bn contract with MBDA Systems for the development and production of the Storm Shadow long-range missile in 1997.
- France also commissioned MBDA to develop and manufacture Storm Shadow for its forces in 1997.

⮕ With a range of more than 250 km, Storm Shadow weighs 1,300 kg and is 5.10m long.

Key features:

⮕ It's capable of being operated day and night in all weathers and designed to destroy high-valued stationary targets such as airbases, radar installations, communications hubs and port facilities.

⮕ Storm Shadow, equipped with the fire and forget technology, also offers high precision deep strike capability as it features a sophisticated navigation system that includes inertial navigation (INS), global

⮕ The missile features the BROACH (Bomb Royal Ordnance Augmented CHarge) warhead, a high-technology warhead, which first cuts the surface of the target, penetrates into it and then explodes.

Where has it been used?

⮕ Storm Shadow is operated from Eurofighter Typhoon, Rafale, Mirage 2000 and Tornado.

⮕ It is in service with the Royal Air Force, the French Air Force, the Italian Air Force and a number of export countries and has seen operational service in Iraq, Libya and Syria.

ENVIRONMENT

INDIA, CHINA PROPOSES ROADMAP FOR CARBON TRANSITION INSTEAD OF DEADLINE

Why in news?

⮕ India, backed by China, is trying to build a consensus within the G20 group to let countries choose a roadmap to cut carbon emissions instead of setting a deadline to end the use of fossil fuels.

Multiple pathways:

⮕ India is keen on introducing the phrase 'multiple energy pathways' in a communique to be released at a group summit in September and has been supported by countries including China and South Africa.

⮕ Multiple pathways for energy transition would enable countries to choose resources, even coal, while working towards plans on net zero emissions.

⮕ The phrase is in conformity with the 2015 Paris Agreement on combating climate change that favours "common but differentiated responsibilities, under different national circumstances".

Phasing coal use:

⮕ At a meeting of the G20 Energy Transitions Working Group (ETWG) in Gujarat, India opposed a deadline proposed by rich nations to end the use of coal.

⮕ Coal accounts for nearly three-fourths of India's annual electricity generation and India has long defended its use of the fuel, citing lower emissions per capita, compared to other countries.

⮕ China supported India during the meeting, saying it cannot put a timeline on ending fossil fuel dependence and would want to put 'all' its available resources to optimum use. The two countries are the top two consumers of coal in the world.

⮕ Climate ministers from the Group of Seven (G7) wealthy nations agreed recently to accelerate the phase-out of unabated fossil fuels so as to achieve net zero in energy systems by 2050 at the latest.

Background:

⮕ Faced with calls to phase down the use of coal at the last climate change deliberations in Egypt in November 2022, India said all fossil fuels should be phased out including natural gas. At the recent G20 meeting, India kept the focus on fossil fuels, rather than singling out coal.

⮕ India and China, the world's two most populous countries, have often taken common positions at international climate change negotiations, despite long-standing border disputes.

⮕ In March, the European Union agreed to promote a global fossil fuel phase out ahead of the COP28 summit in Dubai in November.

What's next?

⮕ India will host a summit of G20 leaders, including U.S. President Joe Biden and Chinese President Xi Jinping, in September.

⮕ The G20 includes the G7 countries as well as Russia, China, India, Brazil, Australia and Saudi Arabia, among other nations.

SOME KEY TAKEAWAYS FROM THE PETERSBERG CLIMATE DIALOGUE

Why in news?

➮ Recently, the Petersberg Dialogue on Climate Change was held in Berlin from May 2-3, 2023.

Details:

➮ It was hosted by Germany and the United Arab Emirates, which is hosting the 28th Conference of Parties (COP28) to the United Nations Framework Convention on Climate Change.

➮ Ministers from 40 countries attended the conference to discuss the way forward towards COP28.

UN message:

➮ United Nations Secretary-General emphasised the need for "cleaning-up economies; breaking fossil fuel addiction and driving decarbonisation in every sector" to achieve a 1.5 degree global warming pathway.

➮ He also reiterated his earlier call for an Acceleration Agenda, where "all countries hit fast-forward on their Net Zero deadlines".

➮ The Agenda calls for coal phaseout by 2030 in Organisation for Economic Co-operation and Development countries, and by 2040 in all others, as well as achieving Net Zero electricity generation and decarbonising major sectors.

Key Highlights from the summit:

Global renewables target

➮ German Foreign Minister said that in order to limit global warming to 1.5°C, the world needs to make sharp cuts in their greenhouse gas emissions. She also initiated discussions around a potential global target for renewables at the next climate conference.

➮ G7 have set concrete targets for expanding wind and solar energy. The G7 consists of Germany, France, Italy, Japan, the United Kingdom, Canada and the United States.

Fossil fuels: Phaseout production or reduce emissions?

➮ COP28 President-Designate Sultan Ahmed Al Jaber called on meeting participants to ramp up renewable energy capacity building.

➮ He called for a tripling of renewable energy capacity by 2030 followed by a doubling in 2040, but his address focused on reducing fossil fuel 'emissions'.

On track for $100 billion climate finance

➮ The developed countries are "on good track" to deliver the $100 billion per year they had promised to mobilise by 2020 during the COP15 in 2009.

➮ A recent estimate pegs climate finance needs at $1 trillion per year by 2030 for emerging markets alone. This means that climate finance needs are more than 10 times the amount that developed countries have been able to mobilise, 14 years after committing to the $100 billion figure.

➮ Although the $100 billion pledge might have been met in 2023, the needs have now escalated. This underlines the urgent need for financial reparations.

Global Stocktake:

➮ 2023 is the year for the Global Stocktake, which is essentially a periodic review of global climate action which aims to assess whether current efforts will enable to reach the objectives set out in the Paris Agreement.

➮ This is the first Global Stocktake year since the Paris Agreement was signed in 2015 and the report has been underway for the past two years. It is set to be released in September of 2023.

➮ The outcome of the first Global Stocktake should seek to convey a message on sustainable lifestyles as well as sustainable consumption to inform the next round of Nationally Determined Contributions and enhanced international cooperation.

CAN LAND RESTORATION PROTECT THE EARTH?

Why in news?

➮ Humans have breached four out of nine planetary boundaries, the second edition of the Global Land Outlook report, published recently has reported.

➮ It was prepared by the United Nations Convention to Combat Desertification (UNCCD) and its partners and draws attention to the depletion of finite land resources and the need to urgently restore the world's land.

What are planetary boundaries?

➮ Planetary boundaries are the thresholds of environmental limits that define a "safe operating space for humanity". The nine planetary boundaries are:

1. Biodiversity loss
2. Land-use change
3. Climate change
4. Nitrogen and phosphorus (geochemical) cycles
5. Freshwater use
6. Ocean acidification
7. Chemical pollution
8. Atmospheric loading
9. Ozone depletion

- Of these, climate change, biodiversity loss, land-use change, and geochemical cycles have already been exceeded.
- According to the Global Land Outlook report, these breaches are directly linked to human-induced desertification, land degradation, and drought.

Can land restoration help the earth?

- The report defines land restoration as "a continuum of activities that avoid, reduce, and reverse land degradation with the explicit objective of meeting human needs and improving biosphere stewardship".
- Avoiding degradation means eliminating practices that degrade the environment, ranging from land and ecosystem conversion to socio-economic inequalities.
- Land degradation can be reduced by adopting sustainable land and water management practices, while reversing land degradation involves revitalising soil, watersheds, and other elements of natural ecosystems as well as improving livelihoods and preparing for future challenges, with the eventual goal of sustaining all life forms on the planet.
- Land is the operative link between biodiversity loss and climate change, which means restoring land is crucial to solving interconnected crises.

Land degradation neutrality:

- Experts believe that effective land restoration, coupled with efforts to meet future needs, is essential to recover from the current crises and move towards an equitable and sustainable future.
- The global annual cost of land restoration to achieve meaningful results is expected to become at least $300 billion by 2030. Each dollar invested in restoration activities has also been estimated to return between $7 and $30 in economic benefits.
- The U.N. General Assembly believes that achieving 'land degradation neutrality' is an effective way to accelerate progress towards achieving Sustainable Development Goals by 2030.
- The UNCCD defines 'land degradation neutrality' as "a state whereby the amount and quality of land resources necessary to support ecosystem functions and services and enhance food security remain stable or increase within specified temporal and spatial scales and ecosystems".

Food systems and land degradation:

- Agriculture has affected the earth more than any other human activity.
- It is not only the practice of growing food crops but also related activities like the production of animal feed, soil and water degradation, loss of forested land, and maintaining supply chains that connect producers to consumers.
- Worldwide, food systems are responsible for 80% of deforestation, and 70% of freshwater use, and are the single greatest cause of terrestrial biodiversity loss. The threats do not end here.

- Land degradation, desertification, and drought pose a great risk to global food security as well. Restoring long-term healthy practices and productivity within our agricultural practices will be the key to switch to sustainability in global food systems.

Achieving land restoration:

- In most cases, land restoration activities are the same as those required to prepare for future land challenges, like tackling drought, recovering soil health, etc.
- Floods, drought and wildfire are some common environmental challenges that degrade land.
- Integrated land use planning; identifying the best combination of land uses while both sustainably meeting the needs of the stakeholders as well as preserving the land resources is an efficient way to address land degradation.
- A cost-effective approach is to identify landscapes while maximising benefits, such as in global restoration hotspots.
- Regenerative agricultural practices, like terrace farming and rainwater harvesting, help restore land and can potentially increase crop yields while reducing greenhouse gas emissions and sequestering atmospheric carbon. They also create meaningful livelihoods, boost income, and ensure availability of resources in a healthy climate.

Way Forward:

- Land and ecosystem restoration will help slow global warming and reduce the scale and frequency of disasters like droughts, floods, etc.
- Inclusive and responsible governance is also crucial to facilitate the shift to sustainable land use and management practices, per the report.
- It characterised land restoration as a shared responsibility, and that governments, scientists, civil society, and private sector players need to work together to set land and ecosystem restoration goals that transform land-use systems.

A BREAK IN THE WESTERN GHATS

Context:

- Often called as a significant discontinuity in the Western Ghats, the Palghat Gap is about 40 km wide,

with the steep Nilgiris and Anamalai hills, both rising above 2,000 msl, on either side.

Significance of Palghat Gap:

➲ The Palghat Gap has historically been important as a significant gateway into the State of Kerala.

➲ It is a corridor for both roads and railways that connects Coimbatore with Palakkad. The Bharathappuzha River flows through it.

➲ In contrast to the tropical rainforests of the Western Ghats, the vegetation in the Palghat Gap is classified as dry evergreen forest.

➲ It also marks a divide in the flora and fauna of the region. For example, several species of frogs are found only on one side of the Palghat Gap.

Origin:

➲ The Gap is a geological shear zone that runs from east to west. Shear zones are weak regions in the earth's crust, this is the reason why tremors are sometimes felt in Coimbatore.

➲ The origin of the Palghat Gap also stems from the drift of continental shelves after Australia and Africa broke off from the Gondwana landmass.

➲ India and Madagascar remained as one landmass until large-scale volcanic activity split the two, the split occurring where the Palghat Gap is located, this is mirrored in the Ranotsara Gap on the eastern face of Madagascar.

➲ The landmass split about 100 million years ago, and the Gap had formed before this; although how long before is debated.

Biogeographic distinctions:

➲ It has been speculated that one reason for the biogeographic distinctions in species in north and south of the Gap could be due to an ancient river or an incursion of the sea in the distant past.

➲ Elephant populations on the Nilgiris side differ in their mitochondrial DNA from elephants in the Anamalai and the Periyar sanctuaries.

➲ One study from IISc Bangalore has analysed DNA sequence divergence data in populations of the White-bellied Shortwing, an endemic and threatened bird.

➲ Birds found around Ooty and Baba Budan are called the Nilgiri blue robin; the Anamalai group differs slightly in appearance, and is called the White-bellied blue robin.

South of the Gap:

➲ The biodiversity of a region is expressed in two ways: species richness, which relates to how many species are found in an ecosystem, and phylogenetic diversity, where one add up the evolutionary age of all the species found.

➲ Both these traits are abundant in the Western Ghats south of the Palghat Gap, as reported in a recent study by groups from the CCMB at Hyderabad and other institutions.

➲ There are over 450 species of trees here, including some such as Magnolia champaca (Champa; Tamil: Sambagan) that have been around for over 130 million years.

Weather:

➲ Warm weather due to proximity to the equator, and moist air brings plenty of rain to the southern Western Ghats. Therefore, this region has been an island refuge for all forms of life, even as cycles of ice ages and droughts have reduced biodiversity in surrounding areas.

➲ The Western Ghats in north of the Palghat Gap receive more rain annually, but the south gets rain more evenly throughout the year.

STUDY ON BUTTERFLIES MIGRATION OPENS DOOR FOR CONSERVATION

Why in news?

➲ A recent study by a team of researchers has shed light on the migration patterns of milkweed butterflies in southern India.

➲ It has the potential to contribute to the conservation of these butterflies and their migration in the face of ongoing changes in land use, habitat degradation, and climate warming.

Migration by milkweed butterflies:

➲ After southwest monsoon, milkweed butterflies migrate westward from the Eastern Ghats and plains to the Western Ghats, becoming active for more than two months upon their arrival.

➲ Between October and April, most of the milkweed butterflies in the Western Ghats congregate in large numbers at specific sites during winter and dry seasons. When the summer rain cools southern India, the butterflies migrate eastwards into the Eastern Ghats and the plains.

Key observations:

➲ The studies reveal that the wings of the majority of butterflies during their eastward journey are battered than that in the westward migration.

➲ Also, they found that the dominant species involved in the migration, Dark blue tiger and Double-branded crow, are not found breeding in the mid and high-

altitude evergreen and semi-evergreen forests of the Western Ghats.

➲ The adults of Dark blue tiger and Double-branded crow that arrived in the Western Ghats may be migrating reversely and breeding in the Eastern Ghats and the plains of southern India.

Vital role:

➲ The migration of milkweed butterflies also plays a vital ecological role during the migration. As pollinators, their movements can impact entire ecosystems. Their migration is threatened by habitat destruction and climate change.

➲ Studying their migration patterns and feeding habits can throw light on the interconnectedness of plant and animal life.

Way Forward:

➲ Unravelling the mysteries of their migration, can help protect these beautiful creatures and their ecosystems.

SEA BUTTERFLIES ARE THREATENED BY CLIMATE CHANGE

Why in news?

➲ The sea butterflies, a suborder of sea snails, are tiny creatures that play a big role in the marine ecosystem.

➲ But the smallest species in this group found in the Southern Ocean are extremely vulnerable to climate change and their population is shrinking in a warming world, according to a new study.

Characteristics:

➲ The shelled pteropods (group of free-swimming sea snails) live at or very close to the ocean surface.

➲ Like snails, they have muscular feet that they use as flappers to swim around in water, instead of glide on solid surface.

Threat:

➲ As the sea absorbs an increasing quantity of carbon dioxide (CO2) that turns the water more acidic, the thin outer casing, or the 'homes' of these small sea butterflies, dissolve. This leaves them exposed, making it difficult for these delicate species to survive.

➲ Their reduced population also impacts larger pteropods and other oceanic creatures that feed on them. The entire underwater food chain of the seas surrounding Antarctica may suffer as a ripple effect.

➲ But not all the shelled sea snails are impacted uniformly. This is because their life cycles are quite different.

Why L. retroversa is at higher risk?

➲ The scientists studied the shells of the two dominant pteropod species, Limacina rangii and Limacina retroversa.

➲ They found that the life cycles of the species are such that both juvenile and adult L. rangii were found during the winter months, while only adults of L. retroversa were observed in the cold season.

➲ The ocean is the most acidic in winter because cooler water absorbs more CO_2. This means, the winter months are the most dangerous for the shelled sea butterflies.

➲ But L. retroversa is at higher risk. The fact that L. rangii adults and juveniles coexist over winter may give them a survival advantage. If one cohort is vulnerable, the overall population stability is not at risk. With L. retroversa, however, if one cohort is removed, the whole population may be vulnerable.

➲ But neither species is entirely safe from the phenomenon if exposed for a longer time.

➲ As emissions rise, acidification of oceans intensify and extends to spring when the species spawn and they're in the larval stage. This can diminish the population that would otherwise develop into healthy adults.

Way Forward:

➲ They will now study the habitats in Scotia Sea to understand how sea butterflies are affected there. The findings can also inform studies on the impacts of ocean acidification on the marine ecosystem in general.

PLASTIC POLLUTION CAN BE REDUCED BY 80PERCENT BY 2040, UN LAYS OUT THE BLUEPRINT

Why in news?

➲ As the world continues to look for alternatives to plastic, a new report from the United Nations hints that countries can reduce plastic pollution by 80% by 2040 using existing technologies.

➲ The report is released ahead of a second round of negotiations in Paris on a global agreement to beat plastic pollution.

Circular Economy:

➲ The United Nations Environment Programme (UNEP) have looked at the solutions-focused analysis of concrete practices, market shifts, and policies to identify ways to reduce plastic pollution.

➲ The report outlines the magnitude and nature of the changes required to end plastic pollution and create a circular economy. The report focuses on three main market shifts needed to create a "circular" economy.

➲ It calls for eliminating problematic and unnecessary plastics to reduce the size of the problem and then make three market shifts; reuse, recycle, and reorient.

Potential:

➲ UNEP estimates that government promotion of reuse options like refillable bottle systems or deposit return schemes could reduce 30 per cent of plastic waste by 2040.

➲ It also says recycling could achieve an additional 20% by that year if "it becomes a more stable and profitable venture" and fossil fuel subsidies are removed, and that the replacement of products like plastic wraps and sachets with compostable materials could yield an additional 17 per cent reduction.

➲ The UNEP pointed out that the shift to a circular economy would result in $1.27 trillion in savings, considering costs and recycling revenues.

Recommendations:

➲ The report recommends that a global fiscal framework could be part of international policies to enable recycled materials to compete on a level playing field with virgin materials.

➲ UNEP said given the short timeline between now and 2040, "sub-optimal solutions" will need to be used to deal with that waste though further study was needed to weigh the impacts of increased greenhouse gas emissions or air toxics.

Way Forward:

➲ The treaty negotiations, known as INC2, will take place from May 29 to June 2 and are expected to result in key inputs for the first treaty draft, which needs to be done before the third round of negotiations in Kenya in November.

EU'S CARBON BORDER ADJUSTMENT MECHANISM

THE EU CARBON BORDER ADJUSTMENT MECHANISM: CHOOSING A MODEL FOR FAIRNESS

Why in news?

➲ Recently, co-legislators at the European Commission signed the Carbon Border Adjustment Mechanism (CBAM).

➲ It has been described as a "landmark tool" to put a "fair price on the carbon emitted during the production of carbon intensive goods that are entering the EU, and to encourage cleaner industrial production in non-EU countries."

What is the CBAM?

➲ Its primary objective is to avert 'carbon leakage'. It refers to a phenomenon where a EU manufacturer moves carbon-intensive production to countries outside the region with less stringent climate policies. In other words, replace EU-manufactured products with more carbon-intensive imports.

➲ From 2026, once the CBAM is fully implemented, importers in the EU would have to buy carbon certificates corresponding to the payable carbon price of the import had the product been produced in the continent, under its carbon pricing rules.

➲ Conversely, if a non-EU producer is paying a price (or tax) for carbon used to produce the imported goods, back home or in some other country, the corresponding cost would be deducted for the EU importer.

➲ The Commission, in coordination with relevant authorities of the member states, would be responsible for reviewing and verifying declarations as well as managing the central platform for the sale of CBAM certificates. Importers would have to annually declare by May-end the quantity and embedded emissions in the goods imported into the region in the preceding year.

➲ The idea here is to avert the possibility of carbon leakage alongside encouraging producers in non-EU countries to green their manufacturing processes. Moreover, it will ensure a level playing field between imports and EU products.

➲ This would also form part of the continent's broader European Green Deal which endeavours to achieve 55% reduction in carbon emissions compared to 1990 levels by 2030 and become a climate neutral continent by 2050.

Why are countries worried?

- CBAM would initially apply to imports of certain goods and selected precursors, whose production is carbon-intensive and are at risk of 'leakage' such as the cement, iron and steel, aluminium, fertilizers, electricity and hydrogen sectors.
- In 2021, the United Nations Conference on Trade and Development (UNCTAD) had concluded that Russia, China and Turkey were most exposed to the mechanism.
- Considering the level of exports to the union in these sectors, it stated India, Brazil and South Africa would be most affected among the developing countries. Mozambique would be the most exposed least-developing country.
- The countries in the EU combined represent about 14% of India's export mix for all products, steel and aluminium included.

Impact on India:

- India's exports in the five segments represented less than 2% of the total exports to the EU between 2019 and 2021. However, while the impact of the regulation may appear limiting, its long-term effects can be severe for multiple factors.
- EU being India's third largest trade partner and given the latter's projected growth trajectories, the size of exports (including in the CBAM sectors) will invariably rise.
- CBAM's scope would expand beyond its current ambit to include other sectors as well. "Given India's products have a higher carbon intensity than its European counterparts, the carbon tariffs imposed will be proportionally higher making Indian exports substantially uncompetitive.
- International climate policies (including CBAM) will compel other countries to impose similar regulation eventually translating to "a significant impact" on India's trading relationships and balance of payments.

SCIENCE & TECHNOLOGY

THE EU ARTIFICIAL INTELLIGENCE ACT
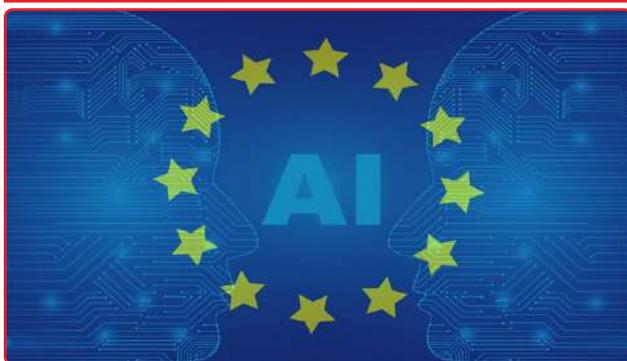
Why in news?

- Recently, European Parliament reached a preliminary deal on a new draft of the European Union's ambitious Artificial Intelligence Act, first drafted two years ago.

Why regulate artificial intelligence?

- As artificial intelligence technologies become omnipresent and their algorithms more advanced; the risks and uncertainties associated with them have also increased.
- Many AI tools are essentially black boxes, meaning even those who designed them cannot explain what goes on inside them to generate a particular output.
- Complex and unexplainable AI tools have already manifested in wrongful arrests due to AI-enabled facial recognition; discrimination and societal biases seeping into AI outputs; and most recently, in how chatbots based on large language models (LLMs) like Generative Pretrained Trasformer-3 (GPT-3) and 4 can generate versatile, human-competitive and genuine looking content, which may be inaccurate or copyrighted material.
- Recently, industry stakeholders including Twitter CEO Elon Musk and Apple co-founder Steve Wozniak signed an open letter asking AI labs to stop the training of AI models more powerful than GPT-4 for six months, citing potential risks to society and humanity.

How was the AI Act formed?

- The legislation was drafted in 2021 with the aim of bringing transparency, trust, and accountability to AI and creating a framework to mitigate risks to the safety, health, fundamental rights, and democratic values of the EU.
- It also aims to address ethical questions and implementation challenges in various sectors ranging from healthcare and education to finance and energy. The legislation seeks to strike a balance between promoting "the uptake of AI while mitigating or preventing harms associated with certain uses of the technology".
- Similar to how the EU's 2018 General Data Protection Regulation (GDPR) made it an industry leader in the global data protection regime, the AI law aims to "strengthen Europe's position as a global hub of excellence in AI from the lab to the market" and ensure that AI in Europe respects the 27-country bloc's values and rules.

What does the draft document entail?

- It identifies AI tools based on machine learning and deep learning, knowledge as well as logic-based and statistical approaches.
- The Act's central approach is the classification of AI tech based on the level of risk they pose to the "health and safety or fundamental rights" of a person.
- There are four risk categories in the Act — unacceptable, high, limited and minimal.

Prohibition:

- The Act prohibits using technologies in the unacceptable risk category with little exception.
- These include the use of real-time facial and biometric identification systems in public spaces; systems of social scoring of citizens by governments leading to "unjustified and disproportionate detrimental treatment"; subliminal techniques to distort a person's behaviour; and technologies which can exploit vulnerabilities of the young or elderly, or persons with disabilities.

High-risk category:

- The Act lays substantial focus on AI in the high-risk category, prescribing a number of pre-and post-market requirements for developers and users of such systems.
- Some systems falling under this category include biometric identification and categorisation of natural persons, AI used in healthcare, education, employment (recruitment), law enforcement, justice delivery systems, and tools that provide access to essential private and public services (including access to financial services such as loan approval systems).
- AI systems in the limited and minimal risk category such as spam filters or video games are allowed to be used with a few requirements like transparency obligations.

Conformity assessments:

- Before high-risk AI systems can make it to the market, they will be subject to strict reviews known in the Act as 'conformity assessments'; algorithmic impact assessments to analyse data sets fed to AI tools, biases, how users interact with the system, and the overall design and monitoring of system outputs.
- It also requires such systems to be transparent, explainable, allow human oversight and give clear and adequate information to the user.
- Moreover, since AI algorithms are specifically designed to evolve over time, high-risk systems must also comply with mandatory post-market monitoring obligations such as logging performance data and maintaining continuous compliance, with special attention paid to how these programmes change through their lifetime.

What is the recent proposal on general purpose AI like ChatGPT?

- As recently as February 2023, general-purpose AI such as the language model-based ChatGPT, used for a plethora of tasks from summarising concepts on the internet to serving up poems, news reports, and even a Colombian court judgment, did not feature in EU lawmakers' plans for regulating AI technologies.
- The bloc's 108-page proposal for the AI Act, published two years earlier, included only one mention of the word "chatbot."
- While the current draft does not clarify what obligations general-purpose artificial intelligence systems (GPAIS) like OpenAI's ChatGPT manufacturers would be subject to, lawmakers are also debating whether all forms of GPAIS should be designated as high-risk.
- The draft could be amended multiple times before it actually comes into force.

Where does global AI governance currently stand?

AIBoR:

- The U.S., currently does not have comprehensive AI regulation and has taken a fairly hands-off approach. The Biden administration released a blueprint for an AI Bill of Rights (AIBoR).
- Developed by the White House Office of Science and Technology Policy (OSTP), the AIBoR outlines the harms of AI to economic and civil rights and lays down five principles for mitigating these harms.
- The blueprint, instead of a horizontal approach like the EU, endorses a sector-specific approach to AI governance, with policy interventions for individual sectors such as health, labour, and education, leaving it to sectoral federal agencies to come out with their plans.
- The AIBoR has been described by the administration as a guidance or a handbook rather than a binding legislation.

Regulations by China:

- China in 2022 came out with some of the world's first nationally binding regulations targeting specific types of algorithms and AI.
- It enacted a law to regulate recommendation algorithms with a focus on how they disseminate information. China's Cyberspace Administration of China (CAC), which drafted the rules, told companies to "promote positive energy", to not "endanger national security or the social public interest" and to "give an explanation" when they harm the legitimate interests of users.
- Another piece of legislation targets deep synthesis technology used to generate deepfakes.
- In order to have transparency and understand how algorithms function, China's AI regulation authority has also created a registry or database of algorithms where developers have to register their algorithms, information about the data sets used by them and potential security risks.

CHINA APPROVES SAFETY OF FIRST GENE-EDITED CROP

Why in news?

- China has approved the safety of a gene-edited soybean, its first approval of the technology in a crop,

as the country increasingly looks to science to boost food production.

Details:

⮩ The soybean, developed by privately owned Shandong Shunfeng Biotechnology Co., Ltd, has two modified genes, significantly raising the level of healthy fat oleic acid in the plant.

⮩ Unlike genetic modification, which introduces foreign genes into a plant, gene editing alters existing genes.

⮩ The technology is considered to be less risky than GMOs and is more lightly regulated in some countries, including China, which published rules on gene-editing in 2022.

Upcoming crops:

⮩ Shunfeng claims to be the first company in China seeking to commercialise gene-edited crops.

⮩ It is currently researching around 20 other gene-edited crops, including higher yield rice, wheat and corn, herbicide-resistant rice and soybeans and vitamin C-rich lettuce, said a company representative.

Prospect in other nations:

⮩ United States-based company Calyxt(CLXT.O) also developed a high oleic soybean, producing a healthy oil that was the first gene-edited food to be approved in the U.S. in 2019.

⮩ Aside from the United States, Japan has also approved gene-edited foods, including healthier tomatoes and faster-growing fish.

Why it has been introduced?

⮩ The approval comes as trade tensions, erratic weather and war in major grain exporter Ukraine have increased concerns in China over feeding the country's 1.4 billion people.

⮩ A growing middle class is also facing a surge in diet-related disease.

Way Forward:

⮩ China is promoting GMO crops too, starting large-scale trials of GM corn in 2023.

⮩ Getting gene-edited crops onto the market is expected to be faster however, given fewer steps in the regulatory process.

SCIENTISTS HELP FIND NEW KIND OF MOLECULAR MOTOR
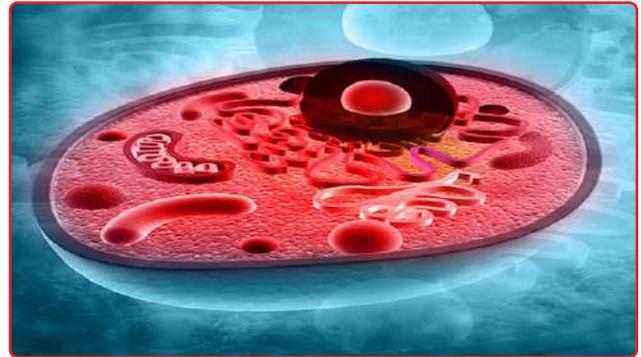
Why in news?

⮩ An international team of researchers, including from the National Centre for Biological Sciences (NCBS), Bengaluru, has reported a new kind of molecular motor.

⮩ The finding opens the door to previously unanticipated cellular processes and potential applications in biology and medicine.

Role of molecular motors:

⮩ Each cell in the body is a complex soup of electrochemical reactions that produce energy, but they are not enough.

⮩ Cells also need to move things, such as pull two organelles together, move cargo towards and away from the nucleus, and power the movement of subcellular molecules. Many of these actions are driven by molecular motors, which use biochemical energy to do mechanical work.

How EEA1 resume its rigid shape?

⮩ Earlier researchers from Australia and Germany reported that when an enzyme called Rab5 binds to a long protein called EEA1, the protein loses its taut and rigid shape and becomes floppy. This 'collapse' pulls two membranes inside a cell closer to each other.

⮩ In the new study, researchers have reported that EEA1 regains its rigid shape in another mechanism so that it can become floppy again to pull the membranes closer, creating a new kind of two-part molecular motor.

⮩ Earlier, it was unclear whether EEA1 could resume its rigid shape, so that the whole process could repeat itself without the help of other proteins.

⮩ The researchers reasoned that it had to resume its stiffer shape because EEA1 works on thousands of membranes, and creating a molecule as big as the protein for every membrane pair would be wasteful. At more than 200 nm, EEA is more than 100x longer than typical proteins.

GTP hydrolysis:

⮩ The researchers reported that EEA1 draws energy from a reaction called GTP hydrolysis to become rigid

again. The GTP hydrolysis is mediated by enzymes called GTPases. Rab5 is one such.

- The motor does not produce a lever-like back-and-forth action, as most motors do, but allows a molecule to change its flexibility between two states. Also, most molecular motors get their energy from another molecule called ATP, whereas the Rab5-EEA1 motor uses GTP.

- EEA1 can have one of several trillion shapes when it is floppy, but it can have only one (rod-like) shape when it is stiff. The floppy state has more entropy and is "entropically favoured". So when it goes from stiff to floppy, it exerts an entropic force on the membranes that it pulls.

Way Forward:

- Aside from throwing light on membrane fusion by EEA1, the study also provides a general mechanism applicable for many such mechano-chemical proteins or assemblies which harness the chemical energy of nucleotide hydrolysis for mechanical work in the cell.

WHAT IS BLUESKY, THE LATEST MICRO-BLOGGING PLATFORM IN THE MARKET?

Context:

- Since Elon Musk's takeover, Twitter has been constantly in the news.
- Though the decentralised Mastodon emerged as an early contender, Bluesky has come to the fore as a potential claimant to Twitter's throne.

What is Bluesky?

- Bluesky is a micro-blogging platform and social website built on the AT Protocol (Authenticated Transport Protocol).
- Bluesky might be classified as a Twitter competitor due to its founding team but it is different in terms of its structure, as it is meant to form part of a decentralised ecosystem.
- Users of apps built on the AT Protocol would be able to move between platforms without losing their followers, media, work, and data. This account portability, as the feature is called, is a major part of the AT Protocol's structure.

Who is behind Bluesky?

- The CEO of Bluesky is Jay Graber, a software engineer with a background in cryptocurrency. Bluesky was launched in 2019 by former Twitter CEO Jack Dorsey, who chose Ms. Graber to lead the project.
- Twitter and Bluesky were meant to eventually connect and work with each other, but the companies ended their service agreement in 2022.

Could Bluesky replace Twitter?

- Not anytime soon. Bluesky is currently in private beta, meaning that only a select group has been allowed to join via invite codes. Others interested in trying it out can add themselves to a waitlist.
- Regular Bluesky members are also given a new invite code at periodic intervals that they can share with new applicants they deem trustworthy.

What is it like on Bluesky?

- Screenshots of Bluesky profiles retweeted by its CEO show a user interface similar to Twitter, with options to comment, share, or "heart" posts.
- Celebrity users appear to be seeing fewer "likes" and "shares" when compared to their Twitter platforms, due to the smaller number of participants on Bluesky.
- Platform users also have the ability to set their domains as their handle, making it easier to link their accounts across ecosystems, and authenticate their identity.
- While Bluesky aims to achieve a more decentralised structure, it is currently being regulated by an official team and is hosted on a single server.

U.K. SEES SUCCESS IN MITOCHONDRIAL REPLACEMENT THERAPY
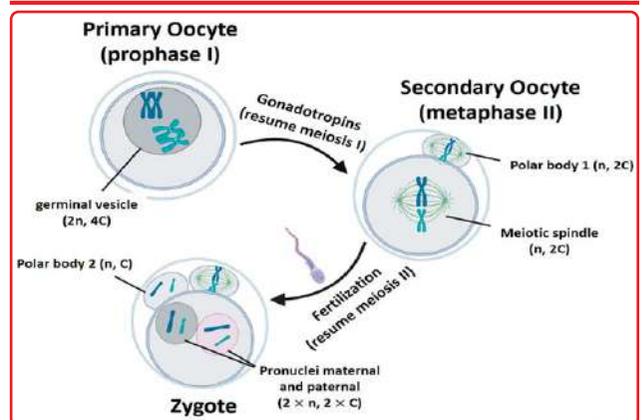
Why in news?

- Eight years after the U.K. became the first country in the world to approve a reproductive technique known as mitochondrial replacement therapy (MRT), "less than five" children have been born using the procedure, as of April 2023.
- The Human Fertilisation and Embryology Authority (HFEA), the U.K. fertility regulator that approves the

IVF-based procedure on a case-by-case basis, recently confirmed this.

➲ In 2022, Australia became the second country to approve this therapy.

Three-parent IVF:

➲ Mitochondria replacement involves transferring nuclear genetic material from a mother's egg into a donor egg that has had its nuclear DNA removed so the embryo does not inherit the mitochondrial disease.

➲ This would allow a woman carrying mitochondrial diseases to have healthy children. The resulting IVF embryo combines sperm and egg from the biological parents, while the mitochondria is from the donor's egg.

➲ As a result, the baby has DNA from each of its parents, along with 37 genes from the donor. This is the reason why this technique is also called three-parent IVF (in vitro fertilisation).

Significance:

➲ Mitochondria is the powerhouse of a cell, and any mutation that damages the mitochondria tends to affect energy-hungry organs the most.

➲ About one in 6,500 babies in the U.K. is born with a mitochondrial disorder which can lead to serious problems such as heart and liver disease, and respiratory problems, which can even lead to the death of the infant.

➲ In 2013, that this procedure can save around 10 lives each year in the U.K.

EXPLAINING MITOCHONDRIAL DONATION TREATMENT, HOW A BABY HAS THREE PARENTS

CREATING A THREE–PARENT FAMILY
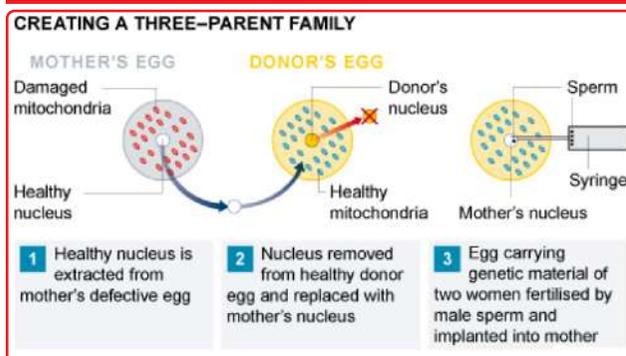
Why in news?

➲ Recently, a baby was born using three persons' DNA in the U. K.

➲ The baby, technically, has three parents, deriving the mitochondria from a donor apart from the genetic material (DNA) from biological parents. Pioneering technology was used to facilitate this, in order to prevent the child from inheriting the mother's mitochondrial disease.

Why did the baby need 'three parents'?

➲ The baby carried most of its DNA from its parents, and a minor per cent from the donor, whose mitochondria has been used while fertilising the egg.

➲ Mitochondria are basically the powerhouses of the cells. They generate energy, and thus are also responsible for cell function in the human body.

➲ Certain defects might occur impacting the way the mitochondria produces energy for the cells (especially in the 'energy-hungry' tissues of the brain, nerves, muscles, kidneys, heart, liver), and thereby impacting cell function. The diseases that arise out of such mitochondrial mutations are called mitochondrial diseases.

➲ When the mitochondria are impaired and do not produce sufficient energy, it affects how organs function, leading to a broad assortment of symptoms across the body, including brain damage, organ failure and muscle wastage.

➲ The symptoms get more and more debilitating as a child grows, and have no cure, but can be treated. Some estimates put the incidence of mitochondrial diseases as one in 5,000 people.

➲ In this case, the mother had a mitochondrial disease she was intent on not passing on to her baby. She also did not want to have a donor egg, for the baby would carry the genetic material of the donor.

What is the scientific process?

➲ Mitochondrial diseases are only passed on by the mother, and research has been attempting to find a way for protecting the infant from inheriting the disease.

➲ Here, through an advanced in vitro fertilisation technique developed and refined by the Newcastle Fertility Clinic, the baby's biological father's sperm was used to fertilise the eggs from the biological mother, who has a mitochondrial disease, and a third, female donor with clear mitochondria, separately.

➲ Then, the nuclear genetic material from the donor's egg is removed and replaced with the genetic material from the biological parents'.

➲ The final product which has the genetic material (DNA) from the parents, and the mitochondria from the female donor, is implanted in the uterus, and carried to full term to yield a baby who will be free from the mother's mitochondrial disease. This process is termed Mitochondrial Donation Treatment (MDT).

Is there a law to facilitate MDT?

➲ The research on MDT, which is also known as mitochondrial replacement therapy (MRT), was pioneered in the U. K. by doctors at the Newcastle Fertility Centre to help women with mutated mitochondria to have babies without the risk of passing on genetic disorders.

◑ The progress in research led the U. K. government to amend the law allowing the procedure in 2015. It was two years later that the Newcastle clinic became the first centre to get a licence to perform it, and the first few cases were approved in 2018.

◑ Approval is given on a case-by-case basis by the U. K.'s Human Fertilisation and Embryology Authority (HFEA), which has given the green light for at least 30 cases.

◑ In 2016 a Jordanian baby was born of 'three parents', with a technique employed by the team led by John Zhang at New Hope Fertility Centre in New York, but working in Mexico.

WHAT ARE THE GAPS IN THE AEPS TRANSACTION MODEL?
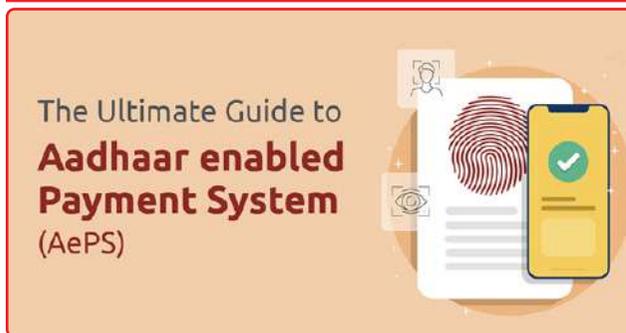
Why in news?

◑ Cybercriminals are now using silicone thumbs to operate biometric POS devices and biometric ATMs to drain users' bank accounts.

What is AePS?

◑ The Aadhaar-enabled Payment System (AePS) is a bank-led model which allows online financial transactions at Point-of-Sale (PoS) devices and micro ATMs of any bank using Aadhaar authentication.

◑ The model removes the need for OTPs, bank account and other financial details.

◑ It allows fund transfers using only the bank name, Aadhaar number, and fingerprint captured during Aadhaar enrolment, according to the National Payments Corporation of India (NPCI).

Is AePs enabled by default?

◑ Neither the Unique Identification Authority of India (UIDAI) nor NPCI mentions clearly whether AePS is enabled by default.

◑ The service does not require any activation, with the only requirement being that the user's bank account should be linked with their Aadhaar number.

◑ Users who wish to receive any benefit or subsidy under schemes notified under section 7 of the Aadhaar Act, have to mandatorily submit their Aadhaar number to the banking service provider.

How is biometric information leaked?

◑ While Aadhaar data breaches have been reported in 2018, 2019, and 2022, the UIDAI has denied any breach of data. However, UIDAI's database is not the only source from where data can be leaked.

◑ Aadhaar numbers are readily available in the form of photocopies, and soft copies, and criminals are using Aadhaar-enabled payment systems to breach user information.

◑ Scammers have, in the past, made use of silicone to trick devices into initiating transactions.

How do you secure your Aadhaar biometric information?

◑ The UIDAI is proposing an amendment to the Aadhaar (Sharing of Information) Regulations, 2016, which will require entities in possession of an Aadhaar number to not share details unless the Aadhaar numbers have been redacted or blacked out through appropriate means, both in print and electronic form. The UIDAI has also implemented a new two-factor authentication mechanism that uses a machine-learning-based security system, combining finger minutiae and finger image capture to check the 'liveness' of a fingerprint.

◑ Additionally, users are also advised to ensure that they lock their Aadhaar information by visiting the UIDAI website or using the mobile app. This will ensure that their biometric information, even if compromised, cannot be used to initiate financial transactions.

◑ It can be unlocked when the need for biometric authentication arises, such as for property registration and passport renewals, after which it can again be locked.

What can be done in case of a financial scam using Aadhaar?

◑ If users have not already locked their Aadhaar biometric information, they should do so immediately in case of any suspicious activity in their bank accounts.

◑ Users are also advised to inform their banks and the concerned authorities as soon as possible. Timely reporting can ensure that any money transferred using fraudulent means is returned to the victim.

◑ The RBI in a circular has stated that a customer's entitlement to zero liability arises where the unauthorised transaction occurs, and the customer notifies the bank within three working days of receiving a communication from the bank regarding such unauthorised transaction.

WHAT IS A TRANSFORMER, THE MACHINE LEARNING MODEL THAT POWERS CHATGPT?

Why in News?

◑ Machine learning (ML), a subfield of artificial intelligence, teaches computers to solve tasks based on structured data, language, audio, or images, by providing examples of inputs and the desired outputs.

This is different from traditional computer programming, where programmers write a sequence of specific instructions. Here, the ML model learns to generate desirable outputs by adjusting its many knobs called parameters.
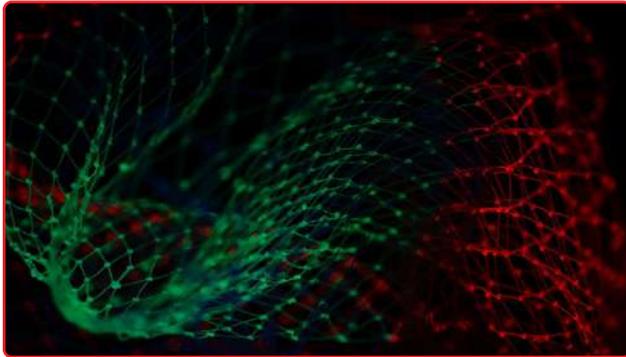
Deep neural networks:

- In the first part of the 2010s, deep neural networks (DNNs) took over ML by storm, replacing the classic pipeline of hand-crafted features and simple classifiers. DNNs ingest a complete document or image and generate a final output, without the need to specify a particular way of extracting features.

- While these deep and large models have existed in the past, their large size hindered their use. The resurgence of DNNs in the 2010s is attributed to the availability of large-scale data and fast parallel computing chips called graphics processing units.

- Furthermore, the models used for text or images were still different — recurrent neural networks were popular in language understanding while convolutional neural networks (CNNs) were popular in computer vision, that is, a machine understanding of the visual world.

Origin of transformers:

- In a pioneering paper entitled 'Attention Is All You Need' that appeared in 2017, a team at Google proposed transformers, a DNN architecture that has today gained popularity across all modalities (image, audio, and language).

- The original paper proposed transformers for the task of translating a sentence from one language to another, similar to what Google Translate does when converting a sentence from, say, English to Hindi.

How Transformer work?

- A transformer is a two-part neural network. The first part is an 'encoder' that ingests the input sentence in the source language (English) and the second part is a 'decoder' that generates the translated sentence in the target language (Hindi).

- The encoder converts each word in the source sentence to an abstract numerical form that captures the meaning of the word within the context of the sentence, and stores it in a memory bank.

- Both these processes use a mechanism called 'attention', hence the name of the paper. A key improvement over previous methods is the ability of a transformer to translate long sentences or paragraphs correctly. The adoption of transformers subsequently exploded.

- The capital 'T' in ChatGPT, for example, stands for 'transformer'.

- Transformers have also become popular in computer vision as they simply cut an image into small square patches and line them up, just like words in a sentence. By doing so, and after training on large amounts of data, a transformer can provide better results than CNNs.

- Today, transformer models constitute the best approach for image classification, object detection and segmentation, action recognition, and a host of other tasks.

What is 'attention'?

- Attention in ML allows a model to learn how much importance should be given to different inputs.

- In the translation example, attention allows the model to select or weigh words from the memory bank when deciding which word to generate next. While describing an image, attention allows models to look at the relevant parts of the image when generating the next word.

- A fascinating aspect of attention-based models is their ability for self-discovery, by parsing a lot of data.

- Transformers are attention models on steroids. They feature several attention layers both within the encoder, to provide meaningful context across the input sentence or image, and from the decoder to the encoder when generating a translated sentence or describing an image.

Applications of transformers:

- Since 2022, transformer models have become larger and train on more data than before. When these colossuses train on written text, they are called large language models (LLMs). ChatGPT uses hundreds of billions of parameters whereas GPT-4 uses hundreds of trillions.

- While these models are trained on simple tasks, such as filling in the blanks or predicting the next word, they are very good at answering questions, creating stories, summarising documents, writing code, and even solving mathematical word problems in steps.

Concerns:

- The scientific community is yet to figure out how to evaluate these models rigorously. There are also instances of "hallucination", whereby models make confident but wrong claims.

- There is need to urgently address societal concerns, such as data privacy and attribution to creative work, that arise as a result of their use.

NEW TECHNIQUE WELCOMES CALCIUM-41 TO RADIOMETRIC DATING

Context:

➲ A new study by researchers at the University of Science and Technology of China (USTC), Hefei shows a way to use calcium-41 the same way carbon-14 has been used in carbon-dating.

Background:

➲ Since its invention in 1947, carbon dating has revolutionised many fields of science by allowing scientists to estimate the age of an organic material based on how much carbon-14 it contains.

➲ However, carbon-14 has a half-life of 5,700 years, so the technique cannot determine the age of objects older than around 50,000 years.

Calcium-41:

➲ In 1979, scientists suggested using calcium-41, with a half-life of 99,400 years. It is produced when cosmic rays from space smash into calcium atoms in the soil, and is found in the earth's crust, opening the door to dating fossilised bones and rock. But several problems need to be overcome before it can be used to reliably date objects.

➲ When an organic entity is alive, its body keeps absorbing and losing carbon-14 atoms. When it dies, this process stops and the extant carbon-14 starts to decay away.

➲ Using the difference between the relative abundance of these atoms in the body and the number that should have been there, researchers can estimate when the entity died.

➲ A significant early issue with carbon dating was to detect carbon-14 atoms, which occur once in around 1,012carbon atoms. Calcium-41 is rarer, occurring once in around 1,015calcium atoms.

ATTA:

➲ In the new study, researchers pitched a technique called atom-trap trace analysis (ATTA) as a solution.

➲ ATTA is sensitive enough to spot these atoms; specific enough to not confuse them for other similar atoms and fits on a tabletop.

➲ A sample is vaporised in an oven. The atoms in the vapour are laser-cooled and loaded into a cage made of light and magnetic fields. In an atom, an electron in one orbital can transition to the next if it's given a specific amount of energy; then it jumps back by releasing that energy.

Electron transition:

➲ In ATTA, a laser's frequency is tuned such that it imparts the same energy as required for an electron transition in calcium-41.

➲ The electrons absorb and release this energy, revealing the presence of their atoms. The researchers reported being able to spot one calcium-41 atom in every 1,016 calcium atoms with 12% precision in seawater.

➲ ATTA also avoids potassium-41 atoms, which are similar to calcium-41 atoms but lack the same electron transition.

Way Forward:

➲ The researchers are currently exploring an earth-science application. In warmer climate, glaciers retreat and allow rock below to accumulate calcium-41. In colder climate, glaciers advance and block the calcium-41 from reaching the rock.

➲ This way, scientists hope to use ATTA to study how long some rock has been covered by ice.

SPACEX LAUNCHES FIRST SAUDI ASTRONAUTS TO SPACE STATION ON 2ND PRIVATE AXIOM MISSION

Why in news?

➲ SpaceX recently successfully launched the second private mission by Axiom Space to the International Space Station (ISS).

Details:

➲ The Crew Dragon spacecraft with four astronauts lifted off from Launch Complex 39A at Nasa's Kennedy Space Center in Florida.

➲ The spacecraft carried two Saudi astronauts to Space Station, which included the first female astronauts from the country along with two others.

➲ Commander Peggy Whitson, Pilot John Shoffner, and Mission Specialists Ali Alqarni and Rayyanah Barnawi representing the Kingdom of Saudi Arabia have been launched to the Space Station.

Key Highlights:

➲ The four will work to further the development of the commercial space station envisioned by Axiom Space, a private aerospace company.

➲ They will be working and living in the orbiting laboratory to implement a full manifest of science, outreach, and commercial activities.

➲ During their stay in the zero-gravity lab, they will conduct key experiments to study how microgravity affects stem cells and thick tissue constructs.

➲ Their work is aimed at detecting diseases and developing therapies for people on Earth. The four-member team is set to carry out some 20 experiments while on the ISS.

Background:

➲ The four astronauts will join three Russians, three Americans, and Emirati astronaut Sultan al-Neyadi, who was the first Arab national to go on a spacewalk in April 2023.

➲ Axiom Space carried out its first private astronaut mission to the ISS in April 2022, sending three businessmen, and former astronaut Michael Lopez-Alegria to spend 17 days in orbit as part of Ax-1.

Private space stations:

➲ For Axiom Space, these missions are a first step toward an ambitious goal: the construction of its own space station, with the first module expected to launch in 2025.

➲ The station would at first be attached to the ISS before separating and orbiting independently.

➲ NASA plans to retire the ISS around 2030 and to instead send astronauts to private stations, which will also host their own clients, leading the US space agency to encourage the development of programs by several companies.

➲ Russia recently agreed to extend its use of the ISS until 2028, having threatened an earlier pullout last year as ties unraveled between the Kremlin and the West over Moscow's invasion of Ukraine.

➲ The other international partners; Japan, Canada and the European Space Agency have committed themselves, like the United States, to continue operations until 2030.

SOCIAL ISSUE

MOST ASIA-PACIFIC COUNTRIES ILL-PREPARED FOR NATURAL DISASTERS: ESCAP

Why in news?

➲ Most countries in Asia and the Pacific are inadequately prepared to manage the rising challenges of extreme weather events and natural disasters, according to a new study by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP).

➲ Countries in the region lack the necessary data as well as means to support adaptation and mitigation efforts.

➲ In the absence of decisive action, climate change will remain a leading cause of poverty and inequality across the region.

Potential threats:

➲ Over the past 60 years, temperatures in the region have increased faster than the global mean. Extreme, unpredictable weather events and natural hazards have become more frequent and intense. Tropical cyclones, heatwaves, floods and droughts have brought immense loss of life and displacement, damaging people's health and pushing millions into poverty.

➲ Of the 10 countries most affected by these disasters, six are in the region. Food systems here are being disrupted, economies damaged and societies undermined.

➲ If left unchecked, climate change will exacerbate the strains of ongoing overlapping crises and imperil Sustainable Development Goals (SDG).

➲ Climate change and climate-induced disasters are increasingly threatening development in Asia and the Pacific, often undermining hard-won development gains.

Observations on Asia-Pacific region:

➲ The Asia-Pacific region accounts for more than half of the world's greenhouse gas emissions. It is one of the most rapidly developing regions of the world, with a significant proportion of the global population. The region is also home to most of the world's low-lying cities and vulnerable small island states.

➲ The costs of climate change are already too high. The annual average losses from natural and biological hazards in Asia and the Pacific are approximately $780 billion.

➲ Under a moderate climate change scenario, these losses are expected to increase to $1.1 trillion and, under the worst-case scenario, to $1.4 trillion.

➲ The current financing on this front is insufficient to meet the region's requirements for investment in climate action or to contain global warming at 1.5°C.

● With only seven years left to 2030, the target year for SDG, scaling up the available finance and increasing climate action ambition is important.

Steps needed:

Energy:

● Some 85 per cent of the region's primary energy supply came from fossil fuels in 2020, according to the International Energy Agency. Steel and cement production here relies heavily on fossil fuels.

● The rapid uptake of renewable energy requires restructuring national energy systems, new technical capacities and significant investment in supply and infrastructure. The report stresses on cross-border electricity grids to increase the share of renewable energy.

● It stressed on climate-proofing energy systems. Hydropower, which holds the largest share of the region's installed renewable energy capacity, has become increasingly unreliable.

Transport sector:

● The transport sector, primarily powered by oil, should be shifted to a low-carbon pathway.

● This can be achieved by reducing transport distance through integrated land use, planning, shifting to sustainable transport modes with low-carbon or net-zero-carbon emissions, as well as improving vehicle and fuel efficiency.

● A 2019 report said no country (developed or developing) is on track to achieve sustainability in the transportation sector. Most developed and developing countries were ranked low on policy goals of universal urban access, gender and efficiency.

International trade & investment:

● It is crucial to integrate climate considerations into regional trade agreements. Trade must be climate-smart, 85 per cent of the regional trade agreements signed since 2005 to which at least one Asia-Pacific economy is party contained climate-related provisions.

● The private sector must be encouraged to work towards a low-carbon pathway and sustainability should be ingrained into business operations.

● The number of companies issuing sustainability reports and accounting for greenhouse gas emissions has increased recently. Some companies have introduced internal carbon pricing as a tool to reduce dependency on fossil fuels.

ON SEXUAL HARASSMENT IN THE WORKPLACE

Context:

● Ten years after the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 (PoSH) came into force, the Supreme Court Bench of India has said there are "serious lapses" and "uncertainty" regarding its implementation.

How was the PoSH Act formed?

● In 1992, Bhanwari Devi, a social worker with the Women's Development Project of the Rajasthan government was gang-raped by five men after she tried to prevent the marriage of a one-year-old girl.

● While hearing pleas filed by activist groups against the crime, the SC, noting the absence of any law "enacted to provide for effective enforcement of the basic human right of gender equality" guarantee against "sexual harassment at workplaces", laid down a set of guidelines in 1997, christened the Vishakha Guidelines, to fill the statutory vacuum till a law could be enacted. These were to be "strictly observed in all workplaces" and were binding and enforceable in law.

● After this, the Protection of Women against Sexual Harassment at Workplace Bill was introduced by then Women and Child Development Minister, Krishna Tirath, in 2007. It was later tabled in Parliament and went through amendments.

● The amended Bill came into force on December 9, 2013, as the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) or PoSh Act.

What is the PoSh Act?

● The PoSH Act defines sexual harassment to include unwelcome acts such as physical contact and sexual advances, a demand or request for sexual favours, making sexually coloured remarks, showing pornography, and any other unwelcome physical, verbal or non-verbal conduct of a sexual nature.

● Under the Act, an employee is defined not just in accordance with the company law. All women employees, whether employed regularly, temporarily, contractually, on an ad hoc or daily wage basis, as apprentices or interns or even employed without the knowledge of the principal employer, can seek redressal to sexual harassment in the workplace.

● The law expands the definition of 'workplace' beyond traditional offices to include all kinds of organisations across sectors, even non-traditional workplaces. It applies to all public and private sector organisations throughout India.

What are the requirements imposed on employers?

● The law requires any employer with more than 10 employees to form an Internal Complaints

Committee (ICC) which can be approached by any woman employee to file a formal sexual harassment complaint.

‣ It has to be headed by a woman, have at least two women employees, another employee, and a third party such as an NGO worker with five years of experience, familiar with the challenges of sexual harassment.

‣ Besides, the Act mandates every district in the country to create a local committee to receive complaints from women working in firms with less than 10 employees and from the informal sector, including domestic workers, home-based workers, voluntary government social workers and so on.

‣ The employer has to file an annual audit report with the district officer about the number of sexual harassment complaints filed and actions taken at the end of the year.

What are the hurdles to the Act's implementation?

‣ The Supreme Court in its recent judgment called out the lacunae in the constitution of ICCs, citing a newspaper report that 16 out of the 30 national sports federations in the country had not constituted an ICC to date.

‣ The judgment also flagged the improper constitution in cases where the ICCs were established, pointing out that they either had an inadequate number of members or lacked a mandatory external member. This, however, is not the only implementation-related concern when it comes to the PoSH Act.

‣ One of the concerns is that the Act does not satisfactorily address accountability, not specifying who is in charge of ensuring that workplaces comply with the Act, and who can be held responsible if its provisions are not followed.

‣ Stakeholders also point out how the law is largely inaccessible to women workers in the informal sector. Additionally, experts have noted that in workplaces sexual harassment cases are hugely underreported for a number of reasons.

‣ The inefficient functioning and the lack of clarity in the law about how to conduct such inquiries have ended up duplicating the access barriers associated with the justice system.

‣ The power dynamics of organisations and fear of professional repercussions also stand in the way of women for filing complaints.

What are the SC's recent directions?

‣ The court directed the Union, States and UTs to undertake a time-bound exercise to verify whether Ministries, Departments, government organisations, authorities, public sector undertakings, institutions, bodies, etc. had constituted Internal Complaints Committees (ICCs), Local Committees (LCs) and Internal Committees (ICs) under the Act.

‣ These bodies have been ordered to publish the details of their respective committees in their websites.

DENGUE VIRUS IN INDIA HAS EVOLVED, SCIENTISTS HIGHLIGHT URGENT NEED FOR VACCINE
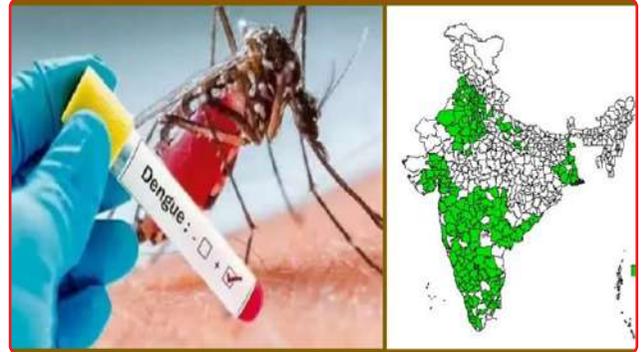
Why in news?

‣ The Dengue virus in India has evolved dramatically, researchers at the Indian Institute of Science in Bengaluru have revealed. The new details were revealed as part of a computational analysis of the virus over six decades.

Details:

‣ They found that the cases of mosquito-borne viral disease have steadily increased in the last 50 years, predominantly in South-East Asian counties.

‣ They looked at the four serotypes of the dengue virus and examined how much each of these serotypes deviated from their ancestral sequence.

‣ The dengue propagates and adapts to the selection pressures imposed by a multitude of factors that can lead to the emergence of new variants.

What is Dengue?

‣ The dengue virus belongs to the family Flaviviridae and has four serotypes: DEN-1, DEN-2, DEN-3, and DEN-4.

‣ The virus is transmitted to humans by the Aedes mosquito, which becomes infected by biting an infected person.

‣ Once the virus enters the human body, it replicates in white blood cells called monocytes and macrophages, which are a part of the body's immune system.

‣ The virus then spreads to other organs, including the liver, spleen, and lymph nodes, causing a range of symptoms.

How has Dengue evolved in India?

‣ IISC researchers examined 408 genetic sequences of Indian dengue strains from infected patients collected between the years 1956 and 2018.

‣ It was noted that until 2012, the dominant strains in India were Dengue 1 and 3. But in recent years, Dengue 2 has become more dominant across the country,

while Dengue 4, once considered the least infectious is now making a niche for itself in South India.

➲ Sometimes people might be infected first with one serotype and then develop a secondary infection with a different serotype, leading to more severe symptoms.

➲ Scientists believe that if the second serotype is similar to the first, the antibodies in the host's blood generated after the first infection bind to the new serotype and bind to immune cells called macrophages.

➲ The antibodies generated in the human body after a primary infection provide complete protection from all serotypes for about 2-3 years. Over time, the antibody levels begin to drop, and cross-serotype protection is lost.

Way Forward:

➲ The new findings further show how important it is to develop a vaccine for the disease.

➲ Even as dengue remains a major health concern in India, there is no vaccine available for the disease.

➲ The Indian Council of Medical Research is in the midst of phase-3 trials of a vaccine candidate that has been jointly developed by Serum Institute and Panacea Biotec.

DOCTORS PERFORM FIRST-OF-ITS-KIND BRAIN SURGERY ON UNBORN BABY TO TREAT RARE DISORDER

Why in news?

➲ In what could be a game-changer in medical science, a team of doctors has performed brain surgery on an unborn baby in the fetus to treat a rare condition.

VOGM:

➲ Fetal surgery was performed to treat the condition known as Vein of Galen Malformation (VOGM).

➲ It is a type of rare blood vessel abnormality inside the brain, which, happens when arteries in the brain connect directly with veins, instead of connecting with capillaries, which help slow blood flow.

➲ The condition causes blood to rush toward the heart and lungs, forcing them to work overtime to get blood to the rest of the body.

➲ This can lead to congestive heart failure in some infants. Meanwhile, it could also lead to a jump in

blood pressure in the arteries from the heart to the lungs.

In-utero surgery:

➲ The in-utero surgery was performed before the baby was born, guided by ultrasound procedures. The procedure resulted in the complete elimination of the expected aggressive postnatal natural history.

➲ The condition was found in an ultrasound when the fetus was 30 weeks old and doctors told the parents that the baby had an enlarged heart after which VOGM was diagnosed.

➲ The surgery was performed when the fetus was just over 34 weeks of gestational age.

Way Forward:

➲ This approach represents a paradigm shift in the management of this challenging condition, from a strategy focused on reversing severe multiorgan pathophysiology after onset to one focused instead on prevention.

FDA APPROVES FIRST VACCINE FOR RESPIRATORY SYNCYTIAL VIRUS

Why in news?

➲ Recently, the Food and Drug Administration (FDA) approved the first vaccine; Arexvy for respiratory syncytial virus (RSV) to lower respiratory tract disease in people older than 60 years.

➲ This is the first RSV vaccine to be approved anywhere in the world.

Success in phase-3 trial:

➲ The vaccine is manufactured by the company, GSK, and the FDA approval was based on a phase-3 trial carried out on nearly 25,000 participants.

➲ About 12,500 participants received one dose of the vaccine, while the remaining participants received a placebo.

➲ The trail showed that a single dose of the vaccine reduced the risk of people, older than 60 years, developing lower respiratory tract disease caused by the RSV virus by 82.6% and reduced the risk of developing severe disease by 94.1%.

Comorbidities:

➲ According to the U.S. Centres for Disease Control and Prevention, lower respiratory tract disease caused by

the RSV virus leads to approximately 60,000-1,20,000 hospitalisations and 6,000-10,000 deaths among adults who are 65 years of age and older.

➲ The RSV virus significantly affects older adults with comorbidities. Like the common cold, the RSV usually causes mild symptoms but can turn deadly if it infects older people.

➲ Besides older adults, infants too are at high risk from RSV.

Other vaccines:

➲ Two more vaccines for RSV by Pfizer and Moderna have already completed clinical trials on adults older than 60 years and may soon be approved by the FDA.

➲ While the vaccine developed by Pfizer is protein-based, Moderna has used mRNA technology, like in the case of the SARS-CoV-2 vaccine, to develop the RSV vaccine.

➲ GSK is also testing the vaccine in adults aged 50-59 years, including participants with underlying comorbidities. The results are expected by the end of 2023.

Way Forward:

➲ The vaccine will be available for older adults in the U.S. before the 2023-2024 RSV season, which typically starts ahead of the winter months.

THE LACK OF A DRUG RECALL LAW IN INDIA

Why in news?

➲ Recently, Abbot, a multinational pharmaceutical company, published a public notice in newspapers alerting people about a mislabelled batch of medicine that it had inadvertently shipped to the market.

➲ While such recalls take place regularly in the U.S., India have never witnessed domestic or foreign pharmaceutical companies recall substandard or mislabelled drugs in India.

Is there a drug recall law in India?

➲ One of the reasons for this difference in behaviour in India and the U.S. is because the law in the latter requires pharmaceutical companies to recall from the market those batches of drugs that have failed to meet quality parameters.

➲ India, on the other hand, has been mulling the creation of a mandatory recall law for substandard drugs since 1976, and yet no law exists that mandates such medicine be removed from the market to this day.

➲ In 1976, the Drugs Consultative Committee, which consists of all the state drug controllers along with senior bureaucrats from the Ministry of Health and the national drug regulator, the Central Drugs Standard Control Organisation (CDSCO), discussed the issue of drug recalls.

➲ The minutes of this meeting record a discussion on how drugs ordered to be recalled by a state drug controller in one State were found to be on sale in another State.

➲ Since then the issue has come up repeatedly in regulatory meetings in 1989, 1996, 1998, 2004, 2007, 2011, 2016, 2018 and 2019 but none of them resulted in amendments to the Drugs and Cosmetics Act to create a mandatory recall mechanism.

➲ In 2012, certain recall guidelines were published by the CDSCO but they lacked the force of law.

Why is there no recall law?

➲ The Drug Regulation Section of the Union Health Ministry is not up to the task of tackling complex drug regulatory issues due to a combination of factors including apathy, lack of expertise and a greater interest in enabling the growth of the pharmaceutical industry than protecting public health.

➲ India's highly fragmented regulatory structure, with each State having its own drug regulator. But despite the fragmentation, drugs manufactured in one State can seamlessly cross borders to be sold in all States around the country.

➲ To create an effective recall mechanism, the responsibility of recalling drugs has to be centralised, with one authority wielding the legal power to hold companies liable for failures to recall drugs from across the country. However, both the pharmaceutical industry and state drug regulators have resisted greater centralisation of regulatory powers.

➲ India's drug regulators are aware of the fact that a mandatory drug recall system, which necessarily has to be centred on a system of wide publicity, will bring to public attention the state of affairs in India's pharmaceutical industry.

What happens when substandard drugs are not recalled?

➲ People, including children, are almost certainly dying or suffering from adverse health events because substandard drugs are not swiftly removed from the market.

➲ Every month, dozens of drugs fail random-testing in government laboratories. Ideally, these drugs will be necessarily recalled in a transparent manner, with the people being informed of the failures.

If this were to actually happen in India, the people would be flooded with alerts on an almost daily basis, which then would increase the pressure on drug regulators to institute extensive reforms.

WHY SPURIOUS LIQUOR KILLS

Why in news?

➲ Recently, as many as 22 people died after consuming spurious liquor in the Chengalpattu and Villupuram districts of Tamil Nadu.

➲ The incidents occurred barely a month after the State government said that it had brought such deaths under control.

What is the alcohol in liquor?

➲ Liquor is differentiated by its alcohol content; from the 5% or so of beer to the 12% or so of wine to the 40% or so of distilled spirits (all by volume).

➲ Contrary to popular belief, the World Health Organization has found that "no level of its] consumption is safe for our health". Long-term use leads to dependence, heightens the risk of some cancers and heart disease, and may eventually cause death.

➲ Ethanol (C_2H_5OH) is one carbon atom bonded to three hydrogen atoms and one more carbon atom; the second carbon atom is also bonded to two hydrogen atoms and the hydroxyl group, also known as the ion $OH-$.

➲ Inside the body, it is metabolised in the liver and the stomach by alcohol dehydrogenase (ADH) enzymes to acetaldehyde. Then aldehyde dehydrogenase (ALDH) enzymes transform the acetaldehyde into acetate.

➲ The adverse effects of alcohol consumption, from the hangover to a cancer, are due to acetaldehyde.

What is spurious liquor?

➲ Spurious liquor is characterised by the liquid mixture containing methanol as well.

➲ In many cases, such liquor is typically a home-made liquor, such as arrack, to which methanol was added to strengthen the intoxicating effects (in colloquial parlance, its kick) and/or to increase its bulk volume. Arrack is distilled from the fermented sap of the palm tree.

➲ The Food Safety and Standards (Alcoholic Beverages) Regulations 2018 stipulate the maximum permissible quantity of methanol in different liquors.

➲ These values span a wide range, including "absent" in coconut fenny, 50 grams per 100 litres in country liquor, and 300 grams per 100 litres in pot-distilled spirits.

What is methanol?

➲ The methanol molecule (CH_3OH) consists of one carbon atom bonded with three hydrogen atoms and one hydroxyl group.

➲ Schedule I of the Manufacture, Storage and Import of Hazardous Chemical Rules 1989 includes methanol. The Indian Standard IS 517 applies to how the quality of methanol is to be ascertained, and together with the Tamil Nadu Denatured Spirit, Methyl Alcohol, and Varnish (French Polish) Rules 1959, what signage, methanol packaging should carry.

➲ The most common way to produce methanol is to combine carbon monoxide and hydrogen in the presence of copper and zinc oxides as catalysts at 50-100 atm of pressure and 250°C. In the pre-industrial era, going back to ancient Egypt, people also made methanol (together with several other byproducts) by heating wood to a very high temperature.

➲ Methanol has several industrial applications, including as a precursor to acetic acid, formaldehyde, and aromatic hydrocarbons. It is also used as a solvent and as antifreeze. In Tamil Nadu, the manufacture, export, import, storage, and sale of methanol requires licences under the 1959 Rules.

How does spurious liquor kill?

➲ In every hooch tragedy in the history of India and of the world since 1945, the poison has been methanol. The human body contains infinitesimal quantities of methanol (4.5 ppm in the breath of healthy individuals, per a 2006 study) as a result of eating some fruits. But even for an adult, more than 0.1 ml of pure methanol per kilogram of body-weight can be devastating.

➲ Once ingested, methanol is metabolised in the liver by ADH enzymes to form formaldehyde (H-CHO). Then ALDH enzymes convert formaldehyde to formic acid (HCOOH).

➲ The accumulation of formic acid over time leads to a baneful condition called metabolic acidosis.

➲ Acidosis can lead to acidemia, a condition wherein the blood's pH drops below its normal value of 7.35, becoming increasingly acidic. The blood's pH is normally maintained by a balance between an acid, like carbon dioxide, and a base, like the bicarbonate ion (HCO_3-).

➲ As methanol is metabolised, the concentration of the bicarbonate ion drops, leading to the acid gaining the upper hand.

➲ Formic acid also interferes with an enzyme called cytochrome oxidase, which in turn disrupts cells'

ability to use oxygen and leads to the build-up of lactic acid, contributing to acidosis.

➲ Methanol-poisoning can also cause cerebral edema, haemorrhage, and death.

How can such poisoning be treated?

➲ Once methanol is ingested, the body takes some time to completely eliminate it. One estimate suggests that as much as 33% is still left behind after 48 hours. It is completely absorbed via the gastrointestinal tract and the blood-methanol level can reach its maximum value within 90 minutes.

➲ There are two immediate ways to treat methanol poisoning. One is to administer ethanol. This may sound counter-intuitive but ethanol competes very well with methanol for the ADH enzymes. As a result, the methanol is kept from being metabolised to formaldehyde.

➲ The other option is to administer an antidote called fomepizole, which has a similar mechanism — it slows the action of the ADH enzymes, causing the body to produce formaldehyde at a rate that the body can quickly excrete, preventing the deadlier effects from kicking in.

➲ Both courses of action are limited by the availability of their characteristic compounds. Fomepizole is expensive whereas pharmaceutical-grade ethanol needs to be administered under supervision.

➲ Healthcare workers may also have the individual undertake a dialysis to remove methanol and formic acid salts from the blood, and mitigate damage to the kidneys and retina.

➲ They may also administer folinic acid, which encourages the formic acid to break up into carbon dioxide and water. Both fomepizole and folinic acid are in the WHO's list of essential medicines.

INDIA MOVES CLOSER TO GETTING ITS FIRST INDIGENOUS VACCINE AGAINST DENGUE

Why in news?

➲ Moving a step closer to developing India's first vaccine against dengue, drug-makers Serum Institute of India and Panacea Biotec have submitted their responses to the call by the Indian Council of Medical Research

(ICMR) for an Expression of Interest for collaborative Phase 3 clinical trials for indigenous manufacturers.

➲ The Phase 3 trial is being done for evaluation of efficacy, along with safety and immunogenicity of tetravalent dengue vaccine candidate developed by Indian manufacturers.

Burden of dengue:

➲ The dengue viral disease causes significant morbidity and mortality across the globe and in India, 2 to 2.5 lakh cases are reported annually.

➲ The global incidence of dengue has grown dramatically with about half the world's population now at risk. Though an estimated 100-400 million infections occur each year, over 80% are generally mild and asymptomatic.

➲ Hence, in 2019, the World Health Organization (WHO) identified dengue to be one among the top 10 global health threats.

➲ As of now, there is no specific treatment for dengue/ severe dengue.

Potential vaccines:

➲ The Serum Institute of India's vaccine initiated one/ two studies in paediatric population and the plan for Panacea's vaccine is to conduct Phase 3 randomised, double-blind, placebo-controlled trial in 10,335 healthy adults (aged 18-80) in 20 sites (ICMR-funded).

➲ The Phase 3 protocol has been approved by the Drugs Controller General of India (January 2023) and the company is trying to upscale vaccine production with the trials expected to start in August-September.

➲ The desirable characteristics of a dengue vaccine includes acceptable short- and long-term safety profile (no antibody-dependent enhancement), inducing protection against all four serotypes of dengue, reducing risk of severe diseases and deaths, inducing a sustained immune response and effectiveness irrespective of the earlier sero-status and age of the individual.

Way Forward:

➲ Trials could start close to August for the adult vaccine.

WHO'S GLOBAL NETWORK TO DETECT THREAT FROM DISEASES

Why in news?

➲ The World Health Organization recently launched a global network to help swiftly detect the threat from infectious diseases, like COVID-19, and share the information to prevent their spread.

Key Highlights:

➲ The International Pathogen Surveillance Network (IPSN) will provide a platform for connecting countries and regions, improving systems for collecting and analysing samples.

➲ The network aims to help ensure infectious disease threats are swiftly identified and tracked while the information is shared and acted on to prevent catastrophes like the Coronavirus pandemic.

➲ The network will rely on pathogen genomics to analyse the genetic code of viruses, bacteria and other disease-causing organisms.

To achieve its mission, the IPSN encompasses five areas of work:

Communities of practice to solve common challenges:

➲ At the heart of the IPSN's work is a set of communities of practice that enable exchange between partners working on pathogen genomics. The first of these is the IPSN Community of Practice on genomics data.

➲ Its projects and deliverables aim to harmonize data standards and protocols, ensure genomics data tools are fit for purpose, and that data and benefits sharing are enhanced.

Country scale-up accelerator to align efforts and enable South-South exchange:

➲ The IPSN has established a Country Scale-Up Accelerator (CSUA) to accelerate and amplify the efforts of IPSN members to rapidly increase country capacity for pathogen genomic surveillance.

➲ The CSUA's projects and deliverables aim to create a set of capacity-building tools as global goods, and to empower increased South-South bilateral and subregional partnerships for capacity development.

Funding to improve equity and to power IPSN projects:

➲ To ensure improved coordination and harmonization of donor efforts, the IPSN has established a funders forum, which works with the Secretariat to support IPSN activities and members including a small grants fund.

High-level advocacy and communications to keep genomic surveillance on the agenda:

➲ With active engagement of countries, partners, regional organizations and WHO, the IPSN keeps pathogen genomic surveillance on the global agenda and ensures strategic buy-in.

Global partners forum for pathogen genomics to bring partners together:

➲ The annual forum brings together key players from all IPSN entities involved in pathogen genomic surveillance, providing a high-profile stage to build partnerships, introduce innovations, socialize ideas and advocate for political and financial commitments.

Significance:

➲ WHO hailed the "ambitious" goals of the new network, saying it could "play a vital role in health security".

CULTURE

COPPER PLATES BRING INTO FOCUS SHILABHATTARIKA AND HER POETRY

Why in news?

➲ Researchers recently at BORI claimed to have shed new light on Shilabhattarika; the celebrated Sanskrit poetess of ancient India by establishing her as a daughter of the famed Chalukyan emperor Pulakeshin II of Badami (in modern Karnataka).

Details:

➲ Pune-based Bhandarkar Oriental Research Institute (BORI) houses South Asia's largest collection of manuscripts and rare texts.

➲ Following the decoding of inscriptions on copper plates they said it was now reasonably certain that Shilabhattarika was a Chalukyan princess, possibly the daughter of Pulakeshin II, who ruled from 610-642 CE and had defeated Harshavardhan of Kanauj in a battle near the banks of the Narmada River in 618 CE.

Shift in historiography:

➲ The importance of this decipherment shed new light on Shilabhattarika, who stood out as a poetess in the male-dominated field of classical Sanskrit literature in ancient India.

➲ The Sanskrit poet-critic Rajashekhara, who lived in the 9th-10th century CE and was the court poet of the Gurjara-Pratiharas, had praised Shilabhattarika for her elegant and beautiful compositions.

➲ Noted Marathi poetess Shanta Shelke too has drawn inspiration from Shilabhattarika's verses to compose

one of her most iconic songs— toch chandrama nabhat (it is the same moon in the sky).

- The decoding of the copper plates also marks a notable shift in the historiography of Badami Chalukyas by placing Shilabhattarika as having lived in the 7th century CE rather than the current theory which has her as the wife of the 8th Century Rashtrakuta ruler Dhruva.

Copperplate Charter:

- A copperplate charter with five copper plates said to be dating from the reign of the Badami Chalukyan ruler Vijayaditya (696-733 CE) has been deciphered.
- The charter had five plates measuring 23.4 cm by 9.4 cm, held together by a copper ring bearing a beautiful varaha (boar) seal. The varaha seal is the trademark of the Badami Chalukyas.
- The charter contained a Sanskrit text with 65 lines inscribed in late-Brahmi script.

Other findings:

- A primary reading of the plates revealed that Vijayaditya had donated the village of Sikkatteru in the Kogali Vishaya to a vedic scholar named Vishnusharma in the month of Magha, Shaka year 638, corresponding to January-February 717 CE.
- The Sikkateru was identified as Chigateri situated near Kogali in the Vijayanagar district of Karnataka. But this was not all. The plates revealed that Vijayaditya had donated the village on request by Mahendravarma, the son of Shilabhattarika.
- The (decoded) text goes on to say that "on recommendation of Mahendravarma, King Vijayaditya Chalukya had donated the village of Chigateri to a scholar Vishnusharma."

Significance:

- More than genealogies, the decipherment brings into focus the importance of Shilabhattarika and her poetry.

MISCELLANEOUS

THE SUBALTERN SCHOOL AND GUHA'S CONTRIBUTIONS TO SOUTH ASIAN STUDIES
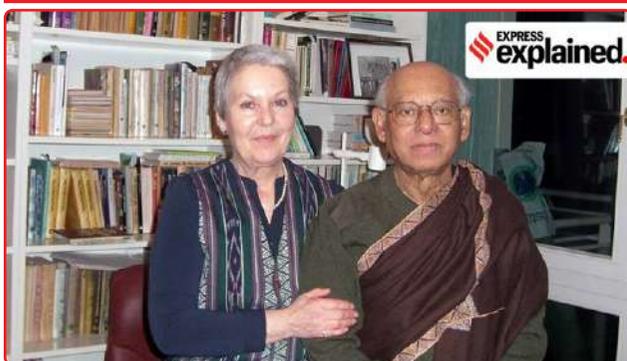
Why in news?

- Recently, Historian Ranajit Guha passed away.
- He ushered in a new way of studying South Asia, departing from the primacy of elitist concerns that had previously dominated scholarship.

Subaltern School:

- He, alongside his collaborators (many of whom were his students), began the Subaltern School, which remains one of the most influential post-colonial, post-Marxist schools in history.
- Over time, the influence of this school has transcended South Asian history to shape scholarship from across the world and on various facets of life and society.

Details:

- Born in Siddhakati, Backerganj (present-day Bangladesh) on May 23, 1923, he migrated to the UK in 1959. There he was a reader in history at the University of Sussex.
- While studying and teaching Indian history, he recognised that mainstream historical narratives in and about India were grossly inadequate to study the complexity of India's past. Crucially, what traditional narratives missed was the voice of underclasses – the subaltern.

Term 'subaltern':

- The term "subaltern" was first coined by Italian Marxist philosopher Antonio Gramsci to refer to any class of people (for Gramsci, peasants and workers) subject to the hegemony of another, more powerful class.
- This term was picked up by Ranajit Guha and like-minded colleagues in the early 1980s in their attempt to "rectify the elitist bias characteristic of much of research and academic work" in the field of South Asian studies.

Context of the Subaltern School:

- Mainstream scholarship on South Asia, prior to the Subaltern School, was either a product of colonial Eurocentrism or dominated by concerns of native elites, often heavily influenced by colonial frameworks and narratives themselves.
- For instance, James Mills' three-part classification of Indian history into ancient (Hindu), medieval (Muslim) and modern (colonial and post-colonial) remains influential till date, having shaped generations of nationalist historians.
- However, not only is this an unthoughtful imposition of a prevalent framework used to study European history, this also misses out a diversity of experiences that should feature in historical study.
- Even left-wing academics who ostensibly were writing about the masses were unable to completely shed European frameworks and Marxist orthodoxy which privileged class as the overarching category of historical analysis.

- They were oblivious or dismissive of specific Indian modes of subalternity and hence were unable to truly appreciate Indian society in its complex richness and nuance. The Subaltern School came and changed this.

Peasant consciousness:

- In his enduring classic, Elementary Aspects of Peasant Insurgency in Colonial India (1983), he writes about peasant consciousness and different modes of expression of dissent by peasants in colonial India.
- While peasant resistance had been documented since the beginning of colonial rule. His approach was fundamentally different. His work focussed on studying peasant insurgency from the perspective of the peasant. It provides insurgent peasants their own political agency rather than one supplied to them by native elites.
- Methodologically, even when he looks at commonly used historical sources such as colonial documents, his approach problematizes them, aware of the positionality of the creators and consequently, aware of possible biases in the sources themselves.

Some criticisms of the Subaltern School:

- While the Subaltern School has been extremely influential in guiding generations of scholarly work on South Asia and post colonial societies since the 1980s, it has not been without its critics.
- One of the main criticisms of the Subaltern School is its focus on agency at the expense of structure. Critics argue that the Subaltern School tends to overlook the ways in which social and political structures constrain the agency of subaltern groups. As a result, the Subaltern School has been accused of presenting an overly romanticised view of subaltern agency and resistance.
- Furthermore, the Subaltern School's approach to politics tends to be overly focused on identity-based movements and resistance.
- This approach overlooks the importance of class-based politics and the potential for subaltern groups to engage in transformative struggles that challenge the existing economic and political structures. This is especially true of more recent work from the School.
- Lastly, in a bid to problematize the Eurocentrism of traditional Marxists, the Subaltern School, has taken a turn in the opposite extreme, rejecting any form of universal theorising as incapable of explaining particularities of South Asia.
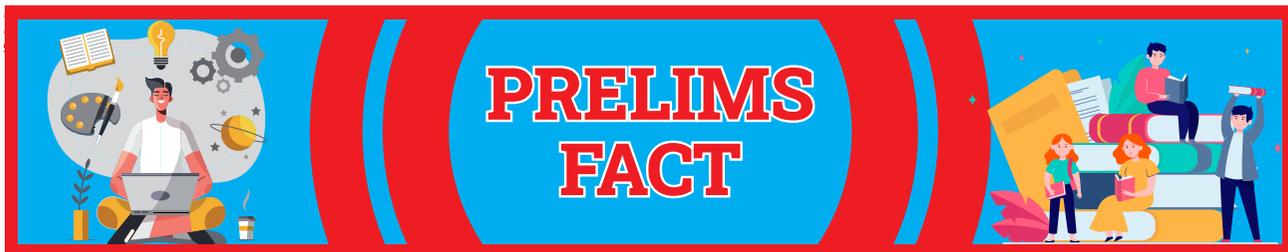
POLITY & GOVERNANCE

STRAY DOGS AND POOR WASTE MANAGEMENT

Why in news?

- Frequent reports of dogs attacking people to death have made the management of stray dogs an administrative and legal issue in India.

What do dog bites have to do with poor waste management?

- The "carrying capacity" is determined by the availability of food and shelter.
- Free-ranging dogs, in the absence of these facilities, are scavengers that forage around for food, eventually gravitating towards exposed garbage dumping sites. Dogs thus congregate around urban dumps, such as landfills, due to feeding opportunities.
- A population boom in Indian cities has contributed to a staggering rise in solid waste. Indian cities generate more than 1,50,000 metric tonnes of urban solid waste every day.
- According to a United Nations Environment Program 2021 report, an estimated 931 million tonnes of food available to consumers ended up in households, restaurants, vendors and other food service retailers' bins in 2019.
- Indian homes on average generated 50 kg of food waste per person. This waste often serves as a source of food for hunger-stricken, free-roaming dogs that move towards densely-populated areas in cities, such as urban slums which are usually located next to garbage dumping sites and landfills.

What role does urbanisation play?

- Cities have witnessed a sharp increase in the stray dog population, which as per the official 2019 livestock census stood at 1.5 crore. However, independent estimates peg the number to be around 6.2 crore.

- The number of dog bites has simultaneously doubled between 2012 and 2020. India also shoulders the highest rabies burden in the world, accounting for a third of global deaths caused due to the disease.
- In 2015, a study conducted in 10 Indian metro cities found a strong link between human population, the amount of municipal and food waste generated, and the number of stray dogs in the cities.

Correlation between urbanisation & solid waste production:

- While there is no evidence to show that a rising population and municipal waste directly led to an increase in dog bites, experts agree there may be a correlation between urbanisation and solid waste production, made visible due to the mismanagement of waste disposal.
- Tepid animal birth control programmes and insufficient rescue centres, in conjunction with poor waste management, result in a proliferation of street animals in India.
- Additionally, most landfills and dumping sites are located on the peripheries of cities, next to slums and settlement colonies. Thus, the disproportionate burden of dog bites may also fall on people in urban slums.
- A study published in 2016 found that the prevalence of dog bites was higher in urban slums usually located in close proximity to dumping sites than rural slums.

How has India managed the problem?

- India's response to the "stray dog menace" has relied upon the Animal Birth Control (ABC) programme, through which municipal bodies trap, sterilise and release dogs to slow down the dog population.
- The second anchor was rabies control measures, including vaccination drives.
- But implementation suffers from low awareness around the health implications of dog bites, irregular supply of vaccines, delay in seeking treatments, and a lack of national policy.

CENTRE PLANS PANEL TO FIND ALTERNATIVE TO DEATH BY HANGING

Why in news?

- Recently, the government apprised the Supreme Court that it is considering the formation of a committee to examine the need for a painless and more dignified alternative to death by hanging.

➲ Appearing before a Bench led by Chief Justice of India D.Y. Chandrachud, Attorney General sought time till July to report back to the Supreme Court.
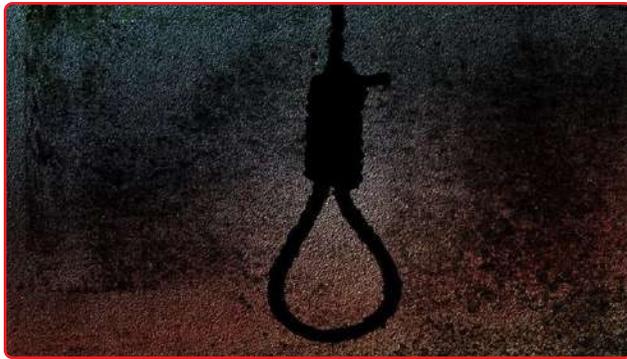
Background:

➲ In March, the court had asked the government to provide data which may give a clue to a more acceptable method of executing prisoners other than death by hanging.

➲ The Chief Justice had in that hearing suggested to the government the formation of a committee with experts from the national law universities, professors of law, doctors and scientific persons.

➲ The court had indicated to the Centre that it may even direct an alternative method of executing capital punishments if it was proved that there was a more "humane" method of execution which would render death by hanging unconstitutional.

What was the case before SC?

➲ The court was hearing a petition filed by advocate Rishi Malhotra challenging the constitutionality of death by hanging as a mode of execution.

➲ Section 354 (5) of the Code of Criminal Procedure mandates that a person sentenced to death shall "be hanged by the neck till he is dead".

➲ In fact, in 2018, the Centre had filed an affidavit supporting death by hanging. It had not found the method of execution "inhuman and cruel" compared to lethal injections.

CANTONMENTS TO GO AS CURTAINS COME DOWN ON 'ARCHAIC COLONIAL PRACTICE'

Why in news?

➲ Sixty-two cantonments in India will cease to exist and all fauji areas will be designated as a military station and while those with civilians will come under local municipalities.

➲ Yol in Himachal Pradesh's Kangra district is the first to shed its cantonment tag.

Details:

➲ The military area within the cantonment will be converted into a military station and the civil area will merge with the municipality and assets of the Cantonment Board will be taken over by the neighbouring municipalities.

➲ This is a major departure from the "archaic colonial practice of creating cantonments".

Significance:

➲ Civilians who were, until now, not getting access to state government welfare schemes through the municipality, will now be in a position to avail them.

➲ As far as the Army is concerned, it too can now focus on the development of the military station.

Background:

➲ At the time of Independence there were 56 cantonments and 6 more were notified after 1947, the last one being Ajmer in 1962.

➲ According to records maintained by the Defence Estates Offices, the defence ministry is the largest landowner in the country, with about 17.99 lakh acre.

➲ Of this, approximately 1.61 lakh acre is held within the 62 notified cantonments. The remaining land, around 16.38 lakh acre, is spread across the country and outside the cantonments.

➲ Affairs related to the cantonments, including construction of new buildings, height of building, commercial conversion, sewage and rest were all controlled by the Cantonment Board.

➲ The excision has happened earlier in Ambala and Agra while cantonments like Dharamshala, Sitapur among others were de-notified before 1947.

State subject:

➲ Cantonments are deemed municipalities and running municipalities is a state subject.

➲ Civilian residents of cantonments are not benefited from state welfare schemes since cantonments are governed by Cantonment Boards through the Defence Estates Department of the Ministry of Defence.

➲ A considerable portion of the Defence Budget is spent on the development of civil areas of cantonments.

NO UNION, BUT CENTRE READY TO EASE LIVING OF GAY COUPLES

Why in news?

➲ Recently, the Union government informed the Supreme Court that it was willing to form a committee headed by the Cabinet Secretary to consider administrative

measures for addressing "genuine, human concerns" faced by same-sex couples in their daily lives in areas such as banking and insurance, without delving into their petitions for legal recognition of same-sex marriage.

- The Constitution Bench led by Chief Justice of India termed the government's stand a "step forward" and even a "big, big positive" towards achieving wider social acceptance of the right of same-sex couples to cohabit.

Reaction by the Supreme Court:

- The Chief Justice said it could now go into whether same-sex couples have a "right to cohabit together in a normal, peaceable environment in our country without facing any form of discrimination, societal or otherwise".
- It said the suggestion from the government to form a committee headed by the Cabinet Secretary indicates its readiness to recognise the incidence of cohabitory relationships among same-sex couples.
- The Centre's offer of a forum to address the day-to-day human concerns of the same-sex community would ensure that the petitioners' movement does not hit a wall, even if they may fail in their endeavour in court.

Views of SC bench:

- Justice S. Ravindra Bhat asked the petitioners to consider the government's proposal as a "building block" for future changes.
- Justice Sanjay Kishan Kaul reasoned that even if the petitioners were to get a judicial declaration from the court legally recognising same-sex marriage, there would be "many, many changes required in administrative and legislative aspects". Whether the court recognises same-sex marriage or not, these human concerns have to be addressed.
- The government, though reluctant to give same-sex relationships the status of marriage, is not reluctant to sort out the human concerns arising out of them, Justice Sanjay Kishan Kaul said.
- Justice Hima Kohli said the petitioners should not go for an "all-or-none approach" and finally reach a dead end.

CENTRE PREPARES NEW MODEL PRISONS ACT WITH FOCUS ON REFORM

Why in news?

- The Ministry of Home Affairs has prepared the 'Model Prisons Act 2023,' that will replace a British-era law to overhaul the prison administration, which will focus on the reformation and rehabilitation of inmates.

Salient features:

- Among the salient features of the Act are
  - provisions of punishment for prisoners and jail staff for use of prohibited items such as mobile phones in jails,
  - establishment and management of high security jails,
  - open jail, and provisions for protecting the society from the criminal activities of hardened criminals and habitual offenders.
  - It also contains provisions for providing legal aid to prisoners, parole, furlough and premature release to incentivise good conduct.

Colonial era laws:

- Prisons in the country and 'persons detained therein' are a State subject and the existing law in this context, the Prisons Act of 1894 is a pre-independence era Act and is almost 130-years-old.
- Two other related laws; The Prisoners Act, 1900 and The Transfer of Prisoners Act, 1950 are also decades-old.

Significance of Model Prisons Act:

- The Model Prisons Act might serve as a "guiding document" for the States, and for adoption in their jurisdiction. There were "several lacunae" in the existing Prisons Act and there was "conspicuous omission" of the correctional focus in the existing Act.
- The Ministry, directed the Bureau of Police Research and Development, a Union government think tank on policing subjects, to review the laws and prepare a new draft.

Way Forward:

- The existing Act mainly focuses on keeping the criminals in custody and enforcement of discipline and order in prisons. There is no provision for reform and rehabilitation of prisoners in the existing Act.

➲ A comprehensive 'Model Prisons Act, 2023' was finalised with the objective of holistically providing guidance and addressing the gaps in the existing Prisons Act.

INTERNATIONAL RELATIONS

INDIA LEADS IN LAUNDERING RUSSIAN OIL AND SELLING TO EUROPE, REPORT

Why in news?

➲ Recently, a report, titled, 'Laundromat: How the price cap coalition whitewashes Russian oil in third countries' was released by the Centre for Research on Energy and Clean Air (CREA).

Details:

➲ India leads five countries named as 'the Laundromat' countries that buy Russian oil and sell processed products to European countries, thus side-stepping European sanctions against Russia, says the report that cited the latest figures for the first quarter of 2023.

➲ The report, coincides with the latest data from analytics firm Kpler and a report by international agency Bloomberg that showed how European Union (EU) countries, which are all part of the "price cap coalition" that bars trade and insurance for any oil purchased above a certain price from Russia, are in fact increasing their intake of oil from India, China, Turkey, the UAE and Singapore.

➲ The report also accused Indian sellers and European buyers of possibly "circumventing sanctions" by selling crude products from a refinery in Gujarat that is co-owned by Russian oil company Rosneft.

➲ European countries are simply substituting oil products they previously bought directly from Russia, with the same products now "whitewashed" in third countries and bought from them at a premium.

Exports by India:

➲ Of the so-called "laundromat" countries, India, which in April remained the highest global consumer of seaborne Russian crude for a fifth month, is ahead of all others in the export of crude products to the coalition countries, exporting nearly 3.8 million tonnes of oil products to price cap coalition countries,

which include the EU, G-7 countries, Australia and Japan.

➲ India's exports of diesel, for example, tripled to about 1,60,000 barrels per day in March 2023, compared with the period before the Russian war in Ukraine, making diesel one of the largest components of India-EU trade at present.

➲ The most oil products were being exported from two ports in Gujarat: the Sikka port that services the Reliance-owned Jamnagar refinery, and the Vadinar port that ships oil products from Nayara energies, which is partly owned (49.13%) by Rosneft, alleging that this could constitute "circumventing sanctions" imposed unilaterally by the U.S. and Europe.

CHINA AMENDED ANTI ESPIONAGE LAW

Why in news?

➲ Recently, China's legislature approved amendments to China's anti-espionage law, broadening the scope of activities related to spying and national security.

➲ The amendments come amid a string of high-profile cases involving journalists, foreign executives, as well as international companies in China, who have come under the lens of authorities on national security grounds.

➲ It emphasises the dual importance of "development and security", rather than a focus solely on economic development.

What is China's anti-espionage law?

➲ The recent amendments are to China's 2014 anti-espionage law. Article 1 of the law says the idea behind the legislation is "to prevent, stop and punish espionage conduct and maintain national security."

➲ The broad ambit of what constitutes "national security" as well as the law's focus on involving a "whole of society" approach to counter-espionage, including from Chinese enterprises and organisations, evoked concerns among both rights groups and foreign enterprises in China.

➲ Foreign governments are especially concerned whether Chinese companies, particularly in the tech sector, would be mandated to offer their vast amounts of data to the authorities.

- Another article encourages ordinary citizens to take part in national anti-espionage efforts by reporting to the authorities any activity deemed to be suspicious and endangering national security.
- They have further broadened the law's scope, with one of the changes declaring that "all documents, data, materials, and items related to national security and interests" will be protected on par with what are deemed state secrets.
- The definition of espionage has also been expanded to include cyber-attacks.

What will be the impact of the amended law?

- The amended law is likely to have a chilling impact both within China and beyond.
- Chinese journalists, academics and executives who frequently engage with foreign counterparts are likely to think twice before doing so, at least without explicit government sanction, particularly in the wake of the arrest of Dong Yuyu.
- Unrestricted engagement between Chinese and foreign scholars, which has already become limited in the Xi Jinping era, is likely to become even rarer.
- Foreign enterprises are also likely to be concerned following recent reported investigations by Chinese authorities on the U.S. consulting firm Bain & Company and a raid on the American due diligence company Mintz Group.
- Indian companies with a presence in China, particularly in sectors deemed to be sensitive such as pharma and IT, will likely need to review their exposure to risks under the expanded law and broadened definitions of "national security", particularly amid deteriorating relations between the neighbours.

MALDIVES GETS TWO MADE IN INDIA WARSHIPS

Why in news?

- During his three-day visit to the Maldives, Defence Minister Rajnath Singh handed over two Made in India warships to the Maldives National Defence Force (MNDF).

Key Highlights:

- One of them, a fast patrol vessel (FPV), capable of coastal and offshore surveillance at high speeds, was commissioned as MNDF Coast Guard ship Huravee.
- The other vessel he presented was a landing craft assault (LCA), capable of carrying personnel and equipment and landing them on a beach in the face of opposition.
- In the Union Budget for 2023-24, India allocated Rs 400 crore to the Maldives, towards lines of credit for the supply of such Indian defence assistance.

Background:

- It is a symbol of the shared commitment of India and the Maldives towards peace and security in the Indian Ocean Region (IOR).
- The ties emanate from the twin policies of 'Neighbourhood First' and 'SAGAR' (Security and Growth for All in the Region).
- Prime Minister Narendra Modi visited to the Maldives in June 2019, in which he emphasised that within India's 'Neighbourhood First' priority, "Maldives is top priority".

INDIA-ISRAEL FRIENDSHIP, BEGINNING OF A NEW ERA OF INDUSTRIAL RESEARCH AND DEVELOPMENT COOPERATION

Why in news?

- In a momentous milestone in S&T cooperation between India and Israel, a MoU on Industrial Research and Development Cooperation was signed between the Council of Scientific and Industrial Research (CSIR) and the Directorate of Defense Research and Development (DDR&D), of Israel.

Key Highlights:

- The MoU shall enable cooperation in the industrial R&D programs in mutually agreeable industrial technology fields through implementation of specific projects.
- The collaboration would encompass some of the key industrial sectors including Healthcare; Aerospace & Electronics Instrumentation; Civil, Infrastructure & Engineering; Chemicals and Petrochemicals, Sustainable Energy including Energy Devices;

Ecology, Environment, Earth & Ocean Sciences and Water; Mining, Minerals, Metals & Materials; Agriculture, Nutrition & Biotechnology.

➲ The collaboration through the MoU would be steered and the execution monitored by a Joint Steering Committee led by the heads of the CSIR and DDR&D for taking forward mutually benefiting Industrial and technology cooperation.

➲ They welcomed collaboration on futuristic technologies in Hydrogen and Aerospace, including in High Altitude Platform, Hydrogen Valley programs of CSIR, respectively.

Way Forward:

➲ The present CSIR-DDR&D cooperation would add another feather and be a milestone for India-Israel relations.

➲ It is a very important year in the S&T sphere of India under the leadership of PM of India as India is holding G20 presidency, celebrating the International year of Millets, as also India and Israel completed 30 years of successful diplomatic relations.

CHINESE BOATS CROSS INDIAN AND ASEAN SHIPS DURING MILITARY EXERCISE

Why in news?

➲ Chinese boats and maritime militia reportedly tracked the drills carried out by the navies of India and ASEAN countries in the South China Sea.

➲ China appeared to be using the militia to intimidate. They apparently wanted to disrupt the naval exercise.

Details:

➲ The naval ships and aircraft from India, Vietnam, Thailand, the Philippines, Indonesia and Brunei took part in the two-day sea phase of the ASEAN-India Maritime Exercise (AIME 2023).

➲ The Chinese militia was in the Vietnamese Exclusive Economic Zone and the naval vessels even crossed each other, but they didn't engage.

➲ Such militias consist of commercial fishing boats, which work in coordination with the Chinese authorities for political objectives in the South China Sea.

ASEAN-India Maritime Exercise:

➲ AIME 2023 involved a total of nine ships and six aircraft, In addition to that, more than 1,800 personnel took part from across the bloc's member states.

➲ The Harbor Phase of AIME-2023 held at Changi Naval Base from May 2nd to May 4th, 2023, and the Sea Phase held in the South China Sea from May 7th to May 8th, 2023.

➲ The primary goal of AIME-2023 was to provide an opportunity for the Indian Navy and ASEAN navies to work together closely and conduct seamless operations in the maritime domain.

➲ INS Delhi and INS Satpura successfully participated in various activities during the harbour phase of the AIME 2023.

CALIFORNIA SENATE PASSES BILL BANNING CASTE DISCRIMINATION

Why in news?

➲ Recently, the California state Senate passed a Bill to ban caste-based discrimination in the state.

Key Highlights:

➲ The Bill adds caste as a protected category to an existing law, the Unruh Civil Rights Act, which provides that all people in California are entitled to full and equal accommodations, facilities, or services in all establishments.

➲ The Bill provides explicit protections to those who have been systemically harmed due to caste bias and prejudice.

➲ It also provides firm legal consequences for those seeking to avoid responsibility or ramifications for permitting or participating in caste discrimination and caste-based violence.

Concerns:

➲ However, many Indian Americans fear that codifying caste in public policy will further fuel instances of Hinduphobia in the U.S.

Background:

➲ Seattle was the first US city to include caste protections in its anti-discrimination statutes earlier in 2023, and several colleges and universities have taken similar steps.

➲ Advocates for caste-oppressed individuals have said that institutions and workplaces are ill-equipped to deal with caste bias, which has been documented in recent years among South Asians in the US.

Way Forward:

➲ A coalition of organisations from various religious and caste backgrounds also backed the bill. The California State Assembly will now consider the bill.

INDIA HOSTS SG9 MEETING TO ADVANCE STANDARDS FOR TELEVISION TECHNOLOGY

Why in news?

➲ For the first time that India is hosting the SG9 meeting.
➲ The meeting is being held from May 9- May 18, 2023, and this is the first physical meeting of SG9, which is being held after the Covid-19 pandemic.

Venue:

➲ The Indian Institute of Science (IISc), Bengaluru, and the Telecommunication Engineering Centre (TEC), Department of Telecommunications (DoT) are organising the meeting of ITU-T Study Group 9 (SG-9) on "Broadband Cable and Television/Audiovisual content transmission and integrated broadband cable networks" at the IISc campus.
➲ The SG9 looks at various aspects of transmission, distribution, and rendering of cable and broadband TV.

International Telecommunication Union (ITU):

➲ Established in 1865, ITU facilitates international connectivity in communications networks.
➲ It allocates global radio spectrum and satellite orbits, while also developing the technical standards that ensure networks and technologies seamlessly interconnect.
➲ It tries to improve access to Information and Communications Technologies (ICTs) in underserved communities worldwide.
➲ SG 9 at ITU is responsible for telecommunication systems for the primary and secondary distribution of audiovisual content, including accessibility services and emerging interactive media.

U.S., PAPUA NEW GUINEA SIGN DEFENCE PACT AT PACIFIC SUMMIT

Why in news?

➲ Recently, the U.S. signed a new security pact with Papua New Guinea on Monday as it competes with China for influence in the Pacific.

Why Papua New Guinea?

➲ Papua New Guinea's location just north of Australia makes it strategically significant.
➲ It was the site of fierce battles during World War II, and with a population of nearly 10 million people, it's the most populous Pacific Island nation.

Key Highlights:

➲ The new agreement provides a framework to help improve security cooperation, enhance the capacity of Papua New Guinea's defence force and increase regional stability.
➲ The United States and PNG struck a separate agreement on increasing maritime surveillance of PNG's exclusive economic zone through U.S. Coast Guard patrols, protecting its economy from illegal fishing.
➲ The United States will provide $45 million in new funds as it works with PNG to strengthen economic and security cooperation, including protective equipment for the PNG defence force, climate change mitigation and tackling transnational crime and HIV/AIDS.
➲ It will expand PNG defence capacity to enhance humanitarian assistance and disaster response, and make it easy for U.S. and PNG forces to train together.

China factor:

➲ U.S. Secretary of State Antony and Indian Prime Minister held separate summits with 14 Pacific island leaders in the PNG capital Port Moresby, pledging support for the region's priorities of health, development and climate change.
➲ The United States and its allies are seeking to deter Pacific island nations from forming security ties with China, a rising concern amid tension over Taiwan, and after China signed a security pact with Solomon Islands.

➲ Leaders of the Pacific islands, whose territories span 40 million square km (15 million square miles) of ocean, have said rising sea levels caused by climate change are their most pressing security priority.

➲ The Quad leaders of Australia, United States, Japan and India had agreed in Hiroshima, Japan to increase cooperation with the Pacific.

Agreement with Palau:

➲ The United States also signed a Compact of Free Association with Palau, one of three agreements worth a combined $7.1 billion that will renew pacts originally struck in the 1980s with Palau, Marshall Islands and Federated States of Micronesia that give the U.S. defence responsibility and access to huge strategic swathes of the Pacific.

INDIA US WORKING GROUP ON EDUCATION AND SKILL DEVELOPMENT VIRTUALLY LAUNCHED

Why in news?

➲ Recently, the Ministry of Education, Government of India and US Department of State launched the India-US Working Group on Education and Skill Development in virtual mode, with the aim to enhance cooperation and collaboration between the two countries in the field of education and skill development.

➲ The establishment of the India-US Working Group on Education and Skill Development was announced by the leaders on the sidelines of the 2+2 Ministerial Dialogue held between India and US in Washington DC on 11th April 2022.

Key Highlights:

➲ Recognizing the need to align skills training programs with industry requirements, both sides agreed to foster partnerships between educational institutions, industry stakeholders, and relevant government agencies. This collaboration aims to address skills gaps, enhance employability, and promote entrepreneurship in both the countries.

➲ The delegations emphasized the significance of certification and recognition mechanisms in ensuring the quality and portability of skills across borders.

➲ Indian side explained the importance of mutual recognition of academic qualifications and skill certifications which is essential for smooth mobility of students and professionals between the two countries.

➲ Recognizing the potential for collaboration in the field of higher education, the delegations discussed the importance of matchmaking between higher educational institutions of India and US.

➲ The delegations agreed to encourage and facilitate such partnerships to foster academic and cultural exchange, enhance educational quality, and promote innovation and knowledge-sharing.

➲ Both sides agreed to encourage greater inter-linkages amongst the educational institutions. Indian side proposed that developing joint/dual and twinning courses in areas of mutual interest could be explored.

➲ Both sides acknowledged the importance of engagement with the private sector to align the education sector with the needs of the job market.

Way Forward:

➲ The delegations from both sides expressed their commitment to strengthening cooperation in education and skill development between India and US.

➲ The Joint Working Group agreed to continue regular meetings and explore concrete avenues to further advance education and skill development collaboration between India and US.

INDIAN RAILWAYS HANDS OVER 20 BROAD GAUGE LOCOMOTIVES TO BANGLADESH

Why in news?

➲ To further strengthen bilateral relationship, 20 Broad Gauge (BG) locomotives were virtually flagged off to Bangladesh in a handing over ceremony at Rail Bhavan New Delhi, recently.

Key Highlights:

➲ The handing over of these diesel locomotives, under grant assistance from the Government of India, fulfills an important commitment made during the visit of Prime Minister of Bangladesh to India, in September 2022.

◌ In keeping with the requirements of Bangladesh Railway, the locomotives have been suitably modified by the Indian side. These locomotives will help handle the increasing volume of passenger and freight train operations in Bangladesh.

Broad Gauge (BG) connectivity:

◌ Indian Railways are also playing a vital role in improving and strengthening rail connectivity across the border and improving trade between both the countries.

◌ As of now, five BG connectivity are operational, namely Geda- Darsana, Benapol- Petrapol, Singhabad- Rohanpur, Radhikapur- Birol and Haldibari-Chilahati.

◌ Work on two more cross border rail connectivities, Akhaura-Agartala and Mahihasan-Shahbazpur are progressing well and are likely to be completed and commissioned shortly.

Passenger trains:

◌ To enhance people to people contact, presently three pairs of passenger trains between India and Bangladesh, namely, Kolkata-Dhaka Maitree Express, Kolkata-Khulna Bandhan Express and New Jalpaiguri- Dhaka Mitali Express are running.

Bilateral Trade:

◌ Trade between both the countries via rail have seen consistent growth with interchange of close to 100 cargo trains per month and approximately 2.66 MT cargo was sent to Bangladesh in 2022.

◌ The export commodities are Stone, DOC, Foodgrains, China Clay, Gypsum, Maize, Onion and other essential items, as and when required, from India.

◌ Since 2020 permission has been given to operate parcel container and NMG rakes which normally carry agricultural products, fabrics, finished goods, light commercial vehicles and tractors. A new traffic of geo-synthetic bags has just started and 3 Parcel trains have been sent from Gujarat.

Background:

◌ In line with Indian commitment to improve Rail service in Bangladesh, 10 BG Diesel locomotives were handed over to Bangladesh on grant basis in July 2020.

ECONOMY

THE PROTESTS AGAINST THE REFINERY PROJECT IN MAHARASHTRA

Why in news?

◌ Recently, the Maharashtra government started conducting soil testing at Rajapur tehsil's Barsu village in the coastal Ratnagiri district to know if the site was suitable for the proposed multi-billion dollar Ratnagiri Refinery and Petrochemicals Limited project which is touted as the world's largest single location refinery complex.

◌ As of April 2022, India's oil refining capacity stood at 251.2 million metric tonnes per annum, making it the second-largest refiner in Asia and the fourth largest in the world.

What is the Barsu refinery project?

◌ The project, which is expected to have a capacity of 60 million tonnes per annum, is a joint venture between Saudi Aramco, Abu Dhabi National Oil Company (ADNOC), Indian Oil Corporation Limited, Bharat Petroleum Corporation Limited, and Hindustan Petroleum Corporation Limited.

◌ The project was initially mooted in 2014 and is estimated to cost around rupees three lakh crore.

◌ Besides fuel, the project also proposes to develop various downstream petrochemicals to meet India's fast-growing petrochemical demand.

◌ Initially, the project was supposed to come up at Nanar, about 20 kilometres from Barsu. However, due to strong opposition from the locals, environmental activists and the Shiv Sena, the project was denotified in 2019.

How have the villagers reacted?

◌ Hundreds of residents from Barsu-Solgaon and neighbouring villages are protesting the government's decision as they are concerned about the potential impact on the environment and the livelihoods of local communities.

◌ The project site is in a region that is ecologically sensitive, with several species of flora and fauna endemic to the area. The Konkan region has large mango orchids as well as jack fruit and cashew plantations.

◌ The villagers also expressed concern about the potential health hazards posed by the refinery and petrochemical unit, which is expected to emit a large amount of pollutants.

◌ According to locals, Konkan already suffers from air pollution due to the presence of coal-fired power plants. Many farmers expressed concern that they would lose their source of livelihood if their land is acquired for the project.

◌ Locals say that the project should be shifted to more arid zones in the State like Marathwada and Vidarbha.

What is the State govt.'s stand?

➲ In November 2021, the Shinde-Fadnavis government started issuing land acquisition notices to residents of six villages to acquire the initial 2,220 acres of land.

➲ It has been a strong supporter of the project and argued that it would help reduce India's dependence on crude oil imports and provide a boost to the economy, apart from generating employment for over one lakh people, both direct and indirect.

RAIL VIKAS NIGAM LIMITED (RVNL) GRANTED NAVRATNA STATUS

Why in news?

➲ Recently, Rail Vikas Nigam Limited (RVNL), a Central Public Sector Enterprises of Ministry of Railways, has been granted Navratna Status.

About RVNL:

➲ RVNL was incorporated as PSU on 24th January, 2003, with the twin objectives of implementation of projects relating to creation and augmentation of capacities of rail infrastructure on fast track basis and raising of extra budgetary resources for SPV projects.

➲ The company began its operation in 2005 with the appointment of Board of Directors.

➲ The company was granted Mini-Ratna status in September 2013. The authorized share capital of the company is Rs. 3000 Crore, with paid up share capital of Rs. 2085 crore.

RVNL has been assigned the following functions:

a) Undertaking project development and execution of works covering full project life cycle.

b) Creating Project specific SPVs for individual works, if required.

c) On completion of a Railway project by RVNL, the concerned Zonal Railway will undertake its operation and maintenance.

Way Forward:

➲ The grant of "Navratna" status to RVNL leads to enhanced delegation of powers, more operational freedom and financial autonomy which will give huge impetus to RVNL's progress, particularly so, when RVNL is extending its footprints in sectors beyond Railways and even in projects abroad.

GSI FINDS MASSIVE LITHIUM RESERVES IN RAJASTHAN TO MEET 80% OF INDIA'S DEMAND

Why in news?

➲ The Geological Survey of India (GSI) have identified substantial reserves of lithium in the Degana municipality of Nagaur district in Rajasthan.

➲ These reserves are said to contain significantly more lithium than the 5.9 million tonnes found in Jammu and Kashmir recently.

Why it matters?

➲ The quantity of lithium found in Rajasthan can meet about 80 percent of the country's demand and requirement.

➲ Lithium is the lightest as well as the softest metal across the globe. A nonferrous metal, it converts chemical energy into electrical energy and is one of the key components in EV batteries.

➲ As of now, India depends on imports for many minerals like lithium, such as nickel and cobalt, and has been looking to strengthen its supply of these key minerals, which are otherwise crucial for furthering its plans to expand its electrical vehicle footprint.

Global production:

➲ At the moment, 47 percent of the world's lithium production takes place in Australia, 30 percent in Chile and 15 percent in China.

➲ But, 58 percent of the mineral's processing takes place in China, 29 in Chile and 10 percent in Argentina.

Significance for India's EV industry:

➲ As India discovers significant lithium reserves in Rajasthan, in addition to the previously discovered reserves in Jammu and Kashmir, the country is well positioned to become the 3rd largest market for EVs in the next 4 years.

➲ Batteries, being the single largest cost and supplies dominated by China, have been a major obstacle for India's EV industry.

➲ However, with the 'Make in India' initiative and the discovery of lithium reserves, India is now able to reduce its dependence on foreign countries and control the fluctuating price of lithium.

➲ This development not only enables India to meet its domestic requirements but also allows it to supply lithium to other countries, creating a promising future for the country's EV industry.

INDIA POST BECOMES LOGISTICS PARTNER FOR CRORES OF TRADERS

Why in news?

➲ Recently, India Post signed an MoU with Confederation of All India Traders (CAIT) and Tripta Technologies.

Details:

➲ The MoU facilitates operationalisation of a portal called 'Bharat EMart', which will provide the facility of pick-up of consignments from the premises of traders and will ensure delivery at the doorsteps of the consignees across the country.

➲ It is believed that it will benefits eight crore traders associated with CAIT.

Similar agreements:

➲ India Post in the recent past has entered into similar agreements with Government e-Marketplace (GeM), Regional Centers of Tribal Cooperative Marketing Development Federation of India Limited (TRIFED), to provide pick-up and delivery of parcels at the doorsteps of the consignees.

➲ Shortly, India Post will onboard itself on the Open Network for Digital Commerce (ONDC) platform, being developed by Ministry of Commerce as a logistics service provider.

Transformation of Department of Posts:

➲ Technology induction and addition of new services have made India Post a modern and multiple service providers.

➲ Today, it provides banking, insurance, and the last mile delivery of benefits of several welfare schemes run by the Government to every village through its network of 1.59 lakh Post Offices.

Way Forward:

➲ The MoU with CAIT and Bharat e-Mart would provide much needed logistics support to small traders in the country which would increase their businesses and also the opportunities for employment.

WHAT IS THE STALEMATE OVER THE U.S. DEBT CEILING?

Why in news?

➲ The U.S. Treasury Secretary Janet Yellen notified Congress recently that the country could default on its debt as early as June 1, if the Republican-dominated House of Representatives and President Joe Biden's White House did not reach a consensus to raise or suspend the debt ceiling.

What is the U.S. debt ceiling?

➲ When the federal government spends more than it brings in, it runs up a budget deficit. It then has to borrow money to meet its financial obligations, accruing debt.

➲ The government borrows by creating and selling debt securities like bonds to U.S. investors and companies, banks, pension funds, foreign investors and countries. The largest part of these are owned by the U.S. federal government itself, which keeps the money for social security schemes, medicare, federal pensions and so on.

➲ While the administration and Congress decide on taxation and spending, the collection of taxes and the borrowing of funds is done by the U.S. Treasury Department.

Second Liberty Bond Act:

➲ In 1917, Congress passed the Second Liberty Bond Act, to allow then-President Woodrow Wilson to take out funds for the First World War without waiting for the approval of absent Congress lawmakers.

➲ However, the Congress created a limit on borrowing ($11.5 billion at the time), thus creating a debt ceiling that could only be raised by the approval of the Congress (House and Senate).

➲ The U.S. government has hit or come close to hitting the debt ceiling multiple times. Congress has acted 78 separate times since 1960 either to permanently raise, temporarily extend, or revise the definition of the debt limit.

➲ While the government continues to receive taxation revenue after hitting the debt ceiling, it cannot borrow any more to pay its existing bills. The U.S. would then be unable to pay its debt-holders, resulting in a default.

Why have debt ceiling standoffs become a recurring issue?

➲ Congress approves programmes for which it does not have the entire funding, and then there's a limit on how much the Treasury can borrow to pay for these already approved programmes. Take this analogy, for instance: if Congress approves $100 of spending, $70 comes from taxes but the cap on what the government can borrow to pay for the rest is fixed at a mere $15.

- Another reason why disagreements over the debt limit happen often, almost annually since 2011, is that it has become a political bargaining chip, as any raise or suspension has to be approved by Congress. As American politics becomes increasingly polarised, the Opposition has often used the debt limit as a way of getting budgetary and other legislative concessions.
- The U.S. came dangerously close to defaulting on its debt in 2011 when the Republicans and the Obama administration could not reach an agreement to hike the ceiling till the last minute. Observers have called the current impasse between House Republicans and the Biden administration even messier than in 2011.
- The Republican Speaker Kevin McCarthy-led House passed a Bill that pairs a $4.8 trillion in spending cuts with an increase in the current $31.4 trillion debt ceiling. However, U.S. President wants a clean debt-ceiling hike and won't negotiate any kind of cuts, resulting in the current deadlock.

What will happen if the U.S. defaults?

- Analysts say there is no set post-default scenario since the U.S. has never actually defaulted on its debt before. They have warned, however, of a "catastrophic" situation for American and global financial markets.
- If the government cannot make interest payments to domestic and foreign investors who own its debt securities, it could plunge the globe into a financial crisis.
- The "unthinkable" event of a U.S. default could lead to another downgrade of U.S. creditworthiness by agencies, large-scale job losses, weakening of the dollar, stock sell-offs, and a rise in the cost of borrowing for the U.S. government.

BANKS TO LAUNCH 100 DAYS CAMPAIGN TO TRACE, SETTLE UNCLAIMED DEPOSITS, RBI

Why in news?

- Recently, the Reserve Bank of India announced a special 100 days campaign under which banks trace and settle their top 100 deposits in every district of the country.
- The banks will commence the campaign from June 1, 2023.

What are unclaimed deposits?

- Balances in savings/current accounts which are not operated for 10 years, or term deposits not claimed within 10 years from date of maturity are classified as 'unclaimed deposits'.
- These amounts are transferred by banks to 'Depositor Education and Awareness' (DEA) Fund maintained by the Reserve Bank of India.

Web portal:

- Recently, the RBI has also announced the setting up of a centralised web portal for public to search unclaimed deposits across multiple banks.
- The RBI from time to time, through its public awareness initiatives, has been encouraging members of public to identify and approach the bank concerned for claiming such deposits.

Way Forward:

- This measure will complement the ongoing efforts and initiatives by the Reserve Bank to reduce the quantum of unclaimed deposits in the banking system and return such deposits to their rightful owners/claimants.

MOHUA MEGA CAMPAIGN MERI LIFE, MERA SWACHH SHEHAR LAUNCHED

Why in news?

- Recently, Ministry of Housing & Urban Affairs (MoHUA) launched MoHUA's mega campaign 'Meri LiFE, Mera Swachh Shehar'.

3R's:

- The campaign titled – 'Meri LiFE, Mera Swachh Shehar' is launched to champion the RRR's of waste management- Reduce, Reuse, and Recycle.
- Urban India is increasingly adopting the principles of making 'Wealth' from waste with citizens actively refurbishing old items for reuse. This is giving an impetus to the overall zero-waste ecosystem under Swachh Bharat Mission-Urban 2.0.
- The 3R's form the backbone of 'Waste to Wealth' and has empowered many craftsmen, recyclers, Self Help Groups, entrepreneurs, startups, etc. to recycle waste into a host of products.

Key Highlights:

➾ This nationwide campaign aims to highlight cities to setup 'Reduce, Reuse, Recycle (RRR) Centres, one stop collection centres, for citizens to contribute clothes, shoes, old books, toys and used plastic to be reused or recycled.

➾ This three-week campaign will strengthen citizen's resolve under SBM-U 2.0 - to reduce, reuse and recycle – and will also champion Mission LiFE's objective of taking collective action for the protection and conservation of the environment by adopting sustainable daily habits.

➾ The RRR Centres are scheduled to be launched nationwide on 20th May, 2023 and will serve as one-stop solution for citizens, institutions, commercial enterprises, etc. to deposit unused or used plastic items, clothes, shoes, footwear, books, and toys.

➾ After collection, these items will be given to different stakeholders to be refurbished for reuse or would be made into new products, thus truly taking forward the Government's vision of circular economy.

➾ The Union Minister also launched the RRR Theme song contest.

Way Forward:

➾ The Meri LiFE, Mera Swachh Shehar will culminate on 5th June, 2023 with the Pledge for LiFE, that will be undertaken by everyone on the occasion of the World Environment Day as well as large scale cleanliness drives across all cities.

CABINET APPROVES PRODUCTION LINKED INCENTIVE SCHEME 2.0 FOR IT HARDWARE

Why in news?

➾ Recently, the Union Cabinet approved the Production Linked Incentive Scheme 2.0 for IT Hardware with a budgetary outlay Rs. 17,000 crore.

Context:

➾ Electronics manufacturing in India has witnessed consistent growth with 17% CAGR in last 8 years. In 2023, it crossed a major benchmark in production; 105 billion USD (about Rs 9 lakh crore)

➾ India has become the world's second largest manufacturer of mobile phones. Exports of mobile phones crossed a major milestone of 11 billion USD this year (about Rs 90 thousand crore).

➾ The global electronics manufacturing ecosystem is coming to India, and India is emerging as a major electronics manufacturing country

➾ Building on the success of Production Linked Incentive scheme (PLI) for mobile phones, the Union Cabinet approved PLI Scheme 2.0 for IT hardware

Salient features:

➾ PLI Scheme 2.0 for IT hardware covers laptops, tablets, all-in-one PCs, servers and ultra small form factor devices

➾ The budgetary outlay of the scheme is Rs. 17,000 crore

➾ The tenure of this scheme is 6 years

➾ Expected incremental production is Rs. 3.35 Lakh crore.

➾ Expected incremental investment is Rs. 2,430 crore.

➾ Expected incremental direct employment is 75,000.

Significance:

➾ India is emerging as a trusted supply chain partner for all global majors.

➾ Large IT hardware companies have shown keen interest in establishing manufacturing facilities in India. This is further supported by strong IT services industry having good demand within the country.

➾ Most majors would like to supply domestic markets within India from a facility situated in India as well as make India an export hub.

WHY HAS THE RBI WITHDRAWN RS 2,000 NOTES?

Why in news?

➾ The Reserve Bank of India (RBI) has decided to withdraw the Rs 2000 denomination banknotes from circulation. But existing notes will continue to be legal tender.

➾ The central bank has advised the public to deposit Rs 2000 banknotes, which were introduced after Rs 500 and Rs 1000 notes were withdrawn during the demonetisation exercise six years ago, into their bank accounts and /or exchange them into banknotes of other denominations at any bank branch.

Why has the RBI withdrawn Rs 2000 notes?

- The Rs 2000 note was introduced in November 2016 under Section 24(1) of The RBI Act, 1934, primarily with the objective of meeting the currency requirement of the economy expeditiously after the legal tender status of Rs 500 and Rs 1000 notes was withdrawn.
- With the fulfilment of that objective, and once notes of other denominations were available in adequate quantities, the printing of Rs 2000 notes was stopped in 2018-19.
- The RBI issued the majority of the Rs 2000 denomination notes prior to March 2017; these notes are now at the end of their estimated lifespan of 4-5 years.
- In pursuance of the 'Clean Note Policy' of the Reserve Bank of India, it has been decided to withdraw the Rs 2000 denomination banknotes from circulation.

What is the Clean Note Policy?

- The Clean Note Policy seeks to give the public good-quality currency notes and coins with better security features, while soiled notes are withdrawn out of circulation.
- The RBI had earlier decided to withdraw from circulation all banknotes issued prior to 2005 as they have fewer security features as compared to banknotes printed after 2005.
- However, the notes issued before 2005 continue to be legal tender. They have only been withdrawn from circulation in conformity with the standard international practice of not having notes of multiple series in circulation at the same time.

CENTRE PLANS TO MAKE CHHATTISGARH GEVRA ASIA LARGEST COAL MINE

Why in news?

- The Centre plans to increase the capacity of the Gevra Mega project in Chhattisgarh of South Eastern Coalfields (SECL) from 50 million tonne of coal production in a year to 70 million tonne, making it Asia's largest coal-producing mine in Asia.
- The Gevra Mega project is currently the largest coal producing mine in the country and is in second position in the Asia-pacific region.

Key Highlights:

- The Centre plans to make the Gevra Mega project into Asia's largest coal producing mine.
- The Gevra Mega project is owned by SECL.
- SECL is a state-owned miniratna company and Coal India is its parent company.

Background:

- Indonesia's Sangatta Mine in East Kalimantan was the largest surface coal producing mine in the Asia-Pacific region, producing approximately 49.2 million tonnes of coal and an estimated 51.4 million metric tons per annum (mmtpa) of Run-of-Mine (ROM) in 2021.

INTERNAL SECURITY

REAL TIME, OPERATIONAL PICTURE AMONG SEVERAL AUTOMATION INITIATIVES OF ARMY

Why in news?

- A new Battlefield Surveillance System (BSS) under Project Sanjay is in the process of being deployed, after extensive validation carried out in the plains, deserts, and mountains.

What is BSS?

- Under BSS, the aim is to have surveillance centres for all field formations by December 2025.
- It will integrate thousands of sensors which will enable provision of an integrated surveillance picture to commanders and staff at all levels, besides completing the sensor-shooter grid by integrating with the Artillery Combat Command and Control System (ACCCS).
- The system also integrates data on the movements of India's adversaries received from various sources across borders, including sensors, satellites, UAVs or unmanned aerial vehicles, and patrols.

Implementation:

- Bharat Electronics Ltd. (BEL), Ghaziabad, is the project's system integrator, and after hundreds of trials across terrains, it has shown a rate of success of more than 95%, meeting the army's aspirations and requirements.

⮥ As part of the trials, a few surveillance centres were set up under two corps of the Army, and with the bulk production clearance now granted, the full project will be implemented by the end of 2025.

Decision support system:

⮥ To enable these projects, the imminent operationalisation of the secure Network for Spectrum will provide an abundance of bandwidth to the services.

⮥ Further, the Army is setting up captive data centres across the country and these will be fully operational this year.

⮥ Complementing the BSS is the Army Information and Decision Support System, an upgraded and redesigned version of the erstwhile Combat Information Decision Support System, which will integrate inputs from all operational and managerial information systems.

⮥ A decision support system called the Situational Awareness Module for the Army (SAMA) has successfully integrated inputs from ACCCS, BSS, e-Sitrep, and the Management Information Systems Organisation.

Way Forward:

⮥ This is among a series of automation projects being rolled out which are expected to cumulatively improve operational efficiency, enhance battlefield awareness for Commanders on the ground, and also provide functional efficiency for human resource management, logistics, inventory management, medical services and other administrative functions.

ROLL OF HONOUR

Why in news?

⮥ In April 2023, five lady cadets, who completed their training in the prestigious Officers Training Academy (OTA) in Chennai, made history by getting inducted into the Army's Regiment of Artillery.

⮥ Though women have been commissioned as officers into supporting arms of the Army since 1992, this is the first time they are entering into the Artillery, a fighting arm.

Details:

⮥ In January 2023, Army Chief General formally announced that the Army has decided to commission women officers into the artillery arm and that a proposal was sent to the Union government in this regard.

⮥ Having been commissioned as officers into the Artillery, these young women are expected to join their respective units that handle Bofor, Dhanush and M-777 howitzers, K-9 Vajra self-propelled guns and others.

Background:

⮥ The OTA in Chennai has been admitting lady cadets for training along with gentlemen cadets since the early 1990s by imparting military knowledge and leadership skills.

⮥ This time, 121 gentlemen cadets and 36 lady cadets completed their training and were commissioned as officers into various arms and services of the Army.

INS MAGAR DECOMMISSIONED AFTER 36 YEARS SERVICE TO THE COUNTRY

Why in news?

⮥ INS Magar, the oldest landing ship of the Indian Navy was decommissioned recently after a prestigious service to the country for 36 years.

About INS Magar:

⮥ INS Magar was launched on November 16, 1984 by Meera Tahiliani and commissioned on July 18, 1987 at Garden Reach Shipyard and Engineers Limited, Kolkata by late Admiral R H Tahiliani.

Services highlight:

⮥ During her service, she participated in numerous operations, amphibious exercises and humanitarian missions and operations including Samudra Setu wherein more than 4,000 Indian nationals were repatriated from various corners of the world, during the COVID-19 pandemic.

⮥ The ship was also instrumental in evacuation of over 1,300 survivors post Tsunami in 2004 and had been part of several joint military exercises with the Indian Army.

⮥ In 2018, the vessel was converted into a training ship and joined the First Training Squadron at Kochi.

35TH EDITION OF INDO THAI COORDINATED PATROL (CORPAT)

Why in news?

⮑ Recently, the 35th edition of India-Thailand Coordinated Patrol (Indo-Thai CORPAT) between the Indian Navy and the Royal Thai Navy was conducted from 03 – 10 May 2023.

Details:

⮑ Indian Naval Ship (INS) Kesari, an indigenously built LST (L) and His Thai Majesty's Ship (HTMS) Saiburi, a Chao Phraya Class Frigate, along with Maritime Patrol Aircraft from both navies participated in the CORPAT along the IMBL in the Andaman Sea.

⮑ Towards reinforcing maritime linkages between the two countries and with an aim of keeping this vital part of the Indian Ocean safe and secure for international trade, the Indian Navy and the Royal Thai Navy

About CORPAT:

⮑ Both Navies have been undertaking CORPAT bi-annually since 2005 along the International Maritime Boundary Line (IMBL).

⮑ CORPAT builds up understanding and interoperability between navies and facilitates instituting measures to prevent and suppress unlawful activities like Illegal Unreported Unregulated (IUU) fishing, drug trafficking, piracy and armed robbery.

⮑ It further helps enhance the operational synergy by exchanging information for the prevention of smuggling, and illegal immigration and for the conduct of Search and Rescue (SAR) operations at sea.

SAGAR:

⮑ As part of the Government of India's vision of SAGAR (Security And Growth for All in the Region), the Indian Navy has been proactively engaging with the countries in the Indian Ocean Region towards enhancing regional maritime security.

⮑ This has been achieved through bilateral and multilateral exercises, Coordinated Patrols, Joint EEZ Surveillance, and Humanitarian Assistance and Disaster Relief (HADR) operations.

⮑ The Indian Navy and Royal Thai Navy have enjoyed a close and friendly relationship covering a wide spectrum of activities and interactions, which have strengthened over the years.

Way Forward:

⮑ The 35th Indo-Thai CORPAT is another step towards enhancing Indian Navy's efforts to consolidate inter-operability and forge strong bonds of friendship between India and Thailand.

NAVIES OF INDIA, INDONESIA BEGINS 6 DAY EXERCISE TO EXPAND BILATERAL TIES

Why in news?

⮑ The Navies of India and Indonesia recently began Samudra Shakti, a six-day maritime exercise in sync with their overall efforts to expand bilateral military engagement.

Details:

⮑ The Indian Navy has deployed its indigenously built anti-submarine warfare corvette INS Kavaratti, a Dornier maritime patrol aircraft and a Chetak chopper for the Samudra Shakti exercise.

⮑ The Indonesian Navy is being represented at the exercise by warship KRI Sultan Iskandar Muda, CN 235 maritime patrol aircraft and AS565 panther helicopter.

Key Highlights:

⮑ The harbour phase of the exercise will comprise cross-deck visits, professional interactions and subject matter expert exchanges.

⮑ During the sea phase, weapon firing, helicopter operations, anti-submarine warfare and air defence exercises and boarding operations are planned.

⮑ Samudra Shakti will showcase the high level of interoperability between the two navies and their shared commitment towards peace and stability in the region.

Way Forward:

⮑ Exercise Samudra Shakti is aimed at enhancing interoperability, jointness and mutual cooperation between both the navies

INDIAN NAVY'S NEWEST GUIDED MISSILE DESTROYER INS MORMUGAO HITS 'BULLS EYE'

Why in news?

➲ Recently, the Indian Navy successfully fired a Brahmos Supersonic cruise missile firing, using its frontline guided missile destroyer INS Mormugao.

INS Mormugao:

➲ Named after the historic port city of Goa on the West coast, Mormugao coincidentally undertook her first sea sortie on Dec 19, 2021, when Goa celebrated 60 years of liberation from Portuguese rule.

➲ The majestic ship measures 163m in length, and 17 m in breadth with a displacement of 7400 tonnes.

➲ The ship is propelled by four powerful Gas Turbines, in a Combined Gas and Gas (COGAG) configuration, capable of achieving speeds in excess of 30 knots. The ship has enhanced stealth features resulting in a reduced Radar Cross Section (RCS).

Warfare capability:

➲ Mormugao is packed with sophisticated 'state of the art' weapons and sensors such as Surface to Surface Missile and Surface to Air Missiles.

➲ The ship is fitted with a modern Surveillance Radar which provides target data to the gunnery weapon systems of the ship.

➲ The ship's Anti-Submarine Warfare capabilities are provided by the indigenously developed Rocket Launchers, Torpedo Launchers and ASW helicopters.

➲ The ship is equipped to fight under Nuclear, Biological and Chemical (NBC) warfare conditions," read an official statement by the Ministry of Defence.

Way Forward:

➲ It was the maiden Brahmos firing for the destroyer and it successfully managed to hit the 'Bulls Eye'.

➲ This marks another symbol of 'Aatmanibharta' and the Indian Navy's firepower at the sea.

ROHINGYA REFUGEES IN INDIA UNDER ARBITRARY DETENTION, DENIED EXIT PERMISSIONS

Why in news?

➲ India is not allowing exit permissions for Rohingya refugees who have completed refugee status determinations with the UN Refugee Agency (UNHCR) and "gained approval from third countries for resettlement", says a new report titled "A shadow of refuge: Rohingya refugees in India".

➲ The report, jointly prepared by The Azadi Project, a women's rights non-profit, and Refugees International, an international NGO that advocates for the rights of stateless people, was released recently.

Claims made in the report:

➲ The report notes that "instead of refusing exit visas, India can help facilitate more resettlement opportunities" by advocating for resettlement in ally countries and other European nations at forums such as the G-20 summit.

➲ On the one hand, they are disallowed from leaving when they get a chance to resettle in another country; on the other, the Rohingya in India are vilified as "illegal migrants", face growing "anti-Muslim and anti-refugee xenophobia", and live under constant fear of being deported back to Myanmar.

➲ Among the biggest challenges faced by Rohingya refugees in India, who number at least 20,000, is arbitrary detention. Once picked up, they are held in "holding centres" where conditions are "deplorable".

Violation of Human rights:

➲ Actual and threatened deportations have also fostered a sense of fear within the Rohingya community, prompting some to return to camps in Bangladesh.

➲ Though the International Covenant on Civil and Political Rights, the Convention on the Rights of the Child, as well as the International Genocide Convention obligate India not to return the Rohingya to Myanmar, "the Supreme Court accepted the government's arguments that the Rohingya were a threat to national security and refuses to stop deportation".

➲ The report details the harsh living conditions of the Rohingya in slum-like settlements with no safe running water or toilets, and no access to basic healthcare, education for children, or employment opportunities.

➲ While earlier the UNHCR cards had provided access to some level of education and livelihoods, and to protection from detention and deportation, now the

government has taken a stand that "UNHCR refugee status without valid travel documents is of no consequence in India".

Way Forward:

- It urges India to formally recognise the Rohingya in India as "refugees with a right to asylum rather than as illegal migrants".
- Short of this, the least that India could do is "a simple acknowledgement of residency" by recognising UNHCR cards as "sufficient for accessing basic education, work, and health services or provision of Aadhaar cards to refugees as proof of residency".

ENVIRONMENT

FIVE MORE CHEETAHS TO BE RELEASED INTO WILD AT KUNO
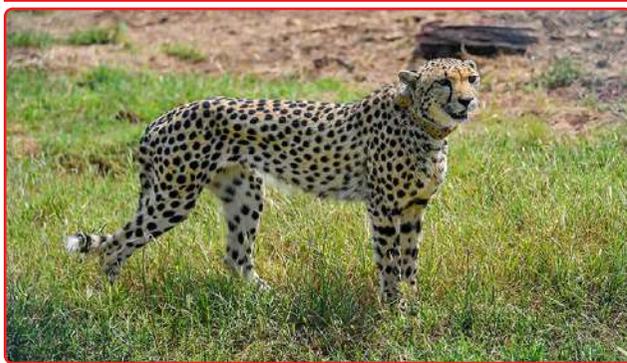
Why in news?

- Five more cheetahs; three females and two males will be released from the acclimatisation camps to "free-roaming conditions at the Kuno National Park (KNP) in Madhya Pradesh before the onset of monsoon in June.

Project Cheetah:

- The statement was based on a report submitted by an expert committee to the National Tiger Conservation Authority (NTCA), which is the nodal body for Project Cheetah.
- The committee members visited the KNP on April 30 and reviewed the current status of Project Cheetah.
- Twenty cheetahs have been brought from Namibia and South Africa since September 2022 as part of a translocation programme to reintroduce the wild cat into Indian habitat.
- As part of their acclimatisation, the animals were housed in special enclosures. However, two of them died, one of kidney infection and the other of heart failure, following a strenuous hunt.

Long-term plan:

- The long-term plan to acclimatise the animals to Indian conditions is to gradually release them into the wild and keep adding more animals from Africa until a sizeable self-sustaining population is established in

a decade or so, while accounting for natural mortality and acclimatisation-related challenges.

- So far, four of the cheetahs have already been released into the wild.
- The remaining cheetahs, would remain in the acclimatisation camps for the duration of the monsoon season (June-September).
- After September, when the monsoon ends, more animals would be released into the KNP or surrounding areas in "a planned manner" to the Gandhi Sagar Sanctuary in Madhya Pradesh.
- The cheetahs would be allowed to move out of the KNP and not necessarily recaptured unless they venture into areas where they are in "significant danger".

Concerns:

- Independent experts have raised concerns that the cheetahs had on average too little space and limited access to prey at the national park, and this would pose considerable problems for their eventual flourishing in India.
- As per the scientists, available space at the KNP, about 1,00,000 sq. km. in the park and 6,00,000 in the landscape surrounding the park, was adequate for 21 cheetahs. At present, there are 18.

MINISTRY OF POWER & MINISTRY OF ENVIRONMENT, FORESTS & CLIMATE CHANGE TO DEVELOP CARBON CREDIT TRADING SCHEME FOR DECARBONISATION

Why in news?

- The government plans to develop the Indian Carbon Market (ICM) where a national framework will be established with an objective to decarbonise the Indian economy by pricing the Green House Gas (GHG) emission through trading of the Carbon Credit Certificates.
- Bureau of Energy Efficiency, Ministry of Power, along with Ministry of Environment, Forest & Climate Change are developing the Carbon Credit Trading Scheme for this purpose.

Scope:

- As India currently has an energy savings-based market mechanism, the new avatar Carbon Credit

Trading Scheme will enhance the energy transition efforts with an increased scope that will cover the potential energy sectors in India.

➲ For these sectors, GHG emissions intensity benchmark and targets will be developed, which will be aligned with India's emissions trajectory as per climate goals. The trading of carbon credits will take place based on the performance against these sectoral trajectories.

➲ Further, it is envisaged that there will be a development of a voluntary mechanism concurrently, to encourage GHG reduction from non-obligated sectors.

Key Highlights:

➲ The ICM will develop methodologies for estimation of carbon emissions reductions and removals from various registered projects, and stipulate the required validation, registration, verification, and issuance processes to operationalize the scheme. Monitoring, Reporting, Verification (MRV) guidelines for the emissions scheme will also be developed after consultation.

➲ A comprehensive institutional and governance structure will be setup with specific roles of each party involved in the execution of ICM. Capacity building of all entities will be undertaken for up-skilling in the subject matter.

➲ The ICM will mobilize new mitigation opportunities through demand for emission credits by private and public entities.

➲ A well-designed, competitive carbon market mechanism would enable the reduction of GHG emissions at the least cost, both at the level of entity, as well as the overall sector and drive faster adoption of clean technologies, in a growing economy like India.

Way Forward:

➲ India has been at the forefront of climate action to meet the climate goals through its ambitious Nationally Determined Contributions (NDC).

➲ To facilitate the achievement of India's enhanced climate targets and to meet the future goals, the government is developing the ICM.

➲ By accelerating the transition to a low carbon economy, the ICM will facilitate achieve the NDC goal of reducing Emissions Intensity of the GDP by 45 percent by 2030 against 2005 levels.

GROUNDWATER EXPLOITATION IS SILENTLY SINKING THE GROUND BENEATH INDIA FEET

Why in news?

➲ Cracks in buildings and 'sinking' land in Joshimath, a hill town in Uttarakhand, made national headlines earlier in 2023.

➲ A similar phenomenon has been playing out for years in the plains of Punjab, Haryana, Delhi and Faridabad. The unlikely culprit is excessive groundwater extraction.

Situation in North-West India:

➲ Agricultural practices in north-west India are heavily dependent on groundwater withdrawal. With limited monsoon rain, the groundwater table is precariously low, show data gathered for years by the Central Ground Water Board (CGWB).

➲ In Punjab, for instance, 76% of the groundwater blocks are 'over exploited'. In Chandigarh, it is 64% and about 50% in Delhi. This means that more groundwater than can be recharged is extracted.

➲ Over time, when the underlying aquifers (deep water channels that are stores of percolated water) aren't recharged, they run dry and the layers of soil and rock above them start to sink.

Consequences of 'over exploitation':

➲ The digging operations that were carried out hundreds of metres below the ground for coal, oil and gas through the years had shown examples of 'soil settlement,' or the soil sinking in to fill voids created from mining.

➲ From here it was surmised that if oil and gas extraction cause subduction (sinking), then surely groundwater also ought to be playing some role.

➲ The CGWB, a subsidiary body of the Jal Shakti Ministry, is tasked with assessing the state of India's groundwater resources.

➲ It has a system of groundwater observation-wells and monitors water levels four times a year. It, however, does not analyse the consequences of 'over exploitation.'

Data on NCR:

➲ A research team used data from the Sentinel-1 satellite (different from GRACE) to show that from 2011-2017, the National Capital Region sunk, on an average, 15 mm per year.

➲ Urbanisation and unplanned growth were major factors and this exacerbated groundwater withdrawal.

➲ Parts of Delhi-NCR that saw subsidence were far away from tectonic (earthquake-linked) fault lines.

WORLD BIODIVERSITY DAY 2023

Why in news?

➲ The International Day for Biological Diversity, celebrated on May 22 each year.

⮱ The theme of 2023 is 'From agreement to action: Build back biodiversity'.

History:

⮱ The origins of the International Day for Biological Diversity can be traced back to the United Nations Conference on Environment and Development, commonly referred to as the Earth Summit, which took place in Rio de Janeiro, Brazil, in 1992.

⮱ It was during this momentous gathering that global leaders acknowledged the pressing necessity to confront the worldwide decline of biodiversity.

⮱ Consequently, on May 22, 1992, a substantial number of nations adopted the Convention on Biological Diversity (CBD).

What is a Biodiversity?

⮱ Biological diversity, known as biodiversity, encompasses the wide array of life forms and the intricate patterns they create within the natural world.

⮱ The existing biodiversity we observe today is the result of billions of years of evolutionary processes, influenced both by natural mechanisms and increasingly by human activities. It constitutes the interconnected tapestry of life, in which we are an inseparable component, and upon which we rely entirely.

⮱ Biodiversity also encompasses the genetic variations present within each species, exemplified by the diverse crop varieties and livestock breeds. The chromosomes, genes, and DNA, which serve as the fundamental building blocks of life, contribute to the distinctiveness of individuals and species alike.

Are we on track to meet targets under global framework?

⮱ It's just five months since the Kunming Montreal Global Biodiversity Framework (GBF) was agreed upon and understandably, not much has been done. The framework has a total of four goals with 23 targets which have to be met by 2030.

⮱ However, there is a need to ensure the framework does not end up like Aichi Biodiversity Targets set up in 2011. These targets, which were similar to the targets set under the GBF, were to be met by 2020, but the world collectively failed to meet any of these.

⮱ With around one million animal and plant species threatened with extinction, immediate action is imperative. Just seven years are available to meet the targets set under GBF.

Issues with implementation:

⮱ At the 15th Conference of Parties (COP15) in 2022, it was decided that investment is important for meeting the targets of GBF. It was decided that developed countries would provide $20 billion in international finance to developing nations by 2025 and $30 billion by 2030. This is yet to happen.

⮱ Members states also agreed to realign their National Biodiversity Strategy and Action Plan to the GBF. However, only Spain has submitted the realigned NBSAP in 2023.

⮱ The new plans have to be submitted to CBD secretariat before COP16 in 2024 in Türkiye. At present, the secretariat is providing support to the countries to develop the new plans. India is in the process of preparing this plan.

⮱ The target for protecting 30 per cent of land and water was among the most controversial. According to many, this step would infringe upon the rights of the indigenous people.

⮱ Some 16.64 per cent of land and inland water ecosystems and 7.74 per cent of coastal waters and the ocean were protected, according to the Protected Planet Report published in May 2021. More than 40 per cent of this has occurred since 2010.

⮱ India already has 27 per cent of its land area under protection and would easily meet the target, according to the Ministry of Environment, Forest and Climate Change.

Way Forward:

⮱ At the next meeting of the Conference of the Parties in 2024 in Türkiye, the world will take stock of the targets and commitments that have been set.

NATIONAL CAMPAIGN FOR UPDATION AND VERIFICATION OF PEOPLE'S BIODIVERSITY REGISTER

Why in news?

➥ Recently, the National Campaign for Updation and Verification of People's Biodiversity Register (PBR) was launched in Goa, marking a significant step towards the documentation and preservation of India's rich biological diversity.

➥ The function wasorganized by the Union Ministry of Environment, Forest and Climate Change, in association with the Goa State Biodiversity Board, the National Biodiversity Authority, and the Government of Goa.

Key Highlights:

➥ Conserving biodiversity is key to maintaining balance in nature. The need for people's participation in achieving success in implementing the provisions of the Biodiversity Act 2002 is of utmost importance.

➥ So far 2,67,608 People's Biodiversity Registers (PBR) have been prepared in the country, by Biodiversity Management Committees entrusted with the crucial task of documenting natural resources and traditional knowledge associated with them.

➥ The significance of the concept of "Lifestyle for the Environment (LiFE) was highlighted. It was introduced by Prime Minister Narendra Modi at COP26 in Glasgow on November 1, 2021.

➥ This concept calls upon individuals and institutions globally to promote mindful and deliberate utilization of resources to protect and preserve the environment.

About People's Biodiversity Register:

➥ The People's Biodiversity Register serves as a comprehensive record of various aspects of biodiversity, including the conservation of habitats, preservation of land races, folk varieties and cultivars, domesticated stocks and breeds of animals, micro-organisms, and the accumulation of knowledge related to the area's biological diversity.

➥ As per the Biological Diversity Act 2002, Biodiversity Management Committees (BMC) are created for "promoting conservation, sustainable use and documentation of biological diversity" by local bodies across the country.

➥ BMCs have been constituted by the local bodies in the States and Union Territories and are entrusted with preparation of the People's Biodiversity Registers (PBRs), in consultation with local communities.

SCIENCE & TECHNOLOGY

FIRST TEST LAUNCH OF NEW LOW-COST STAR SENSOR DEVELOPED FROM OFF THE SHELF COMPONENTS SUCCESSFULLY CONDUCTED

Why in news?

➥ A new low-cost star sensor developed by astronomers from off-the-shelf components was recently launched by ISRO on board PSLV C-55.
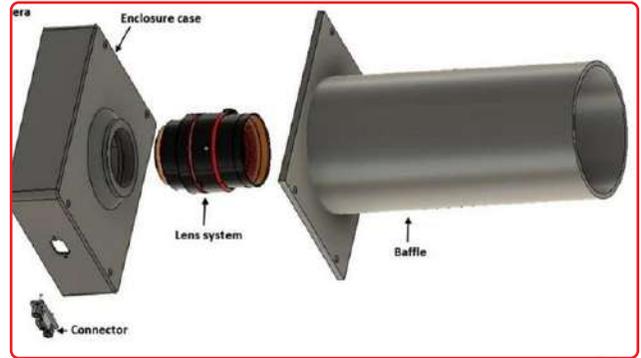
➥ In its first-ever space test, the sensor, which is mounted on the PSLV Orbital Experimental Module (POEM), is performing well, and the initial data has now validated its design as well as its function.

StarBerrySense payload:

➥ The StarBerrySense payload developed by the Indian Institute of Astrophysics was launched on 22 April.

➥ This novel low-cost sensor designed to quickly calculate where the satellite is pointing is being tested in space for the very first time.

➥ It is functioning as expected, the initial data shows that it is able to calculate the pointing direction.

➥ It is capable of finding its pointing direction in space by identifying the stars in its field of view.

➥ It is built around the well-known minicomputer RaspberryPi, and the electronics and software were designed in-house.

Way Forward:

➥ For any space mission, it is crucial to know where the satellite is being pointed to at any given time. While there are several ways to do this, a star sensor provides the most accurate information about a spacecraft's orientation.

NEW WAY TO TRACK PARTICLES IN SOFT COLLOIDS USING OPTICAL TWEEZERS CAN BE APPLIED IN TARGETED DRUG DELIVERY
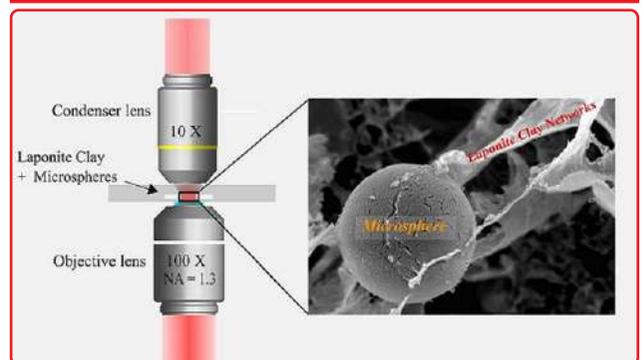
Why in news?

➥ Scientists have found a way to track minute clay particle movements within soft clay colloids using optical tweezers, the application of which in biological systems brought the Nobel Prize in Physics in 2018.

➲ This new way to track particles and manipulate them as desired can be applied in areas like targeted drug delivery.

Laponite:

➲ Using optical tweezers, researchers at Raman Research Institute (RRI), attempted to study the dynamics and hidden structural details of Laponite, a synthetic clay.

➲ As these clay particles are the same size (monodisperse) and transparent, so they are best suitable for performing advanced studies under light.

➲ Laponite is a widely used raw material in the pharmaceutical and cosmetics industries. This clay comprises disk-shaped particles sized 25 to 30 nanometres (nm) and one nm in thickness.

➲ Polystyrene beads dispersed in Laponite clay suspension were used for the experimental setup. With time, microstructures were noted to have developed due to the electrostatic interactions between the clay particles.

➲ These microstructures grew stronger with time, with their network size dependent on the concentration of Laponite particles.

Experiment & outcome:

➲ They used optical tweezers as they wanted to measure movements of the probe in nanometres scales, where the properties of the medium evolve with passing time.

➲ Optical tweezer is a popular tool in an optics laboratory, used to measure minute forces and manipulate tiny dielectric beads trapped at the tight focus of an intense laser beam over length scales down to a few nanometers.

➲ It allows the inducement of movement in the trapped probe particle, and its response is analysed to extract previously inaccessible local viscoelastic properties of the underlying medium.

➲ Furthermore, they team used cryogenic field emission scanning electron microscopy (cryo-FESEM) to examine the average pore areas formed by the Laponite microstructures.

Way Forward:

➲ They thus concluded the prevalence of a direct relation between the morphologies of the clay suspension structures and the probe particle dynamics at micrometre length scales.

NEW MATERIAL CONVERTS SIMPLE MECHANICAL VIBRATIONS INTO ELECTRICITY

Why in news?

➲ In a world hungry for clean energy, engineers have created a new material that converts the simple mechanical vibrations all around into electricity to power sensors in everything from pacemakers to spacecraft.

➲ The first of its kind, by researchers at the University of Waterloo and the University of Toronto, the novel generating system is compact, reliable, low-cost and very, very green.

Piezoelectric effect:

➲ The system is based on the piezoelectric effect, which generates an electrical current by applying pressure to an appropriate substance.

➲ The effect was discovered in 1880, and since then, a limited number of piezoelectric materials, such as quartz and Rochelle salts, have been used in technologies ranging from sonar and ultrasonic imaging to microwave devices.

➲ The problem is that until now, traditional piezoelectric materials used in commercial devices have had limited capacity for generating electricity.

Edabco copper:

➲ They started by growing a large single crystal of a molecular metal-halide compound called edabco copper chloride using the Jahn-Teller effect, a well-known chemistry concept related to spontaneous geometrical distortion of a crystal field.

➲ The highly piezoelectric material was then used to fabricate nanogenerators with a record power density that can harvest tiny mechanical vibrations in any dynamic circumstances, from human motion to automotive vehicles in a process requiring neither lead nor non-renewable energy.

➲ The nanogenerator is tiny, 2.5 centimetres square and about the thickness of a business card and could be conveniently used in countless situations.

Way Forward:

➲ It has the potential to power sensors in a vast array of electronic devices, including billions needed for the Internet of Things.

➲ In future, an aircraft's vibrations could power its sensory monitoring systems, or a person's heartbeat could keep their battery-free pacemaker running.

SCIENTISTS PEEK INSIDE THE MOON TO REVEAL A LONG-GUARDED SECRET

Why in news?

➲ NASA has announced that by 2025 four astronauts will land on the surface of the Moon in a bid to ensure

a longer permanent presence on Earth's natural satellite.

➲ But, before humans return, it is imperative to know the key details of the lunar surface that could ensure a smooth operation.

Evolution of the Moon's magnetic field:

➲ Over half a century after the Apollo mission, which opened the door for studying the lunar surface, astronomers have peaked under the hood and revealed part of its internal structure.

➲ In a study, scientists question the evolution of the Moon's magnetic field due to its demonstration of the existence of the inner core and support a global mantle overturn scenario that brings substantial insights on the timeline of the lunar bombardment in the first billion years of the Solar System.

Solid Core:

➲ A team of scientists revealed that the Moon has a solid core, like the Earth and there is iron-rich material in the lunar crust.

➲ The Moon has a solid core about 500 kilometers in diameter, or about 15 per cent of its size, and is made of a metal whose density is close to that of iron.

➲ They also found evidence of material displacements in the mantle, the intermediate layer between the core and the crust of the Moon during its evolution.

➲ This is called the reversal of the lunar mantle and it helps explain the presence of iron-rich elements on the surface of the Moon.

➲ They speculate that material may have risen to the surface and produced volcanic rocks deposited in the lunar crust. Then, the elements too dense compared to the surrounding material in the crust, fell back and returned to the interface between the mantle and the core.

Way Forward:

➲ This work provides the essential knowledge, in particular for informing the history of the solar system and understanding certain events, such as the disappearance of the lunar magnetic field: originally a hundred times more powerful than that of the present Earth, it is today almost non-existent.

BITS-PILANI HYDERABAD DEVELOPS ILLNESS-DETECTING MASK WITH SENSOR

Sensor on Mask

Context:

➲ That a face mask can protect against COVID-19 and other respiratory diseases is well established.

➲ Now, it can also be used as a non-invasive device to check one's health as has been successfully demonstrated by researchers at the Micro-Electro-Mechanical Systems, Microfluids and Nanoelectronics Lab on the BITS-Pilani Hyderabad campus.

Key Highlights:

➲ They designed and developed a Kirigami-based stretchable, flexible Laser induced Graphene (LIG) a 3-D carbon nanomaterial, for real-time attachments with surgical masks.

➲ LIG is a widely used material for monitoring vital physiological signs such as breath rate (BR) or respiratory rate (RR), body temperature, pulse rate, and blood oxygen saturation.

➲ Researchers used the sensor attached to a gas mask to analyse the breath pattern of the subject seated on a chair by validating the change in resistance during inhalation and exhalation.

Applications:

➲ The rate of breathing generally varies based on age unless the person is diseased. Fitness of a person can be determined by Breath Index or simply, by measuring RR and BR.

➲ The sensor can be placed over the mouth and nose without causing any irritation while ensuring stable working.

➲ Applications in various scenarios have been carried out demonstrating potential in healthcare, disease diagnosis, e-skin, and so on with the detection capacity being less than one second.

ISRO BEGINS TESTING ROCKET ENGINES AT NEW FACILITY IN TAMIL NADU MAHENDRAGIRI

Why in news?

➲ The Indian Space Research Organisation (ISRO) has begun testing semi-cryogenic engines at the newly

commissioned Semicryogenic Integrated Engine & Stage Test facility in Tamil Nadu's Mahendragiri.

➲ The test facility has been developed at the ISRO Propulsion Complex (IPRC).

Details:

➲ The facility comprises all the engine systems except the thrust chamber.

➲ The test is the first of a series of tests planned to validate the design of the propellant feed system, including the low-pressure and high-pressure turbo-pumps, the gas generator, and control components.

➲ The semi-cryogenic engine with a power of 2000 kN thrust, which will power the first-stage boosters of future launch vehicles, has been designed and developed by ISRO's Liquid Propulsion Systems Centre (LPSC).

➲ It works on Liquid Oxygen (LOX)-Kerosene propellant combination.

Outcome:

➲ The test has demonstrated the successful performance of the test facility and power head test article in the first attempt itself.

New space policy:

➲ The new space policy recently cleared by the center has said the Indian Space Research Organisation shall transition out from manufacturing operational space systems and focus its energies on research and development in advanced technologies.

➲ It states that ISRO, will focus primarily on the research and development of new space technologies and applications and on expanding the human understanding of outer space.

Way Forward:

➲ ISRO is in the final phases of preparation to launch two big missions in the coming months, the Aditya L-1 mission to study Sun and the Chandrayaan-3 mission, which is designed to land on the Moon.

FIRST ASTRONOMICAL SOCIETY OF INDIA GOVIND SWARUP LIFETIME ACHIEVEMENT AWARD IN PUNE

Why in news?

➲ Recently, Prof. Jayant V. Narlikar, an astronomer par-excellence, the founding director of IUCAA, Pune received the very first ASI Govind Swarup Lifetime Achievement award.

IUCAA:

➲ The Inter-University Centre for Astronomy and Astrophysics (IUCAA) is an autonomous institution set up by the University Grants Commission of India to promote nucleation and growth of active groups in astronomy and astrophysics in Indian universities.

About Govind Swarup Lifetime Achievement award:

➲ In the year 2022, as it celebrated its golden jubilee, the Astronomical Society of India (ASI) instituted the Govind Swarup Lifetime Achievement award to recognise eminent Indian astronomers for the contributions they have made to the field of Astronomy and Astrophysics in India over their careers.

➲ The award is named in honour of Prof. Govind Swarup (1929-2020).

➲ The award carries a citation and plaque, and a cash prize.

About Prof. Govind Swarup:

➲ Prof. Swarup is widely regarded to be the founder of Indian radio astronomy.

➲ He conceived of and led the construction of the Ooty Radio Telescope (ORT) and the Giant Metrewave Radio Telescope (GMRT) using innovative, cost-effective ideas optimized for the Indian environment.

➲ He was a visionary and one of the strongest early proponents of the Square Kilometre Array (SKA).

➲ He was the founding director of the National Centre for Radio Astrophysics (NCRA), Pune.

GAGANYAAN, PARACHUTES FOR REENTRY CAPSULE SENT TO ISRO FACILITY IN BENGALURU

Why in news?

➲ Indigenously developed parachutes for the safe return of the capsule that will carry astronauts under the proposed Gaganyaan programme are set to undergo fitment tests at an Indian Space Research Organisation (ISRO) facility in Bengaluru in July.

➲ Gaganyaan envisages putting a crew of three astronauts in low-earth orbit.

Developers:

➲ The Aerial Delivery Research and Development Establishment (ADRDE), the Agra-based laboratory under the Defence Research and Development Organisation (DRDO), has developed the parachutes for India's manned space flight programme, Gaganyaan.

Configuration:

➲ The parachute configuration consists of 10 parachutes. During flight, the sequence starts with deployment of two parachutes of "apex cover separation parachute", which is protection cover for the crew module parachute compartment, followed by two more of "drogue parachute deployment" to stabilise and bring down the velocity.

➲ Upon the drogue parachute release, three parachutes of the "pilot parachute" system will be used to extract three parachutes of the "main parachute" individually, to reduce the speed of the crew module to safe levels during its landing.

Way Forward:

➲ The Test Vehicle Demonstration (TVD-1) flight will be a significant milestone toward realising the nation's ambitious Gaganyaan programme.

INTEGRATED BIOLOGICAL CONTROL LABORATORY IN HYDERABAD

Why in news?

➲ Recently, the Union Minister of Agriculture and Farmers Welfare inaugurated the Integrated Biological Control Laboratory at National Institute of Plant Health Management (NIPHM) Hyderabad, Telangana.

Key Highlights:

➲ The new Integrated Bio Control Laboratory (BC Lab) is a state of art laboratory in NIPHM, have facilities for giving hands on experience on production methodologies for Biopesticides, Biocontrol agents like predators and parasitoids, Entomopathogenic fungi, Bio fertilizers, NPV,Pheromone and Botanicals.

➲ The use of bio-control agents, bio-pesticides, and bio-fertilizers will help in reducing the use of chemical pesticides and fertilizers, consequently reduce the adverse effects on the environment and human health and contribute to improved Soil and Plant Health.

➲ The BC Lab will also have an Insect Museum, weed museum, exhibition hall, Natural Farming Cell etc. to showcase the specimens of agriculturally important insects and weeds in the best preserved or live forms.

NIPHM:

➲ NIPHM promotes sustainable agricultural practices such as Agro Ecosystem Analysis (AESA) and Ecological Engineering (EE) for pest management with enhanced use of different biological agents, bio-pesticides and bio-fertilizers.

➲ NIPHM is conducting regular training programs on various aspects of insect pests and diseases management in different crops.

Way Forward:

➲ The inauguration of this facility is a significant milestone in the development of chemical free sustainable agriculture in India.

➲ The facility will help the extension functionaries to promote non-chemical options of pest management in agricultural and horticultural crops.

JAMES WEBB TELESCOPE FINDS WATER ON A COMET, UNRAVELS A MYSTERY CLOSE TO HOME

Why in news?

➲ Recently, the James Webb Space Telescope (JWST), the world's most powerful observatory has detected water on a comet in the main asteroid belt.

➲ The main asteroid belt lies between the orbits of Mars and Jupiter centered around the Sun.

Key Highlights:

➲ The Near-Infrared Spectrograph instrument onboard Webb detected water vapor on Comet 238P/Read, however, unlike other comets, this one has no carbon dioxide.

➲ Comet 238P/Read periodically displays a halo, or coma, and tail and was one of the first to establish that the asteroid belt does have comets.

➲ Before this, it was largely believed that comets reside in the Kuiper belt at the edge of the Solar System, beyond the orbit of Neptune.

➲ Scientists have long speculated that water ice could be preserved in the warmer asteroid belt, inside the orbit of Jupiter and the new confirmation has validated their speculation.

Observations:

➲ The study states that although the existence of main-belt comets implies the presence of extant water ice in the asteroid belt, no gas has been detected around these objects despite intense scrutiny with the world's largest telescopes.

➲ The surprise factor of the observation remained the missing carbon dioxide, which makes up about 10 percent of the volatile material in a comet that can be easily vaporized by the Sun's heat.

➲ They believes that the comet had carbon dioxide when it formed but has lost that because of warm temperatures.

Significance:

➲ This is the first time that scientists have been able to detect signs of water in this region that could help them solve another mystery closer to Earth - how did Earth get its water?

INDIA HIMALAYAN TELESCOPE OBSERVES ONE OF THE MOST ENERGETIC OBJECTS IN UNIVERSE

Why in news?

➲ The Indian Astronomical Observatory located in Hanle of Ladakh has joined hands with 10 other global telescopes to observe the brightening of BL Lacertae (BL Lac), a blazar located about 950 million light years away from Earth.

What is a blazer?

➲ A blazar is a type of galaxy that is powered by a humongous black hole and is among one of the brightest and most powerful objects in the universe.

➲ They are known for emitting highly energetic particles and radiation, including gamma rays, X-rays, and radio waves.

Key Highlights:

➲ Astronomers from Raman Research Institute has now studied the brightening of BL Lac, which was first discovered almost a century ago and has been slowly inching close to the maxima. These are compact structures showing anomalous luminosity from time to time.

➲ They said that the deviation in their brightness levels can vary and last either for a few hours, days, weeks or even months.

➲ They used the global pool of telescopes to pick up the electromagnetic emissions that are visible across the radio, microwave, infrared, optical, ultra-violet, X-ray, and gamma wavelengths.

Earlier observations:

➲ Astronomers had in July 2020 suspected that BL Lac was beginning to flare up and the 11 telescopes including the Himalayan Chandra Telescope located in Ladakh's Hanle were targeted at the blazar for 84 days.

➲ As time progressed, it was observed that the flare was becoming brighter gradually, indicating that BL Lac was turning more active. For the first time on August 21, 2020, BL Lac's brightness reached its maximum. This was captured well by the Modified Dall–Kirkham telescope located in Poland.

➲ The observations revealed that the brightness of BL Lac increased from magnitude 14 to 11.8 and the international team of researchers calculated the source's magnetic field, which was found to range from 7.5 Gauss to 76.3 Gauss during the flare.

Way Forward:

➲ These new parameters shall form the basis for future multispectral studies of BL Lac.

EVEN LIMITED ARSENIC EXPOSURE CAN MAR COGNITIVE ABILITY, STUDY

Why in news?

➲ A recent study suggests that even low levels of arsenic consumption may impact cognitive function in children, adolescents, and young adults.

Details:

➲ The research study is part of a bigger investigation into how a range of environmental and biological factors affect neurological and cognitive development in young people.

➲ It has also found that those exposed to arsenic had reduced grey matter (brain tissue that is vital to

cognitive functions) and weaker connections within key regions of the brain that enable concentration, switching between tasks, and temporary storage of information.

Basics of research:
➲ Chronic exposure to arsenic could be creating a 'silent pandemic' affecting large portions of the global population.
➲ For their research, the scientists linked urine samples (to estimate arsenic exposure) performance in a battery of computerised tests (that evaluate cognitive function) and brain-images (that picturise various regions of the brain) of 1,014 participants from five regions across India.
➲ Arsenic exposure is particularly harmful to the poor.

Concerns:
➲ Since the 1990s, both the Central and State governments in Bihar and West Bengal have sought to address arsenic contamination.
➲ A common strategy employed is to encourage piped water access rather than groundwater extraction and install arsenic removal plants.

CITIZEN SCIENTISTS FIND FIRST EVIDENCE OF WOLF DOG HYBRIDISATION IN INDIA

Why in news?
➲ Citizen scientists and researchers have found the first evidence of wolf-dog hybridisation in the country.
➲ The findings claimed that wolf (Canis lupus)-dog (Canis lupus familiaris) hybridisation may lead to immense reduction of certain adaptations in wolves eventually causing a drop in wolf populations.

How research was conducted?
➲ They noted that a suspected wolf-dog hybrid animal with an unusually tawny coat was captured in a photograph by a group of nature lovers near Pune in Maharashtra. They followed the animal and collected the hair strands which were shed by it.
➲ The samples were then used to extract DNA and processed for segregating, identifying, pressing and following other scientific protocols.
➲ The researchers then used 11 wolf whole genomes that consisted of three from North America and Europe. Another three were from west and central Asia and the remaining five were from Indian wolves.
➲ They also used 16 dog genomes for anaylsing samples including dogs from Kenya, Nepal, India, China and east Asia. The scientists also investigated the species for admixture with golden jackals and dholes using three genomes.
➲ The results revealed the occurrence of wolf-dog hybridisation in peninsular India with pictures showing evidence of dog genome introgression in the wolf population.

Key Findings:
➲ Though the concept of wolf-dog hybridisation was long speculated in India, no published report or evidence existed.
➲ Such hybridisation is complex among canid species. Both sexes of canid hybrids are fertile, in contrast to the other mammalian species where males are sterile with very few exceptions. This makes the introgression of dog genome into wolves and vice versa possible.
➲ High population turnover and loss of breeding members in addition to the above-mentioned complexity may cause the break-up of wolf packs and disruption of social structure. Such factors can also further increase hybridisation rates.
➲ However, these scenarios could drive these wild populations into a hybridisation vortex which eventually result in extinction via hybridisation.

Way Forward:
➲ The researchers pressed the need to upscale conservation efforts through tracking, monitoring, assessing prey base, understanding the relation between humans and wildlife, given that human-wildlife interaction is extensive in India.

ISRO TO LAUNCH NEW NAVIGATION SATELLITE, NVS-01

Why in news?
➲ The Indian Space Research Organisation (ISRO) will launch the NVS-01 navigation satellite, part of the Navigation with Indian Constellation (NavIC) series to space on May 29.

Details:
➲ The 2,232-kilogram satellite will lift off onboard India's workhorse, the Geosynchronous Satellite Launch Vehicle (GSLV) to space from the second

launch pad at the Satish Dhawan Space Centre in Sriharikota.

➲ It will be deployed in the Geosynchronous Transfer Orbit.

➲ NVS-01 is the first of the second-generation satellites envisaged for the Navic constellation that is designed to sustain and augment the NavIC with enhanced features.
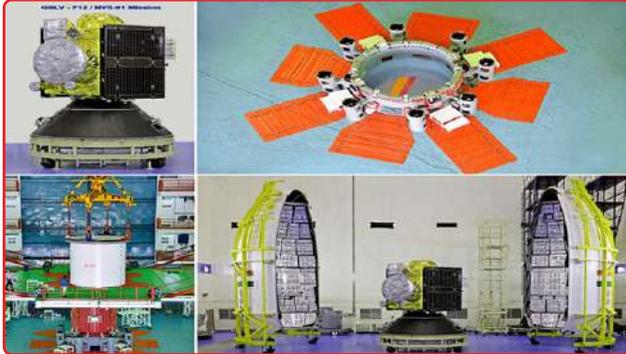
What is NavIC?

➲ The Global Positioning System (GPS) is a free service that is provided by a series of satellites in orbit maintained by the US government. NavIC is India's answer to the GPS.

➲ The Navigation with Indian Constellation (NavIC) is a regional navigation satellite system developed by ISRO that is a constellation of seven satellites in orbit that work in tandem with ground stations.

➲ The network provides navigational services to both general users and the strategic users, namely the armed forces.

➲ The seven satellites in the Navic constellation include IRNSS-1A, IRNSS-1B, IRNSS-1C, IRNSS-1D, IRNSS-1E, IRNSS-1F, and IRNSS-1G satellites.

Applications:

➲ The system was developed looking at the growing requirements of the Civil Aviation sector in the country for better positioning, navigation, and timing.

➲ The network covers an area including India and a region up to 1500 km beyond the Indian boundary. The signals are designed to provide user position accuracy better than 20 meters and timing accuracy better than 50 nanoseconds.

➲ The system is used in terrestrial, aerial, and marine transportation, location-based services, personal mobility, resource monitoring, surveying and geodesy, scientific research, time dissemination and synchronization, and safety-of-life alert dissemination.

➲ The NavIC system operates in the L5 band, which is a protected frequency specifically assigned to the Indian system. This dedicated frequency enhances the system's robustness and ensures minimal interference from other signals.

Way Forward:

➲ The NVS-1 being launched on May 29 incorporates L1 band signals additionally to widen the services.

HEALTH

COVID PANDEMIC IS NO LONGER AN EMERGENCY, DECLARES WHO

Why in news?

➲ Recently, the World Health Organization said that COVID-19 no longer qualifies as a global emergency, marking a symbolic end to the devastating coronavirus pandemic.

➲ The announcement, made more than three years after WHO declared the coronavirus an international crisis, offers a coda to a pandemic that stirred fear and suspicion, hand-wringing and finger-pointing across the globe.

Still global health threat:

➲ It said that even though the emergency phase was over, the pandemic hasn't ended. They pointed to the recent spikes in cases in Southeast Asia and the West Asia to support their case.

➲ WHO says thousands of people are still dying from the virus every week, and millions of others are suffering from debilitating, long-term effects.

➲ The pandemic had been on a downward trend for more than a year, acknowledging that most countries have already returned to life before COVID-19.

Background:

➲ When the UN health agency first declared the coronavirus to be an international crisis on Jan. 30, 2020, it hadn't yet been named Covid-19 and there were no major outbreaks beyond China.

➲ More than three years later, the virus has caused an estimated 764 million cases globally and about 5 billion people have received at least one dose of vaccine.

➲ WHO raised its highest level of alert and termed the infection a Public Health Emergency of International Concern, a designation that remained in place for over three years.

UNION HEALTH MINISTRY LAUNCHES SAKSHAM LEARNING MANAGEMENT INFORMATION SYSTEM

Why in news?

➲ Recently, Union Health Secretary launched the SAKSHAM (Stimulating Advanced Knowledge for Sustainable Health Management), a Learning Management Information System (LMIS) of MoHFW.

➲ This digital learning platform has been developed by the National Institute of Health & Family Welfare (NIHFW), New Delhi.

What is SAKSHAM?

➲ SAKSHAM is a dedicated and unified platform for providing online training and medical education to all health professionals in the country.

➲ This digital learning platform will ensure inclusive capacity building of health professionals from primary health centres located in rural and remote areas all the way up to tertiary care and corporate hospitals in metropolitan cities.

➲ Currently SAKSHAM: LMIS is hosting more than 200 public health and 100 clinical courses through online mode.

WHO GUIDELINE ON NON SUGAR SWEETENERS

Why in news?

➲ Recently, the World Health Organization (WHO) issued new guidelines advising against the use of non-sugar sweeteners (NSS) like aspartame, saccharin, stevia and other derivatives as a "healthy" alternative to sugar.

Details:

➲ In its 'conditional' guideline, WHO says non-sugar sweeteners should not be used as a means of achieving weight control or reducing risk of diet-related non-communicable diseases.

➲ The spotlight on NSS intensified after 2015, when the WHO had said that high intake of free sugars is linked to weight gain and obesity, leading consumers to turn to NSS as an alternative.

What are non-sugar sweeteners?

➲ Non-sugar sweeteners (NSS) are marketed as low or no-calorie alternatives to free sugars which aid in weight loss, and in controlling blood glucose in individuals with diabetes.

➲ NSS categories studied by WHO include acesulfame K, aspartame, advantame, cyclamates, neotame, saccharin, sucralose, stevia, and stevia derivatives.

➲ Aspartame is popularly used to sweeten diet colas that claim to have 'no sugar, no calories.' Saccharin is used to sweeten tea or coffee.

How did WHO conclude its findings?

➲ The WHO analysed a total of 283 studies on the intake of NSS in adults and children. The outcome of the trials was that they noted 'higher intake' of NSS was associated with a 76% increase in risk of obesity and a 0.14 kg/m2 increase in BMI (Body Mass Index).

➲ The WHO warned that long-term use of NSS could lead to increased risk of Type 2 diabetes, cardiovascular diseases, chronic kidney disease and cancer.

What are the concerns?

➲ India should take necessary steps to guide people on non-sugar sweeteners because one in nine women and one in 25 men are obese, according to the latest National Family Health Survey.

➲ Obese people are more prone to suffer from diabetes. There are an estimated 25 million people living with pre-diabetes in India, according to WHO data.

What is WHO's nutritional advice?

➲ The WHO says it is difficult to view the role of NSS in isolation when it comes to weight loss studies that were analysed, so it is important to note that the quality (nutritional profile) and quantity of diet are also crucial in this matrix.

➲ It recommends having alternative foods which are minimally processed, unsweetened foods and beverages.

➲ While analysing studies, WHO has found that weight loss in certain subjects cannot entirely be attributed to switching from sugars to NSS, as it also depended on having a reduced portion size or energy intake of food.

What happens next?

➲ The Ministry of Health will have to initiate discussions among policy-makers before it decides to adopt this 'conditional' recommendation as a national policy, say health experts.

➲ The WHO recommends that with the help of this guideline, efforts should be made, with a focus on youngsters, to tweak taste preferences and eating behaviours.

SOCIAL ISSUE

ISRO TO START ONLINE TRAINING PROGRAMME FOR PG AND AND FINAL-YEAR UG STUDENTS

Why in news?

➲ The Indian Space Research Organisation (ISRO) has announced a new introductory-level online training programme called Space Science and Technology Awareness Training (START).

➲ START is aimed at postgraduate and final-year undergraduate students of Physical Sciences and Technology.

Key Highlights:

➲ The programme will cover various domains of Space Science, including Astronomy and Astrophysics, Heliophysics and Sun-Earth interaction, Instrumentation, and Aeronomy. It will be delivered by scientists from Indian academia and ISRO centres.

➲ The training will also emphasise the cross-disciplinary nature of Space Science, giving students insights into how the individual aptitudes can be applied to the field.

➲ The programme is expected to help build a human capacity that will lead Space Science and research in the future.

➲ The lectures will also cover topics on the Indian Space Science exploration programme and research opportunities in Space Science and technologies.

Remote sensing courses:

➲ The ISRO's National Remote Sensing Centre (NRSC) has also announced two short courses- Remote Sensing Data Acquisition and Remote Sensing Data Processing.

➲ The courses are conducted through the Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP) and are scheduled from August 21 to September 1 and October 9 to 20, respectively, at NRSC's Earth Station at Shadnagar near Hyderabad.

➲ The CSSTEAP is an educational institution affiliated with the United Nations.

Way Forward:

➲ Students will be benefited from this training programme, as they will receive an overview of the different facets of Space Science and Technology, exposure to the research ongoing in different Indian institutes, insight into how their individual aptitude would suit some of the facets of Space Science and Technology, appreciate the cross-disciplinary nature of the subject, and accordingly choose their career path.

UN PROGRESS IN TACKLING MATERNAL AS WELL AS NEWBORN DEATHS STAGNANT SINCE 2015

Why in news?

➲ Despite over 4.5 million women and babies dying every year during pregnancy, childbirth or the first weeks after birth, global progress on mitigating this has halted since 2015, revealed a new report by the United Nations (UN).

Details:

➲ The report on improving maternal and newborn health and survival and reducing stillbirth placed India at the top, accounting for 17 per cent of global maternal deaths, stillbirths and neonatal births (788,000 total deaths).

➲ Pregnant women and newborns continue to die at unacceptably high rates worldwide, and the COVID-19 pandemic has created further setbacks to providing them with the healthcare they need.

How gains made between 2000 and 2010 were faster than they have been in the years since 2010?

➲ Maternal mortality ratio observed an annual reduction rate of 2.8 per cent between 2000 and 2009, which decreased to 1.3 per cent between 2010 and 2020.

➲ An improvement of reducing this indicator by 11.9 per cent is required in the next decade to meet global targets of an MMR equivalent to 70 deaths per 1,000 live births.

- Between 2000 and 2009, the stillbirth rate was reduced by 2.3 per cent and by 1.8 per cent between 2010 and 2021. A 5.2 per cent reduction is required between 2022 and 2030 to meet global targets of less than 12 stillbirths per 1,000 live births.
- Neonatal mortality rate (NMR) records a similar trend; a 3.2 per cent reduction between 2000 and 2009, 2.2 per cent reduction in 2010 and 2021. NMR needs to be reduced by another 7.2 per cent between 2022 and 2030 to meet the global target of ending newborn mortality.

What needs to be done?

- Following India, countries with the highest number of absolute maternal and neonatal deaths and stillbirths in 2020 are Nigeria (540,000 deaths), Pakistan (474,000), Democratic Republic of Congo (241,000), Ethiopia (196,000), Bangladesh (121,000), China (108,000), Indonesia (103,000), Afghanistan (95,000) and Tanzania (94,000).
- These maternal and infant health indicators can be improved significantly by ramping up essential health services.
- Three standard measures can be used to assess this availability; at least four antenatal care contacts (ANC4), having a skilled attendant at birth (SAB) and receiving postnatal care (PNC) within the first two days after birth.
- While coverage rates for ANC4 have improved to 68 per cent in 2022 from 61 per cent in 2010, the figure is projected to move up by only one percentage point by 2025.
- The same goes for SAB coverage rates, up from 75 per cent to 86 per cent in the same duration, and an expected improvement to 88 per cent by 2025.
- For PNC, the coverage has recorded the highest improvement, up from 54 per cent to 66 per cent between 2010 and 2022. It is further projected to touch 69 per cent by 2025. The projections make it clear that ANC4 and PNC coverage will fail to meet global targets at the current pace.

Emergency Obstetric Care:

- Access to quality Emergency Obstetric Care (EmOC) is critical for reducing maternal mortality.
- But only about 36 per cent of facilities providing EmOC in sub-Saharan Africa are considered functioning versus 62 per cent in northern Africa and western Asia and more than 80 per cent of EmOC facilities in other regions.
- Improvement on this front can significantly help reduce maternal deaths, a leading cause of which is postpartum haemorrhage, defined as the loss of more than 500 ml of blood within 24 hours after birth.
- A set of interventions to manage postpartum haemorrhage can reduce heavy bleeding by 60 per cent, a new study has revealed.

Gender transformative approach:

- A gender transformative approach can address maternal and newborn mortality. It is vital to stamp out the underlying factors which give rise to poor maternal health outcomes like socio-economic inequalities, discrimination, poverty and injustice.

CULTURE

BRING BACK KOHINOOR FROM THE U.K., PARLIAMENTARY PANEL NOTES IN ITS REPORT

Why in news?

- The report on "Heritage theft — the illegal trade in Indian antiquities and the challenges of retrieving and safeguarding our tangible cultural heritage" was adopted recently by the Standing Committee on Transport, Tourism and Culture headed by YSR Congress Party MP Vijay Sai Reddy.

Details:

- It said, nothing prevents India from seeking the return of the Kohinoor, a diamond which left Indian shores in the early 1850s and is currently embedded in the crown of the British monarch.
- The Ministry of Culture said that while efforts were being made to bring in stolen artefacts, the case of Kohinoor is contentious since it was surrendered by Maharaja Dalip Singh as part of the 1849 peace treaty with the British.
- India does not have legal competence to demand the return of the diamond.
- Under the provisions of the Antiquities and Art Treasure Act, 1972, the Archaeological Survey of India takes up the issue of retrieval of only such antiquities that have been illegally exported out of the country.

UNSECO Convention:

- The Culture Ministry's stand is consistent with its 2016 affidavit filed in the Supreme Court, where it had said that the diamond cannot be reclaimed as it was given as a gift.
- To cap the deliberations, the panel also met Law Secretary Niten Chandra to understand if the case could be legally pursued.

➲ He had informed the panel that "a combined reading of Articles 7 and 15 of the 1970 UNESCO convention indicates that the convention does not prevent state parties from entering special agreements for the restitution of removed cultural properties".

Way Forward:

➲ Based on the deliberations, the panel has urged the Ministry of Culture to "follow global practice and make all efforts to ensure precious historical artefacts are returned".

MOU SIGNED FOR 'RIVERINE BASED RELIGIOUS TOURISM CIRCUIT'

Why in news?

➲ Recently, a Memorandum of Understanding (MoU) was signed in Guwahati, Assam for the development of 'Riverine Based Religious Tourism Circuit' among Inland Waterways Authority of India (IWAI), Sagarmala Development Corporation Limited (SDCL), Assam Tourism Development Corporation (ATDC) and Department of Inland Waterways Transport (DIWT), Government of Assam.

Key Highlights:

➲ The MoU will facilitate modern ferry service on a 'Hop On Hop Off' among seven (07) historic religious sites around Guwahati.

➲ The seven religious sites are Kamakhya, Pandunath, Ashwalknata, Doul Govinda, Umananda, Chakreshwar and Auniati Satra to be covered with the help of this agreement.

➲ The waiting lounge at the ferry terminal will be a modern facility providing comfortable ambience for the passengers.

Implementation:

➲ The project, executed via a Special Purpose Vehicle (SPV), is likely to completed with an investment of ₹45 crores and will be completed within 12 months.

➲ SDCL and IWAI will jointly contribute 55% of the project cost while the remaining will be provided by ATDC. DIWT has consented to provide the usage of Ghats near the temples free of cost for the project.

PRACTICE QUESTION FOR UPSC PRELIMS EXAM

1. Consider the following statement regarding Barsu refinery project:
   1. It is a joint venture between Aramco, ADNOC, IOCL, BPCL and HPCL.
   2. This project was supposed to come up at Nanar but due to strong opposition from the locals, environmental activists, the project shifted to Barsu
   3. The project proposes to develop various downstream petrochemicals only.
   Choose the correct option from the codes given below:
   a) 1 and 2   b) 2 and 3
   c) 1 and 3   d) 1, 2 and 3

2. Consider the following statement:
   1. Rajashekhara was the court poet of Chalukyan emperor Pulakeshin II.
   2. Shilabhattarika was a celebrated Sanskrit poetess and daughter of Pulakeshin II of Badami.
   3. Pulakesin II had defeated Harshavardhan of Kanauj in a battle near the banks of the Narmada River in 618 CE
   Choose the correct option from the codes given below:
   a) 1 and 2   b) 2 and 3
   c) 1 and 3   d) 1, 2 and 3

3. Consider the following statement:
   1. "Fireside Chats" was the earliest example of the use of radio broadcasts.
   2. United States President Franklin D Roosevelt delivered the above broadcast.
   Choose the correct option from the codes given below:
   a) 1 only   b) 2 only
   c) 1 and 2   d) None of the above

4. Consider the following statement regarding Pradhan Mantri Garib Kalyan Anna Yojana (PM-GKAY):
   1. It help the poor fight the battle against Covid-19.
   2. The benefit of the free ration can be availed through portability by any migrant labour.
   3. Its nodal Ministry is the Ministry of Finance.
   Choose the correct option from the codes given below:
   a) 1 and 2   b) 2 and 3
   c) 1 and 3   d) 1, 2 and 3

5. Consider the following statements with respect to Convention on Supplementary Compensation (CSC):
   1. It aims to establish a minimum national compensation amount to compensate the damage caused by a nuclear incident.
   2. The Convention is open only to States that are party to either the Vienna Convention or the Paris Convention.
   3. India is not a signatory to this convention.
   Which of the statement(s) given above is/are correct?
   a) 1 only   b) 1 and 2 only
   c) 2 and 3 only   d) 1, 2 and 3

6. The 'laundromat countries' does not include
   a) Japan   b) India
   c) Turkey   d) Singapore

7. Consider the following statement regarding Dengue:
   1. The virus while entering human body affect the Red blood Cell first.
   2. The virus is transmitted to humans by the Aedes mosquito.
   3. The virus spreads to other organs, including the liver, spleen, and lymph nodes.
   Choose the correct option from the codes given below:
   a) 1 and 2   b) 2 and 3
   c) 1 and 3   d) 1, 2 and 3

8. Consider the following statement regarding Shiitake mushroom:
   1. This mushroom is native to Japan.
   2. It contains a chemical called lentinan.
   3. It has anti-carcinogenic properties, used in the treatment of cancer.
   Choose the correct option from the codes given below:
   a) 1 and 2   b) 2 and 3
   c) 1 and 3   d) 1, 2 and 3

9. Consider the following:
   1. Amit Kumar vs. Suman Beniwal
   2. Shilpa Sailesh vs. Varun Sreenivasan
   3. Shri Rakesh Raman vs. Smt Kavita case
   Which among the following case/(s) is related to divorce?
   a) 1 and 2   b) 2 and 3
   c) 1 and 3   d) 1, 2 and 3

10. Button, Dingri and Milky are varieties of
    a) Mushroom   b) Poppy Seeds
    c) Rice   d) Banana

11. Consider the following statement:
    1. At present there are 62 cantonments in India.
    2. Ajmer was the last cantonment to be notified.
    3. Barrackpore is the first cantonment to shed its cantonment tag.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

12. Consider the following statement regarding G7 Group:
    1. Canada was the founding member of this group.
    2. The European Union has participated fully in the G-7 as a "non enumerated" member.
    3. The leaders of important international organizations like European Union, IMF, World Bank and the United Nations are also invited.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

13. Consider the following statement regarding Gig workers:
    1. They refer to workers outside of the traditional employer-employee relationship.
    2. Construction workers and non-technology-based temporary workers comes under non-platform workers.
    Choose the correct option from the codes given below:
    a) 1 only   b) 2 only
    c) 1 and 2   d) None of the above

14. Consider the following statement regarding De-Dollarisation:
    1. It refers to reducing the dollar's dominance of global markets.
    2. It is used for buying US dollar for forex reserve.
    3. The de-dollarisation is driven by the desire to insulate the Central Banks of the Countries from geopolitical risk.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

15. Recently Union Law Minister Kiren Rijiju said regional languages should be used in courts in every State. Consider the following statements:
    1. The Constitution of India specifies the official languages of different states.
    2. The legislature of a state may adopt one or more of the languages in use in the state or Hindi as the official Language of the state.

Choose the correct option from the codes given below:
a) 1 only   b) 2 only
c) Both 1 and 2   d) Neither 1 nor 2

16. Consider the following statement:
    1. Rail Vikas Nigam Ltd. (RVNL) became the 13th Central Public Sector Enterprise (CPSE) to get the Navratna status.
    2. Earlier, RVNL was in the Miniratna category – I.
    3. Bharat Heavy Electric Limited (BHEL) was conferred with Navratna status in 2014.
    Choose the correct option from the codes given below:
    a) 1 and 2
    b) 2 and 3
    c) 1 and 3
    d) 1, 2 and 3

17. Consider the following statement regarding World Press Freedom Index:
    1. India had improved its position in this index this year.
    2. It is released by global media watchdog Reporters Without Borders (RSF).
    3. Sri Lanka made significant improvement on the index as compared to India.
    Choose the correct option from the codes given below:
    a) 1 and 2
    b) 2 and 3
    c) 1 and 3
    d) 1, 2 and 3

18. Consider the following statement regarding Comptroller and Auditor General of India (CAG):
    1. He is the head of the Indian Audit and Accounts Department.
    2. He holds office for a period of six years or upto the age of 65 years, whichever is earlier.
    Choose the correct option from the codes given below:
    a) 1 only
    b) 2 only
    c) 1 and 2
    d) None of the above

19. With reference to the North-Eastern Council, consider the following statements:
    1. 1.It is the statutory body established for the economic and social development of Sixth Schedule areas in the North-Eastern States.
    2. 2.The council is headed by the Prime Minister. Which of the statements given above is/are correct?
    Choose the correct option from the codes given below:
    a) 1 only   b) 2 only
    c) Both 1 and 2   d) Neither 1 nor 2

20. Consider the following statement regarding World Press Freedom Index:
    1. This report is released every year.
    2. Its objectives is to compare the level of press freedom enjoyed by journalists and media in 180 countries and territories.
    3. Its head quarter sis in New York.
    Choose the correct option from the codes given below:
    a) 1 and 2　　　　　　b) 2 and 3
    c) 1 and 3　　　　　　d) 1, 2 and 3

21. Consider the following statement regarding Washington Declaration:
    1. A nuclear consultative group would be formed to formulate principles of joint response tactics.
    2. An American nuclear ballistic submarine would be deployed in South China Sea.
    Choose the correct option from the codes given below:
    a) 1 only　　　　　　b) 2 only
    c) 1 and 2　　　　　　d) None of the above

22. Consider the following statement regarding Petersberg Dialogue on Climate Change:
    1. It was hosted by Russia.
    2. Members States call for an Acceleration Agenda, where "all countries hit fast-forward on their Net Zero deadlines".
    3. The Agenda calls for coal phaseout by 2030 in Organisation for Economic Co-operation and Development countries.
    Choose the correct option from the codes given below:
    a) 1 and 2　　　　　　b) 2 and 3
    c) 1 and 3　　　　　　d) 1, 2 and 3

23. Consider the following statement:
    1. Meitei community is a non-tribal community in Manipur.
    2. There was a demand to grant Schedule tribe status to Meitei community.
    Choose the correct option from the codes given below:
    a) 1 only　　　　　　b) 2 only
    c) 1 and 2　　　　　　d) None of the above

24. Laponite is a widely used raw material
    a) Pharmaceutical　　b) Cosmetics industries
    c) Space industry　　d) Both a and b

25. Consider the following statement regarding Shanghai Cooperation Organisation (SCO):
    1. It is a multilateral grouping comprising eight member states.
    2. Iran and Belarus are set to be admitted as full members.
    3. Afghanistan and Mongolia are the two dialogue partner.

Choose the correct option from the codes given below:
a) 1 and 2　　　　　　b) 2 and 3
c) 1 and 3　　　　　　d) 1, 2 and 3

26. Consider the following statement regarding ATAGS:
    1. It is an indigenous calibre howitzer gun.
    2. The specialised gun system is compatible with C4I.
    3. The ATAGS is configured with manual drive.
    Choose the correct option from the codes given below:
    a) 1 and 2　　　　　　b) 2 and 3
    c) 1 and 3　　　　　　d) 1, 2 and 3

27. Consider the following statement regarding Vein of Galen Malformation (VOGM):
    1. It is a type of lungs disorder.
    2. It happens when arteries in the brain connect directly with vein.
    3. The condition causes blood to rush toward the heart and lungs.
    Choose the correct option from the codes given below:
    a) 1 and 2　　　　　　b) 2 and 3
    c) 1 and 3　　　　　　d) 1, 2 and 3

28. Consider the following statement regarding in-utero surgery:
    1. It is performed before the baby was born.
    2. The surgery was performed when the fetus was just over 34 weeks of gestational age.
    Choose the correct option from the codes given below:
    a) 1 only　　　　　　b) 2 only
    c) 1 and 2　　　　　　d) None of the above

29. Consider the following:
    1. Tree plantation
    2. Waste management
    3. Eco mark-based green credit
    Which among the above had been identified under the Environment (Protection) Act for which green credit can be earned?
    a) 1 and 2　　　　　　b) 2 and 3
    c) 1 and 3　　　　　　d) 1, 2 and 3

30. With reference to Financial Action Task Force (FATF), Consider the following statements:
    1. It was established at the G7 Summit of 1989 in Paris.
    2. It currently has 13 members and India is not a member country.
    3. At the end of every plenary meeting, it comes out with only one kind of list i.e. blacklist of countries.
    Which of the statements given above is/are correct?
    a) 1 only　　　　　　b) 2 only
    c) 2 and 3 only　　　d) 1 and 3 only

31. Consider the following statement regarding Operation Samudra Setu:
    1. It was launched as part of the national effort to repatriate Indian citizens from overseas during the Covid-19 pandemic.
    2. It was launched along with Vande Bharat Mission (VBM).
    3. Only Indian Naval Ships Magar participated in this operation.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

32. Consider the following statement regarding Global Land Outlook report:
    1. The report is published by UNFCCC.
    2. According to this report, breaches are directly linked to human-induced desertification, land degradation, and drought.
    3. Land is the operative link between biodiversity loss and climate change.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

33. Consider the following statements with respect to Co-lending:
    1. It is an arrangement where the loan origination is by one entity but the risk is shared by two entities
    2. It enforces accountability on the NBFC.
    Choose the correct option from the codes given below:
    a) 1 only   b) 2 only
    c) 1 and 2   d) None of the above

34. Consider the following statements with respect to the Kaladan Multi Modal Transit Transport Project:
    1. It is joint initiative between India, Myanmar and Bangladesh.
    2. The project will connect the Kolkata Port with Myanmar's Sittwe Port through the Dawki land port in Bangladesh.
    Choose the correct option from the codes given below:
    a) 1 only   b) 2 only
    c) 1 and 2   d) None of the above

35. Consider the following statements with respect to Genetically Modified (GM) and Gene Editing (GE) techniques:
    1. In Gene editing methods the genetic material derived from other organism is introduced to the parent organism.
    2. CRISPR is a common method, or tool, of gene editing
    Choose the incorrect option from the codes given below:
    a) 1 only   b) 2 only
    c) 1 and 2   d) None of the above

36. Consider the following statement water body census:
    1. The vast majority of India's water bodies are less than one hectare (ha) large.
    2. It was conducted by the Ministry of Environment, Forest and Climate Change (MoEFCC).
    Choose the correct option from the codes given below:
    a) 1 only
    b) 2 only
    c) 1 and 2
    d) None of the above

37. Consider the following statement regarding the disqualification of Member of Parliament:
    1. Only Tenth Schedule to Constitution provides for disqualification of the members on ground of defection.
    2. According to tenth schedule, a member may be disqualified if he voluntarily gives up the membership of his political party.
    3. Member may also be disqualified if he votes or abstains from voting in the House contrary to any direction issued by the political party to which he belongs.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

38. With reference to Natural Gas, consider the following statements:
    1. Natural gas is mainly methane and other higher alkanes, carbon dioxide, nitrogen etc.
    2. Currently, Natural gas makes up only about 6% of the nation's overall energy mix.
    Which of the statements given above is/are correct?
    a) 1 only   b) 2 only
    c) Both 1 and 2   d) Neither 1 nor 2

39. Consider the following statement regarding START Programme:
    1. It is part of the ISRO's efforts to enable Indian students to become professionals in Space Science and Technology.
    2. The programme will cover various domains of Space Science, including Astronomy and Astrophysics.
    3. It is aimed at postgraduate and final-year undergraduate students of Physical Sciences and Technology.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

40. Consider the following statement regarding Bluesky:
    1. It is a micro-blogging platform and social website.
    2. It is a competitor of Facebook.
    Choose the correct option from the codes given below:
    a) 1 only
    b) 2 only
    c) 1 and 2
    d) None of the above

41. Consider the following statement regarding Kuno National Park:
    1. It is part of the Khathiar-Gir dry deciduous forests.
    2. Kuno Palpur Wildlife Sanctuary is underway to become India's second home for the Asiatic lion.
    3. It is not given the status of wildlife sanctuary.
    Choose the correct option from the codes given below:
    a) 1 and 2
    b) 2 and 3
    c) 1 and 3
    d) 1, 2 and 3

42. Consider the following statement:
    1. ASEAN-India Maritime Exercise (AIME 2023) took place in Sea of Japan.
    2. Singapore is hosting the International Maritime Defence Exhibition (IMDEX-23).
    3. The first edition of IMDEX was held in 1997.
    Choose the correct option from the codes given below:
    a) 1 and 2
    b) 2 and 3
    c) 1 and 3
    d) 1, 2 and 3

43. Consider the following statement regarding Lithium:
    1. It is the lightest as well as the softest metal across the globe.
    2. It converts chemical energy into electrical energy.
    Choose the correct option from the codes given below:
    a) 1 only
    b) 2 only
    c) 1 and 2
    d) None of the above

44. Consider the following statement regarding African Cheetah and Asiatic Cheetah:
    1. African Cheetah is critically endangered.
    2. Asiatic Cheetah is bigger in size as compared to African Cheetah.
    Choose the correct option from the codes given below:
    a) 1 only
    b) 2 only
    c) 1 and 2
    d) None of the above

45. Consider the following statement regarding Election Commission of India:
    1. The tenure of election commissioner is fixed to six year or 65 years of age.
    2. They enjoy the same status as available to Judges of the Supreme Court of India.
    3. President appoints the chief election commissioner only.
    Choose the correct option from the codes given below:
    a) 1 and 2
    b) 2 and 3
    c) 1 and 3
    d) 1, 2 and 3

46. Consider the following statement regarding United Nations Economic and Social Commission for Asia and the Pacific:
    1. It is the regional development arm of the United Nations for the Asia-Pacific region.
    2. Its objective is to overcome some of the region's greatest challenges by providing results-oriented projects.
    3. India is not the member of this union.
    Choose the correct option from the codes given below:
    a) 1 and 2
    b) 2 and 3
    c) 1 and 3
    d) 1, 2 and 3

47. Consider the following statement regarding Graphene:
    1. It is arranged in octagonal lattice.
    2. It is the thinnest, most electrically and thermally conductive material in the world.
    3. Graphene could replace Indium and thereby bring down the cost of OLED screens in smartphones.
    Choose the correct option from the codes given below:
    a) 1 and 2
    b) 2 and 3
    c) 1 and 3
    d) 1, 2 and 3

48. Consider the following statement regarding Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY):
    1. It is a one-year life insurance scheme.
    2. Persons in the age group of 18-50 years having an individual bank or a post office account are entitled to enroll under the scheme.
    Choose the correct option from the codes given below:
    a) 1 only
    b) 2 only
    c) 1 and 2
    d) None of the above

49. Consider the following statements with respect to Enforcement Directorate (ED):
    1. It is assigned with investigation of offence of money laundering and violations of foreign exchange laws.
    2. It works under the aegis of the Department of Revenue, Ministry of Finance.
    3. The Centre promulgated an ordinances to extend the tenure of the Enforcement Directorate from 2 years to up to 5 years.
    Choose the correct option from the codes given below:
    a) 1 and 2
    b) 2 and 3
    c) 1 and 3
    d) 1, 2 and 3

50. With reference to the Galapagos Islands, consider the following statements:
    1. The Islands are named after their giant tortoises.
    2. Darwin's Theory of evolution by means of natural selection was inspired by his study on the endemic species on the Islands.
    3. These Islands are located in Suriname.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

51. Consider the following statement regarding Cryogenic engines:
    1. They use liquid oxygen and liquid hydrogen as the propellant.
    2. The liquid oxygen is very reactive.
    3. Oxygen is kept in solid state.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

52. Consider the following statement regarding Indo-Thai CORPAT:
    1. It is an annual exercise between India and Thailand.
    2. Its objective is to reinforce maritime linkages between India and Thailand.
    3. It aims is to ensure the safety and security of the international trade route in the Indian Ocean.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

53. Consider the following stamen SAKSHAM:
    1. It has been developed by the National Institute of Health & Family Welfare (NIHFW).
    2. This digital learning platform will ensure inclusive capacity building of health professionals from primary health centres.
    Choose the correct option from the codes given below:
    a) 1 only   b) 2 only
    c) 1 and 2   d) None of the above

54. Consider the following:
    1. Telangana
    2. Karnataka
    3. West Bengal
    Which among the following states is not the top performing states in terms of percentage of ODF Plus villages?
    a) 1 and 2   b) 2 and 3
    c) 1 Only   d) 3 Only

55. Consider the following statement regarding 'Harit Sagar':
    1. Its objective is to achieve zero emission.
    2. It was launched by Ministry of Ports, Shipping & Waterways.
    3. The award for the best Absolute Performance for the year 2022-23 conferred to the Jawaharlal Nehru Port.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

56. Consider the following statement:
    1. Disqualification of members are mention in tenth schedule.
    2. MLA has the right to participate in proceedings of the House regardless of pendency of any petitions for disqualification.
    3. Legislature party appoints the whip.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

57. Consider the following statements with respect to Polygamy:
    1. Section 394 of Indian Penal Code (IPC) penalizes bigamy or polygamy in India.
    2. The highest prevalence of polygynous marriages was in the Northeastern states with tribal populations.
    3. The prevalence of polygamy was high among Christians, than the Muslims and Hindus.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

58. Consider the following statement:
    1. Delhi presents a special constitutional status under article 239AA.
    2. Article 239AA specifically excludes land, police and public order from the purview of the legislative powers of the Delhi government.
    Choose the correct option from the codes given below:
    a) 1 only   b) 2 only
    c) 1 and 2   d) None of the above

59. Consider the following statements with respect to Monkey Pox:
    1. It is a zoonosis disease that transmitted from infected animals to humans.
    2. It is an orthopoxvirus, a genus of viruses that includes variola virus which causes smallpox.
    3. WHO has recently ended the Monkeypox as public health emergency of international concern (PHEIC)

Choose the correct option from the codes given below:
a) 1 and 2   b) 2 and 3
c) 1 and 3   d) 1, 2 and 3

60. Consider the following statements with respect to Government of Delhi:
    1. It has the legislative and executive control over administrative services except with regard to public order, police and land.
    2. The Lieutenant Governor shall be bound by the decisions of the Government of Delhi on services.
    3. The executive power of the Union Territory of Delhi is not co-extensive with its legislative power.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

61. Consider the following statement regarding Arctic Council:
    1. Ottawa declaration led to the formation of this council.
    2. United States of America is also the member of this council.
    3. Observer country of this council also has the voting right.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

62. Consider the following statement regarding Prof. Govind Swarup:
    1. He is widely regarded to be the founder of Indian Space programme.
    2. Ooty Radio Telescope (ORT) and the Giant Metrewave Radio Telescope was also constructed by him.
    3. He was the early proponents of the Square Kilometre Array (SKA).
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

63. Consider the following statement regarding She-Box:
    1. It is launched by Ministry of Women & Child Development.
    2. It is an effort to provide a single window access for working woman only.
    3. Any woman facing sexual harassment at the workplace can register their complaint through this portal.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

64. Which among the following city became the first city to adopt the localisation of the United Nations-mandated sustainable development goals (SDG)?
    a) Ahmadabad   b) Mumbai
    c) Indore   d) Bhopal

65. Recently, the California state Senate passed a Bill to ban caste-based discrimination in the state. Consider the following statement:
    1. The Bill provides explicit protections to those who have been systemically harmed due to caste bias and prejudice.
    2. It also provides firm legal consequences for those participating in caste discrimination and caste-based violence.
    3. The Bill fails to adds caste as a protected category to an existing law.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

66. Consider the following statement regarding Storm Shadow missile:
    1. It is an Anglo-French low-observable, long-range cruise missile.
    2. It uses GPS and inertial navigation systems to guide it to its target.
    3. This missile is presently used by United Kingdom only.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

67. Consider the following statements about Central Ground Water Authority:
    1. It is a Constitutional body.
    2. It has been entrusted with the responsibility of regulating and controlling ground water development and management in the country
    Choose the correct option from the codes given below:
    a) 1 Only   b) 2 Only
    c) 1 and 2   d) None of the above

68. Consider the following statement regarding Depositor Education and Awareness Fund (DEA Fund):
    1. The Scheme envisages registration of institutions and grant of financial assistance.
    2. Section 26A in the Banking Regulation Act, 1949 empowers the RBI to establish this fund.
    Choose the correct option from the codes given below:
    a) 1 Only   b) 2 Only
    c) 1 and 2   d) None of the above

69. Consider the following statement regarding Cyclone Mocha:
    1. It is the first cyclone to form in the Arabian Sea this year.
    2. The cyclonic storm was named after a port city located in the Red Sea.
    3. This place is famous for coffee production.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

70. Consider the following statement regarding Gaganyaan:
    1. ADRDE has developed the parachutes for India's manned space flight programme.
    2. The parachutes will be used to ensure the safe return of the capsule.
    3. The mission will carry astronauts to outer earth orbit.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

71. Consider the following statement regarding INS Mormugao:
    1. It is named after the historic port city of Goa on the West coast.
    2. It is developed with more than 75% indigenous content.
    3. The ship is not equipped to fight under nuclear condition.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

72. Consider the following statement regarding Storm Shadow Missile:
    1. It is both conventional and nuclear launched deep strike missile.
    2. It is equipped with the fire and forget technology.
    3. The missile features the BROACH (Bomb Royal Ordnance Augmented CHarge) warhead.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

73. Consider the following statement regarding Exercise Samudra Shakti:
    1. It is conducted between the navies of India and Indonesia.
    2. This exercise aimed at enhancing interoperability, jointness and mutual cooperation between both the navies.

Choose the correct option from the codes given below:
a) 1 only   b) 2 only
c) 1 and 2   d) None of the above

74. Consider the following statement regarding Carbon Dating:
    1. It is a widely-used method to establish the age of organic materials.
    2. Two commonly employed methods for dating rocks are potassium-argon dating and uranium-thorium-lead dating.
    3. Cosmogenic nuclide dating or CRN is regularly applied to study the age of ice cores in polar regions.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

75. Recently, a baby was born using three persons' DNA in the U. K. Consider the following statement:
    1. Mitochondria are basically the powerhouses of the cells.
    2. They generate energy and are also responsible for cell function in the human body.
    3. The baby derived the mitochondria and the genetic material (DNA) from biological parents.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

76. Consider the following statement regarding Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 (PoSH):
    1. Vishaka Judgment is a historical case that deals with the offence of Sexual Harassment of women at her workplace.
    2. It has to be headed by a woman, have at least two women employees.
    3. The acts mandate to form committees only from formal sectors.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

77. Consider the following statement regarding Aadhaar-enabled Payment System (AePS):
    1. This model also requires OTP, bank account and other financial details.
    2. It is a bank-led model which allows online financial transactions.
    3. It allows fund transfers using only the bank name, Aadhaar number, and fingerprint.
    Choose the correct option from the codes given below:

a) 1 and 2   b) 2 and 3
c) 1 and 3   d) 1, 2 and 3

78. Consider the following statement regarding Mission LiFE (Lifestyle for Environment):
    1. It is a global movement initiated by India to promote an environmentally conscious lifestyle.
    2. It aims to create a global network of Pro-Planet People (P3).
    Choose the correct option from the codes given below:
    a) 1 Only   b) 2 Only
    c) 1 and 2   d) None of the above

79. Consider the following statement regarding James Webb Space Telescope:
    1. It is the most powerful infrared telescope of NASA.
    2. It is the result of collaboration between NASA, the European Space Agency (ESA) and the Canadian Space Agency.
    3. This telescope had help humanity understand the origins of the universe.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

80. Consider the following statement regarding ChatGPT:
    1. It is based on language learning model.
    2. GPT stands for Generative Pre-trained Transformer.
    3. The chatbot was also trained using Reinforcement Learning from Human Feedback (RLHF).
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

81. Consider the following statement regarding International Telecommunication Union (ITU):
    1. It facilitates international connectivity in communications networks.
    2. It allocates global radio spectrum and satellite orbits.
    3. Study Group 9 (SG-9) at ITU is responsible for telecommunication systems for the primary distribution of audio-visual content only.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

82. Consider the following statement regarding artificial sweetener:
    1. Saccharin is an artificial sweetener with high food energy.
    2. Sodium cyclamate is an artificial sweetener.
    3. Neotame is a non-caloric artificial sweetener.

Choose the correct option from the codes given below:
a) 1 and 2   b) 2 and 3
c) 1 and 3   d) 1, 2 and 3

83. Consider the following statement:
    1. Methanol is produced by combining carbon monoxide and hydrogen in the presence of copper and zinc oxides as catalysts.
    2. Methanol is used as a solvent and as antifreeze.
    Choose the correct option from the codes given below:
    a) 1 Only   b) 2 Only
    c) 1 and 2   d) None of the above

84. Consider the following statement:
    1. The adverse effects of alcohol consumption is due to acetaldehyde.
    2. Spurious liquor is characterised by the liquid mixture containing methanol as well.
    3. Arrack is distilled from the fermented sap of the palm tree.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

85. Consider the following statement regarding Sea butterflies:
    1. It is a suborder of sea snails.
    2. It is a smallest species found in the Southern Ocean.
    3. They lack muscular feet.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

86. Consider the following statement regarding "Blazar":
    1. It is a type of galaxy.
    2. It is one of the brightest and most powerful objects in the universe.
    3. The do not emits radio waves.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

87. Consider the following statement regarding LIBOR:
    1. It does not serve as a globally accepted key benchmark interest rate.
    2. It is a benchmark interest rate at which major global banks lend to one another in the international interbank market.
    3. The rate is calculated using the Waterfall Methodology.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

88. Consider the following statements with respect to London Interbank Offered Rate (LIBOR):
    1. It is a global interest rate at which major global banks lend to one another in the international interbank market for short-term loans.
    2. The interest rate is calculated only for currencies such as the Euro, US dollars, Swiss Franc, Japanese Yen and UK Pound Sterling.
    Choose the correct option from the codes given below:
    a) 1 only
    b) 2 only
    c) 1 and 2
    d) None of the above

89. Consider the following statement regarding Production Linked Incentive (PLI) scheme:
    1. It was launched to give boost to the domestic manufacturing sectors.
    2. The scheme aims to give companies incentives for incremental sales.
    3. The scheme is targeting labor-intensive sectors in the hope to create new jobs.
    Choose the correct option from the codes given below:
    a) 1 and 2
    b) 2 and 3
    c) 1 and 3
    d) 1, 2 and 3

90. Consider the following statement regarding Secured Overnight Financing Rate (SOFR):
    1. It is a benchmark interest rate for dollar-denominated derivatives and loans.
    2. It is based on transactions in the Treasury repurchase market.
    3. It is not a secured borrowing rate.
    Choose the correct option from the codes given below:
    a) 1 and 2
    b) 2 and 3
    c) 1 and 3
    d) 1, 2 and 3

91. Consider the following statement regarding free airtime for political parties:
    1. It was given statutory basis through 2003 amendment to Representation of People Act, 1951.
    2. The Secretary, Ministry of Information and Broadcasting vs Cricket Association of Bengal and ANR, 1995 is related to it.
    3. By this judgement, airwaves was not declared a public property.
    Choose the correct option from the codes given below:
    a) 1 and 2
    b) 2 and 3
    c) 1 and 3
    d) 1, 2 and 3

92. The term Dotted Lands recently seen in news is related to?
    a) The lands that were given as voluntary gift from the landlords to the landless.
    b) It is a disputed land for which there are no clear ownership documents.

c) It is a land donated by kings or wealthy patrons to Brahmins.
d) It is a land given to temples during harshavardhana period.

93. The place Neh Pema Shelpu Drupkhang recently seen in news is located in which of the following state?
    a) Jammu & Kashmir
    b) Manipur
    c) Arunachal Pradesh
    d) Sikkim

94. Consider the following statement regarding the Green deposit:
    1. It is not very different from the regular deposits.
    2. A bank may also avoid using green deposits to invest in fossil fuel projects.
    3. A green deposit is just one product in a wide array of other financial products.
    Choose the correct option from the codes given below:
    a) 1 and 2
    b) 2 and 3
    c) 1 and 3
    d) 1, 2 and 3

95. Consider the following statement:
    1. G7 has no legal existence or official members.
    2. G7 represent around 85% of the global GDP.
    Choose the correct option from the codes given below:
    a) 1 only
    b) 2 only
    c) 1 and 2
    d) None of the above

96. Consider the following statement Dotted Land:
    1. They are disputed land.
    2. Central government had granted titles to farmers who have been cultivating dotted lands for more than 12 years.
    3. There are a proper ownership documents for this land.
    Choose the correct option from the codes given below:
    a) 1 and 2
    b) 2 and 3
    c) 1 and 3
    d) 1, 2 and 3

97. Consider the following statement regarding Clean Note Policy:
    1. Notes issued before 2005 ceased to be legal tender.
    2. It seeks to give the public good-quality currency notes and coins with better security features.
    3. The RBI had earlier decided to withdraw from circulation all banknotes issued prior to 2005.
    Choose the correct option from the codes given below:
    a) 1 and 2
    b) 2 and 3
    c) 1 and 3
    d) 1, 2 and 3

98. Operation Karuna recently seen in news is related to?
    a) It is to curb the cyber-enabled crime networks across India.
    b) To suppress the Kuki and Meitei tribes from violence in Manipur.
    c) Indian Mission to assist Myanmar which has been devastated by Cyclone Mocha.
    d) To combat the proliferating illegal trade of live turtles and tortoises.

99. Consider the following statement regarding Arsenic:
    1. It is a highly toxic element naturally present in the environment.
    2. Groundwater is a major source of arsenic exposure.
    3. Long term exposure of Arsenic may lead to cardiovascular disease.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

100. Match the following Drying Lakes with their respective Regions:

Drying Lakes	Regions
1. Aral Sea	Central Asia
2. Xinkai Lake	Eastern Asia
3. Dead Sea	Southwestern Asia
4. Toshka Lakes	Northeastern Africa

Choose the correct option from the codes given below:
    a) 1 and 2 only   b) 2, 3 and 4 only
    c) 1 and 4 only   d) 1, 2, 3 and 4

101. Consider the following statement:
    1. Non-sugar sweeteners (NSS) are marketed as low or no-calorie.
    2. Aspartame is popularly used to sweeten diet colas.
    3. Sucralose is used to sweeten tea or coffee.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

102. Consider the following statement:
    1. 42nd Amendment introduces a legislative Assembly for Delhi.
    2. Article 309 of the Constitution clearly distinguished between the Centre and State services.
    3. The civil services in a Union Territory clearly belonged to the Centre.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

103. Consider the following statement regarding International Pathogen Surveillance Network (IPSN):
    1. The network aims to help ensure infectious disease threats are swiftly identified and tracked.
    2. The network will rely on pathogen genomics to analyse the genetic code of viruses.
    Choose the correct option from the codes given below:
    a) 1 Only   b) 2 Only
    c) 1 and 2   d) None of the above

104. Consider the following statement:
    1. Carbon-14 has a half-life of 5,700 years.
    2. Calcium-41 has a half-life of 99,400 years.
    3. Calcium-41 is produced when cosmic rays from space smash into calcium atoms in the soil.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

105. Consider the following statement regarding World Health Organisation (WHO):
    1. It acts as the directing and coordinating authority on international health work.
    2. It is an inter-governmental organization and works in collaboration with its member states.
    3. It's headquarter is in Paris.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

106. Consider the following statement regarding Gevra Mega Project:
    1. The project is located in Chhattisgarh.
    2. The project is owned by SECL.
    3. SECL is a state-owned maharatna company.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

107. Consider the following statement regarding Kunming-Montreal Global Biodiversity Framework (GBF):
    1. It was adopted by the 13th Conference of Parties (COP13) to the UN Convention on Biological Diversity.
    2. Countries agreed to protect 30 percent of the planet by 2030.
    3. Countries also agreed to reduce harmful government subsidies worth 500 billion dollars annually
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

108. Consider the following statement regarding the recently held G7 meeting in Japan:
1. European Union was also represented as a "non-enumerated member".
2. Comoros and Cook Islands were also represented in this submit.

Choose the correct option from the codes given below:
a) 1 only   b) 2 only
c) 1 and 2   d) None of the above

109. Consider the following statement:
1. The ONDC is modelled after the Unified Payments Interface (UPI) project.
2. ONDC will put an end to the domination of the e-commerce market by a few large platforms.
3. Amazon and Flipkart have been accused of promoting certain seller entities in which they hold indirect stakes.

Choose the correct option from the codes given below:
a) 1 and 2   b) 2 and 3
c) 1 and 3   d) 1, 2 and 3

110. Consider the following statement regarding SpaceX:
1. It is a private company owned and founded by Elon Musk.
2. The objective of SpaceX is to explore space and especially the planet Mars.
3. The journey of SpaceX starts with its Dragon Series

Choose the correct option from the codes given below:
a) 1 and 2   b) 2 and 3
c) 1 and 3   d) 1, 2 and 3

111. Consider the following statement regarding Papua New Guinea:
1. It is a country in Oceania that comprises the eastern half of the island of New Guinea.
2. Its capital is Port Moresby.
3. The country is the world's largest island country.

Choose the correct option from the codes given below:
a) 1 and 2   b) 2 and 3
c) 1 and 3   d) 1, 2 and 3

112. Which of the following are members of Forum for India-Pacific Islands Cooperation (FIPIC)?
1. Fiji
2. Philippines
3. New Zealand
4. Marshall Islands
5. Papua New Guinea

Choose the correct option from the codes given below:
a) 1 and 5 only   b) 1, 4 and 5 only
c) 1, 3, 4 and 5 only   d) 1, 2, 3, 4 and 5

113. Consider the following statement regarding INDUS-X:
1. It was launched under the Initiative on Critical and Emerging Technologies (iCET).
2. It will promote partnerships between United States and India in defence innovation ecosystem.

Choose the correct option from the codes given below:
a) 1 Only   b) 2 Only
c) 1 and 2   d) None of the above

114. Consider the following statement regarding Navigation with Indian Constellation (NavIC):
1. It is a regional navigation satellite system developed by ISRO.
2. It is India's answer to the GPS.
3. The network provides navigational services to general users, strategic users, namely the armed forces.

Choose the correct option from the codes given below:
a) 1 and 2   b) 2 and 3
c) 1 and 3   d) 1, 2 and 3

115. Consider the following statements with respect to Papua New Guinea
1. It lies in the southwest Pacific Ocean and northeast of Australia.
2. It is situated on the Pacific Ring of Fire.
3. Honiara, a key port built with assistance from China, is located in Papua New Guinea.

Choose the correct option from the codes given below:
a) 1 and 2   b) 2 and 3
c) 1 and 3   d) 1, 2 and 3

116. Consider the following statement regarding "forum shopping":
1. It is a situation when a litigant approaches one court but does not get desired relief and then approaches another court.
2. A litigant cannot directly approach the top court directly.

Choose the correct option from the codes given below:
a) 1 Only   b) 2 Only
c) 1 and 2   d) None of the above

117. Consider the following pairs:
1. Krishna Water Disputes Tribunal: Andra Pradesh & Odisha
2. Mahanadi Water Disputes Tribunal: Odisha & Chattisgarh
3. Ravi & Beas Water Tribunal: Punjab, Haryana, Rajasthan
4. Mahadayi Water Disputes Tribunal: Goa, Karnataka, Maharashtra

Choose the correct option from the codes given below:

a) Only one pairs is correct
b) Only three pairs is correct.
c) Only two pairs is correct
d) All four pairs is correct

118. Consider the following statement regarding Carbon Border Adjustment Mechanism (CBAM):
    1. Its primary objective is to avert 'carbon leakage'.
    2. European Union, USA and Japan signed this mechanism.
    3. It would replace EU-manufactured products with more carbon-intensive imports.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

119. Consider the following statement regarding ordinance-making power of the President:
    1. The Ordinance may lapse earlier if the President withdraws it, or if both Houses pass resolutions disapproving it.

2. If an Ordinance makes a law that Parliament is not competent to enact under the Constitution, it shall be considered void.
3. An Ordinance is valid for six weeks, or 42 days, from the date on which the next session starts.
Choose the correct option from the codes given below:
a) 1 and 2   b) 2 and 3
c) 1 and 3   d) 1, 2 and 3

120. Consider the following statements with respect to Leatherback Turtles:
    1. They are found in every ocean except the Arctic and Antarctic.
    2. These are the only species of sea turtle that lack scales and a hard shell.
    3. It is listed as Endangered in IUCN's red data list and Cites appendix I.
    Choose the correct option from the codes given below:
    a) 1 and 2   b) 2 and 3
    c) 1 and 3   d) 1, 2 and 3

PRACTICE QUESTION FOR UPSC MAINS EXAM

1. Discuss how lessons from India's recent mobilisation for COVID-19 could be adapted for the success of Sustainable Development Goals (SDGs)?

2. In India, over time, matters involving an inexplicable delay in exercising powers by various authorities have been brought under the ambit of judicial review by constitutional courts. The time has come to evolve a new constitutional architecture that would deliver on the demands for a time-bound constitutional delivery mechanism. Comment.

3. Who is a 'gig worker' and what is 'platform work'? Do the new Labour Codes protect the rights of gig workers? What laws have foreign jurisdictions enacted to regulate the gig economy?

4. Highlight the role of the Engagement Group for Supreme Audit Institutions (SAls) of G20 countries in promoting inter-generational equity and addressing climate change concerns.

5. India holds the rotating presidency of the Shanghai Cooperation Organisation (SCO) for 2023. As Russia, China vie for upper hand, what the Shanghai Cooperation Organisation (SCO) means for India?

6. As India marches towards its vision of a financially sound and digitalised power sector through smart metering interventions, it must pursue a user-centric design and deployment strategy. Comment.

7. Discuss various challenges before India's year-long presidency of the G-20, and leadership of the Shanghai Cooperation Organisation (SCO).

8. What is the importance of a water-body census? What are some of the shortcomings with respect to

the data collected? Does the data give insight into natural ecosystems and how water bodies sustain them?

9. With its strong historical and cultural ties to Buddhism, India is well-positioned to play a leading role in shaping the discourse around Buddhist issues on the global stage. Comment.

10. Seizing the new strategic opportunities in the Gulf would require long overdue modernisation of India's strategic discourse, a conscious effort to change outdated narratives. Comment.

11. Give a brief outline of the Indian Space Policy 2023, recently launched by Indian Space Research Organisation (ISRO). What are the gaps need to be addressed to successfully launch India into the Second Space Age?

12. The Special Marriage Act still has fewer takers, but the law should hold out more potential than the current public imagination allows for and must aim to improve the lives of the more marginalised. Justify the above statement in the context of ongoing case for marriage equality.

13. India cannot remain immune to the destructive capability of nuclear weapons. For India, any step towards initiating nuclear arms control in Southern Asia is a tall order amidst complex nuclear politics and contestations. Elaborate.

14. The regenerative agriculture holds enormous potential to restore soil health and productivity in degraded landscapes while delivering financial benefits to smallholder farmers. Discuss how

Regenerative Agriculture can reduce India's agricultural carbon footprint while boosting farmer income?

15. Why are millets popular sources of nutrition? What are the different parts of a millet kernel? How are nutrients in millets affected by processing and polishing? Can millets thrive in harsh, resource-poor conditions?

16. Discuss the role of the G20's new Disaster Risk Reduction Working Group (DRRWG) in supporting countries to strengthen their financial risk management capabilities.

17. The initiation of a Gig Workers Welfare Board by Rajasthan Government is a win for platform workers, but there are many challenges ahead such as covering the gaps in labour rights. Comment.

18. The constitutional design of a parliamentary democracy envisages a chain of accountability. Keeping in view the recent Supreme Court judgement, discuss how anti-defection law contradicts the democratic principle of accountability of legislators to their voters?

19. As India gears to become the world's third-largest economy by 2027, a strongly networked material infrastructure in the country will be crucial'. In the given scenario, what are the prospects and challenges of India's National Quantum Mission?

20. India has made commendable efforts towards the adoption, localisation, and achievement of the SDGs. As the first city in India to join the growing global movement on localisation of Sustainable Development Goals, Bhopal's drive should encourage other Indian cities to follow the path. Comment.

21. How has the Supreme Court validated Tamil Nadu's stand on Jallikattu? Will it be applicable to similar races in other States? How has the court dealt with animal rights?

22. What is genome sequencing and why is it important? Why is the reference genome map considered one of the most important scientific breakthroughs? What is the difference between a reference map and a pangenome map? How is India hoping to benefit from the latest genome map?

23. From mobilising capital for renewable energy infrastructure to establishing a robust supply-chain for critical minerals, the opportunities for India and Australia to collaborate are many. Comment.

24. Discuss how BRICS offers a diplomatic forum and development financing, outside of the Western mainstream?

PRACTICE QUESTION FOR UPSC PRELIMS EXAM

ANSWER KEY

1.	(a)	2.	(b)	3.	(c)	4.	(d)	5.	(a)	6.	(a)	7.	(b)	8.	(d)	9.	(d)	10.	(a)
11.	(a)	12.	(b)	13.	(c)	14.	(d)	15.	(b)	16.	(a)	17.	(b)	18.	(c)	19.	(d)	20.	(a)
21.	(a)	22.	(b)	23.	(c)	24.	(d)	25.	(a)	26.	(a)	27.	(b)	28.	(c)	29.	(d)	30.	(a)
31.	(a)	32.	(b)	33.	(c)	34.	(d)	35.	(a)	36.	(a)	37.	(b)	38.	(c)	39.	(d)	40.	(a)
41.	(a)	42.	(b)	43.	(c)	44.	(d)	45.	(a)	46.	(a)	47.	(b)	48.	(c)	49.	(d)	50.	(a)
51.	(a)	52.	(b)	53.	(c)	54.	(d)	55.	(a)	56.	(a)	57.	(b)	58.	(c)	59.	(d)	60.	(a)
61.	(a)	62.	(b)	63.	(c)	64.	(d)	65.	(a)	66.	(a)	67.	(b)	68.	(c)	69.	(d)	70.	(a)
71.	(a)	72.	(b)	73.	(c)	74.	(d)	75.	(a)	76.	(a)	77.	(b)	78.	(c)	79.	(d)	80.	(d)
81.	(a)	82.	(b)	83.	(c)	84.	(d)	85.	(a)	86.	(a)	87.	(b)	88.	(c)	89.	(d)	90.	(a)
91.	(a)	92.	(b)	93.	(c)	94.	(d)	95.	(a)	96.	(a)	97.	(b)	98.	(c)	99.	(d)	100.	(d)
101.	(a)	102.	(b)	103.	(c)	104.	(d)	105.	(a)	106.	(a)	107.	(b)	108.	(c)	109.	(d)	110.	(a)
111.	(a)	112.	(b)	113.	(c)	114.	(d)	115.	(a)	116.	(a)	117.	(b)	118.	(c)	119.	(d)	120.	(a)

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