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THE DISPUTE OVER VARANASI, MATHURA MOSQUES

Why in news?

- The Places of Worship (Special Provisions) Act, 1991, is once again in focus, albeit in a context in which its objectives are being ignored. Civil suits questioning the religious character of mosques at Varanasi and Mathura are progressing apace.
- These developments show that legislation freezing the status of places of worship is inadequate to stop Hindu claimants from making determined legal efforts to achieve their goal of replacing them with temples.

Why was the Places of Worship Act enacted?

- When the Babri-Masjid Ram Janmabhoomi dispute gained momentum, the Vishwa Hindu Parishad and other Hindu organisations took up the case of two other mosques, the Gyanvapi mosque in Varanasi and the Shahi Idgah in Mathura.
- In September 1991, the P.V. Narasimha Rao government enacted a special law to freeze the status of places of worship as they were on August 15, 1947. The law kept the disputed structure at Ayodhya out of its purview as it was then an ongoing litigation.

What are the Act's main features?

- The Act declares that the religious character of a place of worship shall continue to be the same as it was on August 15, 1947. It says that no person shall convert any place of worship of any religious denomination into one of a different denomination or section.
- It declares that all suits, appeals or any other proceedings regarding converting the character of a place of worship, which are pending before any court or authority on August 15, 1947, will abate as soon as the law comes into force. No further legal proceedings can be instituted.
- There are a couple of exceptions to the rule. The 1991 Act will not apply to ancient and historical monuments and archaeological sites and remains that are covered by the Ancient Monuments and Archaeological Sites and Remains Act, 1958.
- It will also not apply to any suit that has been finally settled or disposed of, any dispute that has been settled by the parties before the 1991 Act came into force, or to the conversion of any place that took place by acquiescence.

What is the status of the ongoing cases on the Gyanvapi mosque?

- A suit was filed in 2022 in the Varanasi district court by a group of Hindu women worshippers seeking to assert their right to worship deities they claim are still found on the premises of the Gyanvapi mosque.
- The plaintiffs say they have a right to worship Ma Sringar Gauri, Ganesh, Hanuman and other "visible and invisible" deities. Also pending is another batch of suits filed in 1991 seeking a declaration that a part of the site of the Gyanvapi mosque belongs to Lord Vishweshwar.
- The main basis for the suits is that the Hindu side says that an old temple of Lord Vishweshwar lies at the centre of the Gyanvapi compound. The site, they contend, is the abode of the 'self-manifested' deity since time immemorial. They claim that the temple was demolished on the order of Emperor Aurangzeb in 1669.
- So far, court orders have favoured the position that these suits are not barred by the Places of Worship Act. On the district court's order, the Archaeological Survey of India (ASI) has conducted a survey of the premises.

Post ASI's report:

- The ASI's report, submitted to the Varanasi district court, claims that a temple existed there prior to the construction of the mosque.
- Subsequently, the court has allowed the conduct of Hindu prayers at a cellar on the premises. The order allowing Hindu prayers has been questioned by the Anjuman Intezamia Masjid Committee, which administers the Gyanvapi mosque.
- The suits in Mathura pertain to the Shahi Idgah mosque that stands adjacent to the Krishna

Janmabhoomi Temple there. These suits claim that the mosque was built over the birthplace of Lord Krishna. The mosque committee, however, denies the allegation.

- The dispute was settled through a compromise between the Sri Krishna Janmasthan Seva Sansthan and the Shahi Idgah Trust in 1968, and implemented through a decree in 1974. As part of the settlement, the Sansthan had given up a portion of the land to the Idgah.

- The current suits challenge this compromise as 'fraudulent' and seek the transfer of the entire parcel of land to the deity. The Allahabad High Court has transferred to itself all suits pertaining to the Mathura dispute.

Why hasn't the Act barred suits on Gyanvapi and Shahi Idgah?

- In both disputes, the respective mosque committees sought rejection of the suits on the ground that the Places of Worship Act prohibits such litigation. However, court orders so far say the Act does not bar these suits and that they must go on.

- In the Gyanvapi worshippers' case, the ruling is that the suits aimed to assert the right of worship of the Hindu deities and did not seek to convert the status of the mosque. Regarding the earlier batch of suits, the Allahabad High Court has taken the view that the Act does not define the term 'religious character'.

- A structure cannot have the dual character of being both Hindu and Muslim, and that only an examination of evidence can determine its religious character. The Act cannot be an absolute bar on proceedings to ascertain its religious character, it held.

- Regarding the Mathura dispute, the district court has taken the view that the suits are not barred by the Places of Worship Act, as what is under challenge is the compromise decree based on the 1968 agreement. As the decree was drawn up before the commencement of the 1991 Act, it is not applicable to the case, it has held.

WHY PETA WANTS TO BAN TWO AGE-OLD ASSAMESE TRADITIONS

Why in news?

- The Assam government's attempt to revive traditional practices of buffalo and bulbul (songbird) fighting during Magh Bihu has come up against a legal challenge by People for Ethical Treatment of Animals (PETA) in the Gauhati High Court, which admitted petitions by PETA India seeking a ban on both.

What is this tradition all about?

- These fights are part of the folk culture associated with the Assamese winter harvest festival of Magh Bihu, which takes place in January, at the same time as harvest festivals in other parts of the country such as Makar Sankranti, Pongal and Lohri.

- Buffalo fights are held in different parts of Assam during Magh Bihu, with Ahatguri in Nagaon district being the biggest centre.

- There, the fights been conducted for many decades by the Ahatguri Anchalik Moh-jooj aru Bhogali Utsav Udjapan Samiti, drawing huge crowds.

- Bulbul fights, on the other hand, are an attraction at the Hayagriv Madhab Mandir in Hajo, around 30 km from Gauhati. Participants rear birds for around two weeks before Bihu, before they are made to fight until one emerges stronger.

Discontinued after SC ruling:

- The fights had been stopped on the heels of the Supreme Court's 2014 judgement, which forbid the use of bulls as performing animals in jallikattu events and bullock-cart races in Tamil Nadu, Maharashtra or anywhere else in the country.

- The Court also directed the Animal Welfare Board of India (AWBI) to ensure that "the person-incharge or care of the animal shall not incite any animal to fight against a human being or another animal."

- In January 2015, the AWBI wrote to the Assam government seeking an end to animal and bird fights during Bihu celebrations, following which the government directed district administrations to prevent them.

- This was not without resistance. Buffalo fights continued to be held in some quarters in defiance of the prohibition, and the management of the Hayagriv Madhab Temple challenged the order in the Gauhati High Court.

Supreme Court ruling in May 2023:

- The Supreme Court in May 2023 overruled its 2014 judgement, upholding amendments made by Tamil Nadu, Maharashtra and Karnataka governments to the Prevention of Cruelty to Animals Act 1960 to allow jallikattu, kambala and bullock cart racing.

SOPs by Assam Cabinet:

- Subsequently, in December, the Assam Cabinet gave a go-ahead for the framing of SOPs for the conduct of buffalo and bulbul fights without "deliberate torture or cruelty" to the animals.

- The SOPs which were subsequently released specified that the fights will only be permitted in places where they have been "traditionally conducted" for the last 25 years, and that moh juj (buffalo fights) will only be allowed between January 15 and January 25.
- The moh juj guidelines prohibit human inflicted injuries, and ban the use of intoxicating or performance enhancing drugs, as well as sharp instruments to instigate the animals.
- The bulbul fight SOPs require the organisers to ensure that the birds are released in the open "in perfect condition" at the end of the game. The SOPs state that any organization violating the stipulations will face a ban for the next five years.

PETA's challenge:

- PETA India has now filed two linked petitions before the Gauhati High Court seeking the prohibition of both activities, as well an interim stay preventing any such fights from taking place during the course of the proceedings.
- In these petitions, they state that they investigated the events in both Ahatguri and Hajo. The claimed that in Ahatguri, in order to instigate buffalos to fight, owners slapped, pushed and shoved them; jabbed and struck them with wooden sticks; and pulled them roughly by nose ropes. They stated that many buffalos had injuries on their bodies from the fights, and that the fights lasted util one of the two buffalos "broke away and fled".
- With regards to the event in Hajo, they stated that the bulbuls "were illegally captured and incited, against their natural instincts to fight over food."

PUBLIC EXAMINATIONS (PREVENTION OF UNFAIR MEANS) BILL, 2024

The Public Examinations (Prevention of Unfair Means) Bill 2024
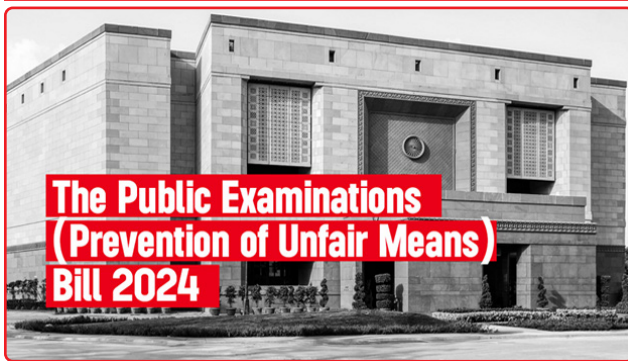
Why in news?

- The Public Examinations (Prevention of Unfair Means) Bill, 2024, was introduced in Lok Sabha on Monday (February 5), and passed on February 6. The Bill aims to prevent "unfair means" in order to "bring greater transparency, fairness and credibility to the public examinations system".

What is meant by the use of "unfair means" in an examination?

- Section 3 of the Bill lists at least 15 actions that amount to using unfair means in public examinations "for monetary or wrongful gain".
- These acts include:
  - "leakage of question paper or answer key or part thereof" and colluding in such leakage;
  - "accessing or taking possession of question paper or an Optical Mark Recognition response sheet without authority";
  - "tampering with answer sheets including Optical Mark Recognition response sheets";
  - "providing solution to one or more questions by any unauthorised person during a public examination", and
  - "directly or indirectly assisting the candidate" in a public examination.
- The section also lists
  - "tampering with any document necessary for short-listing of candidates or finalising the merit or rank of a candidate";
  - "tampering with the computer network or a computer resource or a computer system";
  - "creation of fake website" and
  - "conduct of fake examination, issuance of fake admit cards or offer letters to cheat or for monetary gain" as illegal acts.

Which exams are "public examinations" as defined in the Bill?

- Under Section 2(k), a "public examination" is defined as any examination conducted by a "public examination authority" listed in the Schedule of the Bill, or any "such other authority as may be notified by the Central Government".

The schedule lists five public examination authorities:

a) the Union Public Service Commission (UPSC), which conducts the Civil Services Examination, Combined Defence Services Examinations, Combined Medical Services Examination, Engineering Services Examination, etc.;

b) the Staff Selection Commission (SSC), which recruits for Group C (non-technical) and Group B (non-gazetted) jobs in the central government;

c) the Railway Recruitment Boards (RRBs), which recruit Groups C and D staff in the Indian Railways;

d) the Institute of Banking Personnel Selection (IBPS), which hires at all levels for nationalised banks and regional rural banks (RRBs); and

e) National Testing Agency (NTA), which conducts the JEE (Main), NEET-UG, UGC-NET, the Common University Entrance Test (CUET), etc.

- Apart from these designated public examination authorities, all "Ministries or Departments of

the Central Government and their attached and subordinate offices for recruitment of staff" will also come under the purview of the new law.

- The central government can add new authorities in the schedule through a notification as and when required.

What punishment does the proposed law provide for violations?

- Section 9 of the Bill states that all offences shall be cognizable, non-bailable, and non-compoundable which means that an arrest can be made without a warrant and bail will not be a matter of right; rather, a magistrate will determine whether the accused is fit to be released on bail.

- A non-compoundable offence is one in which the case cannot be withdrawn by the complainant even when the complainant and the accused have reached a compromise, and a trial must necessarily follow.

- Punishment for "any person or persons resorting to unfair means and offences" can be three to five years in prison, and a fine up to Rs 10 lakh. If the convict fails to pay the fine, "an additional punishment of imprisonment shall be imposed, as per the provisions of the Bharatiya Nyaya Sanhita, 2023," Section 10(1) of the Bill says.

- Under Section 10(2), a service provider who is engaged to provide "support of any computer resource or any material, by whatever name it may be called" for the conduct of the examination can be fined up to Rs 1 crore, along with other penalties.

Organised crime:

- The Bill provides for harsher punishment in cases of organised paper leaks, where "organised crime" is defined as unlawful activity by a group of persons colluding in a conspiracy "to pursue or promote a shared interest for wrongful gain in respect of a public examination".

- Section 11(1) says the punishment for organised crime will be "imprisonment for a term not less than five years but which may extend to ten years" and a fine "which shall not be less than one crore rupees".

Why has the government brought this Bill?

- There have been a very large number of cases of question paper leaks in recruitment exams across the country in recent years.

- At least 48 instances of paper leaks in 16 states over the last five years, in which the process of hiring for government jobs was disrupted. The leaks touched the lives of at least 1.51 crore applicants for about 1.2 lakh posts.

- The objective of the Bill is to bring greater transparency, fairness and credibility to the public examination systems and to reassure the youth that their sincere and genuine efforts will be fairly rewarded and their future is safe.

- The Bill, once it becomes law, will also serve the important function of being "a model draft for States to adopt at their discretion". This would aid States in preventing the criminal elements from disrupting conduct of their State level public examinations.

WATER (PREVENTION AND CONTROL OF POLLUTION) AMENDMENT BILL 2024

Why in news?

- The Rajya Sabha recently passed the Water (Prevention and Control of Pollution) Amendment Bill 2024 which seeks to decriminalise minor offences related to water pollution.

- It will enable the Centre to prescribe service conditions of chairpersons of State Pollution Control Boards, and exempt certain categories of industrial plants from statutory restrictions.

Objective:

- According to the statement of objects and reasons of the Bill, the amendment proposes to rationalise criminal provisions and ensure that citizens, businesses and companies operate without fear of imprisonment for minor, technical or procedural defaults.

- Also, the nature of penal consequence of an offence must be commensurate with the seriousness of offence.

Details:

- It amends the Water (Prevention and Control of Pollution) Act, 1974.

- The Act establishes the central and state pollution control boards (CPCB and SPCBs) to prevent and control water pollution.

- The Bill decriminalises several violations, and instead imposes penalties.

Key Highlights:

Consent exemptions for establishing industries:

- As per the Act, prior consent of the SPCB is required for establishing any industry or treatment plant, which is likely to discharge sewage into a water body, sewer, or land.

- The Bill specifies that the central government, in consultation with the CPCB, may exempt certain

categories of industrial plants from obtaining such consent.

◌ The Bill also adds that the central government may issue guidelines for the grant, refusal, or cancellation of consent granted by the SPCB. Under the Act, establishing and operating an industry without obtaining such consent from the SPCB is punishable with imprisonment up to six years and fine.

◌ It also penalises tampering with monitoring devices used in determining whether any industry or treatment plant can be set up. The penalty will be between Rs 10,000 and Rs 15 lakh.

Chairman of State Board:

◌ Under the Act, chairman of an SPCB is nominated by the state government.

◌ The Bill adds that the central government will prescribe the manner of nomination and the terms and conditions of service of the chairman.

Discharge of polluting matter:

◌ Under the Act, the SPCB may issue directions to immediately restrain any activity which is leading to discharge of noxious or polluting matter in water bodies.

◌ The Act also prohibits violation of standards (laid down by SPCB) regarding polluting matter in water bodies or on land, barring some exemptions. Exemptions include depositing non-polluting materials on the bank of a stream for reclaiming land.

◌ Violation of these provisions is punishable with an imprisonment term between one and a half years and six years, and a fine.

◌ The Bill removes the punishment and instead, imposes a penalty between Rs 10,000 and Rs 15 lakh.

Penalty for other offences:

◌ Under the Act, an offence for which punishment is not explicitly specified is punishable with an imprisonment term of up to three months or a fine of up to Rs 10,000, or both.

◌ The Bill removes imprisonment as a punishment, and prescribes a penalty between Rs 10,000 and Rs 15 lakh.

◌ Failure to pay penalty for violation of any provision under the Act will attract an imprisonment term of up to three years, or a fine up to twice the amount of penalty imposed.

Adjudicating officer to determine penalties:

◌ The Bill allows the central government to appoint adjudication officers to determine penalties under the Act. The officer must be of the level of a Joint Secretary to the central government, or of Secretary to the state government.

◌ Appeals against orders passed by the adjudicating officer may be made before the National Green Tribunal, after depositing 10% of the penalty levied.

◌ Penalties imposed by the adjudicating officer will be credited to the Environment Protection Fund established under the Environment (Protection) Act, 1986.

Cognizance of offences:

◌ As per the Act, a court may take cognizance of an offence if a complaint is made by the CPCB or SPCB, or a person who has given a notice of the complaint to the Boards.

◌ The Bill adds that cognizance may also be taken if a complaint is made by the adjudicating officer.

BHARAT RATNA FOR SWAMINATHAN, RAO, CHARAN SINGH

Why in news?

◌ The Bharat Ratna will be conferred on former Prime Ministers P.V. Narasimha Rao and Chaudhary Charan Singh, as well as Green Revolution pioneer M.S. Swaminathan, adding to the two awardees already announced earlier in 2024; socialist leader Karpoori Thakur, and former Deputy Prime Minister L.K. Advani.

Details:

◌ This year's tally of five Bharat Ratna awardees, one more than the four announced in 1999, is the highest that has ever been announced in a single year.

◌ Four of the five awards announced this year are posthumous.

PV Narasimha Rao:

◌ Former Prime Minister PV Narasimha Rao was posthumously awarded the Bharat Ratna, India's highest civilian honour, for bringing economic reforms to India at a time when the country was grappling with both economic and political challenges.

◌ He served as the tenth prime minister of India from 1991 to 1996.

◌ He is credited for bringing many economic reforms in the country, particularly for dismantling the Licence Raj.

◌ When he became the PM, India's economic crisis was threatening the macro-economic stability of the country. His government immediately launched several economic reforms. It was during Rao's tenure that Manmohan Singh became the finance minister.

Dr. M.S. Swaminathan:

◌ Mankombu Sambasivan Swaminathan, born on August 7, 1925, dedicated his life to eradicating hunger and poverty.

◌ Despite initially pursuing a career in medicine, he was deeply moved by the Bengal famine of 1942-43, prompting him to switch his focus to agriculture.

◌ Working alongside Nobel laureate Norman Borlaug, Swaminathan spearheaded efforts to introduce high-yielding varieties of rice and wheat.

- The Green Revolution, characterized by the widespread adoption of modern agricultural techniques, drastically increased crop yields and transformed India's food production landscape.
- His contributions to agriculture and farmers' welfare earned him widespread acclaim. His visionary leadership and dedication to innovation earned him the title of "Father of the Green Revolution."

Chaudhary Charan Singh:

- Born in 1902 in Noorpur area of Meerut district in Uttar Pradesh, Charan Singh hailed from a middle-class peasant family.
- He was first elected to the Uttar Pradesh assembly in 1937 from Chhaprauli and represented the constituency in 1946, 1952, 1962 and 1967.
- He parted ways with the Congress in 1967 and became the Chief Minister of Uttar Pradesh for the first time, emerging as the leader of the Sanyukta Vidhayak Dal coalition. He was re-elected as chief minister for a second term in 1970.
- He was sworn in as the prime minister on July 28, 1979. But before he could prove his majority in the Lok Sabha, Indira Gandhi withdrew her party's support to his government, leading to Singh's resignation.
- He was the chief architect of land reforms in Uttar Pradesh and took a leading part in formulation and finalisation of the Department of Redemption Bill 1939, which brought great relief to rural debtors.

About Bharat Ratna:

- Bharat Ratna is the highest civilian award of the Republic of India.
- Instituted in 1954, the award is conferred in recognition of exceptional service/performance of the highest order, without distinction of race, occupation, position, or sex.
- The award was originally limited to achievements in the arts, literature, science, and public services. But in December 2011, the government expanded the criteria to include any field of human endeavour.

WHAT ARE THE CHANGES IN THE NEW WATER ACT?

Why in news?

- The Lok Sabha recently passed the Water (Prevention and Control of Pollution) Amendment Act, 2024.
- The legislation makes important changes to the Water (Prevention and Control of Pollution) Act, 1974.

What is the Water (Prevention and Control of Pollution) Act, 1974?

- This Act was the first piece of legislation in independent India that identified the need to have an institutional structure to address contamination of water bodies.
- This led to the creation, in September 1974, of the Central Pollution Control Boards (CPCB) and State Pollution Control Boards (SPCB) that were charged with monitoring and preventing public water resources from getting contaminated by sewage and industrial effluents.
- This Act made it mandatory for industrial units to get permission from their respective State boards before setting up factories and submitting themselves to checks on whether their manufacturing and other processes were complying with prescribed norms.
- While the CPCB is empowered to conduct checks and provide guidance on technical standards to be adhered to, the SPCB files cases and is expected to enforce compliance.
- Violating the provisions of the Water Act can mean industries being shut down; monetary fines as well as imprisonment of up to six years. That said, there have been no instances of companies or people in India having been imprisoned due to environmental violations.

What are the amendments?

- Water is a State subject, and the Centre cannot directly pass legislative laws influencing water management. However, the Centre can create legislation, if two or more States demand it, and this can be made applicable by States over their territories if they adopt the legislation in their Assemblies.
- The amended version of the Act, passed by both Houses of Parliament, will currently apply to Himachal Pradesh and Rajasthan and the Union territories.
- The original Act, passed in 1974, is applicable in 25 States. The most important change is that it removes the provisions of imprisonment for several violations, deemed "minor", and replaces them with fines, to the tune of ₹10,000 extending up to ₹15 lakh.

Key Highlights:

- As per the original Act, the SPCB's permission is needed for establishing any industry or treatment plant, which could discharge sewage into a water body, sewer, or land. In the amendment, the Bill specifies that the Centre, "... in consultation with the

CPCB, may exempt certain categories of industrial plants from obtaining such consent...."

- However, operating or establishing an industrial unit without SPCB consent can still land you in jail for six years along with a fine.
- The Bill also adds that the Centre may issue guidelines for the grant, refusal, or cancellation of consent granted by the SPCB.
- It also penalises tampering with monitoring devices used in determining whether any industry or treatment plant can be set up. The penalty will be between ₹10,000 and ₹15 lakh.
- The amended Act also empowers the Centre to frame rules to select the chairpersons of SPCBs and frame guidelines that States can follow on matters for establishing industries and new operating processes.

What has been the response?

- In discussions on the Act in the Lok Sabha, Members of Opposition parties raised concerns that the amendments weakened the laws that protected rivers and water bodies from industrial pollution.
- They argued that the fear of imprisonment acted as an effective deterrent to industrial units that were lax with complying with strict regulations.

THE CONSTITUTION (JAMMU AND KASHMIR) SCHEDULED TRIBES ORDER (AMENDMENT) BILL 2024

Why in news?

- The Constitution (Jammu and Kashmir) Scheduled Tribes Order (Amendment) Bill, 2024 was passed by the Parliament, to include 'Pahari Ethnic Group, Paddari Tribe, Koli and Gadda Brahmin' communities in the list of STs of UT of Jammu and Kashmir.
- It aims to amend the Constitution (Jammu & Kashmir) Scheduled Tribes Order, 1989 with respect to the UT of J&K.
- Earlier, the Constitution (Scheduled Tribes) Order (Amendment) Bill, 2024 in respect of Andhra Pradesh and the Constitution (Scheduled Castes and Scheduled Tribes) Orders (Amendment) Bill, 2024 in respect of Odisha were passed in order to effect inclusions in their respective lists of Scheduled Tribes.

Bill for Andhra Pradesh:

- The Constitution (Scheduled Tribes) Order (Amendment) Bill, 2024 is intended to amend the Constitution (Scheduled Tribes) Order, 1950 to modify the list of Scheduled Tribes regarding Andhra Pradesh. The following inclusions will be made in list of Scheduled Tribes of Andhra Pradesh: -
   a. Inclusion of 'Bondo Porja' and 'Khond Porja', that are Particularly Vulnerable Tribal Groups (PVTGs), at entry 25 in the ST list of Andhra Pradesh.
   b. Inclusion of 'Konda Savaras', that are Particularly Vulnerable Tribal Groups (PVTGs), at entry 28 in the ST list of Andhra Pradesh.

Bill for Odisha:

- The Constitution (Scheduled Castes and Scheduled Tribes) Orders (Amendment) Bill, 2024 proposed to amend the Constitution (Scheduled Castes) Order, 1950 and the Constitution (Scheduled Tribes) Order, 1950 to modify the list of Scheduled Castes and Scheduled Tribes in relation to Odisha.
- The following changes/inclusions will be made in list of Scheduled Tribes of Odisha:
   I. Four Particularly Vulnerable Tribal Groups (PVTGs), which are proposed to be included in their own names in the list of STs:
      a) Pauri Bhuyan, Paudi Bhuyan as synonyms of Bhuiya, Bhuyan at Sl. No. 6;
      b) Chuktia Bhunjia as synonym of Bhunjia at Sl. No. 9;
      c) Bondo as sub-entry under STs "Bondo Poraja, Bonda Paroja. Banda Paroja" at Sl. No.13; and,
      d) Mankidia as synonym of ST "Mankirdia" at Sl.No. 47.
   II. Omitting of two names from the list of Scheduled Castes
      a) Tamadia at Sl. No. 87; and,
      b) Tamudia at Sl. No. 88.
   III. Inclusion of Communities names of which are phonetic variations or synonyms of pre-existing entries in the list of STs of the State:
      a. Tamadia*, Tamaria, Tamudia*, Tamodia Bhumij, Tamudia Bhumij, Tamundia Bhumij, Tamulia Bhumij, Tamadia Bhumij as a sub-entry under main entry "Bhumij" at Sl. No. 8.
      (*These communities are proposed to be omitted from the Scheduled Caste list.)
      b. Banda Paraja, Bonda Paraja, Bonda, Banda as sub-entry under STs "Bondo Poraja, Bonda Paroja. Banda Paroja" at Sl. No.13.
      c. Durua, Dhurua, Dhurava as subsect of Dharua, Dhuruba, Dhurva at Sl. No. 17.
      d. Kaur, Kunwar, Kaonr, Kuanr, Konwar, Kuanar, Kaanr, Koanr, Kuanwar as synonym of ST "Kawar, Kanwar" at Sl. No. 28.
      e. Inclusion of Kui (Kandha) as a new sub-entry under the ST Khond and Kandha Kumbhar

community as a subset of Kandha Scheduled Tribe at Sl. No. 31.

f. Uram, Oram, Uraon, Dhangara and Oraon Mudi communities as synonyms of Oraon listed at Sl. No. 53.

g. Bareng Jhodia Paroja, Penga Paroja, Pengu Paroja, Porja, Selia Paroja, as synonym of ST Paroja at Sl. No. 55.

h. Rajual, Rajuad as synonym of ST Rajuar at Sl. No. 57.

i. Saara as synonym under Saora, Savar, Saura, Sahara, etc at Sl. No. 59.

IV. Inclusion of communities through New Entry:

a) Muka Dora, Mooka Dora, Nuka Dora, Nooka Dora with area restriction (in undivided Koraput District i.e., Koraput, Nowrangapur, Rayagada & Malkangiri districts) at Sl. No. 63.

b) Konda Reddy, Konda Reddi at Sl. No. 64.

Way Forward:

➲ After the Bills become an Act, member of the communities newly listed in the revised list of Scheduled Tribes of J&K, Andhra Pradesh and Odisha will also be able to derive benefits meant for STs under the existing schemes of the Government.

SC RULES ELECTORAL BONDS SCHEME UNCONSTITUTIONAL

Why in news?

➲ A five-judge Bench of the Supreme Court (SC) led by Chief Justice of India (CJI) D Y Chandrachud has declared the electoral bond scheme as "unconstitutional".

➲ This comes after a series of hearings surrounding the controversial government scheme launched in 2018 that allowed anonymous donations to political parties.

Details:

➲ They held that the scheme, and preceding amendments made to the Representation of the People Act, the Companies Act, and the Income Tax Act, violated the voters' right to information about political funding under Article 19(1)(a) of the Constitution.

➲ The absolute non-disclosure of the source of political funding through electoral bonds promoted corruption, and a culture of quid pro quo with the ruling party to introduce a policy change or for bagging a license.

➲ It said that the scheme and the amendments authorised unrestrained influence of corporates in the electoral process.

Petitioners:

➲ The electoral bond scheme, which was notified by the government on January 2, 2018, introduced money instruments through which companies and individuals in India can donate to political parties anonymously.

➲ The petitioners in the case were the Association for Democratic Reforms, represented by advocate Prashant Bhushan, and the Communist Party of India-Marxist (CPI-M), represented by advocate Shadan Farasat. The government was represented by Attorney General R. Venkataramani and Solicitor General Tushar Mehta.

Money-politics nexus:

➲ The judgment belled the cat on the deep nexus between money and politics, saying that "contributions made by companies are purely business transactions made with the intent of securing benefits in return".

➲ The scheme allowed the inflow of "huge contributions" by multinational corporations with major business stakes in the country, overawing or even concealing the relatively small financial contributions of people who believe in the ideologies of a political party without expecting any substantial favours in return.

➲ The scheme and the amendments promoted "economic inequality" by giving corporations with financial power an unsurpassable advantage over ordinary citizens in the electoral process and political engagement.

➲ This is violative of the principle of free and fair elections and political equality captured in a value of 'one person, one vote'.

Voters vs donors:

➲ The court agreed that the fundamental right to privacy covers a person's political affiliation. However, it said, there should be a balance between informational privacy and the voters' right to information.

➲ The court dismissed the Union government's argument that the anonymity of political donors afforded by electoral bonds incentivised financial contributions through banking channels.

➲ The court rubbished the government's claim that the scheme was meant to curb the injection of black money into the electoral process. It ruled that "curbing of black money" was not a reasonable restriction to the exercise of the voters' fundamental right to information about political funding enshrined in Article 19(1)(a).

SC dismisses black money argument:

➲ The court rubbished the government's claim that the scheme was meant to curb the injection of black money into the electoral process.

➲ It ruled that "curbing of black money" was not a reasonable restriction to the exercise of the voters' fundamental right to information about political funding enshrined in Article 19(1)(a).

➲ The Chief Justice asked the Union government how the "absolute" non-disclosure of the sources of political funding introduced in the electoral bonds scheme could rationally help curb black money.

➲ Clause 7(4) of the scheme completely exempts information on the purchasers of electoral bonds. This information is never disclosed to the voters. The purpose of securing information about political funding cannot be fulfilled by absolute non-disclosure.

Double proportionality standards:

➲ Applying the "double proportionality standards", the court said that the clause was unconstitutional as it did not balance the conflicting right to information of voters with contributors' right to privacy regarding their political affiliations.

➲ The judgment noted that the entire electoral bonds scheme had hinged on the anonymity provided under Clause 7(4).

➲ Without this, the scheme was indistinguishable from other modes of financial contributions, including cheques, direct debit, and electronic transfers. Sans the clause, the scheme had to fall.

Amendments facilitated anonymity:

➲ The judgment referred to the way that amendments had been introduced in Section 29C of the Representation of People Act, Section 13A of the Income Tax Act, and Section 182 of the Companies Act via the Finance Act 2017, introduced as a Money Bill, to pave the way for blanket anonymity in financial contributions through the electoral bonds route notified in January 2018.

➲ Prior to the amendments, these provisions had maintained the needed balance between donors' privacy and voters' right to know.

Removed restrictions:

➲ The original Section 29C required political parties to publicly disclose contributions in excess of ₹20,000, received even through cheques and the electronic clearing system.

➲ The amendment, however, allowed a complete exemption for political parties to publish contributions received through electoral bonds.

➲ The amended Section 13A freed parties from the obligation of keeping a detailed record of contributions received through electoral bonds.

➲ Before the amendment, Section 182 had mandated that companies could donate only up to 7.5% of three years of their net aggregate income. The amendment lifted this cap and made room for unlimited and anonymous corporate donations to political parties.

Donations from loss-making firms:

➲ The pre-amendment provision had also banned government companies from making contributions to prevent them from entering the political fray.

➲ It had, moreover, classified loss-making companies and profit-making ones.

EMINENT JURIST AND SENIOR ADVOCATE FALI S NARIMAN PASSED AWAY

Why in news?

➲ Eminent jurist and Senior Advocate Fali S Nariman passed away recently.

➲ His career as a lawyer spanned over 75 years with the last half-century being spent as a senior advocate of the Supreme Court of India.

Landmark cases:

➲ The Second Judges Case: Supreme Court Advocates-on-Record Association v. Union of India

➲ In 1981, a five-judge constitution bench of the Supreme Court gave the central government the final say in matters regarding judicial appointments and transfers by allowing the President to refuse recommendations made by the Chief Justice of India (CJI).

➲ The court held that the requirement under Article 124 of the Constitution, stating that the CJI must be "consulted", means that there must be an exchange of views, and there is no necessity for "concurrence" between the CJI and the President.

➲ The Supreme Court Advocates-on-Record Association (SCAORA) challenged this decision in 1987 and was represented by Senior Advocate Fali Nariman among a host of other senior lawyers. Nariman argued that "consultation" in the context of judicial appointments means more than merely seeking advice.

➲ He stated that the advice given through consultation with the CJI must be seen as binding in order to protect the independence of the judiciary, as judges would be in a better position to determine the suitability and competence of candidates.

- In 1993, the nine-judge bench agreed with Nariman's arguments and established the Supreme Court Collegium. It's a body comprising the senior most Supreme Court judges which is tasked with making binding recommendations for appointment of judges to the apex court and High Courts. This method of appointment has remained in place since this decision.

The Third Judges Case: In re: Special Reference 1

- The President of India K R Narayanan exercised his power under Article 143 of the Constitution to send a "reference" to the Supreme Court for the latter's opinion on questions of law that may have public importance, and asked for clarification on the procedure for appointment of judges following the second judges case.

- Nariman made submissions to assist the court in this case. The court, answering the reference in 1998, clarified that the CJI must consult other judges of the Supreme Court before making any recommendations for judicial appointments.

- Further, it expanded the size of the Supreme Court Collegium to five senior most judges from the existing three.

National Judicial Appointments Commission case: Supreme Court Advocates-on-Record Association v. Union of India

- Nariman would also appear in the latest chapter of the judge appointments dispute following the challenge to the National Judicial Appointment Commission Act, 2014 (NJAC).

- The NJAC amended the Constitution to insert Article 124A which created a six-person commission for judicial appointments. This commission would comprise the CJI, two other senior SC Judges, the Union Minister of Law and Justice, and two "eminent persons" who would be nominated by a committee comprising the CJI, Prime Minister and Leader of Opposition.

- Nariman represented the SCAORA in the case and argued that the NJAC would impinge upon the independence of the judiciary if the central government and the legislature were allowed to participate in the selection and appointment of judges.

- Four of the five judges on the bench agreed with this view in 2015 and struck down the NJAC, in effect reinstating the collegium system for judge appointments.

Parliament cannot curtail fundamental rights: I.C. Golak Nath v. State of Punjab

- Two brothers in Punjab challenged the Constitution (Seventeenth) Amendment Act, 1964 as it amended Article 31A of the constitution. This article deals with the acquisition of estates and can be found in the fundamental rights chapter of the constitution.

- Fali Nariman appeared on behalf of the intervenors in this case who supported the petitioners. They argued that Parliament's power to amend the constitution under Article 368 did not include articles contained in Part III of the Constitution dealing with fundamental rights.

- A majority of six judges from the eleven-judge bench agreed with the petitioner's submissions in 1967, pointing out that Article 13(2) states that Parliament cannot make a law which infringe fundamental rights.

Bhopal gas tragedy: Union Carbide Corporation v. Union of India (1989)

- In 1984, the Bhopal gas tragedy where 42 tons of toxic chemicals leaked from a pesticide plant owned by Union Carbide India Limited, resulting in thousands of deaths and environmental damage in the following years.

- The Supreme Court began hearing the case for compensation to the victims in 1988.

- Senior Advocate Nariman appeared, representing Union Carbide, and offered to pay a sum of 426 million dollars as compensation to the victims of the tragedy.

- In 1989, Union Carbide reached a settlement with the central government and agreed to pay 470 million dollars as compensation.

Rights of minorities to establish and administer education institutions: TMA Pai Foundation v. State of Karnataka

- Nariman argued in the landmark TMA Pai case in support of minority rights to establish and administer educational institutions under Article 30(1) of the Constitution.

- The court held that linguistic and religious minorities have to be determined on a state-by-state basis and that the government has the power to frame regulations which will apply to minority-run educational institutions.

- However, the court clarified that these regulations cannot "destroy the minority character of the institution or make the right to establish and administer a mere illusion".

Governor to act only upon the aid and advice of the council of ministers, chief minister: Nabam Rebia, and Bamang Felix v. Deputy Speaker

- The Supreme Court in 2016 was tasked with navigating the political crisis in Arunachal Pradesh following the rebellion of 21 Congress MLAs in 2015. Governor Jyoti Prasad Rajkhowa advanced the assembly session so that a floor test could be conducted to determine which party held the majority.

- Nariman, on behalf of the house whip Bamang Felix, argued that the governor did not have the power to

advance the assembly session as this could only be done upon the aid and advice of the council of ministers and the chief minister, as per the constitution.

➲ The court agreed and restored the Congress government, led by chief minister Nabam Tuki.

Obtaining bail for former Tamil Nadu Chief Minister Jayalalitha: J. Jayalalithaa v. State of Tamil Nadu

➲ Former Chief Minister Jayalalitha had been accused of misappropriating funds during her tenure between 1991 and 1995.

➲ A Sessions Court in Bangalore in September 2014 found that she had acquired property disproportionate to her known income and imposed a Rs 100 crore fine on her. This sentence was upheld by the Karnataka High Court a month later leading to appeal at the Supreme Court.

➲ Nariman appeared on behalf of Jayalalitha in October 2014 and convinced the court to grant bail against executing the fine and suspend the sentence passed by the Sessions judge in Bangalore.

Cauvery Water Dispute: State of Karnataka v State of Tamil Nadu

➲ Nariman represented Karnataka for over 30 years in the water-sharing dispute with Tamil Nadu. In 2016, the Supreme Court ordered the Karnataka government to release 6,000 cusecs (cubic feet per second) of water from September 21 to September 27.

➲ The Karnataka legislative assembly, however, passed a resolution stating that they did not have water to spare and chose to defy the courts orders. Due to this non-compliance, Nariman refused to argue the case on behalf of the Karnataka government any further.

➲ In the final judgment passed on February 16, 2018, the court took note of Narimans stand on the issue and observed "We think it necessary to state here that Mr. Nariman had courageously lived upto the highest tradition of the Bar".

➲ The court then proceeded to reduce Karnataka's annual water releases to 177.25 thousand million cubic feet (TMC) from 192 TMC.

CBSE OPEN BOOK EXAM PLAN
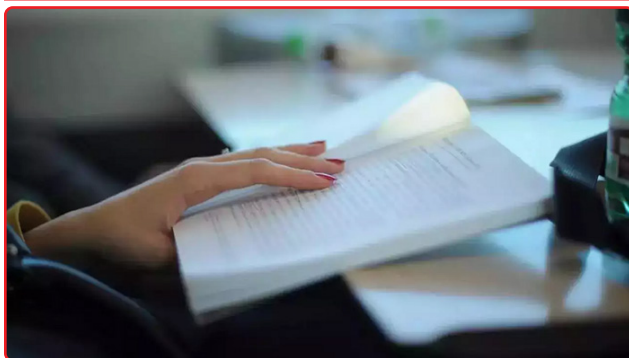
Why in news?

➲ The Central Board of Secondary Education (CBSE) has proposed a pilot study to check the feasibility of open book exams for Classes 9 to 12.

➲ The pilot will be held in select schools in November-December for subjects like English, Mathematics and Science for Classes 9 and 10, and English, Mathematics and Biology for Classes 11 and 12.

Details:

➲ The CBSE has proposed this form of assessment based on the National Curriculum Framework (NCF) released last year.

➲ Through this pilot, the Board aims to study the time taken by students to complete such tests and gather feedback from teachers and students.

➲ The pilot test will be designed and developed by June, for which the CBSE has sought Delhi University's help.

What is an open book exam?

➲ In an open book exam (OBE), students are allowed to refer to their books and notes to answer questions.

➲ OBEs can be either of a restricted type or a free type. In a restricted open book assessment, only the study material approved by the exam-conducting authority is allowed during the exam. In a free type, students can bring any material they find relevant.

➲ Unlike a closed book exam, the test questions in OBEs are structured in a way that students have to apply concepts, instead of just copying information from the available material.

➲ They aim to test whether a student understands the big picture and can apply analytical skills on the concepts learnt.

Is this a new concept for Indian students?

➲ Contrary to popular assumption, open-book exams are not a new idea. In 2014, CBSE had introduced an Open Text Based Assessment (OBTA) to relieve the students from the burden of mugging up, and acquiring skills of information processing.

➲ Back then, OTBA was introduced in Class 9 for Hindi, English, Mathematics, Science and Social Science, and final examination of Class 11 in subjects such as Economics, Biology and Geography. Students were allowed to refer to learning material provided to them four months ahead of the exam.

➲ The Board, however, discontinued the practice in the 2017-18 academic year, because of its inability to cultivate "critical abilities" among students.

➲ In higher education, OBEs are fairly common. In 2019, the All India Council for Technical Education (AICTE) allowed open book exams in engineering colleges based on the recommendation of an advisory body.

➲ During the pandemic, several Central universities like Delhi University, Jamia Millia Islamia, Jawaharlal Nehru University and Aligarh Muslim University

conducted an open book test to assess students. IIT Delhi, IIT Indore and IIT Bombay also conducted online OBEs.

- More recently, Kerala's higher education exam reforms commission recommended the open book format, but only for internal or practical examinations.

Why has CBSE proposed the open book exam now?

- The CBSE's proposal falls in line with the larger reforms planned in the school education system.
- While there is no mention of the open book examination per se in the National Education Policy 2020, one of the primary reforms it suggests is transition from rote memorisation to competency-based learning.
- For instance, a student should be able to not just learn the concept of photosynthesis but also demonstrate the process and the impact of sunlight on plants through a practical project.
- Similarly, the National Curriculum Framework for School Education also highlights the need to reform the current assessment process, which is at its best "focused on measuring rote learning" and at its worst "creates fear".
- The NCF SC suggests assessments that can accommodate different learning styles of students, provide constructive feedback, and support learning outcomes.

WHY WERE SURROGACY RULES MODIFIED?

SC PROD AFTER FLOOD OF PETITIONS

> After notification of March 14 last year, Rule 7 of Surrogacy (Regulation) Act said couple undergoing surrogacy **must use own eggs and sperm, donor gametes not allowed**

> SC was flooded with petitions from women after it granted relief to one woman and **prima facie found fault with Rule 7**

> On Jan 9, **SC referred to grievances raised by a large section of women** and said many of them could not afford to approach SC

> Now, couples can use donor gametes after **district medical board certifies either spouse has a condition preventing use of own gamete.** Single women must use own egg cells

Why in news?

- The Union government recently modified the Surrogacy (Regulation) Rules, 2022, to permit married couples to use donor eggs or donor sperm for surrogacy, a move that provided a big relief to those with medical complications.

Details:

- This revoked a previous amendment made in March 2023 that banned the use of such donor gametes.
- The modification in the surrogacy rules came after Additional Solicitor General Aishwarya Bhati apprised the Supreme Court that the government was considering changes in the amendment brought in

2023 to allow married couples to use donor gametes for surrogacy in case they suffered from medical ailments that made it difficult to conceive.

What does the new amendment state?

- On March 14 2023, Form 2 (Consent of the Surrogate Mother and Agreement for Surrogacy) of the Surrogacy Rules read with Rule 7 was amended to stipulate that donor eggs could not be used for gestational surrogacy of an intending couple.
- This has now been amended by a notification of the Ministry of Health and Family Welfare allowing married couples to use a donor gamete on the condition that a District Magistrate Board certifies that either the husband or the wife suffers from a medical condition.
- However, the notification outlines that the child to be born through surrogacy must have at least one gamete from the intending parents.
- This implies that a married couple where both partners are unable to use their gametes due to an existing medical condition cannot opt for surrogacy. The change is however not applicable to widowed or divorced women.

What was the petition before the Supreme Court?

- The 2023 amendment was challenged before the Supreme Court by a woman suffering from the Mayer-Rokitansky-Kuster-Hauser (MRKH) Syndrome. Medical board records reflected she was unable to produce her eggs due to absent ovaries or a uterus.
- The petition contended that the amendment violated a woman's right to parenthood and contradicted Sections 2(r) and 4 of the Surrogacy Act, 2021 (2021 Act) which recognised the situation when a medical condition would require a couple to opt for gestational surrogacy to become parents.
- It was also pointed out that the petitioner had begun the surrogacy process months before the amendment, which cannot be implemented retrospectively.
- The Centre, on the contrary, argued that the use of donor eggs was exempted since surrogacy cannot be availed of under existing laws unless the child is "genetically related" to the intending couple.

SC Judgement:

- Staying the operation of the law, a bench of Justices B.V. Nagarathna and Ujjal Bhuyan highlighted that it prevents intending couples from achieving parenthood through surrogacy which is prima facie contrary to the objective of the parent law, the 2021 Act.
- The court also recognised that the law permitting gestational surrogacy was "woman-centric" as it was a woman's choice to have a surrogate child owing to existing medical or congenital conditions.
- Such conditions included the "absence of a uterus or repeatedly failed pregnancies, multiple pregnancies

or an illness which makes it impossible for her to carry a pregnancy to term or would make the pregnancy life-threatening".

- Agreeing with the petitioner's submissions, the court acknowledged that Rule 14(a) specifically recognises the absence of a uterus or any allied condition as a medical indication necessitating gestational surrogacy.

Can single women avail of the same?

- The regulatory change is however not applicable for single women as it specifies that a widow or a divorcee undergoing surrogacy must use self-eggs and donor sperm. This comes even after questions are being raised in Indian courts over the exclusion of single women from using surrogacy to have children and the resultant discrimination.
- A petition has been filed in the Delhi High Court by a 44-year-old unmarried woman challenging provisions of the 2021 Act on the ground that the restrictions are violative of her fundamental rights under Articles 14 (right to equality) and 21 (right to life) of the Constitution.
- Questioning the association of marital status with the eligibility for surrogacy, the petitioner has pointed out that at her age, the use of donor eggs is recommended by medical practitioners.
- To be genetically connected, the petitioner's brother has consented to donate his male gametes, the court was told. Experts have also criticised the restrictions on access to surrogacy by single persons, live-in couples, and LGBTQ couples.

INTERNATIONAL RELATIONS

WHY DID KOSOVO FACE DELAYS IN SCHENGEN APPROVAL?

Why in news?

- Kosovo recently secured visa-free access to the Schengen zone in Europe, world's largest zone of free movement, becoming the last western Balkan non-European Union nation to be waived visa requirements.

Details:

- The zone is known after Schengen, the tiny Luxembourg village bordering France and Germany, where the agreement was signed in 1985 among five of the six EU founding members except Italy.
- Citizens of Kosovo can now enter the Schengen as tourists for 90 days within 180 days.
- Croatia, a European Union (EU) member since 2013, joined Schengen in 2023, while Romania and Bulgaria, EU members since 2007, will gain partial Schengen entry in March.

Why was Kosovo's application kept pending for years?

- The case of Kosovo is egregious given that the European Commission had in 2018 cleared Pristina's preparedness to tackle illegal migration and corruption, preconditions for the entry.
- The single biggest obstacle to the country's Schengen visa waiver was strong opposition from several EU members, which do not recognise the 2008 unilateral declaration of independence by the breakaway state from Serbia.
- Kosovo has not been accorded legal statehood by the UN and denied recognition by Russia and China.

Is admission to Schengen mandatory for EU members?

- When the Schengen agreement took effect in 1995, only seven of the entire 15 member union at the time joined the passport-free area.
- Today, 23 of the 27 EU states are part of the passport-free zone, excluding Cyprus, Romania, Bulgaria and Ireland.
- But then, the Schengen area comprises 27 countries, including four non-EU members: Iceland, Liechtenstein, Switzerland and Norway.

How did the region cope with the COVID-19 crisis?

- Schengen had come under enormous strain following the Eurozone sovereign debt crisis during the last decade, the arrival of thousands of migrants from conflict zones in Africa and West Asia and the anti-immigrant-politics stoked by the continent's far-right populist parties.
- The EU had even considered removal from Schengen, countries located on the bloc's Mediterranean border, as individual states contemplated unilateral reinstatement of borders.
- While the frontier states such as Italy called for an effective system of burden sharing by the entire EU, the final destination states in western Europe, especially France and the U.K. resorted to questionable methods of offering incentives to prevent the arrival of refugees.
- The EU's attempt to fashion a humane policy under the Dublin Regulation to protect asylum seekers, while maintaining the integrity of the Schengen, has

itself come under severe scrutiny from human rights groups and the UN Refugee Agency.

What are the advantages of the EU's border-free policy?

- For nationals of any country, the benefit is the freedom to travel with a single Schengen visa to other European nations within the borderless area.
- For EU states, the Visa-free borderless travel, alongside the single currency adopted by 20 EU countries, is the most visible symbol of European integration.
- The integrity of Schengen cannot be overstated for the success of the post-war European project.

INDIA, SRI LANKA MOVE FORWARD WITH TALKS ON TRADE AGREEMENT

Why in news?

- India and Sri Lanka are set to take ongoing discussions on the Economic and Trade Cooperation Agreement (ETCA) forward, with the next two rounds of bilateral talks scheduled in coming months.

Details:

- President of Sri Lanka has emphasised the need for trade pacts to aid the country's economic recovery. Earlier, Sri Lanka inked a free trade pact with Thailand.
- India, followed by China, are the other two key partners with which Mr. Wickremesinghe is keen to have upgraded agreements, even as Sri Lankans reel under the painful aftermath of a financial meltdown.
- The Sri Lankan government sees the resumption of ETCA negotiations as "a significant step towards strengthening the economic partnership between Sri Lanka and India."

Progress so far:

- The 13th round of discussions on the proposed ETCA was held in New Delhi for 10 days beginning January 8, 2024.
- Nine sub-committees tasked with looking into various aspects such as goods trade, service trade, rules of the origin and customs procedure and easing the trade held deliberations.

Background:

- India and Sri Lanka first signed a free trade agreement in 1998. While the two sides have since attempted

to upgrade it multiple times, the attempts proved unsuccessful.

- The progress in negotiations is significant, as the much-discussed pact was stalled in the past, owing to stiff opposition from some worker unions and hardline Sinhala-nationalist politicians, who saw the agreement as favouring Indian interests predominantly, while endangering Sri Lankan labour.
- At least 11 rounds of discussions were held between 2016 and 2019, when the Maithripala Sirisena-Ranil Wickremesinghe administration was in power, but the two sides failed to reach an agreement amid protests in Sri Lanka.

EU MULLS SWEEPING FORCED LABOUR

Why in news?

- German industry is back in the spotlight as it grapples with the challenges of balancing an increasingly intrusive Chinese business environment with the human rights concerns of its investors and governments.

Details:

- Recent issues involve Volkswagen (VW) -owned brands' vehicles impounded in the U.S. due to Uyghur Forced Labour Prevention Act (UFLPA) violations.
- BASF, another German firm, accelerates Xinjiang petrochemical plant sales amid allegations of staff from a government-owned joint venture sharing evidence to Chinese authorities about the Uyghur communities. The U.S. State Department and UN Human Rights Commissioner's reports highlight Uyghur repression as genocide and potential crimes against humanity.

How do big corporations respond to such allegations?

- Outright denial, or attempts to distance themselves from reports of illegality found by internal audits, have mostly been the standard response of multinationals with operations in China and their suppliers.
- For instance, VW has said that it had no knowledge of the component's origin until links were traced to an indirect supplier, prompting the firm to notify U.S. authorities and raise the matter with its Chinese partner.

- In a separate case relating to the use of forced labour, VW claimed in December that its factory in Xinjiang was cleared of wrongdoing by an auditor. However, most of the staff from the consultancy firm distanced themselves from the findings, leading its owner to issue counterclaims.
- BASF has dismissed any evidence of the existence of forced labour in its supply chains while maintaining that the allegations were incompatible with its values. German media claim that audits carried out by BASF show that erroneous practices by its Chinese partner were pervasive.

How stringent is the U.S. law?

- The 2021 Act aims to penalise domestic firms for human rights violations including torture, arbitrary detentions and forced labour of some one million Uyghur Muslims in the country's north-western region's so-called internment camps for over a decade.
- The U.S. law presumes that all inbound imports sourced from Xinjiang were produced using forced labour and labels them "high priority" areas.
- One key provision in the UFLPA requires public companies to certify to the Securities and Exchange Commission (SEC) that their products are free from forced labour from Xinjiang.
- Companies were apprehensive that the latter provision could prove a headache, much like the one in the Dodd-Frank Act that obliges firms to declare that their products did not contain controversial minerals from Congo, posing a hurdle for gold imports.
- During the legislative stage, the Bill passed the House of Representatives 403-to-6 and even called out specific companies for inappropriate practices. Predictably, this triggered industry backlash in the Senate to dilute some of its provisions.

How has China dealt with the fallout from this controversy?

- It initially denied the existence of the internment camps or dismissed such claims as outright lies. The government has since played down the significance of these facilities as merely vocational training centres, designed to create employment and combat religious and separatist extremism in the Uyghur Muslim population.
- In response to the U.S. law, the Chinese government has moved detainees to other parts of the country and routed exports from outside Xinjiang.
- While Nike and H&M are among the firms that have been hit by the restrictions on the use of Xinjiang cotton, Chinese customers have in retaliation boycotted their products.

What is the status of the EU legislation?

- Unlike the U.S. ban's focus on imports from Xinjiang, the European Union (EU) has proposed a more comprehensive law targeting all products reliant on forced labour, including those made within the 27-member bloc.
- There is concern that country-focused bans could be viewed as discriminatory measures under World Trade Organization (WTO) rules.
- The law aims to apply the International Labour Organisation (ILO)'s definition of forced labour and concentrate enforcement on large companies. The EU trade officials are sceptical that a ban on imports is the best way to prevent rights abuses.
- Meanwhile, a separate EU-wide Corporate Sustainability Due Diligence Directive, targeting social, environmental and human rights abuses in supply chains, has also stalled since 2022.
- The proposal would oblige companies to report and prevent abuses in the environmental and social governance arenas, and even empower civil society groups to mount legal challenges against any adverse impact.

Law in France & Germany:

- France has enacted a national law on the subject. But it has called for banks not to be held liable for the shortcomings of clients in the EU Directive, a clause some European parliament members insist is much needed in the enforcement of greater accountability on investment decisions.
- A German proposal for national legislation on supply chain sustainability met with fierce resistance from different Ministries and multinationals. But Berlin used its rotating presidency of the EU Council in 2020 to table a proposal for the entire EU.

Way Forward:

- When the forced labour Regulation and the due diligence Directive are in place, the EU would set yet another precedent in establishing governance standards for world bodies to emulate. VW's current woes are likely to provide a major push in that direction.

ARE INTERPOL NOTICES BEING POLITICALLY EXPLOITED?

Context:

- The International Criminal Police Organization, more commonly known as Interpol, comprising

194 member countries, plays a crucial role as an information-sharing network to enable national police forces to combat transnational crimes.

⮎ Concerns have been raised about the misuse of Interpol's notice system, especially the issuance of blue corner notices, which are less scrutinised than their red corner notices.

⮎ Critics argue that countries often exploit existing protocols to target political refugees and dissidents. While efforts have been made to address this, questions remain about striking a balance between facilitating police cooperation and preventing misuse of this powerful tool.

What is a "blue corner" notice?

⮎ There are seven types of notices issued by Interpol: Red Notice, Yellow Notice, Blue Notice, Black Notice, Green Notice, Orange Notice, and Purple Notice.

⮎ A blue corner notice also known as an "enquiry notice" allows police forces in member states to share critical crime-related information such as obtaining a person's criminal record, and location and, having his or her identity verified among others.

⮎ For instance, in January 2020, Interpol issued a blue corner notice to help locate fugitive self-styled godman Nithyananda.

How does it differ from a "red corner" notice?

⮎ A red corner notice is issued by a member state to arrest a wanted criminal through extradition or any other similar lawful action. Such notices are issued against persons wanted by national jurisdictions for prosecution or to serve a sentence based on an arrest warrant or a court decision.

⮎ The country issuing the request need not be the home country of the fugitive, Interpol acts even on the request of a country where the alleged crime has been committed.

⮎ While blue corner notices are issued prior to the filing of criminal charges, red corner notices generally follow criminal convictions. The concerned individual can be stopped and arrested while travelling through a member state. There will also be other detrimental consequences such as the closure of bank accounts.

⮎ However, Interpol cannot compel law enforcement authorities in any country to arrest the subject of a red corner notice as the exercise of such powers is entirely discretionary.

Is the notice system prone to misuse?

⮎ Although Interpol's Constitution explicitly forbids any activities of a political character, activists have accused it of failing to enforce this rule. Much of this outrage is directed at Russia, which has repeatedly issued notices and diffusions for the arrest of Kremlin opponents.

⮎ According to the U.S. rights organisation Freedom House, Russia is responsible for 38% of all public red notices.

⮎ International human rights groups have also accused China, Iran, Turkey, and Tunisia, among others, of abusing the agency's notice system for authoritarian ends.

⮎ In response to the mounting criticism, Interpol toughened the oversight of its red notice system. However, vulnerabilities remain when it comes to the issuance of blue notices with experts flagging that such notices are less likely to be reviewed before publication. The agency's data shows that blue notices have roughly doubled in number over the past decade.

IS THE UKRAINE WAR CHANGING WORLD ORDER?

Russian territorial control and advances as of February 19, 2024 | Russian-controlled city | Direction of Russian attacks

Why in news?

⮎ Russia's war in Ukraine has entered its third year. Starting from February 24, 2022, it has turned out to be the largest land war in Europe since the end of the Second World War.

⮎ The war has pushed Russia to turn towards Asia and the Global South in general, while the West continues to support Ukraine in its bid to push back and weaken Russia. A vast majority of countries, including India, remain neutral as the violence continues.

Strategic miscalculation:

⮎ There's now a consensus among defence experts that President Vladimir Putin made a grave strategic miscalculation when he ordered the invasion of Europe's second largest country (after Russia), also a close ally of NATO, with less than 2,00,000 troops.

⮎ He probably expected a quick victory, like he did in Georgia in 2008 and Crimea in 2014. But as the Russian war machine got stuck in Ukraine, the West moved in with military assistance, training and international mercenaries.

⮎ After his troops were forced to pull back from Kharkiv in 2022, he immediately ordered a partial mobilisation. Since then, the focus of Russia's military campaign shifted from all out offence to strengthening the lines of defence with limited offensive battles.

⮎ When Ukraine was preparing for a major counteroffensive, Russia kept thousands of Ukrainian

troops engaged at Bakhmut in Donetsk, while at the same time building defence fortifications along the 1,000-km long frontline. Last May, the Russians took Bakhmut.

Where does the war stand now?

➲ Eight months after Ukraine's counteroffensive began, it's now evident that the campaign failed, as admitted by Gen. Valerii Zaluzhnyi, the commander of Ukrainian forces.

➲ He had called for a mass mobilisation, suggesting that Ukraine was facing acute shortage of fighters on the frontline. They lost many of their West-supplied weapons in the counteroffensive and are waiting for fresh supplies, but aid from the U.S. is stuck in Congress amid Republican opposition.

➲ On the other side, the Russians are on the offensive. In December, Russia claimed its first victory since the fall of Bakhmut when it captured Maryinka, in Donetsk.

➲ Earlier, Ukraine was forced to abandon Avdiivka, a strategically important town in Donetsk, after months-long fighting and suffering huge losses.

➲ The Russians are now advancing westward in Donetsk and piling up pressure on Ukrainian forces in Krynky, Kherson, in the south.

What is the West's strategy?

➲ The West had taken a two-fold approach towards Ukraine. One was to provide economic and military assistance to Kyiv to keep the fight against Russia going on; and the second leg was to weaken Russia's economy and war machine through sanctions.

➲ With Ukraine's failed counteroffensive and a changing political climate in US with the prospect of a second Trump presidency looming, the first pillar of this policy faces uncertainty, if not absolute peril.

➲ The second pillar, sanctions, has hurt Russia badly. The sanctions have deprived Russia of over $430 billion in revenue it would otherwise have gained since the war began.

How have the sanctions affected Russia?

➲ Russia has found several ways to work around sanctions and keep its economy going. When Europe cut energy sales, Russia offered discounted crude oil to big growing economies such as China, India and Brazil. It set up shell companies and private corporations operating in its neighbourhood (say Armenia or Turkey) to import dual use technologies which were re-exported to Russia to be used in defence production.

➲ China, the world's second largest economy, ramped up its financial and trade ties with Russia, including the export of dual use technologies.

➲ Russia moved away from the dollar to other currencies, mainly the Chinese yuan, for trade, and boosted defence and public spending at home (its defence budget was raised by nearly 70% this year).

➲ It also strengthened ties with Iran and North Korea, which were also reeling under American sanctions, and imported weapons from them, ranging from drones to cruise missiles and ammunition.

➲ Two years after the war started, despite sanctions, both Russia's energy industry and its military industrial complex remain vibrant. Russia earned $15.6 billion from its oil exports alone in January, up from $11.8 billion last summer.

➲ The Russian Defence Ministry claims that it manufactured 1,530 tanks and 2,518 armoured vehicles in 2023.

What does it mean for the world?

➲ The Western strategy of empowering Ukraine through aid and weakening Russia through sanctions doesn't seem to have worked.

➲ The war has also exposed the limits of Western power in a changing world for sanctions to be effective, the trans-Atlantic alliance now needs the support of other major economies such as China and India.

➲ While Russia has constantly found ways to work around sanctions, it has also suffered huge casualties and will have to fight the long term effects of the sanctions.

➲ If there is one great power that stays relatively unscathed by this chaos, it is China. When China looks at the conflict, it sees both the West and Russia stuck in Ukraine, forcing the latter to pivot to Asia, redrawing the global balance of power.

CAN THE IMEC ADDRESS THE RED SEA CRISIS?
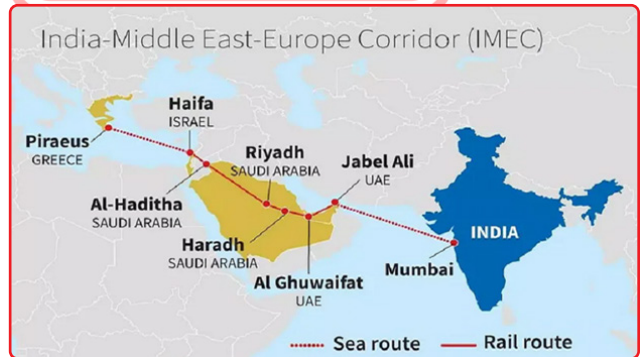
Why in news?

➲ As the Red Sea crisis enters its fourth month, global supply chains are increasingly grappling with inflated freights, delayed vessel schedules, and product shortages.

➲ It has once again brought to the fore the vulnerabilities of global supply chains, highlighting the need to revisit alternate routes for global trade.

Why is the Red Sea route important?

➲ The Red Sea owes its strategic importance for global trade to the Bab el-Mandab Strait which lies between Yemen and Djibouti. It is one of the world's busiest

cargo and oil transit points with almost 12% of international merchandise trade passing through it.

➲ An immediate consequence of the Red Sea conflict has been that major container and oil carriers have been forced to re-route shipments via the Cape of Good Hope.

➲ The re-routing has led to rising ocean freight, inflated insurance costs, and longer voyage times leading to delays and shortage of products. It has also driven up transportation costs.

➲ The higher shipping costs will be passed onto consumers in the form of increased commodity prices.

How has it affected India?

➲ India's trade with European and North African countries flows entirely through the Red Sea route which is almost 24% of its exports and 14% of its imports.

➲ In the year 2022-23, India's bilateral trade with Europe and North Africa stood at $189 billion and $15 billion respectively. The rising fears among traders have already seen a drop in Indian shipments.

➲ As per the Federation of Indian Export Organisations (FIEO), rising threats have prompted Indian exporters to hold back around 25% of their cargo ships transitioning through the Red Sea.

➲ As global supply chains are battling delayed shipments and rising costs, China is actively projecting China-Europe freight trains, which are part of the Belt and Road Initiative (BRI), as an alternate route.

What about the IMEC?

➲ The India-Middle East-Europe Economic Corridor (IMEC), which was announced during the G-20 summit in 2023, is another alternative which is not receiving much attention.

➲ Part of the problem is that apart from the MoUs, there have not been any investments or operations regarding the corridor.

➲ Furthermore, the Israel-Palestine conflict has put a pause on the normalisation of Arab-Israel relations which is a key element of the multi-nation initiative.

➲ Another major challenge is the vulnerability of the Strait of Hormuz. The entire trade of the IMEC architecture flows through the Strait of Hormuz and with Iran's proximity and control over the strait, the risk of disruptions remain very high.

➲ Some experts argue that the Strait of Hormuz problem can be avoided by including Oman in the IMEC architecture and keeping the supply chain away from Iran's reach.

➲ However, that would mean further delays, as new ports and railway links will have to be developed across Oman connecting it to Saudi Arabia.

How can the IMEC be made viable?

➲ An empirical study on the economic benefits of the corridor needs to be conducted. The corridor is estimated to cut the journey time from India to Europe by 40% and slash transit costs by 30%.

➲ However, there are speculations that multiple handling of cargo and multi-nation transit would increase carriage and compliance costs. Therefore, it is critical to quantify the economic advantages of the corridor to attract more stakeholders.

➲ A robust financial framework needs to be in place. Since there are no binding financial commitments on any of the signatories of the corridor, investments will have to be attracted from governments, international organisations, and private sector entities.

➲ A comprehensive multi-nation operational framework is needed. As the corridor involves facilitating trade across different legal systems, a multi-national framework is necessary. A forum for the corridor needs to be constituted to undertake the aforementioned activities.

ECONOMY

HIGHLIGHTS OF THE INTERIM UNION BUDGET 2024-25

Why in news?

➲ With the 'mantra' of 'Sabka Saath, Sabka Vikas, and Sabka Vishwas' and the whole of nation approach of "Sabka Prayas", the Union Minister for Finance and Corporate Affairs presented the Interim Union Budget 2024-25 in Parliament, today. The key highlights of the Budget are as follows:

Part A

Social Justice

➲ Prime Minister to focus on upliftment of four major castes, that is, 'Garib' (Poor), 'Mahilayen' (Women), 'Yuva' (Youth) and 'Annadata'(Farmer).

'Garib Kalyan, Desh ka Kalyan'

➲ Government assisted 25 crore people out of multi-dimensional poverty in last 10 years.

➲ DBT of Rs. 34 lakh crore using PM-Jan Dhan accounts led to savings of Rs. 2.7 lakh crore for the Government.

➲ PM-SVANidhi provided credit assistance to 78 lakh street vendors. 2.3 lakh have received credit for the third time.

- PM-JANMAN Yojana to aid the development of particularly vulnerable tribal groups (PVTG).
- PM-Vishwakarma Yojana provides end-to-end support to artisans and crafts people engaged in 18 trades.

Welfare of 'Annadata'

- PM-KISAN SAMMAN Yojana provided financial assistance to 11.8 crore farmers.
- Under PM Fasal BimaYojana, crop insurance is given to 4 crore farmers
- Electronic National Agriculture Market (e-NAM) integrated 1361 mandis, providing services to 1.8 crore farmers with trading volume of Rs. 3 lakh crore.

Momentum for Nari Shakti

- 30 crore Mudra Yojana loans given to women entrepreneurs.
- Female enrolment in higher education gone up by 28%.
- In STEM courses, girls and women constitute 43% of enrolment, one of the highest in the world.
- Over 70% houses under PM Awas Yojana given to women from rural areas.

PM Awas Yojana (Grameen)

- Despite COVID challenges, the target of three crore houses under PM Awas Yojana (Grameen) will be achieved soon.
- Two crore more houses to be taken up in the next five years.

Rooftop solarization and muft bijli

- 1 crore households to obtain 300 units free electricity every month through rooftop solarization.
- Each household is expected to save Rs.15000 to Rs.18000 annually.

Ayushman Bharat

- Healthcare cover under Ayushman Bharat scheme to be extended to all ASHA workers, Anganwadi Workers and Helpers.

Agriculture and food processing

- Pradhan Mantri Kisan Sampada Yojana has benefitted 38 lakh farmers and generated 10 lakh employment.
- Pradhan Mantri Formalisation of Micro Food Processing Enterprises Yojana has assisted 2.4 lakh SHGs and 60000 individuals with credit linkages.

Research and Innovation for catalyzing growth, employment and development

- A corpus of Rs.1 lakh crore to be established with fifty-year interest free loan to provide long-term financing or refinancing with long tenors and low or nil interest rates.
- A new scheme to be launched for strengthening deep-tech technologies for defence purposes and expediting 'atmanirbharta'.

Infrastructure

- Capital expenditure outlay for Infrastructure development and employment generation to be increased by 11.1 per cent to Rs.11,11,111 crore, that will be 3.4 per cent of the GDP.

Railways

- 3 major economic railway corridor programmes identified under the PM Gati Shakti to be implemented to improve logistics efficiency and reduce cost
  - Energy, mineral and cement corridors
  - Port connectivity corridors
  - High traffic density corridors
- Forty thousand normal rail bogies to be converted to Vande Bharat standards.

Aviation Sector

- Number of airports in the country doubled to 149.
- Five hundred and seventeen new routes are carrying 1.3 crore passengers.
- Indian carriers have placed orders for over 1000 new aircrafts.

Green Energy

- Coal gasification and liquefaction capacity of 100 MT to be set up by 2030.
- Phased mandatory blending of compressed biogas (CBG) in compressed natural gas (CNG) for transport and piped natural gas (PNG) for domestic purposes to be mandated.

Tourism sector

- States to be encouraged to take up comprehensive development of iconic tourist centres including their branding and marketing at global scale.
- Framework for rating of the tourist centres based on quality of facilities and services to be established.
- Long-term interest free loans to be provided to States for financing such development on matching basis.

Investments

- FDI inflow during 2014-23 of USD 596 billion was twice of the inflow during 2005-14.

Reforms in the States for 'Viksit Bharat'

- A provision of Rs.75,000 crore rupees as fifty-year interest free loan is proposed to support milestone-linked reforms by the State Governments.

Revised Estimates (RE) 2023-24

- RE of the total receipts other than borrowings is Rs.27.56 lakh crore, of which the tax receipts are Rs.23.24 lakh crore.
- RE of the total expenditure is Rs.44.90 lakh crore.
- Revenue receipts at Rs.30.03 lakh crore are expected to be higher than the Budget Estimate, reflecting strong growth momentum and formalization in the economy.
- RE of the fiscal deficit is 5.8 per cent of GDP for 2023-24.

Budget Estimates 2024-25

- Total receipts other than borrowings and the total expenditure are estimated at Rs.30.80 and Rs.47.66 lakh crore respectively.
- Tax receipts are estimated at Rs.26.02 lakh crore.
- Scheme of fifty-year interest free loan for capital expenditure to states to be continued this year with total outlay of Rs.1.3 lakh crore.
- Fiscal deficit in 2024-25 is estimated to be 5.1 per cent of GDP
- Gross and net market borrowings through dated securities during 2024-25 are estimated at Rs.14.13 and Rs.11.75 lakh crore respectively.

Part B

Direct taxes

- FM proposes to retain same tax rates for direct taxes
- Direct tax collection tripled, return filers increased to 2.4 times, in the last 10 years
- Government to improve tax payer services
  - Outstanding direct tax demands upto Rs 25000 pertaining to the period upto FY 2009-10 withdrawn
  - Outstanding direct tax demands upto Rs 10000 for financial years 2010-11 to 2014-15 withdrawn
  - This will benefit one crore tax payers
- Tax benefits to Start-Ups, investments made by Sovereign wealth funds or pension funds extended to 31.03.2025
- Tax exemption on certain income of IFSC units extended by a year to 31.03.2025 from 31.03.2024

Indirect taxes

- FM proposes to retain same tax rates for indirect taxes and import duties
- GST unified the highly fragmented indirect tax regime in India
  - Average monthly gross GST collection doubled to Rs 1.66 lakh crore this year
  - GST tax base has doubled
  - State SGST revenue buoyancy (including compensation released to states) increased to 1.22 in post-GST period(2017-18 to 2022-23) from 0.72 in the pre-GST period (2012-13 to 2015-16)
  - 94% of industry leaders view transition to GST as largely positive
  - GST led to supply chain optimization
  - GST reduced the compliance burden on trade and industry
  - Lower logistics cost and taxes helped reduce prices of goods and services, benefiting the consumers

Tax rationalization efforts over the years

- No tax liability for income upto Rs 7 lakh, up from Rs 2.2 lakh in FY 2013-14
- Presumptive taxation threshold for retail businesses increased to Rs 3 crore from Rs 2 crore
- Presumptive taxation threshold for professionals increased to Rs 75 lakh from Rs 50 lakh

- Corporate income tax decreased to 22% from 30% for existing domestic companies
- Corporate income tax rate at 15% for new manufacturing companies

Achievements in tax-payer services

- Average processing time of tax returns has reduced to 10 days from 93 days in 2013-14
- Faceless Assessment and Appeal introduced for greater efficiency
- Updated income tax returns, new form 26AS and prefilled tax returns for simplified return filing
- Reforms in customs leading to reduced Import release time
  - Reduction by 47% to 71 hours at Inland Container Depots
  - Reduction by 28% to 44 hours at Air Cargo complexes
  - Reduction by 27% to 85 hours at Sea Ports

UNION BUDGET 2024-25, NEW INITIATIVE TO BOOST BLUE ECONOMY 2.0

Why in news?

- The interim budget speech delivered by Union Finance Minister provided a boost to Blue Economy 2.0 with the announcement of a new scheme "for restoration and adaptation measures, coastal aquaculture, and mariculture with an integrated and multi-sectoral approach".

Maladaptation:

- While this development is positive for the 14 million people engaged in fisheries and allied activities along India's expansive 7,500 km coastline (encompassing both mainland and islands) in terms of livelihoods and adapting to the adverse impacts of climate change, concerns persist regarding potential maladaptation resulting from misguided adaptation measures.
- Maladaptation, defined by the Intergovernmental Panel on Climate Change (IPCC) as "changes in natural or human systems that inadvertently increase vulnerability to climate stimuli," denotes an inadvertent increase in the impacts of climate change on communities.

- The IPCC's Sixth Assessment Report (AR6) released in March 2023 highlighted an increased incidence of maladaptation in various sectors and regions.

Adaptation measures along India's coasts:

- Many such adaptation measures have been taken along India's coasts. These include the relocation of villages affected by coastal erosion, coast protection through structures like geosynthetic tubes, and mangrove restoration.
- However, many of these measures, particularly along the Odisha coast, have proven ineffective in reducing the vulnerability of coastal populations and biodiversity to the impacts of sea-level rise, extreme sea-level events and cyclones.
- For example, the installation of geosynthetic tubes in Odisha's Pentha village led to coastal erosion from beaches in both the south and north of the village, putting people staying close to them at risk during storm surges of cyclones and extreme sea-level events.

What needs to be done?

- Instead, effective adaptation measures such as the cultivation of indigenous seaweeds, deployment of artificial reefs, and stabilisation of beach sand dunes should be prioritised for both adaptation needs and mitigation measures. These approaches can contribute to protecting coasts against erosion and providing livelihoods to local communities.
- Aquaculture in India is predominantly focused on fish, prawn, and other aquatic animals.
- To address environmental concerns, there is need to emphasize the cultivation of selected indigenous seaweed species using scientific methods in suitable parts of the Indian Coast to remove carbon dioxide, nitrogen, and phosphorus from the marine ecosystem.
- Seaweeds, besides their environmental benefits, can serve as a valuable source of proteins, with extracted proteins finding applications in cosmetics production.

SCHEMES FOR WELFARE OF FARMERS

Context:

- Details of schemes being run by Department of Agriculture and Farmers' Welfare for welfare/

increasing incomes of farmers and the achievements made therein.

Pradhan Mantri Kisan Samman Nidhi (PM-KISAN):

- PM-KISAN is a central sector scheme launched on 24th February 2019 to supplement financial needs of land holding farmers, subject to exclusions.
- Under the scheme, financial benefit of Rs. 6000/- per year is transferred in three equal four-monthly installments into the bank accounts of farmers' families across the country, through Direct Benefit Transfer (DBT) mode.

Pradhan Mantri Kisan MaanDhan Yojana (PM-KMY):

- Pradhan Mantri Kisan Maandhan Yojna (PMKMY) is a central sector scheme launched on 12th September 2019 to provide security to the most vulnerable farmer families.
- PM-KMY is contributory scheme, small and marginal farmers (SMFs), subject to exclusion criteria, can opt to become member of the scheme by paying monthly subscription to the Pension Fund. Similar, amount will be contributed by the Central Government.
- The applicants between the age group of 18 to 40 years will have to contribute between Rs. 55 to Rs. 200 per month till they attain the age of 60.
- PMKMY is taking care of the farmers during their old age and provides Rs. 3,000 monthly pension to the enrolled farmers once they attain 60 years of age, subject to exclusion criteria.
- Life Insurance Corporation (LIC) is pension fund manager and registration of beneficiaries is done through CSC and State Govts.

Pradhan Mantri Fasal Bima Yojana (PMFBY):

- PMFBY was launched in 2016 in order to provide a simple and affordable crop insurance product to ensure comprehensive risk cover for crops to farmers against all non-preventable natural risks from pre-sowing to post-harvest and to provide adequate claim amount.
- The scheme is demand driven and available for all farmers

Modified Interest Subvention Scheme (MISS):

- The Interest Subvention Scheme (ISS) provides concessional short term agri-loans to the farmers practicing crop husbandry and other allied activities like animal husbandry, dairying and fisheries.
- ISS is available to farmers availing short term crop loans up to Rs.3.00 lakh at an interest rate of 7% per annum for one year. Additional 3% subvention is also given to the farmers for prompt and timely repayment of loans thus reducing the effective rate of interest to 4% per annum.
- The benefit of ISS is also available for post-harvest loans against Negotiable Warehouse Receipts (NWRs)

on crop loans for a further period of six months post-harvest to small and marginal farmers having Kisan Credit Cards (KCCs), on occurrence of natural calamities and severe natural calamities.

Agriculture Infrastructure Fund (AIF):

- In order to address the existing infrastructure gaps and mobilize investment in agriculture infrastructure, Agri Infra Fund was launched under Aatmanirbhar Bharat Package.
- The Agriculture Infrastructure Fund is a medium - long term debt financing facility for investment in viable projects for post- harvest management infrastructure and community farming assets through interest subvention and credit guarantee support.
- The Fund of Rs. 1 lakh crore under the scheme will be disbursed from FY 2020-21 to FY2025-26 and the support under the scheme will be provided for the duration of FY2020-21 to FY2032-33.
- Under the scheme, Rs. 1 Lakh Crore will be provided by banks and financial institutions as loans with interest subvention of 3% per annum and credit guarantee coverage under CGTMSE for loans up to Rs. 2 Crores. Further, each entity is eligible to get the benefit of the scheme for up to 25 projects located in different LGD codes.

Formation & Promotion of new 10,000 FPOs:

- The Government of India launched the Central Sector Scheme (CSS) for "Formation and Promotion of 10,000 Farmer Producer Organizations (FPOs)" in the year 2020.
- The scheme has a total budgetary outlay of Rs.6865 crores.
- Formation & promotion of FPOs are to be done through Implementing Agencies (IAs), which further engage Cluster Based Business Organizations (CBBOs) to form & provide professional handholding support to FPOs for a period of 5 years.

National beekeeping and Honey Mission (NBHM):

- Keeping in view the importance of beekeeping, a new Central Sector Scheme entitled National Beekeeping & Honey Mission (NBHM) was launched in 2020 under Atma Nirbhar Bharat Abhiyan for its implementation in the field for overall promotion and development of scientific beekeeping & to achieve the goal of "Sweet Revolution".

Market Intervention Scheme and Price support Scheme (MIS-PSS):

- Ministry of Agriculture & Farmers Welfare implements the Price Support Scheme (PSS) for procurement of pulses, oilseeds and copra. Market Intervention Scheme (MIS) for procurement of agricultural and horticultural commodities which are perishable in nature and are not covered under the Price Support Scheme (PSS).

- The objective of intervention is to protect the growers of these commodities from making distress sale in the event of a bumper crop during the peak arrival period when the prices tend to fall below economic levels and cost of production.

Namo Drone Didi:

- The Government has recently approved a Central Sector Scheme for providing drones to the Women Self Help Group (SHGs) for the period from 2024-25 to 2025-26 with an outlay of Rs. 1261 Crores.
- The scheme aims to provide drones to 15000 selected Women Self Help Group (SHGs) for providing rental services to farmers for agriculture purpose (application of fertilizers and pesticides).
- Under this Scheme, Central Financial Assistance @ 80% of the cost of drone and accessories/ancillary charges upto a maximum of Rs. 8.0 Lakhs will be provided to the women SHGs for purchase of drones.
- The Cluster Level Federations (CLFs) of SHGs may raise the balance amount (total cost of procurement minus subsidy) as loan under National Agriculture Infra Financing Facility (AIF). Interest subvention @ 3% on the AIF loan will be provided to the CLFs.
- The scheme will also provide sustainable business and livelihood support to SHGs and they would be able to earn additional income of at least of Rs. 1.0 lakh per annum.

GOVERNMENT ALLOCATES RS 455 CRORE FOR GREEN HYDROGEN PILOT PROJECTS IN STEEL SECTOR

Why in news?

- The Union Ministry of New and Renewable Energy recently released scheme guidelines for implementation of pilot green hydrogen projects in the steel sector under the National Green Hydrogen Mission (NGHM).
- The government also allocated Rs. 455 crore till financial year 2029-30 to promote the use of green hydrogen in the sector.

Potential:

- Considering the high cost of green hydrogen, the initiative would support steel plants for blending a small percentage of green hydrogen in their processes.

- The blending share can increase as cost economics improve and technologies advance. The scheme will provide support for development /selection / validation of commercially viable technologies using hydrogen in steel sector that:
  - Use 100 per cent hydrogen in direct reduced iron (DRI) process using vertical shaft / kiln
  - Use hydrogen in blast furnaces within prescribed limits
  - Substitute fossil fuels with hydrogen in a gradual manner in DRI process
  - Use hydrogen in any other innovative way to reduce carbon emissions in iron and steel production.

National Green Hydrogen Mission (NGHM):

- NGHM was launched on January 4, 2023 and had an outlay of Rs 19,744 crore, with the aim to make India a global hub for production, usage and export of green hydrogen.
- The mission aims to add to India's effort on becoming self-reliant through clean energy and become a model state in global clean energy transition.
- The mission has set the target to have a capacity of 5 million tonnes of green hydrogen per annum in India by 2030. Initially, it was being speculated that in terms of industrial usage, most of the green hydrogen initiatives and allocation would happen in the fertiliser and petro-chemical sector, as they already use grey hydrogen in their processes which could be then replaced by green hydrogen.

Sweden's success:

- Swedish company SSAB was the first globally to produce steel through hydrogen back in 2018.
- SSAB along with Vattenfall (an European Energy Company) and LKAB (a Swedish minerals and mining group) through HYBRIT technology are planning to bring out world's first fossil free steel to the market by 2026.
- Yet another Swedish company, H2-Green Steel, is also planning to roll out its first batch of green steel using hydrogen by 2025. Similar initiatives are being taken by Nippon Steel in Japan and other competitors in France and Germany.
- At the 28th Conference of Parties to the United Nations Framework Convention on Climate Change, India announced its partnership with Sweden under the LEAD-IT initiative which had a focus on industrial decarbonisation, specially the steel sector.
- One of the major reasons behind this partnership was obviously Sweden's lead in steel production through hydrogen. Other factors driving this initiative may have been policies like the Carbon Border Adjustment Mechanism and India's high share of steel export to the European Union.

Domestic initiatives:

- Domestically, companies like Tata Steel and ArcelorMittal Nippon Steel India had started taking initiatives towards using hydrogen.

- In January 2024, ArcelorMittal Nippon Steel India signed a memorandum of understanding (MoU) with the Maharashtra government, proposing to establish a 6 million tonnes per annum green steel plant in Maharashtra that plans to use hydrogen instead of coal.
- The Maharashtra government also signed MoUs with seven renewable energy companies to develop a proposed capacity of 910 kilotonnes per annum of green hydrogen projects.

FISHERIES AND AQUACULTURE INFRASTRUCTURE DEVELOPMENT FUND (FIDF)

Why in news?

- The Union Cabinet has approved extension of Fisheries Infrastructure Development Fund (FIDF) for another 3 years upto 2025-26 within the already approved fund size of Rs 7522.48 crore and budgetary support of Rs 939.48 crore.

About FIDF:

- In order to address the infrastructure requirement for fisheries sector, the union Government during 2018-19 created the Fisheries and Aquaculture Infrastructure Development Fund (FIDF) with a total funds size of Rs 7522.48 crore.
- In the earlier phase of implementation of FIDF during the period from 2018-19 to 2022-23, a total 121 fisheries infrastructure projects with an investment cost of Rs. 5588.63 crore have been approved for creation of various fisheries infrastructures.
- Extension of FIDF will further intensifies development of various fisheries infrastructures like fishing harbours, fish landing centers, ice plants, cold storage, fish transport facilities, integrated cold chain, modern

fish markets, Brood Banks, Hatcheries, aquaculture development, Fish Seed Farms, state of art of fisheries training centres, fish processing units, fish feed mills/plants, cage culture in reservoir, Introduction Deep Sea Fishing Vessels, disease Diagnostic Laboratories, Mariculture and Aquatic Quarantine Facilities.

Finance:

- FIDF will continue provides concessional finance to the Eligible Entities (EEs), including State Governments/Union Territories for development of identified fisheries infrastructure facilities through Nodal Loaning Entities (NLEs) namely National Bank for Agriculture and Rural Development (NABARD), National Cooperatives Development Corporation (NCDC) and All scheduled Banks.

- The Government of India provides interest subvention up to 3% per annum for the repayment period of 12 years inclusive of moratorium of 2 years for providing the concessional finance by the NLEs at the interest rate not lower than 5% per annum.

- The Government of India also provides credit guarantee facility to the projects of entrepreneurs, individual farmers and cooperatives from the existing credit guarantee fund of Infrastructure Development Fund of Department of Animal Husbandry and Dairying.

Eligible entities:

- The eligible entities under FIDF are State Governments / Union Territories, State Owned Corporations, State Government Undertakings, Government Sponsored, Supported Organizations, Fisheries Cooperative Federations, Cooperatives, Collective Groups of fish farmers & fish produces, Panchayat Raj Institutions, Self Help Groups (SHGs), Non-Governmental Organisations (NGOs), Women & their entrepreneurs, Private Companies and Entrepreneurs.

Way Forward:

- The extension of FIDF will further leverages the financial resources, encourages more investments in development of infrastructure for fisheries and aquaculture both from the public and private sector, thereby promoting economic development and expansion of fisheries and aquaculture sector.

- FIDF not only give impetus for creation of modern infrastructure for fisheries and aquaculture, it will also complement and consolidate the achievements of Pradhan Mantri Matsya Sampada Yojana (PMMSY) and Kisan Credit Card (KCC) and making it an important scheme for bringing in more stakeholder, investments, employment opportunities, augmentation of fish production and transformation in the Fisheries and Aquaculture Sector.

'PRADHAN MANTRI MATSYA KISAN SAMRIDHI SAH-YOJANA (PM-MKSSY)'

Cabinet Decisions: 08 February 2024

Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY)

- **Cabinet approves** Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana for formalization of fisheries sector and supporting fisheries micro and small enterprises

- Investment of over **Rs. 6,000 crores** over next 4 years from FY 2023-24 to FY 2026-27 in all States/Union Territories

Benefits

- Creation of National Fisheries Digital Platform to provide **40 lakh small and micro-enterprises** work based identities

- Support to **6.4 lakh micro-enterprises** and **5,500 fisheries cooperatives**, providing access to institutional credit

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Why in news?

- The Union Cabinet approved the "Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY)", a Central Sector Sub-scheme under the Pradhan Mantri Matsya Sampada for formalization of the fisheries sector and supporting fisheries micro and small enterprises with an investment of over Rs. 6,000 crores over a period of next four (4) years from FY 2023-24 to FY 2026-27 in all States/Union Territories.

Expenditure involved

- The Sub-scheme will be implemented as a Central Sector Sub-scheme under the Central Sector Component of the PMMSY at an estimated outlay of Rs.6,000 crore consisting of 50% i.e. Rs.3,000 crore public finance including the World Bank and the AFD external financing, and rest 50% i.e.Rs.3,000 crore being the anticipated investment from the beneficiaries/private sector leverage.

- It will be implemented for four years from FY 2023-24 to FY 2026-27 across all the States and UTs.

Intended Beneficiaries:

- Fishers, Fish (Aquaculture) Farmers, Fish workers, Fish Vendors or such other person directly engaged in fisheries value chain.

- Micro and Small enterprises in the form of Proprietary Firms, Partnership Firms and Companies registered in India, Societies, Limited Liability Partnerships (LLPs), Cooperatives, Federations, Village Level Organizations like Self Help Groups (SHGs), Fish Farmers Producer Organizations (FFPOs) and Startups engaged in fisheries and aquaculture value chains.

- FFPOs also include Farmers Producer Organizations (FPOs).

- Any other beneficiaries that may be included by the Department of Fisheries, GoI as targeted beneficiaries.

Aims and objectives of PM-MKSSY:

- Gradual Formalization of the unorganized fisheries sector through self registration of fishers, fish farmers and supportive workers under a National Fisheries Sector Digital Platform including creation of work based digital identifies of fish workers for improved service delivery.
- Facilitating access to institutional financing fisheries sector micro and small enterprises.
- Providing one-time incentive to beneficiaries for purchasing aquaculture insurance.
- lncentivizing fisheries and aquaculture microenterprises through performance grants for improving fisheries sector value-chain efficiencies including creation and maintenance of jobs.
- Incentivising micro and small enterprises through performance grants for adoption and expansion of fish and fishery product safety and quality assurance systems including creation and maintenance of jobs.

Implementation strategy:

The Sub-scheme has the following major components:

a. Component 1-A: Formalization of fisheries sector and facilitating access of fisheries microenterprises to Government of India programs for working capital financing:

- Fisheries, being an unorganised sector needs to be gradually formalized by creation of registry of the fish producers and other supporting actors such as fish workers, vendors and processors including micro and small enterprises working in the sector at the national level.
- For this purpose, a National Fisheries Digital Platform (NFDP) will be created and all the stakeholders will be mobilized to register on it. They will be encouraged to do so through providing financial incentives.
- The NFDP will serve multiple functions including disbursement of financial incentives.
- It is also proposed to undertake activities such as training and extension support, improving financial literacy, facilitating project preparation and documentation through financial support, reimbursing the processing fee and such other charges, if any and strengthening of existing fisheries cooperative societies.

b. Component 1-B: Facilitating adoption of aquaculture insurance:

- It is proposed to facilitate creation of appropriate insurance product and to cover at least 1 lakh hectare of aquaculture farms during project period to provide the scale of operation.
- Further, it is proposed to provide onetime incentive to the willing farmers against purchase of insurance with farm size of 4 hectares of water spread area and less.

- The 'onetime incentive' will be at the rate of 40% of the cost of premium subject to a limit of Rs.25000 per hectare of water spread area of the aquaculture farm. The maximum incentive payable to single farmer will be Rs.1,00,000 and maximum farm size eligible for incentive is 4 hectares of water spread area.
- For more intensive form of aquaculture other than farms such as cage culture, Re-circulatory Aquaculture System (RAS), bio-floc, raceways, etc. the incentive payable is 40% of premium. Maximum incentive payable is 1 lakh and the maximum unit size eligible will be of 1800 m3.
- The aforesaid benefit of 'onetime incentive' will be provided for aquaculture insurance purchased for one crop only i.e. one crop cycle. SC, ST and Women beneficiaries would be provided an additional incentive @ 10% of the incentive payable for General Categories.

c. Component 2: Supporting microenterprises to improve fisheries sector value chain efficiencies:

- This component seeks to improve value chain efficiencies in fishery sector through a system of performance grants with associated analytics and awareness campaigns.
- It is proposed to incentivise microenterprises to reengage in production, creation and maintenance of jobs with priority for women and to enhance value chain efficiencies through provisions of performance grants within selected value chains under a set of measurable parameters.

d) Component 3: Adoption and expansion of fish and fishery product safety and quality assurance systems:

- It is proposed to incentivize fisheries micro and small enterprises to adopt safety and quality assurance systems in marketing of fish and fishery products through provision of performance grants against a set of measurable parameters. This is expected to expand the market for fish and to create and maintain jobs especially for women. This intervention is expected to expand domestic market for fish through increased supply of safe fish and fishery products which will attract new consumers.

e) Performance Grant disbursement criteria for components 2 and 3

- Number of jobs created and maintained; including jobs created and maintained for women. For each job created and maintained for a woman an amount of Rs.15,000 per year will be paid, similarly, for each job created and maintained for a man an amount of Rs.10,000 per year will be paid, subject to the limit of 50% of total eligible grant.
- Investments made in the value chain for increasing the value chain efficiency for component 2 and investment made for adoption and expansion of fish

and fishery product safety and quality assurance systems under component 3, performance grant for investments made will be disbursed after completion of the investment subject to the limit of 50% of the eligible grant.

f) Component 4: Project management, monitoring and reporting:

  ➢ Under this component, it is proposed to set up Project Management Units (PMUs) to manage, implement, monitor and evaluate project activities.

Way Forward:

➲ Despite significant achievements, there are a number of sectoral challenges felt in the sector. The sector is informal in nature, lack of crop risk mitigation, lack of work based identities, poor access to institutional credit, sub-optimal safety & quality of fish sold by micro & small enterprises.

➲ The new-sub-scheme under the existing Pradhan Mantri Matsya Sampada Yojana (PMMSY) aims to address these issues, with total outlay of Rs.6,000 crore.

WHAT SWAMINATHAN PANEL SAID

Why in news?

➲ The first of the 12 demands made by protesting Punjab farmers in their email sent to the government on February 6 was for a law to guarantee the procurement of all crops for all farmers at MSP, and for the determination of crop prices as per the recommendations of the Dr Swaminathan Commission.

➲ Three rounds of talks held in Chandigarh between three Union Ministers and the leaders of farm unions have remained inconclusive.

Swaminathan Commission: terms of reference, reports

➲ Agricultural scientist M S Swaminathan, who was posthumously awarded the Bharat Ratna recently, played a major role in the changes in Indian agriculture in the 1960s and 70s that helped India achieve food security.

➲ On November 18, 2004, the Ministry of Agriculture constituted a National Commission on Farmers (NCF) under Prof Swaminathan.

➲ The 10-point terms of reference of the commission, which reflected the Common Minimum Programme of the Congress-led UPA government, included suggesting a "comprehensive medium-term strategy for food and nutrition security", and ways of "enhancing productivity, profitability, and sustainability of the major farming systems" in the country.

➲ Between December 2004 and October 2006, the NCF submitted five reports running into a total 1,946 pages. The reports were deeply sympathetic to farmers, and made several recommendations, including at least two on minimum support prices (MSP).

➲ However, the Swaminathan Commission did not recommend either a legal guarantee for MSP or the formula for its calculation that the farmers' unions are now demanding.

Key Highlights:

➲ The first report of the NCF, titled 'Serving Farmers and Saving Farming', opens with the sentence, "The acute agricultural distress now witnessed in the country, occasionally taking the form of suicides by farmers, is the symptom of a deep seated malady arising from inadequate public investment and insufficient public action in recent years."

➲ A chapter in the report, titled 'A New Deal for Women in Agriculture', underlined the "need...to ensure that working women have the needed support services and have access to timely credit and extension services".

➲ It called for the setting up of a National Board for New Deal for Women in Agriculture under the Union Food and Agriculture Minister, with the Union Ministers for Women and Child Development, Rural Development, and Panchayati Raj as co-chairs.

➲ The report also suggested that Farm Schools should be established in the fields of innovative farmers, in order to spread their message and methods. "Promoting 50,000 Farm Schools across the country will require an investment of Rs 150 crore," it estimated.

➲ The report suggested establishing a grain bank and community food and fodder banks, promoting insurance, and setting up a national network of advanced soil testing labs.

Repealed farm laws:

➲ The 471-page second report of the NCF was titled 'From Crisis to Confidence'. It recommended a code of conduct for contract farming, and advocated amendments in the state APMC Acts and the Essential Commodities Act. In a sense, its recommendations were pro-market reforms-oriented.

➲ In fact, the three farm laws introduced by the Narendra Modi government in 2020, and repealed under pressure from the protesting farmers, were on the lines of these recommendations of the Swaminathan Commission.

- The Commission recommended futures and options trading in agricultural commodities, with supervision and regulation by a "SEBI like autonomous body".

What the Commission said on Minimum Support Prices?

- The Swaminathan Commission did not recommend the fixing of MSP based on C2 (actual cost of production) plus 50 per cent, as demanded by the protesting farmers. In its second report, the NCF made just two recommendations relating to MSP.
- First, "Delay in issue of the Minimum Support Price (MSP) particularly in respect of Kharif crops needs to be avoided."
- Second, "Implementation of MSP across regions needs improvement." The Commission noted that "except Punjab, Haryana, UP, and Andhra Pradesh to some extent, the prices of agri commodities covered under MSP often rule below the MSP in absence of any government intervention".
- Despite weaknesses, MSP "may have to be continued in the foreseeable future and its implementation improved".
- While the report did not mention calculation of MSP based on C2, it did discuss the cost of production, and made a suggestion for the Commission for Agricultural Costs and Prices (CACP), which recommends MSPs.

Abhijit Sen Committee:

- The second report highlighted the recommendations of the High Level Committee on Long Term Grain Policy, 2002 headed by the economist Abhijit Sen. The Abhijit Sen Committee had examined various aspects connected with MSP and price support operations.
- The Abhijit Sen Committee had said: "In recommending MSPs, which should apply on Fair Average Quality (FAQ) grain, the CACP should go strictly on the basis of C2 cost of production (i.e., all costs including imputed costs of family labour, owned capital and rental on land) in more efficient regions... The CACP should also indicate its estimates of A2 + FL costs (i.e., costs actually paid plus imputed value of family value labour) for relatively high cost regions."
- But this recommendation did not find mention in the recommendations of the Swaminathan Commission.

Conclusion:

- In the first volume of its fifth report, the NCF summed up its recommendation for MSP: "MSP should be regarded as the bottom line for procurement both by Government and private traders. Purchase by Government should be MSP plus cost escalation since the announcement of MSP. This will be reflected in the prevailing market price. Government should procure the staple grains needed for PDS at the same price private traders are willing to pay to farmers."

THE RECENT REPORT ON LOCAL FINTECH PLAYERS
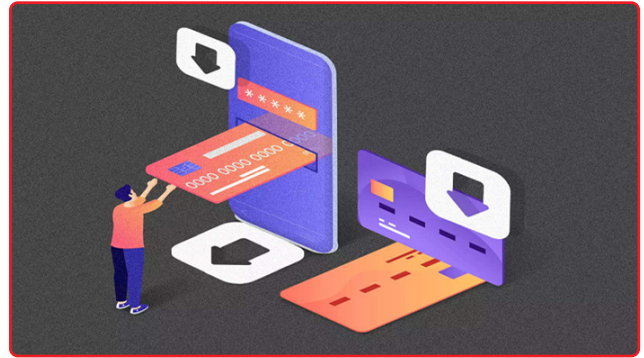
Why in news?

- In its report presented to Parliament recently, the Standing Committee on Communications and Information Technology has raised concerns about the dominance of fintech apps owned by foreign entities in the Indian ecosystem and recommended that local players be promoted.
- It mentioned that the Unified Payments Interface (UPI) commanded a 73.5% share of the total digital payments in terms of volume in FY 2022-23. However, its share in terms of value was only 6.67% in the same period.

What does the report infer about the existing ecosystem?

- The Committee in its report emphasised that digital payment apps must be effectively regulated as the use of digital platforms to make payments in India is on the rise.
- It will be more 'feasible' for regulatory bodies such as the Reserve Bank of India (RBI) and the National Payments Corporation of India (NPCI) to control local apps, as compared with foreign apps, which operate in multiple jurisdictions.
- The Committee observed that fintech companies, apps and platforms that are owned by foreign entities, such as Walmart-backed PhonePe and Google Pay, dominate the Indian fintech sector.
- PhonePe commands the leading market share in volume terms, followed by Google Pay, at 46.91% and 36.39% respectively. This is for the period between October to November 2023. On the other hand, NCPI's BHIM UPI's market share (in terms of volume) stood at a mere 0.22%.
- NPCI's data for December show that a total of 5,642.66 million transactions were initiated by customers using PhonePe, while another 4,375 million used Google Pay and only about 24.30 million used BHIM.

Recommendations:

- The Committee's recommendations are also largely in tune with the NPCI issuing a 30% volume cap on

transactions facilitated using UPI, back in November 2020.

- That is, the total number of transactions initiated by any third-party app (like PhonePe and Amazon Pay) individually, could not exceed 30% of the overall transactions made using the interfaces cumulatively over three proceeding months. Apps exceeding the specified cap were given two years to comply with the directive in a phased manner.

- NPCI had stated that it would help "address the risks and protect the UPI ecosystem as it further scales up." However, the timeline for compliance was extended in December 2022 to December 31, 2024.

What are the concerns about fraud?

- While examining the different modes used by scamsters to dupe people and park illegal money, the Committee observed that fintech companies were also being used for money laundering. It was apprised of one such example, an Abu Dhabi-based app called Pyppl.

- The app was being administered by Chinese investment scamsters, it noted. This made it difficult for Indian law agencies to track the trail of money collected through scams on the platform.

- The fraud to sales ratio, which represents the total number of fraudulent transactions in comparison to the total number of transactions in a financial year, has largely remained around 0.0015%. The trend is notwithstanding the rise in volume of the payment mode in the last five years.

- In the ongoing financial year (till September 2023) the figure stood at 0.0016%. The percentage of users affected by UPI frauds stood at 0.0189%.

What does it mean for the ecosystem?

- The local fintech players have a "natural advantage" when it comes to understanding the customer, various ecosystem participants, the digital public infrastructure and broader market infrastructure.

- While foreign fin-techs enjoy the same advantage with respect to new technologies, techniques and global connectivity.

- Mckinsey's Global Payments Report (September 2023) observed that instant payments in India were only expected to contribute less than 10% of future revenue growth because no fees are charged for the interface (UPI).

- It however, noted that "although UPI generates minimal transaction fees, these revenues still represent an uplift from no-fee cash events, and the paperless process eliminates the hidden costs of managing cash transactions".

- For perspective, printing and ensuring availability of cash too entails certain costs for the exchequer, thus, the analogous comparison with transaction costs for digital payments.

HOW FAIR AND REMUNERATIVE PRICE (FRP) DIFFERS FROM MSP

Why in news?

- Recently, the Centre announced a hike in the Fair and Remunerative Price (FRP) of sugarcane to Rs 340 per quintal for Sugar Season 2024-25 (October-September) from the existing Rs 315 per quintal.

- The announcement is significant in particular for Uttar Pradesh and Maharashtra, the two biggest sugarcane-growing states which are also among the states with the maximum number of Lok Sabha seats.

- Meanwhile, the demand for hiking the Minimum Support Price (MSP) has also repeatedly come up amid the ongoing farmers' protests around the borders of New Delhi.

What is FRP?

- FRP is the price that the Centre's Cabinet Committee on Economic Affairs (CCEA) decides.

- This committee includes the Prime Minister, the Defence Minister, the Home Minister, the Finance Minister, the Minister of Agriculture and Farmers Welfare and some other senior ministers.

- The sugar mills must legally pay this price to the sugarcane farmers for procurement. There is also a threat of action by cane commissioners, in case of failure to clear FRP dues within 14 days of the cane being sold by farmers.

- Non-clearance can lead to the attachment of mill properties as arrears of land revenue. To avoid the penalty, mills try to accelerate sales. In 2018, this haste had seen sugar prices dropping down against the cost of production.

- Also as part of the process for bringing sugar to the market, the mills pledge their sugar to financial institutions to raise working capital well before the sugar season. The same is recovered by selling sugar through tenders, keeping in view both the cost of production and other margins.

- The FRP is based on the recovery of sugar from the cane. For the sugar season of 2024-25, FRP is Rs 340/ quintal at a recovery of 10.25%.

- Sugar recovery is the ratio between sugar produced versus cane crushed, expressed as a percentage. The

higher the recovery, the higher the FRP, and the higher the sugar produced from the cane.

How does it differ from the MSP?

⮞ Sugar is one of the 23 crops for which the government provides MSP.

⮞ MSPs serve as a basic, guaranteed payment for farmers given the various vulnerabilities involved in agriculture, such as unfavourable weather conditions. In such scenarios, fluctuations in production could lead to price changes, shortage of food items for consumers and a lack of income for the farmers to support themselves.

⮞ To address this, the government announces the MSP every year for certain crops. It is the price at which the government is supposed to procure/buy that crop from farmers if the market price falls below it.

⮞ MSPs provide a floor for market prices and ensure that farmers receive a certain "minimum" remuneration so that their costs of cultivation (and some profit) can be recovered.

CACP:

⮞ The price is fixed based on the recommendations of the Commission for Agricultural Costs and Prices (CACP).

⮞ It comprises a Chairman, a Member Secretary, one Member (Official) and two Members (Non-Official).

While recommending the MSP, the following factors are considered:

⮞ the demand and supply of a commodity;

⮞ its cost of production;

⮞ the market price trends (both domestic and international);

⮞ inter-crop price parity;

⮞ the terms of trade between agriculture and non-agriculture (that is, the ratio of prices of farm inputs and farm outputs);

⮞ a minimum of 50 per cent as the margin over the cost of production; and

⮞ the likely implications of an MSP on consumers of that product.

Why does sugarcane have both the FRP and MSP?

⮞ In 2020, NITI Aayog released the final report of its task force on the Sugar and Sugarcane industry.

⮞ It said, "Since sugarcane has a very short shelf life, the responsibility of procurement of cane is on the sugar mills that are mandatorily expected to pay the FRP on purchase upfront. Additionally, other crops that are under the MSP can be sold at prices higher than the MSP itself. However, with regard to sugarcane, the absence of shelf life prompts them to sell their produce at any price prevailing in the cane-crushing season irrespective of demand and supply forces".

⮞ The central government had introduced MSP for sugar in 2018. It was fixed at Rs 2,850 per quintal which was subsequently raised to Rs 3,100 per quintal.

This was part of the measures announced to arrest the constant slide of sugar and to keep the demand and supply ratio to a safe limit.

⮞ The Centre had also fixed mill-wise sales quota. Mills which breached either of the conditions were liable for action under the Essential Commodities Act, 1955 which would include a fine as well as a jail term (ranging from 3 months to 7 years) or both.

⮞ It was reasoned that these measures would help mills generate enough revenue to pay their farmers the FRP.

A TOUCH OF SUN, THE IMPACT OF HEAT EVENTS ON CHILDREN

Context:

⮞ There is sufficient evidence to show global warming is causing temperatures across the globe to rise significantly enough to cause disruptions.

⮞ Heat waves are occurring with greater frequency and are lasting longer than ever before, with the World Meteorological Organisation declaring that 2023 was the hottest year on record.

Concerns:

⮞ While humans have adapted and acclimatised themselves to several variations in climate, there is believed to be a limit beyond which our bodies cannot process this change.

⮞ The extreme heat can affect young children's biological systems and disrupt development, as well as the many ways it can amplify the effects of systemic inequities.

⮞ The extreme temperatures can have during pregnancy and early childhood, including impacts on learning, sleep quality, and mental and behavioural health.

⮞ The heat amplifies systemic inequities, including air quality, access to nutritious foods, and structural disadvantages.

How does heat impact humans?

⮞ The human body responds to excessive heat primarily by redistributing blood flow toward the skin so heat can transfer out of the body and into the environment through sweat which evaporates on the skin, bringing

body temperature down. The blood flow cooling method is especially important for young children.

- As long as the air temperature is cooler than the body's temperature, heat dissipates through the skin to the outside environment. When temperatures rise, the brain regulates these physiological responses, with additional input from temperature-sensitive nerve cells in the skin and throughout the body.
- Cells also produce heat shock proteins, which act as "chaperones" that stabilise the structure of other proteins that high temperatures could damage. Every cell in the body contains heat shock proteins, protecting a variety of other proteins that are critical to life, including hemoglobin, which carries oxygen to our cells.
- Over short periods of time, heat shock proteins are effective and helpful in regulating body temperature, but when temperatures stay too high for too long, they lose their ability to function, and the proteins they protect start to break down.
- This could mean a higher susceptibility to infections and a decreased response to vaccines, only a couple of the cascade of reactions that can occur as a result of the breaking down of proteins.

How does this affect various organs, then?

Brain:

- The hypothalamus acts as a thermostat for the entire body, sensing temperatures and reacting to keep core temperatures within a healthy range. Continuous, high temperatures prevent the hypothalamus from shutting off these cooling responses.
- Also, when the heat shock proteins break down, the body identifies them as invaders and sends out immune cells to fight them, thus keeping them from their main task of fighting infections.

Skin and Gut:

- In response to heat, pores in the skin open to allow more sweat to pass through and evaporate, increasing the body's ability to cool itself. The lining of the gut can become leaky allowing bacteria to pass through to other parts of the body.
- Over a period of time, this can increase the likelihood that harmful bacteria and toxins will reach the body's vital organs via the circulatory system.

Heart and Other Muscles:

- In response to excess heat, the heart rate increases to send more blood to the skin, releasing the body's core heat into the environment.
- Consequently, less blood is sent to the muscles, which can constrain muscle growth, cause muscle fibres to break down, and contribute to kidney dysfunction.

Dehydration:

- Not having enough water in the system thickens the blood, which can lead to increased blood clotting and

heart failure from blockages in the arteries.

Heat stress:

- When sustained over time, all these responses can lead to what is known as "heat stress." When this happens, the body begins to break down and critical functions shut down, increasing the likelihood of damage to the heart, lungs, and kidneys as well as the risk of heat-related death.

Pregnant women and children:

- In pregnant women, high temperatures may result in reduced blood flow in the placenta, dehydration, and inflammation, which can trigger preterm birth.
- There is evidence that during times of high temperatures, there are increased rates of stillbirth, as well as more premature and lower birth weight babies, again, linked to a greater risk of a range of poor outcomes later in life, including impaired cognition, reduced growth, and chronic health issues such as cardiovascular disease and diabetes in adulthood.
- Given children's fledgling ability to achieve homeostasis, apart from the immediate physical effects on a child, the heat can disrupt development through three distinct pathways:

Learning loss:

- Heat is linked to slower cognitive function and reduced concentration ability. Learning loss may occur because heat's effects on the brain can produce slower reaction times and an inability to focus and can have lasting effects on learning outcomes. Hotter school days two, three, and even four years prior to a test correlate to lower scores.

Sleep quality:

- Getting enough good-quality sleep is essential for healthy growth and development. A growing body of evidence shows associations between less sleep in infancy and childhood obesity, and sleep habits in childhood may impact weight well into adulthood.

Mental and behavioural health:

- It is crucial because children's brains and bodies are developing rapidly and are highly sensitive to their experiences, early childhood is a period where threats to well-being can have long-lasting effects on mental health.
- Because of this, treatment and prevention efforts in the early years can have much larger effects on children's long-term psychological health and well-being than efforts that begin later, the paper advises. The brain detects extreme heat as a threat to well-being, which activates the stress response system.

Way Forward:

- Because the effects of climate change are so interrelated, all efforts to address the root causes will boost the impact of efforts to mitigate the effects of extreme heat on children.

- There is need for policies that target emissions, immediate action to reduce harm from heat events, and adapting infrastructure to be better placed to handle the increase in heat.
- This would include improving structural cooling options in buildings, including greening campaigns, installing air conditioning and other cooling mechanisms; providing accessible links to the power grid; and developing proper heat plans. The experts have advised highlighting some models that work in all these segments.

REDUCING AMMONIA EMISSIONS THROUGH FERTILIZER MANAGEMENT
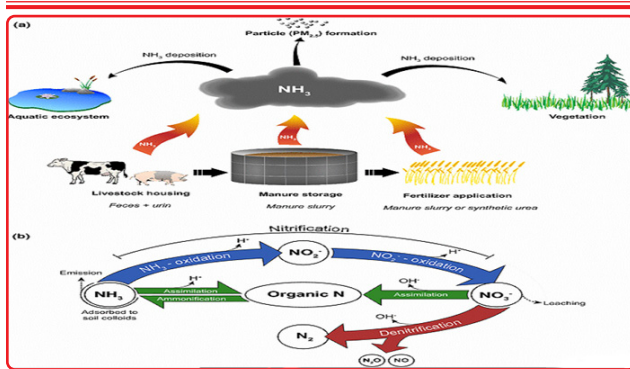
Context:
- Atmospheric ammonia is a key environmental pollutant that affects ecosystems across the planet, as well as human health.
- Around 51-60% of anthropogenic ammonia emissions can be traced back to crop cultivation, and about half of these emissions are associated with three main staple crops: rice, wheat and maize.

Details:
- However, quantifying any potential reductions in ammonia emissions related to specific croplands at high resolution is challenging and depends on details such as nitrogen inputs and local emission factors.
- Based on machine learning, researchers have come up with detailed estimates of ammonia emissions from rice, wheat and maize crops.
- The dataset enabled a cropland-specific assessment of the potential for emission reductions, which indicates that effective management of fertilizer in the growing of these crops could lower atmospheric ammonia emissions from farming by up to 38%.

Latest research:
- Researchers from the Southern University of Science and Technology, Shenzhen, China and others used machine learning to model ammonia output from rice, wheat and maize agriculture worldwide on the basis of variables that include climate, soil characteristics, crop types, irrigation, tillage and fertilization practices.

- To inform the model, the researchers developed a dataset of ammonia emissions from over 2,700 observations obtained via systematic review of the published literature.

Key Observations:
- Using this model, the researchers estimate that global ammonia emission reached 4.3teragrams (4.3billion kilograms) in 2018.
- They calculated that spatially optimising fertilizer management could result in a 38% reduction in ammonia emissions from the three crops. The optimised strategy involves placing enhanced-efficiency fertilizers deeper into the soil using conventional tillage practices during the growing season.
- The researchers found that under the fertilizer management scenario, rice crops could contribute 47% of the total reduction potential, and maize and wheat could contribute 27% and 26%, respectively.
- Without any management strategies, they calculated that ammonia emissions could rise by between 4.6% to 15.8% by 2100, depending on the level of future greenhouse gas emissions.

About Ammonia:
- Ammonia (NH_3) is a highly reactive and soluble alkaline gas. It originates from both natural and anthropogenic sources, with the main source being agriculture, e.g. manures, slurries and fertiliser application.
- Excess nitrogen can cause eutrophication and acidification effects on semi-natural ecosystems, which in turn can lead to species composition changes and other deleterious effects.
- Ammonia comes from the breakdown and volatilisation of urea. Emissions and deposition vary spatially, with "emission hot-spots" associated with high-density intensive farming practices. Other agriculture-related emissions of ammonia include biomass burning or fertiliser manufacture.
- Ammonia is also emitted from a range of non-agricultural sources, such as catalytic converters in petrol cars, landfill sites, sewage works, composting of organic materials, combustion, industry and wild mammals and birds.

NITROGEN POLLUTION TO TRIPLE SCARCITY IN RIVER SUB-BASINS WORLDWIDE

Why in news?
- Water scarcity is exacerbated by declining water quality in numerous regions, and the situation is expected to worsen in the years to come.
- A recent study highlighted that an additional 40 million square kilometres of river basin area and three billion more people may face water scarcity in 2050 than previously estimated.

Nitrogen Pollution:

- A significant factor contributing to this crisis is nitrogen pollution in rivers, a concern that emerged in 2010 and is anticipated to persist until 2050.
- The global impact of future nitrogen pollution is alarming, with the number of sub-basins experiencing water scarcity expected to triple.

Clean-water scarcity:

- The study introduces the term 'clean-water scarcity' and provides a comprehensive assessment considering both water quantity and quality. This assessment, based on global nitrogen pollution and incorporating various climatic and socio-economic scenarios, reveals a more dire situation than previous evaluations.
- Comparing the clean-water scarcity assessment to the traditional water scarcity assessment based solely on quantity, the number of sub-basins facing severe scarcity doubled in 2010 and is projected to potentially triple by 2050.
- Water pollution, particularly nitrogen pollution, played a significant role in aggravating water scarcity in 2,000 sub-basins worldwide.
- In 2010, 984 sub-basins were deemed water scarce based on quantity alone, while 2,517 sub-basins faced scarcity due to both quantity and quality. This number is anticipated to increase to 3,061 sub-basins in the worst-case scenario in 2050, as outlined in the study
- When considering only water quantity, the study estimated that 45 per cent of the global population lived in areas with severe water scarcity in 2010. However, when water quality is factored in, this estimate rose to 80 per cent.
- Future clean-water scarcity hotspots were identified in China, India, Europe, North America, and potentially Central Africa in the worst-case scenario, each with unique challenges requiring targeted solutions.

Sources of nitrogen pollution:

- Nitrogen losses in rivers can stem from various sources, including human waste, agricultural practices and fertiliser applications.
- In the worst-case scenario, sewage is projected to become the dominant source of nitrogen pollution in rivers due to rapid urbanisation and inadequate wastewater treatment infrastructure.
- India, for instance, experiences nitrogen pollution primarily from agriculture in the first two climate scenarios, but sewage is projected to surpass agriculture as the main source in the worst-case scenario.
- A similar trend was observed for Africa, where both agriculture and sewage contribute to nitrogen pollution, but sewage was projected to be the main source in the worst-case scenario.

What needs to be done?

- The study underscored the urgency of addressing water quality in future water management policies to align with Sustainable Development Goals.
- In India, the State of India's Environment Report 2023 indicated a concerning deviation from the Sustainable Development Goals (SDG), particularly SDG 6 (clean water and sanitation) in 15 states.
- The impact of Shared Socioeconomic Pathways; climate change scenarios projecting global socioeconomic changes up to 2100 further emphasises the need for proactive measures.
- Mitigation strategies addressing water pollution require increased attention, as low water quality emerges as a critical or even dominant factor contributing to water scarcity in many river basins. Controlling nitrogen pollution is identified as a challenging yet imperative aspect of these strategies.

EQUITY CONCERNS IN BANNING FOSSIL FUEL EXTRACTION

Context:

- The inadequate response from governments and corporations in dealing with the issue of climate change is leading to not only a dramatic rise in climate change litigation in many parts of the world but is also resulting in growing momentum that is in favour of phasing out of fossil fuel subsidies and the banning of the extraction of fossil fuel itself.
- Momentum is also growing in favour of a Fossil Fuel Non-Proliferation Treaty.

Coal elimination treaty:

- There is a proposal in academic literature which sets out the case for a coal elimination treaty by 2030 with the aim of phasing out the mining and the burning of coal.
- The rationale behind this is linked to the Production Gap (Production Gap Report, or PGR 2023) that exists between the plans by fossil fuel producing countries to produce 110% more fossil fuels by 2030 and their incompatibility with the goal of the Paris Agreement 2015 to keep warming below 1.5° Celsius as compared to pre-industrial levels.

Phasing out fossil fuel:

- The element of phasing out fossil fuel emerged for the first time in the United Nations Framework Convention on Climate Change (UNFCCC) at COP26 in Glasgow, in 2021, which made a reference to phasing down unabated coal power and phasing out inefficient fossil fuel subsidies.
- COP28 in Dubai in 2023, in Dubai, also adopted a decision relating to the transitioning away from fossil fuels in energy systems, so as to achieve net zero emissions by 2050 in keeping with the science.
- It appears logical that to achieve the long-term temperature goal set at Paris and avert climate disruption, fossil fuel production cannot continue unabated.
- The question that remains to be answered is how to align these proposals with the anchor sheet principles of the climate change regime; the Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC) and Nationally determined contributions (NDC).

Equitable phasing out of fossil fuels:

- The UNFCCC, the Kyoto Protocol and the Paris Agreement are aimed at the reduction of greenhouse gases and removal by sinks in conformity with the CBDR-RC.
- The latter, governed by the criteria of per capita emissions, historic emissions made by a developed country party and the financial and technological resources (which a developed country commands as compared to a developing country), faces serious challenges when applied in the context of fossil fuel extraction.
- Those countries that are heavily dependent on revenues and employment in the fossil fuel sector are likely to experience serious difficulties in transitioning away from fossil fuel.
- For instance, there are countries such as Canada, the United States and the United Kingdom which are less dependent on revenues from fossil fuel, as they have a more diversified economy (non-fossil fuel income to cope with transitional costs) together with higher per capita income, and thereby greater capacity to transition away from fossil fuels.

- In contrast, there are countries such as Azerbaijan, Congo, Iraq, Nigeria, Oman, and Timor Leste that are heavily dependent on fossil fuels for government revenue and with economies that are relatively less diversified, thereby giving them limited capacity to transit. These countries cannot be expected to take the lead in phasing out fossil fuel.

International law and fossil fuel:

- In the international legal system, a state is within its rights to use natural resources lying within its territory for its economic development. But this is accompanied by a caveat not to cause significant harm to another state when a natural resource is trans-boundary in nature.
- The prevention of harm to another is a due diligence obligation, and a state has to undertake all appropriate measures in light of the magnitude of the proposed project having trans-boundary consequences.

Pulp Mills Case:

- The obligation has been largely tested in international water course situations and the International Court of Justice (ICJ, 2010) in the Pulp Mills Case described conducting trans-boundary environmental impact assessment (EIA) as part of customary international law.
- This duty is linked to a bilateral situation and its application in the context of a global commons is so far unclear, which amounts to saying that a state cannot be expected to undertake EIA for extraction of fossil fuel for its effects on the global environment other than local.
- Scholars from the West are taking a legally ill-founded plea that states are required to conduct an EIA for their fossil fuel extraction to prevent global warming.

India's situation:

- Fossil fuel continues to dominate India's power sector. Nearly 3.6 million people in 159 districts are rooted in the fossil fuel economy through direct or indirect jobs related to the coal mining and power sector.
- A country such as India, which is facing serious unemployment concerns, cannot afford to transit towards cleaner fuel without adequate transition support and creation of suitable economic opportunities and livelihoods for those affected.
- India's subsidies on kerosene oil have come under scrutiny in the West as it is found to be inconsistent with Article 2(1)(c) of the Paris Agreement and is also considered as inefficient subsidies.

Way Forward:

- In line with the CBDR-RC, India has given a clear hint of a differential time-frame at COP26 when it intervened and succeeded in toning down the language from "phasing out" to "phasing down" unabated coal.

➲ India must lean on its coalition building strategy with like-minded developing country parties in opposing the hypocrisy of developed country parties since most major fossil fuel producers plan to increase production (this includes Australia, Canada, and the U.S. (as per the PGR) while expecting developing countries to radically shift their economies, with limited support.

BIDEN GOVT. SETS TIGHTER STANDARDS FOR SOOT POLLUTION

Why in news?

➲ The U.S. administration is setting tougher standards for deadly soot pollution, saying that reducing fine particle matter from tailpipes, smokestacks and other industrial sources could prevent thousands of premature deaths a year.

➲ The new Environmental Protection Agency rule finalised as a major step in improving the health of Americans, including future generations.

➲ Industry groups warned it could lead to loss of manufacturing jobs and even shut down power plants or refineries.

Key Highlights:

➲ The rule would have $46 billion in net health benefits by 2032, including prevention of up to 800,000 asthma attacks and 4,500 premature deaths.

➲ The rule will especially benefit children, older adults and those with heart and lung conditions, as well as people in low-income and minority communities adversely affected by decades of industrial pollution.

➲ The rule sets maximum levels of 9 micrograms of fine particle pollution per cubic meter of air, down from 12 micrograms established a decade ago under the Obama administration.

➲ The rule sets an air quality level that states and counties must achieve in the coming years to reduce pollution from power plants, vehicles, industrial sites and wildfires.

➲ The rule comes as Democratic President Joe Biden seeks reelection, and some Democrats have warned that a tough soot standard could harm his chances in key industrial states such as Pennsylvania, Michigan and Wisconsin.

Concerns:

➲ The industry has used technical improvements to meet previou soot standards and will be able to adapt to meet the new standard as well. Soot pollution has declined sharply in the past two decades, even as the U.S. gross domestic product has increased by more than 50%.

➲ Significantly lowering the standard for soot emissions "would threaten or prevent modernisation projects and other major improvements to paper mills.

TRANSITIONING TO HYPERLOCAL EXTREME WEATHER FORECASTING

Context:

➲ The Department of Agriculture & Farmers Welfare and the Ministry of Agriculture & Farmers Welfare have initiated the weather information network and data system (WINDS) to generate long-term, hyperlocal weather data.

Background:

➲ In India, the Indian Meteorology Department (IMD) is the principal government agency in all matters relating to meteorology and it specialises in the incredibly complex science of predicting weather patterns by observing, modelling and interpreting a multitude of variables.

➲ However, in tropical countries like India, weather variability is inherently higher. IMD's forecasts have improved vastly in the last few years as it has upgraded to technologies similar to the ones used by the U.S., the U.K. and Japan, which are known to produce accurate forecasts.

➲ Yet, there are still many days and geographies for which Indian forecasts go wrong, especially during winter and summer monsoon.

Gaps:

➲ Lack of weather monitoring ground stations:

➲ One of the major hurdles is the lack of weather monitoring ground stations. Currently, IMD operates around 800 automatic weather stations (AWS), 1,500 automatic rain gauges (ARG) and 37 doppler weather radars (DWR).

➲ This is against the total requirements of more than 3,00,000 ground stations (AWS/ARG) and around 70 DWRs.

➲ Several Indian State governments and private companies operate a significant network of ground stations (more than 20,000), many of which are not currently used by IMD. The factors range from the inaccessibility of the data to their reliability.

Lack of new technologies:

➲ Currently, most of the prediction software used in forecasting are based on the global forecasting system and weather research and forecasting models, both of which are not the most modern.

➲ In contrast, with the government's focus on Make in India, its support to start-ups and the huge public and private investments in the sectors of agriculture and climate, many new age companies are switching to artificial intelligence/machine (AI/ML) learning for more predictions.

WINDS:

➲ A promising step forward is the weather information network and data system (WINDS) to generate long-term, hyper-local weather data.

➲ The system will also promote the data for wider applications in agriculture and other sectors, it will help in creating a national-level data base, and it will assist in establishing the protocols required to access the country-wide data by the various public and private concerns.

➲ Under this programme, more than 200,000 ground stations (AWS and ARG) will be installed, which can help in enhancing weather data utilisation and thus in improving weather predictions and decision making.

Air quality monitoring systems:

➲ Recently, large dense fog blanketed the NCR region, leading to near-zero visibility. This happens mainly because of the high particulate matter and smog in the atmosphere.

➲ Fog can trap the pollutants close to the ground, leading to an increase in respiratory and other health-related issues.

➲ Another cause for worry is that in foggy conditions, some pollutants like nitrogen oxides can react with other compounds to form secondary pollutants, thus posing severe health risks, particularly to children and the elderly.

➲ Air quality monitoring systems are currently very expensive and tend to be imported. Due to the Make in India initiatives, however, many Indian companies have started to manufacture low-cost and highly reliable sensor-based air quality monitoring systems. These are also easy to install and have low maintenance costs.

➲ Thus, it is now possible to install a large number of such instruments quickly, especially in urban areas.

The IITs are helping as well as they have started centres of excellence in this domain, with a mission to establish a nation-wide network of affordable air quality sensors.

➲ An integrated AI/ML-based model with data from the new air quality and weather sensors will be a major step forward to accurately predict fog as it will help in timely decision making around transportation and the health-related impacts of air pollution.

Way Forward:

➲ Once seamless data sharing and systems integration is achieved, India will have access to a new information gateway and one that is critical to addressing our climate and environmental challenges.

GUPTESWAR FOREST IN ODISHA DECLARED AS BIO-DIVERSITY HERITAGE SITE

Why in news?

➲ The pristine Gupteswar Forest, adjacent to Gupteswar Shiva temple in Odisha's Koraput district has been declared as the fourth Biodiversity-Heritage Site (BHS) of the state.

➲ The site is spread over 350 hectares of demarcated area. Along with its sacred grooves traditionally worshipped by the local community, the site is bestowed with a wide range of flora and fauna, the notification said.

Flora & Fauna:

➲ The biodiversity inventory and survey conducted by the Odisha Biodiversity Board shows the presence of at least 608 faunal species including 28 species of mammals, 188 species of birds, 18 species of amphibia, 48 species of reptiles, 45 species of pisces, 141 species of butterflies, 43 species of moths, 41 species of odonates, 30 species of spiders, six species of scorpion, and 20 species of lower invertebrates, it said.

➲ Significant faunal species like mugger crocodile, kanger valley rock gecko, sacred Grove Bush Frog, and avifauna like black baza, Jerdon's baza, Malaber trogon, common hill myna, white-bellied woodpecker, and banded bay cuckoo and others have also been documented.

- The limestone caves of Gupteswar are adorned with eight species of bats out of the total 16 species found in southern Odisha.
- Among them, two species Hipposideros galeritus and Rhinolophus rouxii are under the near-threatened category of the International Union for Conservation of Nature.
- This site also has a rich floral diversity embracing 182 species of trees, 76 species of shrubs, 177 species of herbs, 69 species of climbers, 14 species of orchids and threatened medicinal plants like Indian trumpet tree, Indian snakeroot, Cumbi gum tree, Garlic pear tree, Chinese fever vine, Rohituka tree, Jodpakli, Indian jointfir, a number of wild crop relatives of ginger and turmeric.

BHS in Odisha:

- Declaration of Gupteswar as BHS while boosting the cultural attachment of people with this forest will also lead to the conservation of its precious biodiversity.
- With this declaration, the state has now four BHSs. The other three are Mandasaru BHS in Kandhamala district, Mahendragiri BHS in Gajpati district, and Gandhamardan BHs in Bargarh and Bolangir districts.

Way Forward:

- The state government has asked the Odisha Biodiversity Board to prepare a long-term plan for intensive conservation and development of these sites through direct participation of the local communities.
- An amount of Rs 35 lakh has been provided for preparation of an action plan and awareness-building activities in the localities, an official said.

GREENING INDIA WASTELANDS WITH AGROFORESTRY (GROW) REPORT AND PORTAL

Why in news?

- Greening and Restoration of Wasteland with Agroforestry (GROW) report and portal was launched recently by the NITI Aayog.
- This multi-institutional effort led by NITI Aayog utilized remote sensing and GIS to assess agroforestry suitability across all districts in India.

Why it matters?

- Using thematic datasets, an Agroforestry Suitability Index (ASI) was developed for national-level prioritization. The report provides state-wise and district-wise analysis, supporting government departments and industries for greening and restoration projects.
- The "Greening and Restoration of Wasteland with Agroforestry (GROW)-Suitability Mapping" portal Bhuvan allows universal access to state and district-level data.
- Currently, agroforestry covers 8.65% of India's total geographical area, totalling about 28.42 million hectares. Current report underscores the potential benefits of converting underutilized areas, especially wastelands, for agroforestry.
- The GROW initiative aligns with national commitments, aiming to restore 26 million hectares of degraded land by 2030 and create an additional carbon sink of 2.5 to 3 billion tonnes of carbon dioxide equivalent.

Why agroforestry?

- There is need for promotion of agroforestry especially for three things i.e.
  a) reducing import of wood and wood products,
  b) carbon sequestration to combat climate change at global and national level and
  c) addressing sub-optimal use of arable land.
- Due to the significance of goods and services provided by agroforestry, the Union Budget of Government of India (FY-2022-23) has underlined the promotion of agroforestry and private forestry as a priority.
- India, the seventh-largest country globally, faces issues like increased build-up areas, degraded land, and imbalanced resources.
- Approximately 16.96% of the Total Geographical Area (TGA) is wasteland, requiring transformation for productive use. Geospatial technologies and GIS are employed to map and prioritize these wastelands for agroforestry interventions.

National Agroforestry Policy in 2014:

- India, the pioneer of the National Agroforestry Policy in 2014, aims to enhance productivity, profitability, and sustainability through this agroecological land use system. Agroforestry integrates trees, crops, and livestock, addressing food, nutrition, energy, employment, and environmental challenges.
- This aligns with global commitments like the Paris Agreement, Bonn Challenge, UN Sustainable Development Goals, United Nations Convention on Combating Desertification (UNCCD), Doubling Farmers Income, Green India Mission and more.

THE UNTAPPED POTENTIAL OF STEM CELLS IN MENSTRUAL BLOOD

Context:

- Although scientists had isolated adult stem cells from many other regenerating tissues including bone

marrow, the heart, and muscle no one had identified adult stem cells in endometrium.

The diverse fates of menstrual stem cells

SOURCE: I. UZIELIENE ET AL / STEM CELLS INTERNATIONAL 2018   KNOWABLE MAGAZINE
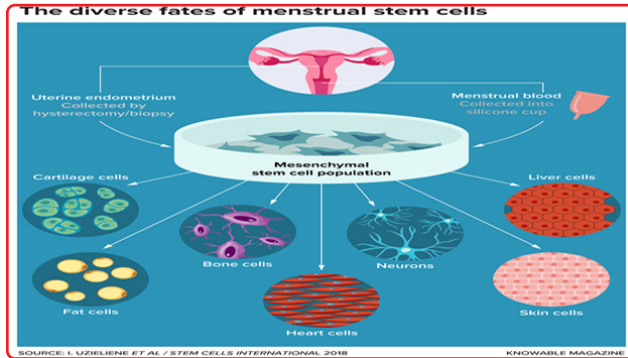
Background:

⊃ Roughly 20 years ago, a biologist named Caroline Gargett went in search of some remarkable cells in tissue that had been removed during hysterectomy surgeries. The cells came from the endometrium, which lines the inside of the uterus.

⊃ When Dr. Gargett cultured the cells in a petri dish, they looked like round clumps surrounded by a clear, pink medium.

⊃ She strongly suspected that the cells were adult stem cells; rare, self-renewing cells, some of which can give rise to many different types of tissues. She and other researchers had long hypothesised that the endometrium contained stem cells, given its remarkable capacity to regrow itself each month.

⊃ The tissue, which provides a site for an embryo to implant during pregnancy and is shed during menstruation, undergoes roughly 400 rounds of shedding and regrowth before a woman reaches menopause.

Several types of self-renewing cells:

⊃ Such cells are highly valued for their potential to repair damaged tissue and treat diseases such as cancer and heart failure.

⊃ But they exist in low numbers throughout the body, and can be tricky to obtain, requiring surgical biopsy, or extracting bone marrow with a needle.

Key observations:

⊃ Before she could claim that the cells were truly stem cells, they measured the cells' ability to proliferate and self-renew, and found that some of them could divide into about 100 cells within a week.

⊃ They also showed that the cells could indeed differentiate into endometrial tissue, and identified certain tell-tale proteins that are present in other types of stem cells.

⊃ Theywent on to characterise several types of self-renewing cells in the endometrium. But only the whiskered cells, called endometrial stromal mesenchymal stem cells, were truly "multipotent," with the ability to be coaxed into becoming fat cells,

bone cells, or even the smooth muscle cells found in organs such as the heart.

Menstrual stem cells:

⊃ Around the same time, two independent research teams made another surprising discovery: Some endometrial stromal mesenchymal stem cells could be found in menstrual blood.

⊃ More detailed studies of the endometrium have since helped to explain how a subset of these precious endometrial stem cells dubbed menstrual stem cells end up in menstrual blood.

⊃ The endometrium has a deeper basal layer that remains intact, and an upper functional layer that sloughs off during menstruation. During a single menstrual cycle, the endometrium thickens as it prepares to nourish a fertilised egg, then shrinks as the upper layer sloughs away.

⊃ Dr. Gargett's team has shown that these special stem cells are present in both the lower and upper layers of the endometrium.

⊃ The cells are typically wrapped around blood vessels in a crescent shape, where they are thought to help stimulate vessel formation and play a vital role in repairing and regenerating the upper layer of tissue that gets shed each month during menstruation.

⊃ This layer is crucial to pregnancy, providing support and nourishment for a developing embryo.

⊃ The layer, and the endometrial stem cells that prod its growth, also appears to play an important role in infertility: An embryo can't implant if the layer doesn't thicken enough.

Testing for endometriosis:

⊃ Endometrial stem cells have also been linked to endometriosis, a painful condition that affects roughly 190 million women and girls worldwide.

⊃ Although much about the condition isn't fully understood, researchers hypothesise that one contributor is the backflow of menstrual blood into a woman's fallopian tubes, the ducts that carry the egg from the ovaries into the uterus. This backward flow takes the blood into the pelvic cavity, a funnel-shaped space between the bones of the pelvis.

⊃ Endometrial stem cells that get deposited in these areas may cause endometrial-like tissue to grow outside of the uterus, leading to lesions that can cause excruciating pain, scarring and, in many cases, infertility.

⊃ Researchers are still developing a reliable, non-invasive test to diagnose endometriosis, and patients wait an average of nearly seven years before receiving a diagnosis. But studies have shown that stem cells collected from the menstrual blood of women with endometriosis have different shapes and patterns of gene expression than cells from healthy women.

Therapeutic applications:

➲ Menstrual stem cells may also have therapeutic applications. Some researchers working on mice, for example, have found that injecting menstrual stem cells into the rodents' blood can repair the damaged endometrium and improve fertility.

➲ Other research in lab animals suggests that menstrual stem cells could have therapeutic potential beyond gynaecological diseases.

➲ In a couple of studies, for example, injecting menstrual stem cells into diabetic mice stimulated regeneration of insulin-producing cells and improved blood sugar levels. In another, treating injuries with stem cells or their secretions helped heal wounds in mice.

Way Forward:

➲ Despite the relative convenience of collecting adult multipotent stem cells from menstrual blood, research exploring and utilising the stem cells' power still represents a tiny fraction of stem cell research.

➲ Through more equitable investments, menstruation will be recognised as an exciting new frontier in regenerative medicine.

THE ROLE OF X CHROMOSOME IN AUTO-IMMUNE DISEASES
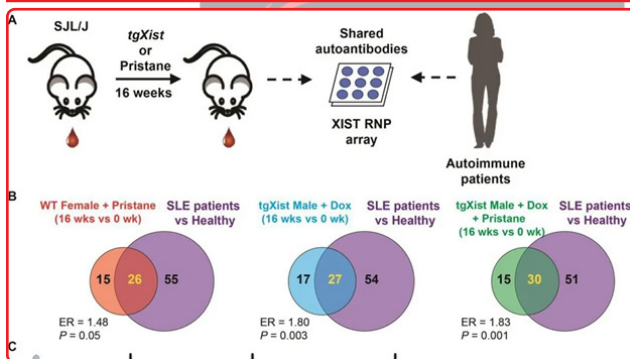
Why in news?

➲ A 2023 study by the University of Oxford stated that about 10% of the population they had studied had autoimmune diseases of which 13% were women and 7% were men.

➲ The higher susceptibility of women to autoimmune diseases has puzzled researchers for decades. Several factors can cause autoimmune disease such as environmental factors, genetics, hormonal imbalance and lifestyle habits.

➲ However, since women are more susceptible to these diseases, scientists previously thought that it could be related to sex hormones or faulty regulation of the X chromosome.

X chromosomes:

➲ Now, a group of scientists have found a molecular coating that is found in half of the X chromosomes in women might be the reason behind this phenomenon.

➲ Human females (and most mammals) contain two X chromosomes while the males of the species contain one X and one Y chromosome.

➲ The molecular coating of the X chromosome is a combination of RNA and proteins and is crucial to a process called X-chromosome inactivation which ensures that one set of X chromosomes in females remains active and functional in all the cells of the body while the other is muffled.

How is this achieved?

➲ The chromosome is wrapped in long strands of RNA called XIST that attract proteins and tamp down the expression of the gene inside.

➲ However, not all genes are muffled in this manner and the ones that escape the X inactivation process are thought to be the cause of autoimmune diseases.

➲ Not only this, the XIST molecule too has been known to elicit inflammatory immune responses.

➲ Many of the proteins that are attracted to the XIST also induced the response of autoantibodies, a type of antibody that reacts with self-antigens.

Key observations:

➲ To see if these autoantibodies attacking the XIST molecule were another reason for autoimmune diseases, they bioengineered male mice to produce a modified version of XIST which did muffle the gene expression but still retained the ability to form the RNA and proteins that covered the gene.

➲ They found that when a lupus-like disease was introduced in the mice, the ones that expressed XIST had higher levels of autoantibody levels than the ones that didn't. Their immune cells were also on higher alert which suggests a proneness to autoimmune attacks.

➲ Since XIST is expressed only in cells with two X chromosomes, women are more susceptible to autoimmune diseases and attacks.

Way Forward:

➲ Further studies in this field would help in determining exactly which XIST-related antigens contribute to sex-biased immunity resulting in expedited detection and diagnosis, the authors noted.

SEVEN CONSERVATION INITIATIVES ACROSS CONTINENTS RECOGNISED BY UN

Why in news?

➲ The United Nations named seven initiatives from across Africa, Latin America, the Mediterranean and Southeast Asia as the intergovernmental organisation's World Restoration Flagships.

➲ The projects revolve around revival and preservation of ecosystems at the tipping point of outright degradation caused by wildfires, drought, deforestation and pollution.

➲ Together, they are expected to restore about 40 million hectares and create around 500,000 jobs

The award:

➲ The award conferred by the United Nations Environment Programme (UNEP) and Food and Agriculture Organization (FAO) of the UN makes the initiatives eligible for technical and financial support from the organisation.

➲ The winning initiatives were announced ahead of the 6th session of the UN Environment Assembly, which is the world's highest-level decision-making body for matters related to the environment. It will take place from February 26-March 1, 2024 at the UNEP headquarters in Nairobi, Kenya.

➲ The awards serve as a part of the UN Decade on Ecosystem Restoration, led by the two agencies.

➲ The campaign aims to prevent, halt and reverse the degradation of ecosystems on every continent and in every ocean.

➲ The awards track notable initiatives that provide support to global commitments in order to restore one billion hectares, an area larger than China, according to the official statement made by the UN.

Projects that were honoured:

The Restoring Mediterranean Forests Initiative:

➲ It involves the countries of Lebanon, Morocco, Tunisia and Türkiye. It consists of a novel approach said to have protected and restored natural habitats and vulnerable ecosystems.

➲ It is also said to have led to around two million hectares of forests restored across the region since 2017. Along with this, over eight million hectares are planned for restoration by 2030.

The Living Indus initiative:

➲ It received approval from the Pakistan parliament in the wake of the devastating 2022 climate change-induced floods.

➲ Its official launch took place at the 27th Conference of Parties to the UN Framework Convention on Climate Change in Sharm el-Sheikh.

➲ The initiative aims to restore 25 million hectares of the river basin by 2030, encompassing 30 per cent of

Pakistan's surface area through the implementation of 25 high-impact interventions for policymakers, practitioners and civil society.

➲ It designates the Indus River as a living entity with rights; a measure taken to protect rivers elsewhere as well. It involves Australia, Bangladesh, Bolivia, Brazil, Canada, Ecuador, India, New Zealand, Peru and Sri Lanka.

The Acción Andina social movement:

➲ Led by Peruvian conservation non-profit ECOAN aims to protect and restore a forest area of one million hectares.

➲ About 25,000 people from remote Andean communities are engaged in the process to restore 5,000 hectares and protect more than 11,000 hectares of Andean forests.

➲ They are expected to benefit from the initiative by 2030 in various ways--from access to medicine, solar panels, and clean-burning clay stoves, to improved grazing management, sustainable agriculture, microbusiness, and ecotourism management of Indigenous cultures.

➲ It also works to secure land titles for local communities, protecting the forest from future mining, timber exploitation and other drivers of degradation.

The Sri Lanka Mangrove Regeneration initiative:

➲ It is a science-driven programme co-led by local communities. It focuses on the restoration of natural balance in the ecosystem.

➲ Since its launch in 2015, efforts have led to 500 hectares of restored mangroves.

The Terai Arc Landscape initiative:

➲ It aimed to restore the forests of critical corridors of the Terai Arc Landscape in collaboration with local communities working as citizen scientists, community-based anti-poaching units, forest guards, among others.

➲ Measures like the restoration of 66,800 hectares of Nepal's forests, among others, were said to improve the livelihoods of about 500,000 households in the country.

Regreening Africa's agriculture:

➲ It is expected to benefit over 6,00,000 households.

➲ It continues to increase carbon storage, boost crop and grass yields, make soil more resilient (by preventing floods) and treat it with fixed nitrogen that acts as a natural fertiliser.

Growing forests in Africa's drylands initiative:

➲ It aims to expand from 41,000 restored hectares today to 229,000 hectares by 2030.

➲ With the involvement of African farmers, tens of millions of trees are planted under the project every year.

WHAT ARE IPCC'S ASSESSMENT REPORTS?
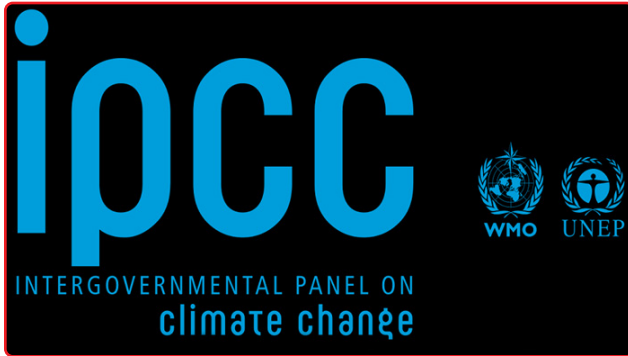
Why in news?

- Since 1988, the UN Intergovernmental Panel on Climate Change (IPCC) has produced six assessment reports, three special reports, and methodology reports that provide guidelines for estimating greenhouse gas emissions and removal.
- Three reports from the IPCC's sixth assessment cycle (AR6) were published in 2021-2022.
- These documents, prepared by scientists from the 195 countries that are part of the UN Framework Convention on Climate Change (FCCC), examine the science, consequences, adaptation, and vulnerability as well as the mitigation aspects of climate change.

What did the recent report say?

- The Sixth Assessment Report (AR6) warned that the time to limit the rise of the world's average surface temperature to 1.5 degrees Celsius from the pre-industrial era as agreed in the Paris Agreement is running out.
- It also suggested some options and strategies to slow warming, and to adapt and build resilience in natural systems, in human-made systems, and in communities.
- After the AR6 synthesis report, the IPCC initiated its seventh cycle (AR7) by electing an IPCC bureau. In January 2024, bureau members met for the first time in Turkey to discuss budgeting issues, timelines for the various reports, and the work programme.
- The recent paper emphasised a recommendation by member countries to "ensure adequate input from the IPCC is available for the second global stocktake to be concluded in 2028".

What is meant by 'global stocktake'?

- To assess the world's progress towards the goals of the Paris Agreement, UNFCCC countries conduct a 'global stocktake' (GST) every five years. The GST is a mechanism to measure collective progress, identify gaps, and chart a better course of climate action.
- The first GST started in 2022 and ended at the 28th session of the Conference of the Parties (COP28) to the UNFCCC in 2023.

- The first GST text, to which member countries agreed to at the COP28 in Dubai last year, requested the IPCC to consider ways in which its work can be aligned with subsequent stocktakes.
- The second GST is due in 2028; and member countries have requested the IPCC to publish its AR7 assessment reports before so that countries could measure their progress against the state of the planet.

What will the AR7 cycle produce?

- In Turkey, the Bureau agreed to produce the full assessment and synthesis reports, the methodology reports, and a special report. The full assessment reports will include reports from three Working Groups (as in the previous assessment cycles) plus a synthesis report.
- This decision considered the time available for significant new literature to be published, time required to run climate models, time to engage with under-represented communities, and the stress imposed on the IPCC technical support unit and the authors.
- The two methodology reports will be on short-lived climate forcers (like methane) and on carbon removal. The bureau also decided to revise the technical guidelines on impacts and adaptation.
- While countries suggested producing special reports spanning 28 topics, the bureau decided it will produce only one, on climate change and cities.

What is the timeline for reports?

- Several member countries also asked the bureau to ready the assessment reports by 2028 to coincide with the GST.
- But the bureau couldn't reach a consensus on the release date, partly due to its experience with authors and countries over the time required to review, finalise, and publish the approved texts. Each assessment report in the past has required at least four years from start to finish.
- Countries also said a shortened cycle could compromise the content as not enough new research papers may be published in the window and modelling efforts to understand the changes in climate to the full extent may also remain incomplete.
- Many member countries also said a constrained timeline would complicate engagements with individuals and institutions in under-represented countries.
- A decision on the timeline with respect to the assessment reports is pending and will be taken at the 61st session of the IPCC. However, the special and methodology reports will be published in 2027.

WHY ARE HUMAN-WILDLIFE CONFLICTS ESCALATING IN KERALA?

Context:

➲ Protests have erupted in Wayanad, Kerala after a man was killed by a herd of wild elephants, the third such death in less than a month in the district.

➲ This is the latest in a series of such incidents over the years, and has put the spotlight back on Kerala's escalating human-wildlife conflict.

Geographical aspect:

➲ Forest covers nearly 30% of Kerala's geographical area. For a relatively small State with an average width of just around 70 km and a population of more than 3.46 crore, this means numerous densely populated human settlements are located close to protected forest regions.

➲ Moreover, a large number of agricultural plantations too lie near wildlife habitats. This is especially true in the case of hilly reaches, which includes most of the heavily forested eastern part of the State.

➲ Although this situation makes human-animal conflict inevitable, in recent years, Kerala has seen a sharp increase in the number of such incidents with those living near forest fringes suffering crores of rupees worth of damage to livelihood, mostly due to frequent raids by elephants and wild boars.

What is the scale of human-animal conflict in the state?

➲ As per the State Forest department's own study, Kerala witnessed human-wildlife conflict across 1,004 areas. The study recorded over 48,000 incidents of damage to major crops between 2013-14 and 2018-19. Among the 35 forest and wildlife divisions in the State, Nilambur north (94), Wayanad south (92) and Wayanad north (70) forest ranges had the highest numbers of major conflict locations.

➲ Wild elephants were involved in the highest number of incidents in the State. Pachyderms were responsible for 14,611 incidents recorded between 2013-14 and 2018-19.

➲ Wild boars (5,518), bonnet macaques (4,405) and snakes (2,531) are the others in this category.

Elephants, bonnet macaques and wild boars have caused the most damage to farmers residing in forest fringe areas. Herbivores such as sambar, spotted deer and gaur too have contributed significantly to crop damage.

➲ A total of 814 livestock animals, including cattle, buffalo and goat, have been reported to have being killed or suffered injuries in such attacks, and tigers have preyed on 420 of these.

What are the reasons for the increase in human-wildlife conflict?

➲ Experts cite increased area under cultivation around wildlife habitats, changing cropping pattern, significant increase in the population of animals like elephants and tigers due to conservation efforts, and movement of livestock and humans in wildlife habitats during odd hours as the main reasons for the rise in human-wildlife conflict incidents.

➲ There has also been a substantial increase in the population of prolific breeders like wild boars and peacocks.

➲ However, increased number of incidents involving elephants are due to habitat depletion and fragmentation caused by human activities.

➲ Moreover, invasive alien species have reduced the availability of food and water. Monoculture of species such as eucalyptus and acacia has also adversely affected plant biodiversity.

What are the proposed solutions and why are they not effective?

➲ Elephant-proof trenches and solar power fences are widely used in Kerala, and they are considered largely effective, provided they are properly maintained.

➲ However, there are several regions where these mechanisms have not been installed. These fences are also often broken by people living nearby to let their cattle into the forests for grazing, and elephants too destroy the fences using their legs and tusks.

➲ In a ₹620-crore masterplan to address the issue, the Forest department recommends hanging power fences that will be out of reach of elephants.

➲ Moreover, as part of the State government's new eco-restoration policy, the Forest department is aiming to plant suitable indigenous plants (wild mango, wild gooseberry, and wild jackfruit) in the forest to ensure wild animals' food security and dissuade them from entering agricultural lands.

➲ Such measures need to be supplemented by creating early warning systems that can track the movement of elephants and other dangerous animals using drones and watchers, so that people can avoid going to locations where they have been spotted. However, warning mechanisms are not widely installed in Kerala.

➲ However, the above measures are not effective against wild boars. Although the Centre is yet to accept

Kerala's request to declare wild boars as vermin, the State government recently empowered local bodies to cull wild boars that pose a threat to agriculture crops or human life.

➲ The other options include capturing and neutering the boars, or relocating them to forests where there are predators like tigers and leopards.

AN INDEX FOR MONITORING EFFECTIVENESS OF CLIMATE SMART AGRICULTURE PRACTICES

Why in news?

➲ Researchers from the Indian Institute of Forest Management (IIFM) Bhopal and Solidaridad Network have developed an index for evaluating climate-smart agriculture (CSA) in India.

CSA practices:

➲ CSA practices aim to have a lower environmental footprint, are more resource efficient and support an increase in income and sustainable farm production.

➲ These include interventions like improved seeds, integrated nutrient management practices, crop residue management practices, direct seeding of rice, zero tillage farming, mulching, agroforestry.

➲ Both central and state governments have been promoting, funding and upscaling such projects and pilot studies in several states like Bihar, Haryana, Mizoram, Nagaland, Telangana, Madhya Pradesh and others through the National Adaptation Fund for Climate Change.

➲ A new research has now found empirical evidence of a strong relationship between farm productivity and CSA.

➲ The concept of CSA was first introduced by the Food and Agriculture Organization of the United Nations in 2010.

Methodology:

➲ The methodology involved selecting 34 relevant indicators from the available literature. These indicators were grouped into five dimensions.

➲ After that, a ranking exercise captured the importance of each of the selected indicators and dimensions on the nine-point ranking scale (1−9), where one is the minimum and nine is the maximum score. Assigned

ranks were used to derive the relative weight of indicators and dimensions.

➲ The five dimensions were governance, farm management practices, environment management, energy management and awareness and training.

➲ It was found that awareness and training was the highest weighted dimension, which comprises indicators like awareness of climate risks, access to weather and agro-advisory, adoption of information and communication technology tools and training on new farm management practices.

Area of study:

➲ The study was conducted in Madhya Pradesh, where the state government is piloting a CSA project in sixty villages of three districts: Satna, Sehore and Rajgarh.

➲ Farmers in these three districts are supported with a number of CSA interventions like introduction of draught-resistant seeds, integrated nutrient management, application of leaf-colour chart, agroforestry, broad bed furrow, zero tillage, crop diversification, direct seeding of rice, training on the good farm practices and crop residue management since 2017-2018.

➲ For the study, the researchers collected the field data of wheat for Rabi and rice and maize for Kharif cropping seasons in the year 2019-2020 for 315 farmers.

➲ The average landholding of the sampled farmers was 1.45 hectares (ha) in Satna, 2.77 ha in Sehore and 1.69 ha in Rajgarh districts.

Key Findings:

➲ Among the dimensions of the awareness and training indicator, timely access to weather and agro-advisory and usage / adoption of ICT-based weather advisory tools ranked the highest with the sampled beneficiaries.

➲ Although there was no significant difference among different indicators, the high rank of awareness and training suggested that training on smart practices is the most crucial aspect for considering the adoption and implementation of CSA practices.

➲ The study found that the involvement of farmers in such activities also enhances the ownership and strong commitment to undertake these resilient agriculture practices. Training impacted the farm business, increased awareness of possible innovation and improved decision-making and allocation of resources.

➲ The study is significant for across regions as the three districts identified for it are located in three different agro-climatic zones.

Way Forward:

➲ With the global population expected to reach 10 billion by 2050 and with an increase in global warming adversely impacting livelihood, food productivity, agricultural systems, water availability and global

economy, the current agricultural practices will need to be transformed by adopting more resource-efficient, sustainable and environment-friendly practices, with lower greenhouse gas emissions to combat climate change.

SCIENCE & TECHNOLOGY

SCIENTISTS FUSE BRAIN-LIKE TISSUE WITH ELECTRONICS TO MAKE COMPUTER
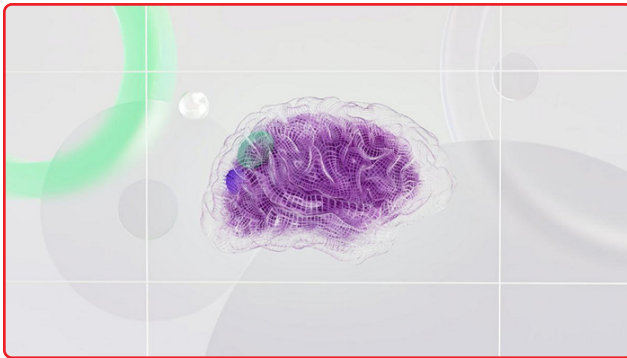
Why in news?

➲ Scientists have fused brain-like tissue with electronics to make an 'organoid neural network' that can recognise voices and solve a complex mathematical problem.

➲ Their invention extends neuromorphic computing, the practice of modelling computers after the human brain to a new level by directly including brain tissue in a computer.

Details:

➲ The system was developed by a team of researchers from Indiana University, Bloomington; the University of Cincinnati and Cincinnati Children's Hospital Medical Centre, Cincinnati; and the University of Florida, Gainesville.

➲ The study marks a significant advance in multiple areas of science and engineering. It opens possibilities at the intersection of tissue engineering, electrophysiology, and neural computationd.

➲ The work comes against the backdrop of the staggering rise of artificial intelligence (AI), itself founded on the development of artificial neural networks that can process large datasets that conventional computers struggle with.

Challenges:

➲ The hardware on which these neural networks run has a problem, however: the memory units and the data processing units are separate. When a neural network operates, the network will have to access the data in the memory unit, bring it over to the processing unit, and work on it and it needs to do this many times over.

➲ If the problem is more complex, the time and energy demands increase further because the system will have to go back and forth between these units even more.

➲ Scientists have tried to build more efficient neuromorphic chips that include some short-term memory, so they can avoid going back and forth just a bit. These chips have been used for applications like computer vision and speech recognition.

Organoid neural network:

➲ This new area of research, called biocomputing, uses biological components to perform computational processes.

➲ In 2023, a group of researchers from Australia cultured brain cells and trained them to play pong (a table-tennis-like videogame), in the process demonstrating the initial steps of long-term training.

➲ In the new study, the U.S. researchers used actual brain organoids to make an 'organoid neural network' and tested it to recognise speech and solve a complex mathematical problem.

➲ Brain organoids are three-dimensional aggregates of brain cells. The scientists made them by extracting human pluripotent stem cells, which are cells that can develop to become almost any kind of cell within the human body, and made them into brain cells.

➲ Brain organoids that are aggregates of such cells have a mix of the different types of cells in the brain. In this case, they were neuron progenitor cells, early-stage neurons, mature neurons, and astrocytes (cells that maintain and protect neurons).

A three-layered computer:

➲ The team connected the brain organoid to an array of microelectrodes to form an organoid neural network, a type of artificial neural network containing a live organoid. The team then built this network into a system called a reservoir computer.

➲ This machine contains three 'layers': input, reservoir, and output.

➲ The input signals are routed to a reservoir, which is a black box whose purpose is to convert the signals into mathematical entities that the computer can 'work on' to find solutions. The output is a simple readout from the reservoir.

➲ In this system, which the team calls 'Brainoware', the reservoir was the organoid neural network. It received inputs from the input layer in the form of electrical stimulation.

➲ The output layer was 'normal' computer hardware that had been modified to recognise Brainoware's neural activity.

Performance:

➲ The researchers demonstrated Brainoware's abilities by predicting a Henon map, a mathematical function that draws a curve on a graph that can be chaotic or not depending on the values of two variables.

➲ Brainoware could also tell which Japanese vowel an individual was voicing after 'learning' from 240 audio clips from eight speakers, over just two days. Its accuracy in the latter task was 78%, and without any external feedback on whether its inferences while learning were right or wrong.

➲ Brainoware was more accurate than artificial neural networks that lacked a short-term memory unit but slightly less accurate than those with one. But it achieved this comparable accuracy with less than a tenth of the training the artificial neural networks required.

Way Forward:

➲ Their system still has some limitations that the researchers have also acknowledged, but it's a start.

➲ Running Brainoware requires technical expertise and infrastructure to maintain a biological neural network. Organoids form a relatively heterogeneous mix of cell types, so not all organoids function the same way. But efforts are underway to achieve more uniform cell mixes.

THE IMPORTANCE OF KEEPING PERSONALLY IDENTIFIABLE INFORMATION SAFE
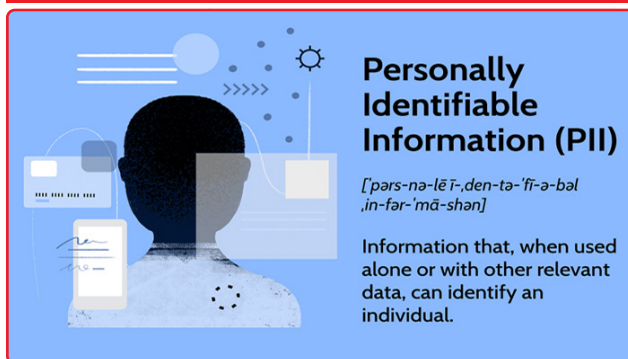
Why in news?

➲ Recently, the Ministry of Corporate Affairs fixed a critical vulnerability in its online portal months after a cybersecurity researcher reported it to the Computer Emergency Response Team of India (CERT-In).

➲ The vulnerability reportedly exposed personal details like Aadhaar, PAN, voter identity, passport, date of birth, contact number and address of more than 98 lakh directors of Indian companies.

➲ The vulnerability also exposed the personal data of top industrialists, celebrities, and sports personalities in the country.

What is Personally Identifiable Information?

➲ Personally Identifiable Information (PII) is any data or information maintained by an organisation or agency that can potentially be used to identify a specific individual. This could include information such as Aadhaar, PAN, voter identity, passport, date of birth, contact number, communication address, and biometric information.

➲ The constituents of PII vary depending on an individual's home country. However, non-PII in tandem with additional information can be used to identify an individual.

➲ Non-PII information includes photographic images (especially of the face or other identifying characteristics), place of birth, religion, geographic indicators, employment information, educational qualifications, and medical records.

➲ All this information can be used to identify individuals accurately. And while access to one set of PII may be enough to compromise online security, access to multiple databases can be used to identify and target individuals.

What is the difference between sensitive and non-sensitive PII?

➲ Non-sensitive PII is publicly available information and can be stored and transmitted unencrypted. This includes information such as zip code, race, gender, and religion. They cannot be used to accurately identify an individual.

➲ Sensitive PII, when exposed, can be used to identify individuals and potentially cause harm. Some of the most important components that constitute sensitive PII are stored by employers, government organisations, banks, and other digital accounts used by individuals.

What are the risks of PII exposure?

➲ Cyberattacks and weaknesses in digital infrastructure can lead to the exposure of citizens' PII. Threat actors can gain access to exposed PII and misuse it to launch targeted attacks on individuals.

➲ These attacks could range from phishing attacks with messages curated with PII information, to fraudulently opening bank accounts, and siphoning funds from accounts allotted to beneficiaries of government welfare programmes.

➲ Threat actors may also use such information to obtain cellular connections, credit cards, and compromise the security of an individual's digital accounts. Threat actors are also known to sell exposed PII information on the dark web.

What are the recent events where PII was compromised?

➲ In 2023, reports emerged that a bot on Telegram was returning the personal data of Indian citizens who registered with the COVID-19 vaccine intelligence network (CoWIN) portal for vaccination purposes.

➲ A similar data breach was reported when an American cybersecurity company said that the PII of 815 million Indian citizens, including Aadhaar numbers and passport details, were being sold on the dark web. A data breach was also reported in the RailYatri platform in January 2023.

➲ Additionally, 67% of Indian government and essential services organisations experienced over a 50% increase in disruptive cyberattacks.

BHARATIYA ANTARIKSHA STATION

Generative AI by Rahul Gupta

INDIA TODAY

Why in news?

➲ Recently, Indian Prime Minister sparked India's ambition with the proposal of a Bhartiya Antariksha Station (BAS).

➲ The station is aimed at orbiting 400 km above Earth, hosting astronauts for up to 20 days starting in 2035.

➲ This vision is part of ISRO's grand plan, which includes mastering human spaceflight, building station modules, and eventually landing humans on the Moon by 2040.

Why does India need a space station?

➲ A permanent space station will help establish a microgravity laboratory for research in physics, materials science, and life sciences.

➲ Crystal growth and fluid behaviour experiments in microgravity can yield practical applications in manufacturing and pharmaceuticals. The station will help drive technological innovation, particularly in robotics and life support systems. This progress will further enhance India's human spaceflight capabilities by providing crucial data on the effects of prolonged space travel.

➲ Beyond scientific benefits, the station will fuel economic growth by generating employment and stimulating R&D initiatives. The development of space-related infrastructure will contribute to India's economic trajectory.

➲ The space program will also help the military prowess of the nation. Although India does not have a declared space policy document, official statements in the Parliament, and the United Nations indicate a much-needed military orientation.

➲ The armed forces have used the GSAT-7 advanced satellites to meet the communication needs, but the BAS will provide far more significant strategic advances, enabling enhanced border surveillance and reconnaissance.

➲ India's close collaboration with experienced spacefaring nations like the United States and Russia offers invaluable benefits. By sharing technological expertise and leveraging combined resources significant cost reductions can be achieved.

➲ US' willingness to support India's construction of a commercial space station is a testament to the growing space partnership.

➲ India's active involvement in space initiatives reflects a deeper commitment to the principles of pragmatic space exploration. Through these endeavors, a new generation of scientists, engineers, and researchers, will develop a passion for discovery and innovation.

➲ Such a value extends far beyond the boundaries of space science, fostering a broader interest in STEM disciplines. But establishing a space station is no easy task.

The challenges ahead:

➲ Currently, China is the only country with its own self-built Tiangong Space Station.

➲ The International Space Station (ISS) is a collaborative effort between a dozen countries and took a decade to assemble. By 2030, even the ISS will be decommissioned and will fall back to earth.

➲ If India is to launch a space station by 2035, it will have to heavily rely on diplomacy for both collaboration and potential geopolitical implications.

➲ The other issue is the huge costs of building, and keeping the space station functional and safe. ISS has a price tag of $150 billion, the most expensive human project ever built. The Chinese Tiangong Space Station was built for $8.5 billion.

➲ If India needs to successfully build its own Space Station, there is need to be prepared for an annual allocation of Rs. 5,000 crore just for this project over the next decade. To assist in some of these estimated costs, the budget 2024 has allocated Rs. 13,042 crores ($1.5 billion) which will help in aiding preparations for both the manned spaceflight - the Gaganyaan mission and, eventually, the BAS.

Conclusion:

➲ India will thus need to strike a balance between developmental requirements and significant security concerns, crucial for its ambition to establish itself as a new space power.

➲ In the 21st century's new space race, the focus is on science, politics, and low-cost innovation. The recent success of the Chandrayaan-3 and Aditya L1 has given India a lead in the new geopolitics of space.

➲ With Russia facing isolation after its invasion of Ukraine and the US and Europe struggling to find resources to fund their respective space missions, a space-based competition between India and China looms.

➲ The two rival neighbours hold the key to taking the lead in the realm outside the boundaries of Earth, influencing the future for decades to come.

NASA LAUNCHES PACE TO STUDY EARTH'S OCEANS, ATMOSPHERE AS PLANET WARMS
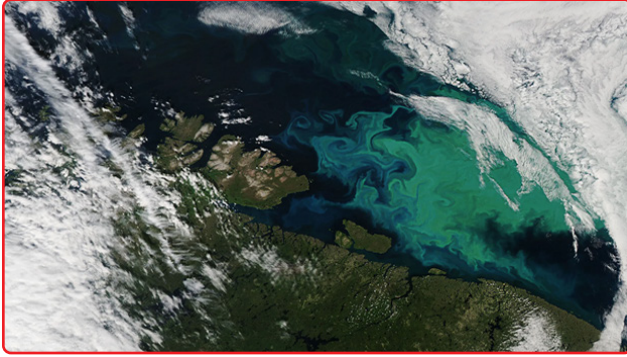
Why in news?

- Nasa's Plankton, Aerosol, Cloud, ocean Ecosystem (PACE) mission soared into orbit aboard a SpaceX Falcon 9 rocket from the Space Launch Complex 40 at Cape Canaveral Space Force Station in Florida recently.
- The PACE mission is a step forward in the study of Earth's oceans, air quality, and climate change.

Instruments onboard:

- The satellite's hyperspectral ocean color instrument will allow researchers to measure oceans and other waterbodies across a spectrum of ultraviolet, visible, and near-infrared light.
- This will enable scientists to track the distribution of phytoplankton and identify which communities of these organisms are present on daily, global scales.
- Scientists and coastal resource managers can use the data to help forecast the health of fisheries, track harmful algal blooms, and identify changes in the marine environment.
- The spacecraft also carries two polarimeter instruments, Hyper-Angular Rainbow Polarimeter #2 and Spectro-polarimeter for Planetary Exploration.
- These will detect how sunlight interacts with particles in the atmosphere, giving researchers new information on atmospheric aerosols and cloud properties, as well as air quality at local, regional, and global scales.
- With the combination of the instrument and the polarimeters, PACE will provide insights into the interactions of the ocean and atmosphere, and how a changing climate affects these interactions.

Significance:

- Earth's oceans are responding in many ways to climate change from sea level rise to marine heat waves to a loss of biodiversity.
- With PACE, researchers will be able to study climate change's effects on phytoplankton, which play a key role in the global carbon cycle by absorbing carbon dioxide from the atmosphere and converting it into their cellular material.

- These tiny organisms drive larger aquatic and global ecosystems that provide critical resources for food security, recreation, and the economy.
- This data is vital for forecasting the health of fisheries, tracking harmful algal blooms, and detecting marine environmental changes.

ISRO BLACK HOLE MISSION XPOSAT BEGINS ACTIVE OBSERVATION

Why in news?

- The Indian Space Research Organisation (ISRO) has achieved a significant milestone with its X-ray Polarimeter Satellite (XPoSat) as the POLIX instrument onboard has commenced active observations.
- The primary focus of these observations was the Crab Pulsar, a highly studied celestial object known for its intense radiation and rapid rotation.

POLIX:

- POLIX, which stands for Polarimeter Instrument in X-rays, was indigenously designed and developed by the Raman Research Institute (RRI) in Bangalore, with substantial support from various industry partners.
- This instrument is crucial for the XPoSat mission, as it is expected to measure the polarisation parameters of medium-energy X-rays ranging from 8 to 30 keV emanating from astronomical sources.
- The successful validation of the pulse profile of the Crab Pulsar through POLIX's observations confirmed the instrument's functionality and precision.

Crab Pulsar:

- The Crab Pulsar, the central star in the Crab Nebula, is a neutron star that emits beams of radiation detectable from Earth, much like a cosmic lighthouse.
- It spins at an astonishing rate of about 30 rotations per second, making it one of the most fascinating objects for astrophysical studies.

XPoSat's mission:

- XPoSat's mission is to enhance understanding of the dynamics of bright astronomical X-ray sources under extreme conditions.
- Alongside POLIX, the mission carries another scientific payload, XSPECT, which provides spectroscopic information and timing in soft X-rays.

➲ Together, these instruments will observe various celestial phenomena, including black holes, neutron stars, and active galactic nuclei, over the planned five-year lifetime of the mission.

Way Forward:

➲ The commencement of POLIX's active observation phase marks a significant step forward for India's first dedicated polarimetry mission.

➲ The data collected will help unravel the complexities of emission mechanisms from astronomical sources and contribute to the global scientific community's efforts to understand the universe's high-energy processes.

INDIA'S ASTROSAT UNRAVELS BLACK HOLE SECRETS LIKE NEVER BEFORE
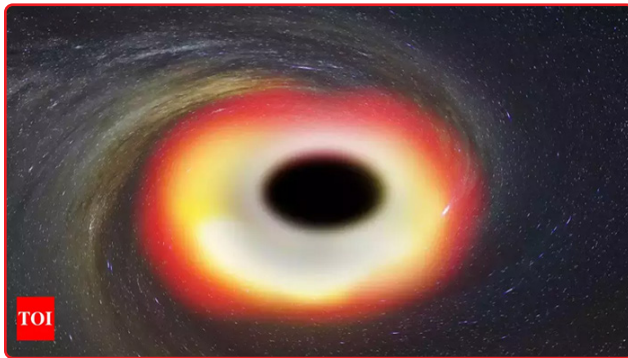
Why in news?

➲ In a new study, an international team of scientists has used India's AstroSat's full multi-wavelength capabilities to unravel the mysteries of an X-ray binary system hosting a black hole.

X-ray binary system:

➲ An X-ray binary system is a type of binary star system consisting of two celestial objects: a compact object, typically a neutron star or a black hole, and a normal star, often a companion star.

➲ The term "X-ray binary" arises because these systems emit a significant amount of X-ray radiation.

Details:

➲ AstroSat, equipped with three X-ray payloads and a UV telescope, captured soft and hard X-ray emissions and far ultraviolet radiation, painting a comprehensive portrait of the black hole in the X-ray binary system MAXI J1820+070.

➲ This marks a historic achievement for AstroSat, showcasing the first utilisation of its full multi-wavelength capabilities.

➲ The collaborative effort includes researchers from India, the United Kingdom, Abu Dhabi, and Poland.

Black hole X-ray binaries:

➲ Black hole X-ray binaries involve a stellar-mass black hole and a companion star engaged in complex gravitational interactions.

➲ The black hole's powerful gravitational pull draws in vast amounts of stellar material from its luminous counterpart, releasing energy primarily in X-rays.

MAXI J1820+070:

➲ MAXI J1820+070, a transient black hole X-ray binary located approximately 9,800 light-years away, gained attention in 2018 during its outburst, becoming the second brightest object in the X-ray sky.

➲ Accreting black holes in transient X-ray binaries emit electromagnetic radiation across a broad energy spectrum, spanning radio waves to X-rays.

➲ This study focused on the 2018 outburst of MAXI J1820+070, combining AstroSat's UV, soft and hard X-ray data with observations from Las Cumbres Observatory and NASA's NICER mission.

➲ The research uncovered the inner accretion disk's significant recession from the black hole during the hard state, forming a structured corona with distinct components.

➲ In contrast, the soft state saw the disk moving closer to the black hole, while the corona's emission diminished.

Observations made:

➲ AstroSat's Soft X-ray Telescope (SXT), Large Area X-ray Proportional Counter (LAXPC), and Cadmium Zinc Telluride Imager (CZTI) played crucial roles in understanding the system's accretion geometry.

➲ The study also measured the black hole's spin, revealing it to be moderately to highly spinning.

➲ Additionally, a captivating connection between X-ray emission near the black hole and optical/UV emission from the outer accretion disk was unveiled.

Way Forward:

➲ The researchers found substantial reprocessing of X-rays in the outer disk, indicating a higher proportion in the hard state and suggesting the presence of a warped or convex outer disk.

ISRO SUCCESSFULLY LAUNCHES WEATHER SATELLITE INSAT-3DS

Why in news?

➲ The Indian Space Research Organisation (ISRO) successfully launched the INSAT-3DS mission into

space aboard the heavy-lift Geosynchronous Satellite Launch Vehicle Mk-II (GSLV-MkII).

⮕ The mission, designed to operate in space for 10 years, aims to boost India's environment monitoring, oceanic observations, weather forecasting, and disaster relief operations.

⮕ It took off from the Satish Dhawan Space Centre in Sriharikota.

What is INSAT-3DS?

⮕ The INSAT-3DS, a state-of-the-art meteorological satellite, is the latest addition to India's third-generation satellites in geostationary orbit.

⮕ It follows the successful deployment of its predecessors, INSAT-3D and INSAT-3DR, which have been instrumental in enhancing weather observation and analysis since their respective launches, with INSAT-3DR having been operational since September 2016.

Instruments Onboard:

⮕ The satellite is equipped with a multi-spectral Imager (optical radiometer) capable of capturing images of the Earth and its surroundings in six distinct wavelength bands.

⮕ INSAT-3DS features a robust Sounder payload with a total of 19 channels, including one Visible channel and eighteen narrow spectral channels. The Sounder payload is designed to provide vital information about the vertical profiles of the atmosphere, covering aspects such as temperature, humidity, and more.

⮕ The satellite is also equipped with a Data Relay Transponder (DRT) that plays a crucial role in receiving meteorological, hydrological, and oceanographic data from automatic Data collection platforms/Automatic Weather Stations (AWS) worldwide. The DRT then relays this valuable information back to user terminals, ensuring efficient global data dissemination.

⮕ A Satellite-aided Search and Rescue (SA&SR) transponder designed to relay distress signals and alert detections from beacon transmitters has also been sent with the spacecraft. This capability significantly enhances Search and Rescue operations, providing global coverage in the UHF band.

Significance:

⮕ The satellite's primary objectives are multifaceted and crucial for environmental monitoring and safety. It is equipped to monitor the Earth's surface and carry out oceanic observations in various spectral channels that are vital for meteorological analysis.

⮕ The 2274-kilogram INSAT-3DS satellite is equipped with advanced payloads designed to provide more accurate and timely data on atmospheric conditions.

⮕ This enhancement in meteorological services is expected to significantly benefit various sectors, including agriculture, aviation, and disaster management, by enabling better preparedness for weather-related challenges.

⮕ It will provide vertical profiles of atmospheric parameters such as temperature and humidity, which are essential for accurate weather predictions.

Way Forward:

⮕ Data Collection Platforms (DCPs) will benefit from the satellite's data collection and dissemination capabilities, enhancing the reach and efficiency of information gathering.

⮕ Moreover, the INSAT-3DS will offer Satellite Aided Search and Rescue services, contributing to emergency response efforts.

WHAT OUR ANCESTORS GENOMES CAN TELL US ABOUT MODERN HEALTH
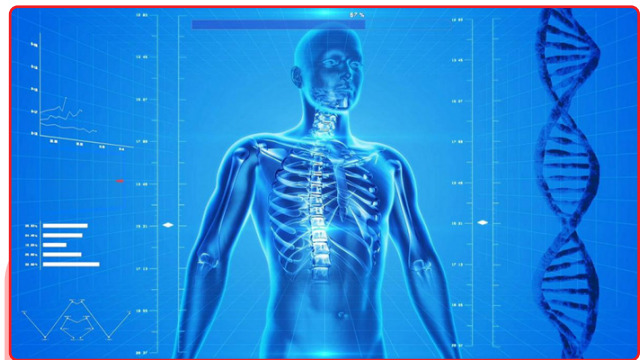
Context:

⮕ Ancient DNA (aDNA) studies powered by cutting-edge genomic techniques have opened a window into the past, providing unprecedented insights into the genetic makeup of our ancestors.

⮕ And by extracting and analysing DNA from ancient skeletal remains, scientists can reconstruct the genetic profiles of these people.

Details:

⮕ Studies of such ancestral DNA have provided glimpses into the genetic diversity and population dynamics of ancient communities, their migration patterns, interactions, and adaptations to local environments, and even into the diseases these people confronted and how the afflictions shaped human evolution.

⮕ For example, genomic technologies have given researchers a way to understand pathogens that spread in the distant past, and trace their origins and evolutionary trajectories.

⮕ By reconstructing the genomes of these lifeforms, they have been able to piece together the emergence, spread, and adaptation of infectious diseases throughout human history.

Ancestral DNA and health:

⮕ In a number of recent papers, researchers have also reported being able to use sequences of aDNA to understand genetic diseases that may have affected

ancient humans, and through that open windows onto the medicines and tools that early human communities used.

- For example, some of the more common genetic diseases are the result of chromosomal abnormalities. Many chromosomal abnormalities result in chromosome number changes – that is, extra copies or deletions of entire chromosomes resulting in different clinical syndromes.

- For example Down's syndrome is caused by an extra chromosome 21; Klinefelter's syndrome due to an extra X chromosome; and Turner syndrome by the loss of one of the two X chromosomes in women.

Chromosomal karyotyping:

- Chromosomal karyotyping is a method to visualise the complete set of chromosomes in a cell, and is among the best techniques to diagnose such abnormalities. However, karyotyping requires live cells, which in turn requires scientists to adopt laborious methods to culture and stain them.

- The scientists today can fortunately use whole-genome sequencing data from fragmented and/ or degraded DNA to understand chromosomal abnormalities. Scientists have since adopted these approaches to study chromosomal abnormalities in aDNA as well.

- For example, recently researchers at the Francis Crick Institute in London published evidence of some of the earliest known instances of Turner syndrome, Kinefelter's syndrome, and Down's syndrome in aDNA dating from the Iron age in Britain.

- Similarly, a research group from Italy, Germany, and the U.S. reported an interesting analysis of genetic variants associated with cardiovascular diseases in modern humans.

- They studied DNA isolated from 22 mummified individuals from a variety of geographical regions and time periods. Some 17 samples from ancient Egypt were dated to 3600 BC whereas those from Bolivia, Peru, Switzerland, and Australia were from 1500-1900 AD.

- In all, the scientists said they believe cardiovascular disease has been widespread in human populations for at least 5,000 years.

Linking ancestral DNA to diets:

- Insights into the lifestyles of ancient humans can also be gleaned from their genetic remains. One such material is pitch from the birch tree. There is some evidence that ancient humans extensively used birch pitch to repair stone tools and possibly fix arrowheads. Microbes from the pitch sample can thus reveal information about the oral health of the individuals who chewed it.

- For example, scientists from Finland, Norway, Sweden, and Turkey analysed DNA from three pieces

of chewed pitch estimated to be around 9,500 years old, obtained from a site in Sweden.

- Upon sequencing the pitch samples, the scientists identified organisms associated with the sort of imbalance of microbial species observed in people with inflamed gums (periodontitis). The team also matched DNA with a number of plant and animal species, hinting at the ancient people's diet.

What else can ancestral DNA reveal?

- Studies of aDNA could also provide big clues about the creation and development of stone tools. In the 1930s, for instance, researchers dug a cave in Ranis, Germany, where they identified a number of ancient stone tools.

- This site was believed to have been occupied by an old human population, from around 50,000 years ago, when modern humans, neanderthals, and denisovans coexisted. So the question was who actually made these tools.

- A tide of interest in this question prompted archaeologists to re-excavate the cave more recently, when they found several bone remains.

- When they sequenced genetic material from these bones using high-throughput sequencing, the DNA sequences they found unequivocally pointed in the direction of Homo sapiens. When they dated the samples using radiocarbon dating, the samples were found to be some 45,000 years old.

WHY OPENAI'S NEW VIDEO GENERATOR, SORA, IS MAKING A SPLASH
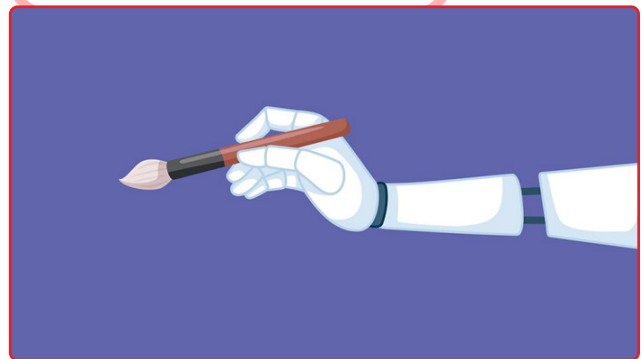
Context:

- OpenAI is in the spotlight again. This time, for building an artificial intelligence (AI) model that can create near flawless one-minute-long videos based on text prompt.

- The video creation AI model, called Sora, is trained on videos and images of various durations, resolutions, and aspect ratios to generate crisp, clear, and photorealistic output.

- While generating videos from texts aren't new, Sora's achievement dwarfs Meta's Make-a-Video and Google's recently announced Lumiere text-to-video

tools. Unlike the output from Meta's, Google's, or other earlier AI video tools, Sora provides studio-grade final product.

What is Sora and what can it do?

⮑ Sora in Japanese means sky, an imagery that evokes 'limitless creative potential,' per the company's engineering team. This new diffusion-based AI model is built on the foundation of transformer architecture, similar to large language models like ChatGPT.

⮑ It can create images and videos with near-accuracy on a given subject. It can construct a video from an image and also fill gaps in existing video clips.

⮑ Diffusion models are used to generate high-quality images and videos. They are named after the physical diffusion process in which molecules move from high-concentration to low-concentration zones. In machine learning, these models generate new data by reversing the diffusion process.

⮑ The simple idea here is to add noise to data and then reverse the visual data back to its original state by filtering out the noise.

How good is Sora's output?

⮑ The video clips generated by Sora are so photorealistic that they will stun anyone who looks at them for the first time. It is a top-class AI-based image generator. But a closer look reveals there is work to be done in object tracking.

⮑ While OpenAI claims Sora can handle occlusion, a term in computer vision for objects disappearing when two or more of them come too close to each other, the text-to-video model does suffer from this limitation to an extent.

⮑ For instance, in one of the clips shared by the Microsoft-backed company, people in the background disappear when the focus moves past a couple walking.

⮑ Sora is not available to the public yet. The videos were handpicked by OpenAI so they may not be indicative of the tool's average output. OpenAI plans to start sharing the model with third-party testers to receive feedback to improve the model.

What about the training data?

⮑ OpenAI's achievement through Sora is monumental and it will disrupt video creation and gaming industries. But the critical question on most people's minds is on what visual data was Sora trained.

⮑ Speculation is rife that the video generation tool was trained on data from game engines, movies, documentaries, YouTube videos, and possibly videos scraped from every corner of the web.

⮑ The question of whether companies like OpenAI using unauthorised material scraped from the web to train AI violates copyright law is yet to be addressed by the courts.

⮑ Tech firms claim they are protected by the copyright's fair use doctrine and that lawsuits against them will stifle a growing AI industry.

What about misinformation?

⮑ Photorealistic video generation capabilities are worrying considering the burgeoning misuse of generative AI tools to spread misinformation. This is possibly the reason why OpenAI took the red-teaming route ahead of its public launch.

⮑ Sora already has a filter that will block prompt requests that mention violent, sexual, or hateful language, as well as images of well-known personalities.

⮑ A second filter will check frames of generated videos and block content that violates the company's safety guidelines.

⮑ Sora uses a fake-image detector developed for DALL.E 3, but given the industriousness of bad actors, none of these steps are watertight.

UNION CABINET APPROVES 100 PERCENT FDI IN SPACE SECTOR

Why in news?

⮑ The Union Cabinet recently approved the amendment in Foreign Direct Investment (FDI) policy on space sector. Now, the satellites sub-sector has been divided into three different activities with defined limits for foreign investment in each such sector.

Indian Space Policy 2023:

⮑ The Indian Space Policy 2023 was notified as an overarching, composite and dynamic framework to implement the vision for unlocking India's potential in Space sector through enhanced private participation. The said policy aims to

➢ augment space capabilities;

➢ develop a flourishing commercial presence in space;

➢ use space as a driver of technology development and derived benefits in allied areas;

➢ pursue international relations and

➢ create an ecosystem for effective implementation of space applications among all stakeholders.

FDI permission:

⮑ As per the existing FDI policy, FDI is permitted in establishment and operation of Satellites through the Government approval route only.

- In line with the vision and strategy under the Indian Space Policy 2023, the Union Cabinet has eased the FDI policy on Space sector by prescribing liberalized FDI thresholds for various sub-sectors/activities.
- The proposed reforms seek to liberalize the FDI policy provisions in space sector by prescribing liberalized entry route and providing clarity for FDI in Satellites, Launch Vehicles and associated systems or subsystems, Creation of Spaceports for launching and receiving Spacecraft and manufacturing of space related components and systems.

Benefits:

- Under the amended FDI policy, 100% FDI is allowed in space sector. The liberalized entry routes under the amended policy are aimed to attract potential investors to invest in Indian companies in space.
- The entry route for the various activities under the amended policy are as follows:
  a) Upto 74% under Automatic route: Satellites-Manufacturing & Operation, Satellite Data Products and Ground Segment & User Segment. Beyond 74% these activities are under government route.
  b) Upto 49% under Automatic route: Launch Vehicles and associated systems or subsystems, Creation of Spaceports for launching and receiving Spacecraft. Beyond 49% these activities are under government route.
  c) Upto 100% under Automatic route: Manufacturing of components and systems/ sub-systems for satellites, ground segment and user segment.

Way Forward:

- This increased private sector participation would help to generate employment, enable modern technology absorption and make the sector self-reliant. It is expected to integrate Indian companies into global value chains.
- With this, companies will be able to set up their manufacturing facilities within the country duly encouraging 'Make In India (MII)' and 'Atmanirbhar Bharat' initiatives of the Government.

SECI UNVEILS INDIA'S LARGEST SOLAR-BATTERY PROJECT

Why in news?

- The Solar Energy Corporation of India Limited (SECI), under the aegis of the Ministry of New and Renewable Energy, has successfully commissioned India's largest Battery Energy Storage System (BESS), which stores energy using solar energy.

Details:

- The 40 megawatts (MW) / 120MWh BESS with a solar photovoltaic (PV) plant which has an installed capacity of 152.325 megawatt hour (MWh) and dispatchable capacity of 100MW AC (155.02 MW peak DC) is located in Rajnandgaon, Chhattisgarh.
- The energy would be purchased by the state of Chhattisgarh, thus contributing to meeting the peak energy demand of the state using green electrons and also towards its renewable purchase obligations.

Key Highlights:

- The project using solar panels and battery storage represents a monumental leap forward in generation and use of renewable energy.
- The project utilizes battery storage for storing solar energy when the sun is shining and using it later during hours of peak demand in the evening, for meeting the electricity demand in the state.
- The project has deployed bifacial modules, which reflect the light from the ground, thus generating more electricity than monofacial modules, hence setting a new standard for large-scale renewable energy projects.

Use of wasteland:

- A unique aspect of this project is its strategic use of previously unused land.
- Through a tripartite land-use permission agreement among the Energy Department of the Government of Chhattisgarh, Chhattisgarh State Power Distribution Company Limited (CSPDCL), and SECI, 451 acres of waste land across 9 villages in Tehsil Dongargarh and Dongargaon, District Rajnandgaon, Chhattisgarh, have been repurposed.

Prospects:

- The project ensures overall power stability and reliability by ensuring an efficient evacuation of power through a 132 kilo-volt (kV) double-circuit double-string transmission line to Chhattisgarh State Power Transmission Company Limited's (CSPTCL) 220/132 kilovolt (kV) Thelkadih substation, facilitating seamless integration into the existing power grid.
- This project is estimated to save tonnes of carbon dioxide emissions annually.
- SECI's long-term power purchase agreement with the state electricity distribution company (CSPDCL) underscores the economic viability of the project and support for such renewable energy endeavours.

Funding:

- The project has been constructed with funding from the World Bank and Clean Technology Fund under Innovation in Solar Power & Hybrid Technologies Projectas well as leveraged financing from domestic lending agencies.
- This further highlights the collaborative efforts to drive sustainable financial arrangements, making the project commercially attractive and viable.

Way Forward:

- This project is expected to have a far-reaching positive impact on the renewable energy landscape and in promoting responsible utilization of land resources in India and globally.

AHEAD OF GAGANYAAN, ISRO CE 20 ENGINE ALREADY HAS A NOTABLE LEGACY

Why in news?

- Recently, the Indian Space Research Organisation (ISRO) had successfully completed human-rating the CE-20 rocket engine ahead of its use to launch an Indian astronaut to space onboard an Indian rocket.

CE-20:

- The CE-20 is an indigenous cryogenic engine ISRO developed to use with the GSLV Mk III, now called the LVM-3, launch vehicle.
- It represents an improvement on the CE-7.5 cryogenic engine and is instrumental to ISRO successfully realising its human spaceflight, a.k.a. Gaganyaan, mission.

Fuels:

- Engineers prefer to use liquid fuels for rocket motors because they are less bulky and flow better than solid fuels. Using hydrogen as fuel is also desirable because when it is combusted, it generates the highest exhaust velocity.
- For example, combusting hydrogen with oxygen as the oxidiser results in an exhaust velocity of 4.5 km/s whereas that produced by unsymmetrical dimethylhydrazine and nitrogen tetroxide, the combination used by the second stage of the PSLV rocket, e.g. is around 3.4 km/s. This is why hydrogen is a desirable fuel for rocket motors.

Cryogenic engines:

- Hydrogen in liquid form is not well-behaved: it needs to be maintained at -253 degrees C (and the liquid oxygen at -184 degrees C) and leaks very easily. Engineers need special equipment to store and transport liquid hydrogen and special engines that can use it to power a rocket. These are cryogenic engines.
- ISRO has used three cryogenic engines over the years: KVD-1, CE-7.5, and CE-20. The last two are India-made, although the design of the CE-7.5 is based on the KVD-1, which Russia (as the Soviet Union) supplied to India in the early 1980s.
- The GSLV Mk II launch vehicle uses CE-7.5 engines to power the third stage of its ascent.

How cryogenic engine works?

- The operation of a cryogenic engine requires a cryopump, a device to trap and cool the hydrogen and oxygen to liquid form; special storage tanks; and turbopumps to move the cooled fuel and oxidiser to the engine.
- The CE-7.5 engine uses the staged-combustion cycle. Here, a small amount of the fuel is combusted in a pre-burner. The resulting heat is used to drive the turbine that powers the turbopump.
- Once the turbopump has brought the rest of the fuel and oxidiser to the combustion chamber, the hydrogen is combusted to power the main engine plus two vernier thrusters, smaller engines that tweak the rocket's speed and orientation once it's in flight. The exhaust from the pre-burner is also routed to the combustion chamber.
- The CE-20 engine uses the gas-generator cycle, which discards the exhaust from the pre-burner instead of sending it to the combustion chamber. This reduces fuel efficiency but, importantly for ISRO, makes the CE-20 engine easier to build and test.
- ISRO has also dropped its vernier thrusters in favour of allowing the engine's nozzle to make small rotations to adjust the rocket's flight path.
- As a result, while the CE-7.5 engine is lighter and sports higher fuel-use efficiency, the CE-20 engine achieves a higher maximum thrust (~200 kilonewton v. 73.5 kilonewton) with a shorter burn duration.

Engine test:

- Since 2011, NASA's Commercial Crew Programme has required the probability of mission loss when the launch vehicle is ascending or descending to be lower than 1/500 (or 0.2%).
- Obviously the agency can't conduct so many test flights before a launch, but it can determine the contributions of different mission components to the overall failure rate and test those components to ensure their minimum reliability is above the corresponding limit. The engine test is one example of such a qualifying exercise.

- The CE-20 engines had been hot-fire tested for a cumulative "8,810 seconds against the minimum human rating qualification standard requirement of 6,350 seconds". In a cold-flow test, fluids flow through the engine but there's no combustion or exhaust, whereas there is in a hot-fire test.)
- Hot-fire tests of this duration will ensure the engine's performance is within acceptable limits in conditions mimicking those that will transpire during the actual mission.

Formidable legacy:

- Aside from being highly performant, CE-20 engine is also a testament of ISRO's accomplishments after the U.S.'s sanctions against India in the 1980s.
- Former ISRO chairman U.R. Rao wrote in his book India's Rise as a Space Power that when NASA was developing a cryogenic engine for its Saturn rockets, it identified 58 types of failure, and that Japan had to conduct more than 500 tests to first qualify its LE-7 engine.
- LVM-3 rockets using the CE-20 in the third stage; where the first stage comprises two solid-fuel boosters and the second stage, two liquid-fuelled Vikas 2 engines have already launched the Chandrayaan-2 and -3 missions and the 5.8-tonne payload of the commercial OneWeb mission in 2022.

SOCIAL ISSUE

ON THE RIGHT TO MAINTENANCE FOR DIVORCED MUSLIM WOMEN
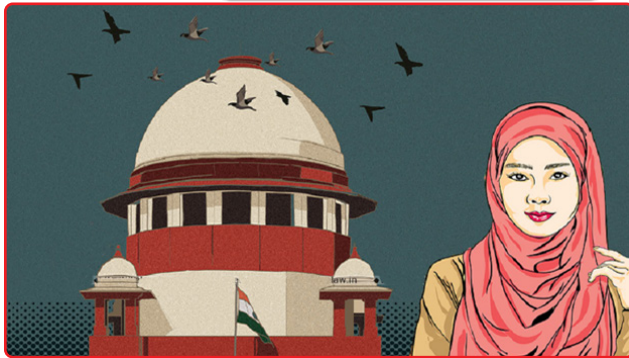
Why in news?

- The Supreme Court has decided to examine if a divorced Muslim woman is entitled to a claim of maintenance under Section 125 of the Criminal Procedure Code (CrPC) from her former husband, reigniting the debate on whether secular laws should be given precedence over distinct personal laws.
- On February 19, a Bench comprising Justices B.V. Nagarathna and Augustine George Masih reserved its verdict in the case.

How has the law evolved?

Section 125 of the CrPc:

- The law governing maintenance for destitute wives, children, and parents has been codified under Section 125 of the CrPC.
- It stipulates that if any person "having sufficient means neglects or refuses to maintain" his wife, then a magistrate of the first class may, upon proof of such neglect or refusal, order such a person to make a monthly allowance for the maintenance of his wife at a monthly rate as the magistrate thinks fit.
- The explanation to this provision clarifies that a "wife" includes any woman who has been divorced by, or has obtained a divorce from, her husband and has not remarried.

1986 Act:

- The Muslim Women (Protection of Rights on Divorce) Act, 1986 (1986 Act), is a religion-specific law that provides a procedure for a Muslim woman to claim maintenance during divorce.
- Section 3 of the 1986 Act guarantees the payment of maintenance to a divorced Muslim woman by her former husband only during the period of iddat, a period, usually of three months, which a woman must observe after the death of her husband or a divorce before she can remarry.
- After the completion of the iddat period, a woman can approach a first-class magistrate for maintenance in case she has not remarried and is not in a position to take care of herself financially.

Supreme Court verdict:

- A Constitution Bench of the Supreme Court in the Danial Latifi versus Union Of India (2001) case upheld the constitutional validity of the 1986 Act by extending the right of a Muslim woman to get maintenance till she re-marries. It, however, reduced the period of maintenance to the completion of iddat.
- In 2009, a Division Bench of the Supreme Court reiterated a divorced Muslim woman's right to claim maintenance under Section 125 of the CrPC as long as she does not remarry.
- It highlighted that such a relief would be extended even after the expiry of the iddat period.

How did the proceedings play out?

- The apex court pointed out that Section 3 of the 1986 Act begins with a non-obstante clause ("notwithstanding anything contained in any other law for the time being in force"), and thus it does not bar an alternative remedy under Section 125 of the CrPC.
- It said that the question of whether the 1986 Act takes away the right under Section 125 of the CrPC was not dealt with in Danial Latifi and thus there is a requirement of an authoritative pronouncement in this regard.
- Dismissing the petitioner's argument that the provisions of the 1986 Act reflect the Parliament's intent to debar Muslim women from seeking relief

under Section 125 of the CrPC, the court asserted that if that were the case then the legislators would have explicitly given an overriding effect to the 1986 Act.

➲ The Act does not say no petition under Section 125 shall be filed by Muslim women.

HEALTH

CAN RHEUMATOID ARTHRITIS BE PREVENTED?

The Stages of Rheumatoid Arthritis

Degraded cartilage

Swollen inflamed synovial membrane

Bone erosion

STAGE 1
The body mistakenly attacks its own joint tissue.

STAGE 2
The body makes the antibodies and the joints start swelling up.

STAGE 3
The joints start becoming bent and deformed, the fingers become crooked. These misshapen joints can press on the nerves and can cause nerve pain as well.

STAGE 4
If not treated, the disease will progress to the last stage, in which there's no joint remaining at all and the joint is essentially fused.

Why in news?

➲ Recently, a study proposed to repurpose an existing drug to treat rheumatoid arthritis as prophylaxis, to prevent disease.

➲ The results of the study showed that rheumatoid arthritis prevention trials are feasible and targeting the adaptive immunity of such individuals at an early stage, can prevent the onset of rheumatoid arthritis.

What is rheumatoid arthritis?

➲ It is a chronic, autoimmune condition that mostly affects the joints. Scientists have not yet understood why an autoimmune condition occurs, allowing the immune system that protects the body, to attack itself.

➲ A patient experiences pain, swelling of joints and loss of function and mobility as a result of stiffness. As can be expected, this is likely to significantly lower a patient's quality of life.

➲ As per the National Institute of Arthritis and Musculoskeletal and Skin Diseases, of the National Institutes of Health, U.S., rheumatoid arthritis affects the lining of the joints, and damages the tissue that covers the ends of the bones in a joint.

➲ It often occurs in a symmetrical pattern, meaning that if one knee or hand has the condition, the other hand or knee is also often affected.

➲ Fatigue, occasional fevers, and a loss of appetite are to be expected, and there is a possibility that it may cause medical problems outside of the joints including in the heart, lungs, blood nerves, eyes and skin.

What did the study attempt to do?

➲ The idea was to evaluate the feasibility, efficacy, and acceptability of treating high risk individuals with an existing drug, Abatacept, to treat rheumatoid arthritis.

➲ The drug is a 'co-stimulation modulator' acting as a signalling pathway to start the appropriate immune response.

➲ At the core of their experiment is the understanding that individuals at high risk for rheumatoid arthritis can be identified years before they actually develop the disease, even as early as decades earlier, by detecting autoantibodies associated with rheumatoid arthritis known as Anticitrullinated Peptide antibodies (ACPAs), in the blood.

➲ Although the presence of autoantibodies might precede disease onset by a decade or more, the combination of ACPA with symptoms, and evidence of subclinical synovitis (inflammation of the lining of the joint) by imaging, has increased the predictive power of identifying individuals who are most likely to progress to rheumatoid arthritis within two years.

➲ These features have provided a framework for evaluating therapeutic strategies that could delay or prevent disease onset.

➲ The results show that rheumatoid arthritis prevention trials are feasible and targeting adaptive immunity at an early stage, with Abatacept, an existing drug for RA, before clinically apparent arthritis is manifest, can prevent the onset of rheumatoid arthritis.

➲ The drug of choice is Abatacept, a biological disease-modifying anti-rheumatic drug which works by selectively modulating signals to spur T-cell activation, or begin the body's immune response.

What's the Indian scenario with regard to rheumatoid arthritis treatment?

➲ Abatacept, a drug that comes under the classification 'biologicals' is no longer available in India; it was withdrawn after it did not sell well in the Indian market. But in the last five years, there have been six drugs to treat rheumatoid arthritis.

➲ At the moment, worldwide, 10 biologicals are available, and six of them in India. About three years ago, a group of drugs called JAK inhibitors came off patent, and one of those drugs, tofacitinib is available at ₹900 for a month's supply.

➲ It is also an oral drug, as against biologicals that might be intravenous, or a subcutaneous injection, depending on which part of the world one is in.

Is early prevention of the disease significant?

➲ Pre-disease treatment with Abatacept reduces progression to clinically-apparent arthritis during the 12-month treatment phase, and up to 24 months after stopping treatment.

➲ However, by 24 months, the parameters of those who received the drug were similar to those with the placebo group; it was similar between groups, indicating that treatment is not sustained.

SMOKING LEAVES A LASTING ADVERSE IMPACT ON IMMUNE RESPONSES

Why in news?

➲ Smoking has a lasting effect on specific human immune responses, persisting long after quitting.

➲ The study, which investigates a range of factors that might contribute to variability in immune responses, also identifies body mass index (BMI) and latent infections of cytomegalovirus (a common virus) as having a substantial influence on immune responses.

➲ The findings offer insights into the factors that potentially underlie the risk of developing infections and other immune related illnesses such as cancer or auto-immune disease.

Response to immune challenges:

➲ There is wide variability in the way humans respond to immune challenges, such as bacterial or viral infections, as seen with the diverse range of clinical outcomes observed after infection with SARS-CoV-2.

➲ Age, sex and genetic factors play a major role in this variability, but modifiable environmental factors, such as lifestyle, may also contribute.

➲ Understanding how such variables affect immune responses could improve the design of treatments and vaccines.

Key Highlights:

➲ Researchers investigated the effects of 136 environmental factors on variability of immune responses in 1,000 individuals. Among the environmental factors studied, smoking was shown to have the greatest influence on immune responses.

➲ It affected both innate and adaptive immunity, the former is a general response whereas the latter is more specialized and pathogen-specific.

➲ While the effects on innate responses (such as increased inflammatory responses) were transient and lost after smoking cessation, the effects on the adaptive response persist for many years after quitting, altering the levels of cytokines released upon infection or other immune challenges.

➲ The results collectively show a short-term effect of smoking on innate immune responses, and a long-term effect of smoking on adaptive immune responses.

Findings:

➲ The study identifies a strong link between these previously proposed disease biomarkers and response to immune challenges in smokers versus non-smokers.

➲ BMI and cytomegalovirus are also found to have noteworthy effects on cytokine secretion, but the variance associated with smoking reaches levels equivalent to those linked to factors that cannot be changed.
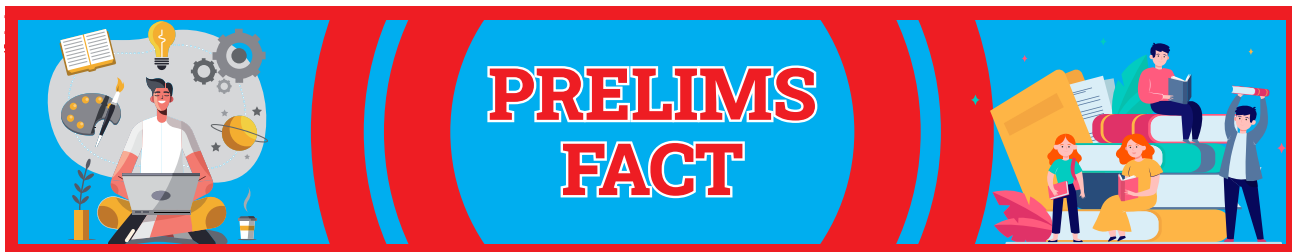
POLITY & GOVERNANCE

HOW CAN CHILD SAFETY BE ENSURED ONLINE?

Context:

- In early February, Meta CEO Mark Zuckerberg provided a public apology to parents whose children were victims of online predators during a Congressional hearing, that could be described as hostile to not just Meta, but other tech majors including X, TikTok, Snapchat, and Discord.
- The Big Tech and the Online Child Sexual Exploitation Crisis hearing was reportedly called "to examine and investigate the plague of online child sexual exploitation" and all their executives were pinned on their abdication of responsibility to protect children on social media platforms.

What are the issues with children's safety online?

- Tech majors are increasingly finding themselves in the midst of a maelstrom of protests across the world, not just over privacy concerns, but also with the security of users online.
- Across the world, parents and activists are aggressively advancing the agenda of having the tech companies take responsibility, or provide platforms that are 'safe by design' for children and young users.
- A UNICEF report of 2023, 'The Metaverse, Extended Reality and Children', attempted an analysis of how virtual environments may evolve and how they are likely to influence children and young adults. These technologies do offer many potential benefits for children, such as in the areas of education and health.

What are the potential risks?

- The potential risks to children are significant. These include safety concerns such as exposure to graphic sexual content, bullying, sexual harassment and abuse, which in immersive virtual environments can feel more 'real' than on current platforms."
- Further, vast amounts of data, including about non-verbal behaviour are collected, potentially allowing a handful of large tech companies to facilitate hyper-personalised profiling, advertising and increased surveillance, impacting children's privacy, security, other rights and freedom.
- While the complete immersion in an alternate reality which Metaverse promises is still not here, there are multiple virtual environments and games that are not fully immersive, and yet indicative of dangers in coping with that world.
- For instance, in the hugely popular Grand Theft Auto, which does have adult and child versions, there is an instruction in the adult version to 'approach a prostitute and spank her many times'. Now, adolescents are likely to pick the adult version.
- There were reports in the media about how children were using Artificial Intelligence to generate indecent child abuse images.
- Then there is the mental health aspect, with children facing the prospect of trauma, soliciting and abuse online, which can leave deep psychological scars that impact lives in the real world too.
- Innocuous and innocent sharing of images online can also be twisted by depraved predators. End-to-end encryption is essential to protect the information that children share online, points out Ms. Suresh.

What can be done to keep children safe online?

- The primary responsibility is that of the tech companies who will have to incorporate 'safety by design'. The proceedings of the Congressional hearings have made it obvious that these companies are fully cognisant of the extent to which their apps and systems impact children negatively.
- Drawing on the Convention on the Rights of the Child, UNICEF offers guidance that lists nine requirements for child-centred AI, including support for children's development and well-being, and protecting children's data and privacy.
- UNICEF recommends that tech companies apply the highest existing data protection standards to children's data in the metaverse and virtual environments.
- In addition, governments have the burden of assessing and adjusting regulatory frameworks periodically to ensure that such technologies do not violate children's

rights, and use their might to address harmful content and behaviour inimical to children online.

AUSTRALIA'S 'RIGHT TO DISCONNECT' BILL

Why in news?

➲ The Australian government is hoping to pass a Bill that will institute a "right to disconnect", regulating whether bosses can contact workers beyond their working hours through calls, messages or e-mails.

➲ Having passed the Senate, the Bill will now go to the House of Representatives.

➲ Similar laws are in place in France, Italy and Belgium, while other countries have also toyed with such ideas.

What is the 'right to disconnect'?

➲ It comes from a belief that today, with technology making it possible for employees to work from home with ease, many people no longer have definite working hours. A lot of communication and work also happens when workers are not in the office.

➲ The pandemic also added to blurring the distinction between work and home life.

What does Australia's Bill say on the 'right to disconnect'?

➲ The Bill is part of other changes introduced to industrial relations laws, through the Fair Work Legislation Amendment (Closing Loopholes No. 2) Bill, 2023.

➲ It says, "An employee may refuse to monitor, read or respond to contact, or attempted contact, from an employer outside of the employee's working hours unless the refusal is unreasonable."

➲ The Bill says that factors such as the extent to which the employee is compensated for overtime work, the reason for the contact or attempted contact, and the level of disruption it causes to the employee will all be taken into account to judge whether the contact was reasonable.

➲ In case an employee-employer dispute over such contact happens, they must first attempt to resolve it at the workplace through discussions between the parties.

➲ If that attempt fails, they may move to the Fair Work Commission, the country's industrial relations tribunal. Refusing to follow an FWC order could mean potential fines for the employer.

Have other countries experimented with 'right to disconnect' laws?

➲ France was the first country to have introduced a 'right to disconnect' for employees, in 2017.

➲ It required that companies with more than 50 workers were obliged to draw up a charter of good conduct, setting out the hours when staff are not supposed to send or answer emails.

➲ In India, Baramati MP Supriya Sule drafted a Private Member's Bill for such a right, through the Right to Disconnect Bill of 2018, which was never taken up for discussion in the House.

➲ It proposed that every registered company and society shall constitute Employees' Welfare Committees consisting of its employees to assist employees in the negotiation of terms and conditions of out-of-work hours with employers.

➲ The draft Bill also mentions a penalty "at the rate of one per cent of total employees' remuneration" to be paid by companies for noncompliance with its provisions. If an employee works beyond work hours, they will be entitled to overtime at the normal wage rate.

➲ However, one criticism says that employees who point out the need to disconnect from work might be passed over for promotions and crucial tasks.

RULES THAT EDGE OUT WOMEN FROM JOBS DUE TO MARRIAGE ILLEGAL, SC

Workplace Equality

Why in news?

➲ Rules that bully women employees out of their jobs for getting married or having domestic issues amount to "coarse gender discrimination" and are plainly unconstitutional, the Supreme Court has said.

➲ "Terminating employment because the woman has got married is a coarse case of gender discrimination and inequality. Acceptance of such patriarchal rule undermines human dignity, right to non-discrimination and fair treatment. Laws and regulations based on gender-based bias are constitutionally impermissible," the court said in a recent order.

Key highlights of the judgement:

➣ Noting that her release from services was both "wrong and illegal", the Supreme Court found that the rule against marriage was applicable only to women nursing officers. The rule was "ex facie manifestly arbitrary".

➣ The court also recorded that the Army instruction concerned with the terms and conditions of service for the grant of permanent commissions in the Military Nursing Service was withdrawn in 1995.

What was the case before the SC?

➣ The observations were part of an order which upheld the rights of a woman permanent commissioned officer in the Military Nursing Service who was discharged for getting married.

➣ A Bench headed by Justice Sanjiv Khanna directed the Union Government to pay former Lieutenant Selina John ₹60 lakh in compensation within eight weeks as a full and final settlement of all her claims.

➣ The government had come in appeal against a decision of the Lucknow Bench of the Armed Forces Tribunal which had ruled in her favour.

FLOOD MANAGEMENT AND BORDER AREAS PROGRAMME (FMBAP)

Why in news?

➣ The Union Cabinet recently approved the proposal of Department of Water Resources, RD & GR for continuation of centrally sponsored Scheme, viz., "Flood Management and Border Areas Programme (FMBAP)" with total outlay of Rs. 4,100 crore for a period of 5 years from 2021-22 to 2025-26 (15th Finance Commission period).

The Scheme has two components:

Flood Management Programme (FMP) component:

➣ Under the Flood Management Programme (FMP) component of FMBAP with an outlay of Rs. 2940 crore, central assistance will be provided to State Governments for taking up critical works related to flood control, anti-erosion, drainage development and anti-sea erosion, etc.

➣ The pattern of funding to be followed is 90% (Centre): 10% (State) for Special Category States (8 North-Easter States and Hilly States of Himachal Pradesh, Uttarakhand and UT of Jammu & Kashmir) and 60% (Centre):40% (State) for General/ Non-Special Category States.

River Management and Border Areas (RMBA) component:

➣ Under River Management and Border Areas (RMBA) component of FMBAP with an outlay of Rs. 1160 crore, flood control and anti-erosion works on common border rivers with neighbouring countries including hydrological observations and flood forecasting, and investigation & pre-construction activities of joint water resources projects (with neighbouring countries) on common border rivers will be taken up with 100% central assistance.

➣ Although, primary responsibility of flood management rests with the State Governments, Union Government has decided that it is desirable to supplement the efforts of the State Governments in flood management, encouraging promotion & adoption of modern technology and innovative materials/approach. This is particularly relevant as the increased incidence of extreme events have been witnessed during last few years in view of likely impact of climate change and situation may further aggravate in times to come exacerbating problem of floods in terms of extent, intensity and frequency.

➣ The works implemented under RMBA component also protect important installations of security agencies, border out-posts, etc. along the border rivers from flood and erosion.

Way Forward:

➣ The Scheme has the provision of incentivizing the States which implement flood plain zoning, recognized as an effective non-structural measure for flood management.

CENTRE AMENDS SURROGACY RULE ALLOWS COUPLES TO USE DONOR GAMETES

Why in news?

➣ The Union government has modified the Surrogacy (Regulation) Rules, 2022 and notified that both gametes need not come from a married couple in

case they are certified as suffering from a medical condition.

Details:

➲ As per the latest amendment, the couple can have a child born through surrogacy but must have at least one gamete from the intending couple.

➲ Also, single women (widow or divorcee) undergoing surrogacy must use self-eggs and donor sperm to avail surrogacy procedures.

Background:

➲ The latest amendment comes after the Supreme Court asked why the Centre was not taking a decision on the matter.

➲ The Union Health Ministry has now amended the earlier rules that stated that couples undergoing surrogacy must have both gametes from the intending couple.

Key Highlights:

➲ Form 2 (Consent of the Surrogate Mother and Agreement for Surrogacy) of the Surrogacy Rules read with Rule 7 was amended on March 14, 2023, to stipulate that donor eggs could not be used for gestational surrogacy of an intending couple. This has now been amended by a notification of the Ministry of Health and Family Welfare.

➲ The District Medical Board can certify that either husband or wife constituting the intending couple suffers from a medical condition necessitating the use of donor gamete, then surrogacy using donor gamete is allowed subject to the condition.

➲ Single women (widow or divorcee) undergoing surrogacy must use self-eggs and donor sperm to avail surrogacy procedures.

Petitions before SC:

➲ The Supreme Court in 2023 received petitions from women across the country after it allowed a woman with a rare congenital disorder to avail surrogacy with a donor egg.

➲ The Centre had in March 2023 issued a notification banning donor gametes for couples intending to undergo surrogacy.

➲ The Supreme Court, in January, asked the Centre why it was not deciding for many women rushing to the top court with grievances.

Way Forward:

➲ Surrogacy is the practice wherein a woman agrees to carry a foetus and give birth to a baby for someone else without having any parental rights on the child.

➲ The latest amendment is a testament to the same that protects the fundamental rights of patients.

INTERNATIONAL RELATION

INDIA, NEPAL SIGN MOUS FOR 3 PROJECTS IN EDUCATION, HEALTH, CULTURE SECTOR

Why in news?

➲ India and Nepal recently signed Memoranda of Understanding (MoUs) for undertaking three High Impact Community Development Projects (HICDPs) in Nepal, one each in education, health and culture sector at an estimated cost of NRs 122.52 million.

Key Highlights:

➲ The three projects include the

　a) construction of school and hostel buildings for Shree Dang-Bang Secondary School in Airawati Rural Municipality in Pyuthan district;

　b) construction of Khamlalung Health Post Building, Aathrai Rural Municipality in Terhathum district and

　c) construction and infrastructure development works in Chandan Bharateshwor Mahadev Temple in Chandragiri Municipality in Kathmandu.

➲ These projects, which shall be implemented through local authorities of Airawati Rural Municipality, Aathrai Rural Municipality, and Chandragiri Municipality, respectively, will further enhance cultural linkages between the two countries.

Background:

➲ Since 2003, India has taken up over 550 HICDPs in Nepal and has completed 488 projects in the areas of health, education, drinking water, connectivity, sanitation, and creation of other public utilities across all seven provinces of Nepal at the grassroots level.

➲ The remaining 62 projects are ongoing and at various stages of implementation.

➲ The total cost of all the projects is around NPR 1220 crore (INR 762 crore).

Way Forward:

➲ As close neighbours, India and Nepal share wide-ranging and multi-sectoral cooperation.

➲ The implementation of HICDPs reflects the continued support of the Government of India in bolstering the efforts of the Government of Nepal in uplifting the lives of its people, augmenting infrastructure in the field of priority sectors including the education, health and culture sectors in Nepal.

INDIA KALADAN PROJECT IN MYANMAR IN LIMBO AS REBELS CONTROL KEY TOWN

Why in news?

➾ One of India's flagship connectivity projects that was aimed at enhancing road and maritime connection with Southeast Asia has faced a definite setback after an important town in Myanmar was captured recently by a rebel group.

➾ The Kaladan Multi-Modal Transit Transport Project (KMTTP) has "almost died" after the rebel Arakan Army (AA) captured the Paletwa township near Mizoram border in January.

Details:

➾ KMTTP was aimed at connecting the port of Kolkata with the port of Sittwe in Rakhine or Arakan State which would then be connected to Mizoram by road and the Kaladan river which flows by Paletwa.

➾ But the restive province has witnessed serious clashes between the Myanmar military and the rebel AA. The AA has established control over Mrauk-U, Kyauktaw, Minbya, Thandwe, and major roads connecting these towns.

➾ AA has also captured Ann township which has Myanmar Army's Western Command headquarters.

Arakan Army (AA)'s conflict with the Myanmar military junta:

➾ Kaladan project, which was estimated to cost around $500 million has been delayed for multiple reasons, including the Rohingya crisis that erupted in 2017.

➾ However while the Rohingya crisis is rooted in religious and ethnic differences between the junta in Naypyidaw and Muslim Rohingyas, the conflict between the AA and the Myanmar military junta is not based on religious differences but fuelled by a nationalist aspiration of the Buddhist Arakanese population of the region which has been demanding a confederated or independent status.

➾ The population of Rakhine State is divided among the Buddhist Arakanese, Rohingyas and non-Rohingya Muslims, Christians, and other communities.

➾ The fight between the AA and the junta's forces took a crucial turn on January 15 when the rebel forces captured Paletwa.

➾ This move has also roused concern of a tripartite conflict involving the junta's forces, the AA, and rebels of the Chin State as Paletwa has been traditionally a Chin-majority township.

What's next?

➾ The AA is in an advantageous position and it is a matter of time before they establish control over the entire State of Rakhine, an unprecedented situation.

➾ They are now aiming for capturing the Sittwe port, which is one of the oldest ports and airports of Myanmar.

AFRICAN UNION IMPOSES HISTORIC BAN ON CRUEL DONKEY SKIN TRADE

Why in news?

➾ A historic ban on the trade in donkey skin has been agreed upon by the African heads of state. This agreement, announced on the concluding day of the African Union summit in Ethiopia, outlawed killing of donkeys in the African continent for their skin.

➾ This is a significant outcome following the Dar es Salaam declaration adopted at the first AU-IBAR Pan-African Donkey Conference in December 2022.

Details:

➾ The statement acknowledged the socioeconomic significance of donkeys in Africa. It had demanded for an African Union Commission (AUC) resolution to be passed in favour of a 15-year ban on the commercial killing of donkeys for their skin.

➾ Other demands included the creation of an Africa donkey strategy for donkey production and productivity, and the inclusion of donkeys in the global development agenda.

Why donkey skin is traded?

➾ Donkey skin is used to make the traditional Chinese medicine ejiao. It is in constant demand, fueling a global trade that is vicious, unsustainable and opportunistic.

➾ In five years between 2016 and 2021, ejiao production is estimated to have increased by 160 per cent.

➾ The ejiao industry now requires a minimum of 5.9 million donkey skin annually to keep up with the latest Chinese demand, the organisation noted.

- The demand for donkey skin reduced the donkey population in China from 11 million in 1992 to just under two million. Efforts to intensively farm donkeys locally failed to address this demand.
- So, the demand for ejiao, a gelatine manufactured by boiling donkey skin, is met primarily by imported skin sourced from South America and Africa.
- With increasing demand, at least 6.8 million donkeys are projected to be killed every year in 2027.

Donkey in Africa:

- Africa is particularly affected by this, as it is home to over two-thirds of the 53 million donkeys estimated to exist worldwide. Farmers who depend on donkeys for their livelihoods have seen theft and cruel treatment of animals as a result of the increased demand.
- The countries where donkeys are being traded illegally for their skin include Ghana, Nigeria, Botswana, Burkina Faso, Mali, Niger, Senegal, Uganda, Ethiopia, South Sudan, Tanzania, Kenya and Egypt.
- The number of donkeys in Africa has decreased dramatically over the past 10 years.

New agreement:

- The historic pan-African agreement will protect 33 million donkeys that are on the continent from being stolen, trafficked and killed. This will also save tens of thousands of African communities who depend on donkeys for their well-being antd means of subsistence.
- Donkeys are critical to millions of people and the global trade in donkey skin undermines efforts to achieve at least nine of the 17 United Nations-mandated sustainable development goals. These include the goal to end poverty (SDG1), since equid ownership represents the only viable escape from extreme poverty.
- For example, two-thirds of donkey owners in Mali reported a monthly income of more than $167, through the work of their donkeys, above the average per capita income. For rural households in Ethiopia, working equids contribute an average of 14 per cent of family income.

Way Forward:

- Brazil is also likely to impose a ban on illegal donkey skin trade. This may disrupt the supply chain and the ejiao industry in China.

INDIA, SAUDI ARABIA CONDUCT FIRST JOINT MILITARY EXERCISE SADA TANSEEQ

Why in news?

- The validation phase of 'SADA TANSEEQ', the first joint military exercise between the Indian Army and the Royal Saudi Land Force was completed at the Mahajan Field Firing Ranges recently.

Key Highlights:

- The Indian contingent of the 20th Battalion of The Brigade of Guards Regiment and the Saudi Arabian contingent comprising a group of 45 soldiers participated in the exercise conducted in two phases.
- The first phase focused on combat conditioning and tactical training.
- The second culminated in physical exercises and validation.
- Both contingents jointly took part in the validation phase which included the creation of a temporary operating base, the establishment of an intelligence, surveillance and reconnaissance grid and a mobile vehicle check post and carrying out cordon-and-search operations, heliborne operations and house intervention drills.

Details:

- The 12-day exercise was aimed at achieving interoperability between the two forces and acquaint each other with operational procedures and combat drills under the UN mandate.

ECONOMY

CABINET APPROVES EXTENSION OF ANIMAL HUSBANDRY INFRASTRUCTURE DEVELOPMENT FUND

Why in news?

- The Union Cabinet recently approved the continuation of Animal Husbandry Infrastructure Development Fund (AHIDF) to be implemented under Infrastructure

Development Fund (IDF) with an outlay of Rs.29,610.25 crore for another three years up to 2025-26.

Key Highlights:

➲ The scheme will incentivize investments for Dairy processing and product diversification, Meat processing and product diversification, Animal Feed Plant, Breed multiplication farm, Animal Waste to Wealth Management (Agri-waste management) and Veterinary vaccine and drug production facilities.

➲ Government of India will provide 3% interest subvention for 8 years including two years of moratorium for loan up to 90% from the scheduled bank and National Cooperative Development Corporation (NCDC), NABARD and NDDB.

➲ The eligible entities are individuals, Private Companies, FPO, MSME, Section 8 companies. Now the Dairy Cooperatives will also avail benefits for modernization, strengthening of the dairy plants.

➲ Government of India will also provide credit guarantee to the MSME and Dairy Cooperatives up to the 25% of the credit borrowed from the Credit Guarantee Fund of Rs.750 crore.

Outcome:

➲ The AHIDF has so far created an impact by adding 141.04 LLPD (Lakh Ltr. Per Day) of milk processing capacity, 79.24 lakh metric ton of feed processing capacity and 9.06 Lakh metric ton of meat processing capacity by adding to the supply chain since the inception of the scheme.

➲ The scheme has been able to increase processing capacity by 2-4% in dairy, meat and animal feed sector.

Upgradation of infrastructure:

➲ Animal Husbandry sector presents an opportunity for the investors to invest in the Livestock sector making this sector a lucrative one ranging from value addition, cold chain and integrated units of Dairy, Meat, Animal Feed units to technologically assisted Livestock and Poultry farms, Animal Waste to wealth Management and Setting up of Veterinary Drugs/ Vaccine units.

➲ After inclusion of new activities like technologically assisted breed multiplication farms, strengthening of veterinary drugs and vaccine units, Animal waste to wealth management, the scheme will exhibit a huge potential for the upgradation of infrastructure in Livestock sector.

Economic aspect:

➲ The scheme will be a channel towards employment generation directly and indirectly to 35 lakh people through entrepreneurship development and aims for wealth creation in the livestock sector. So far, the AHIDF has benefitted directly /indirectly approximately to 15 lakh farmers.

➲ Thus investment by incentivisation in AHIDF would not only leverage private investment 7 times but

would also motivate farmers to invest more on inputs thereby driving higher productivity leading to increase in farmers income.

RBI CURBS TO RENDER PAYTM WALLET AND FASTAG INOPERATIVE
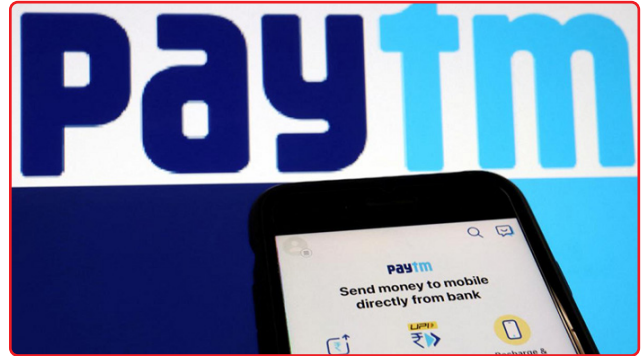
Why in news?

➲ The Reserve Bank of India (RBI) imposed additional curbs on Paytm Payments Bank Ltd (PPBL) recently prohibiting it from operating its mobile wallet after February 29.

Details:

➲ It has also been barred from taking further deposits or undertaking credit transactions or top-ups in any customer accounts, prepaid instruments, wallets, FASTags, or National Common Mobility Cards, after February 29.

➲ However, it will be allowed to credit any interest, cashbacks, or refunds into these accounts at any time, and customers are also free to withdraw or use their balances in these accounts without restrictions. According to sources, the RBI's action will not impact the usage of the UPI channel used through the Paytm app, as this is owned by the parent company and not by PPBL.

Why RBI took this action?

➲ The RBI has initiated action against Paytm following a comprehensive system audit report and subsequent compliance validation report by external auditors, which revealed "persistent non-compliances and continued material supervisory concerns in the bank, warranting further supervisory action".

➲ The RBI had, on March 11, 2022, directed PPBL to stop onboarding new customers with immediate effect. However, it was found that the bank was continuing to onboard customers through an offline mode in violation of the RBI directive, necessitating further action.

➲ As per the RBI's fresh directive, the bank's customers can withdraw or use the available balance amounts in their accounts without any restrictions, including their savings bank accounts, current accounts, prepaid instruments, FASTags, and National Common Mobility Cards.

What has Paytm said in response to the RBI action?

➲ As Paytm shares fell 20 per cent on the exchanges, One97 Communications Ltd said it was "taking immediate steps to comply with RBI directions", including working with the regulator to address their concerns as quickly as possible.

➲ Depending on the nature of the resolution, the company expects the RBI action to have a worst-case impact of Rs 300-500 crore on its annual EBITDA (earnings before interest, tax, depreciation and amortisation) going forward.

➲ Also, going forward, One97 Communications will be working only with other banks, and not with Paytm Payments Bank.

INDIA RANKS 93 AMONG 180 COUNTRIES IN GLOBAL CORRUPTION INDEX, REPORT
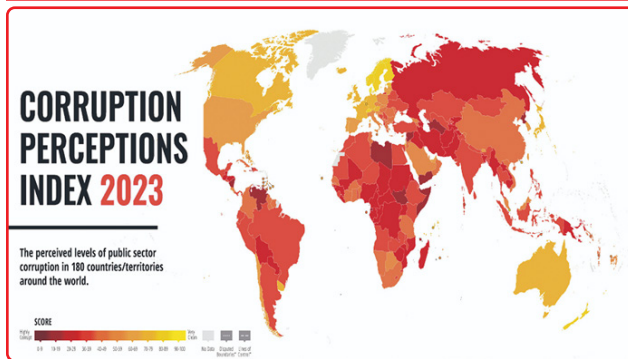
Why in news?

➲ Transparency International released its 2023 Corruption Perceptions Index (CPI) recently, revealing a list of the world's most corrupt countries.

Details:

➲ The report highlighted minimal progress in addressing public sector corruption, as the global average for CPI remained stagnant at 43 for the twelfth consecutive year.

➲ More than two-thirds of the 180 listed countries received a score below 50 on the scale, indicating a prevalence of corruption.

➲ The CPI ranks countries based on their perceived levels of public sector corruption, which range from zero (extremely corrupt) to 100 (very clean).

Key Findings:

➲ Denmark tops the index for the sixth year in a row, with a score of 90, owing to its "well-functioning justice systems".

➲ Finland and New Zealand are in second and third place, with scores of 87 and 85 respectively.

➲ This year's top ten countries are Norway (84), Singapore (83), Sweden (82), Switzerland (82), the Netherlands (79), Germany (78), and Luxembourg (78).

Most corrupt countries in the world:

➲ Taking the bottom spots in the CPI are Somalia (11), Venezuela (13), Syria (13), South Sudan (13), and Yemen

(16). These countries are all affected by protracted crises, primarily armed conflicts.

➲ Nicaragua (17), North Korea (17), Haiti (17), Equatorial Guinea (17), Turkmenistan (18), and Libya (18) are the subsequent lowest performers on the index.

Where does India stand?

➲ In the CPI, India secured the 93rd position with a score of 39, according to the Transparency International report. India's overall score remained relatively stable, as it was 40 in 2022, securing the 85th position.

➲ Meanwhile, Pakistan, with a score of 29, and Sri Lanka (34) grappled with their respective debt burdens and ensuing political instability, the report said.

➲ Among India's neighbours, Afghanistan and Myanmar scored 20, China scored 42, Japan scored 73, and Bangladesh scored 24.

THREE ECONOMIC RAIL CORRIDORS ON THE ANVIL

Why in news?

➲ With a thrust on investment in infrastructure, the Union Ministry of Railways has been allocated ₹2.55 lakh crore for the financial year 2024-25, up by 5.8% from last year's allocation of ₹2.41 lakh crore.

➲ The Budget document says the Railway Ministry could only utilise ₹1.6 lakh crore, based on the actual numbers released for 2022-23.

➲ The revised operating ratio for 2023-24 was 98.7%, which is the ratio of working expenses to traffic earnings.

Key Highlights:

➲ The Centre will implement three major economic corridor programmes; energy, mineral, and cement corridor, also being referred to as Energy Economic Corridor; port connectivity corridor aka Rail Sagar; and high-traffic density corridors, aka Amrit Chaturbhuj.

➲ A total of 434 projects with an investment of ₹11 lakh crore will be rolled out under these programmes.

➲ They have been planned along the lines of PM Gati Shakti framework by tracking the origin and destination nodes of Railways.

➲ Over the next five years, it is planning to overhaul 40,000 coaches to provide a better passenger

experience similar to that of the Vande Bharat trains. The entire exercise is expected to cost ₹15,200 crore.

Allocation:

- Notably, budget allocation for investment in public sector units and joint ventures decreased from ₹34,353 crore in 2023-24 to ₹31,107 crore in 2024-25. Experts say this is because the Railways is interested in opening up the market to private players.
- The bullet train project by National High Speed Rail Corridor has attracted the maximum chunk of allocation, up from ₹19,592 crore to ₹25,000 crore.

PANEL PITCHES FOR LOWERING OF GST ON HEALTH POLICIES

Health insurance

Class of business	No. of policies (in lakh)		No. of lives (in lakh)		Gross premium (in ₹ crore)	
	2020-21	2021-22	2020-21	2021-22	2020-21	2021-22
Government sponsored	0.001	0.001	3,429	3,065	4,290	6,076
Group	9.1	7	1,187	1,623	28,108	36,891
Individual	228.3	219.3	531	516	25,840	30,085
Total	237.4	226.3	5,147	5,204	58,238	73,052

Source: Standing Committee Report

Why in news?

- The Parliamentary Standing Committee on Finance has recommended that GST on health insurance, particularly for senior citizens, should be lowered.
- It has simultaneously pitched for a level-playing field between public and private sector insurance firms in terms of TDS on GST and participation in government-run insurance schemes.

High premium burden:

- Financial services, including premium for health insurance, term insurance plans and unit-linked insurance plans, attract GST at 18%. On endowment plans, GST is applied differently. While it is 4.5% for premium paid during the first year, 2.25% would be the rate from the second year.
- For life insurance in the form of single-premium annuity policies, rate of GST is 1.8%. Rates are the same for all age groups. These can be reviewed on the recommendation of the GST Council.

Key Highlights:

- The Standing Committee, chaired by BJP MP Jayant Sinha, underscored the need for rationalising the GST rate on insurance products, especially health and term insurance, which is 18% at present.
- The high rate of GST results in a high premium burden which acts as a deterrent to getting insurance policies.
- It said the GST rates applicable to health insurance products, particularly retail policies for senior citizens and micro-insurance policies (up to limits prescribed

under PMJAY or Pradhan Mantri Jan Aarogya Yojana, presently ₹5 lakh) and term polices may be reduced.

TDS on GST:

- The Committee also took note of TDS (Tax Deducted at Sources) on GST that applies only to public sector insurance companies.
- According to CGST ACT, TDS at the rate of 2% is required to be deducted from the payment made or credited to the supplier of taxable goods or services or both, where the total value of such supply is more than ₹2.50 lakh.
- This is applicable to entities mentioned in Section 51 of CGST Act and includes public sector undertaking (PSU) insurers.

Mandatory participation:

- Apart from this, the Committee also noted that the public sector insurance companies have to mandatorily participate in government-run insurance schemes that which impact profitability.
- The Committee, with a view to ensuring ensure a level-playing field, recommends that such provisions be uniformly applied to all players.

Vehicle Insurance:

- Relying on data from Motor Annual Report of the Insurance Information Bureau of India, the Committee observed that almost 56% of vehicles (mainly commercial) plying on the roads are unsecured. Such a trend poses a risk to the owners and third parties in case of accidents or damages.
- Accordingly, the Committee recommended implementation of E-Challan enforcement across States by leveraging data integration by IIN, mParivahan and National Information Centre data.
- It also suggested that financial institutions consider providing loans when they have proof of insurance coverage.

THE PAYTM PAYMENTS BANK DEBACLE

Why in news?

- In a major blow to fintech services provider Paytm, the Reserve Bank of India (RBI) barred its payments bank subsidiary, Paytm Payments Bank Ltd (PPBL) from obtaining further deposits and top-ups in its accounts or wallets from February 29.

➲ PPBL was barred from on-boarding news customers back in March 2022. The latest move was after an audit report had revealed "persistent non-compliances and continued material supervisory concerns in the bank".

What has the RBI instructed?

➲ The RBI has disallowed the Paytm subsidiary from accepting further deposits, top ups or credit transactions into its operated wallet or accounts from February 29.

➲ This also applies to its prepaid instruments for FASTags and National Common Mobility Cards (NCMC) cards. Present customers would, however, be allowed to use their existing balances to avail the services.

➲ The payments bank houses the parent company One97 Communication (OCL)'s more than 330 million wallet accounts.

➲ Further, PPBL has been prohibited from carrying out any banking services (in the nature of services like AEPS, IMPS etc), bill payments and UPI.

Nodal accounts:

➲ It has also been directed to "terminate at the earliest", or before February 29, nodal accounts of its parent company and Paytm Payments Services.

➲ Nodal accounts are a type of bank account opened by businesses (financial intermediaries) and are used for holding money from participating banks from the consumer's side, and ultimately remitting to the specific merchant.

➲ It has asked the subsidiary to settle all pipeline and nodal accounts transactions by March 29. No further transactions shall be permitted thereafter.

➲ Equity researchers at Macquire Capital believe the move may result in revenue and profitability implications in the medium to long term.

➲ The parent company expects the latest action would have a "worst case impact" of ₹300 to ₹500 crore on its annual EBITDA (earnings before interest, taxes, depreciation, and amortisation).

How is Paytm looking to transition?

➲ The company informed that it would now be working with other banks and not with PPBL.

➲ It further intends to expand third-party bank partnerships for merchant acquiring services (providing essential infrastructure for acquiring merchants for helping them access payments) with other banks.

➲ It would entail finding an interested partner bank to integrate with the necessary Paytm ecosystem.

➲ Assessing the ensuing commercial viability and finally, facilitating the account-to-account migration which could be time-consuming given, as he stated, "the time is short".

➲ The other option would be a one-time migration.

CABINET NOD TO SPECTRUM FOR RAILWAYS WITHOUT TRAI REPLY

Why in news?

➲ A day after the Telecom Regulatory Authority of India (TRAI) floated a consultation paper on whether Indian Railways should be able to get 5 Megahertz of wireless spectrum for carrying real-time data that would enhance passenger safety, the Union Cabinet approved the proposal, even though TRAI's response was pending.

Background:

➲ The Railways had sought additional 5 Mhz of paired spectrum, free of charge, in the 700 MHz band in July 2023, a month after the Balasore incident that left 296 dead and nearly 1,200 injured.

➲ In the past, when the Railways had received spectrum grants, for which they only needed to pay an annual royalty without bidding for the airwaves, the data transfer capacity was not sufficient to allow trains to continuously upload video footage for safety purposes.

➲ The video feeds were instead "dumped" at railway stations with a WiFi connection.

➲ The Railways wrote to the Department of Telecommunications (DoT) that it is important to capture large-scale data and videos from moving trains on a real-time basis.

➲ It further said that during exigencies, networks of telecom service providers get choked, thereby adversely affecting relief and restoration operations.

Why additional spectrum?

➲ Because the Railways was only granted 5 Mhz of its original demand for 15 MHz in discussions post the Balasore tragedy, it had again asked for an additional 5 MHz of paired spectrum in the 700 MHz band.

➲ Railways had said that it wants additional spectrum for implementing several safety features such as the Modern Train Control System, Train Collision Avoidance System, signal aspect in loco cabs, and emergency mobile communications.

➲ It had also highlighted other advantages that the spectrum allocation could bring, such as increased speed, augmenting train's running capacity,

passenger security, CCTV network-like live feed at security control centres, video surveillance, video analytics, and asset reliability.

RETAIL INFLATION EASED TO 3 MONTH LOW OF 5.1 PERCENT FOOD PRICES STICKY

Why in news?

➲ India's retail inflation eased to a three-month low of 5.1% in January from 5.7% a month earlier, with food price rise cooling a bit to 8.3% compared with 9.5% in December 2023.

➲ January's headline inflation pace is slightly higher than the 5% average projected by the Reserve Bank of India (RBI) for the current final quarter of 2023-24.

➲ Any interest rate cut will have to wait till at least August if not longer, as the Central bank expects inflation to average 5% in the April to June quarter as well, before it hits its stated inflation target of 4% in the next quarter.

Food inflation:

➲ While overall inflation faced by urban consumers dropped to 4.92% from 5.5% a month ago, food inflation remained sharp at 9%, sliding a tad from 10.4% in December.

➲ By contrast, rural consumers faced food inflation of 7.91% in January, down from 9% in December, but their overall price rise pace was higher than their urban counterparts at 5.34%.

➲ On a month-on-month basis, the Consumer Price Index (CPI) dropped 0.11% while the Consumer Food Price Index fell 0.73%. In January 2023, CPI inflation stood at 6.52%, while food price inflation stood at 6%.

Inflation among food items:

➲ Among food items, vegetables inflation remained above 27%, just slightly below the 27.6% recorded in December.

➲ The price rise in pulses also cooled marginally from 20.7% in December to 19.5% in January.

➲ Cereals and spices inflation saw slightly better moderation, dropping from 9.9% and 19.7% in December to 7.8% and 16.4%, respectively.

➲ Fruits inflation also fell from 11.1% to 8.65% in January, while milk prices rose 4.6% compared with 5.1% in December.

➲ Inflation in eggs, however, picked up pace to touch 5.6% in January, as did sugar and confectionary price rise which hit 7.5% from 7.1% a month earlier.

Inflation in non-food items:

➲ Most non-food items continued to see weaker upticks in prices compared to food items, with personal care and effects that had clocked a 7.3% rise in prices in December, dropping below 6%.

➲ Education inflation inched up a tad from 4.77% in December to 4.93% in January, but the pace of rise in healthcare costs dropped from 5.1% to 4.8%.

➲ Half of the 22 major States for which the National Statistical Office calculates inflation rates registered a price rise below the national average of 5.1%, with Delhi recording the lowest inflation of 2.56%, followed by Madhya Pradesh (3.93%), Kerala (4.04%), and Tamil Nadu (4.12%).

➲ On the other hand, five States reported inflation of over 6%, breaching the RBI's tolerance threshold for price rise. Those States are Odisha (7.55%), Telangana (6.34%), Haryana (6.24%), Gujarat (6.21%), and Karnataka which witnessed 6.1% inflation in January.

CENTRE REVISES GUIDELINES FOR COMMUNITY RADIO STATIONS

Why in news?

➲ To ensure the growth of the community radio sector, the government has increased the advertising time for community radio stations as well as the price rate for advertisements.

➲ It also increased the period for the grant of permission agreement from the existing five years to 10 years, according to the revised policy guidelines for the sector.

Key Highlights:

➲ Under the revised policy, the government has permitted any eligible organisation functional in multiple districts to set up a maximum of six community radio stations in different districts.

➲ The advertising time for community radio stations has been increased from seven minutes per hour to 12 minutes per hour, while the rate of advertisement has been hiked from Rs 52 to Rs 74 per 10 second.

- The policy also fixed the validity of the letter of intent issued to an organisation to one year, with a buffer of three months to the applicant for any unforeseen circumstances.
- The licensee will set up an advisory and content committee comprising members of the local community, with 50 per cent representation for women.

Community radio station (CRS):

- India's first community radio station (CRS) was inaugurated on the campus of the Anna University in 2004. Currently, there are 481 CRSs in India. More than 133 CRSs became operational in the last two years.
- CRSs are low-power radio stations, which are meant to be set up and operated by local communities.
- Community radio stations offer a platform where content is disseminated in localised dialects and regional languages. Local, context specific issues are raised and discussed in these stations in local idioms.

Way Forward:

- The revised policy guidelines are expected to fuel growth of the community radio sector.

SPECIFIC DURATION CLAUSE IN DRAFT INDIA EFTA PACT MAY AFFECT DRUG INDUSTRY

Why in news?

- A clause in a draft free trade agreement text being negotiated between India and the European Free Trade Association (EFTA) could delay access to affordable, generic versions of patented drugs in India by a minimum of six years.

Details:

- A leaked draft of the Trade and Economic Partnership Agreement (TEPA) says that within six months of the agreement being signed, signatories should include a "specific duration" during which applicants seeking consent from their country's regulators to sell a drug would not rely on "undisclosed test data" to gain market approval for at least six years.
- There is also a line in the draft, that suggests this should apply not only to 'new' chemical drugs but also a class of drugs called 'biologics drugs,' that involve complex mixtures of organic and inorganic entities, and are harder to make copies of. Many Indian biotechnology companies are developing biologics drugs.

India's generic drug industry:

- India, which has over decades, mushroomed a thriving generics drug industry has resisted attempts by foreign pharmaceutical companies to extend monopoly rights over patented drugs.
- This is mostly because India's generic drug industry has over the years made affordable versions of expensive drugs and become a large global supply itself.
- The Indian pharma industry is the third largest in the world and produces over 60,000 generic drugs across 60 therapeutic categories and had an annual turnover of ₹3.4 lakh crore.

Patented drugs:

- Patented drugs give exclusive marketing rights to the inventor, or whoever files for the patent first, for 20 years.
- This has often resulted in essential drugs and medicines being unaffordable in several countries, including in India.
- Under internationally accepted provisions of compulsory licensing, Indian law allows drug maker to reverse-engineer and sell generic, or copy-cat versions of the drug, after only three years of it being patented in India.

UNION MINISTER OF FISHERIES, ANIMAL HUSBANDRY AND DAIRYING LAUNCHED THE REALIGNED AHIDF SCHEME

Why in news?

- The Union Minister of Fisheries, Animal Husbandry & Dairying, recently launched the realigned AHIDF Scheme and released the Radio Jingle on AHIDF at New Delhi.
- The scheme has been realigned and will be implemented for another 3 years. The industry, FPO, Dairy Cooperatives should take benefit of the scheme.

Details:

- The Cabinet in its meeting on 01.02.2024 approved the realignment of the AHIDF under Infrastructure Development Fund with an outlay of ₹ 29610 crore.

Now the Total Fund will be of ₹. 29610 cr. Instead of ₹. 15000cr.

- The realigned scheme will be implemented for further period of three years from 31.03.2023 till 2025-26. In the realigned scheme, Dairy Infrastructure Development Fund has been subsumed.
- Now the Dairy Cooperatives will avail benefit of interest subvention of 3% under AHIDF instead of 2.5% which was received in DIDF.
- The Dairy Cooperative will also get Credit Guarantee support under the Credit Guarantee Fund of AHIDF.
- The Scheme will help the Dairy Cooperatives to upgrade their processing infrastructure with an updated processing technology. This will benefit large number of milk producers in the country.

Under the realigned scheme, the following will be the benefit:

- Interest Subvention of 3% payable up to 8 years
- Individuals, FPO, Dairy Cooperatives, Private Companies, Section 8 companies, MSME
- Credit guarantee cover unto 25% of the term loan.
- No ceiling on the loan amount
- Loan up to 90% of the estimated/actual project cost
- Dovetailing with capital subsidy schemes of other ministries or state level schemes

About AHIDF:

- Animal Husbandry Infrastructure Development Fund (AHIDF) scheme was launched on 24th June 2020 by Prime Minister under Atmanirbhar Bharat Abhiyan Initiative.
- In the short span of three years, scheme has received commendable response from every corner of the country as we have received more than 5000 project proposals.

RESERVE BANK OF INDIA, NEPAL RASTRA BANK SIGN PACT FOR UPI-NPI LINKAGE

Why in news?

- Recently, the Reserve Bank of India (RBI) and Nepal Rastra Bank entered into an agreement integrating the Unified Payments Interface (UPI) of India and the National Payments Interface (NPI) of Nepal for cross-border remittances.

Key Highlights:

- The integration of Indian and Nepalese fast payment systems is aimed at facilitating cross-border remittances between the two countries by enabling users of the two systems to make instant, low-cost fund transfers.
- As per the Terms of Reference exchanged between the two central banks, the necessary systems will be put in place for interlinking of UPI and NPI, whereas the formal launch of the linkage, i.e., the commencement of operations, will be done at a later date.
- Post-implementation, users of these applications will be able to conduct instant transactions at a lesser cost between the countries.

Way Forward:

- The collaboration between India and Nepal in linking their fast payment systems through the UPI-NPI linkage will deepen financial connectivity and reinforce the enduring historical, cultural, and economic ties between the two countries.
- Recently, Sri Lanka, Mauritius, and France have enabled the Indian digital payment system; UPI in these countries.

INDIA REJECTED FTA DEMANDS FOR DATA EXCLUSIVITY

Why in news?

- India has rejected the demand for 'data exclusivity', as part of ongoing discussions with the European Free Trade Association (EFTA) towards a free trade agreement.

Details:

- Data exclusivity pertains to a clause in the draft agreement that puts a minimum six-year embargo on clinical trial data generated during the testing and development of a drug.
- Thus, manufacturers interested in making a copy-cat product would have to generate such data on their own, which is an expensive proposition, or wait out that period before applying to register and sell their version in India. Crucially, this could also apply to drugs that are not patented in India.
- India's generic drug industry has over the years made affordable versions of expensive drugs and become a

large, global supplier itself, and such a clause could hamper the industry.

Persistent demand:

⊃ Demands for data exclusivity have consistently cropped up since 2008 from the European Union and the EFTA; Switzerland, Norway, Iceland, Lichtenstein as part of trade negotiations with India, but these have been consistently rejected.

⊃ Switzerland is home to several prominent pharmaceutical companies, some of whom have been involved in litigation in India over generic drugs.

⊃ Concerns that such a clause would affect the availability of new drugs had prompted medical rights group Medicins Sans Frontiers (MSF) to write to Indian Prime Minister on the potential harm from India accepting data exclusivity provisions.

India & EFTA:

⊃ India and EFTA have been negotiating the Trade and Economic Partnership Agreement since January 2008. The 21st round of negotiations was held in January on chapters including trade in goods, rules of origin, trade and sustainable development, intellectual property rights, and trade facilitation.

⊃ In FY23, India's exports to EFTA countries stood at $1.92 billion and imports at $16.74 billion.

GLOBAL MEET URGES INDIA TO AUGMENT PULSES PRODUCTION TO MEET NUTRITIONAL NEEDS

Why in news?

⊃ The Global Pulses Conference, an annual meeting of pulse producers, processors and traders, has suggested India to augment production of pulses to meet the nutritional requirements.

Details:

⊃ The two-day conference was jointly organised by the National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED) and the Global Pulse Confederation (GPC).

⊃ India has taken adequate measures to improve pulses cultivation in the country by increasing the minimum support price regularly. Over the last decade pulses production has grown by 60% from 171 lakh tonnes in 2014 to 270 lakh tonnes in 2024.

MSP in pulses:

⊃ The Centre has assured a price of 50% over the actual cost of production to our farmers, thereby providing an attractive return on investment.

⊃ The MSP is the highest today with increases as high as 117% in masoor, 90% in moong, 75% more in chana dal, 60% more in tur and urad over the amount provided a decade back.

Pulses production in India:

⊃ India has become self-reliant in chickpeas (chana) and many other pulses crops, with only a slight deficiency remaining in pigeon peas (tur) and black gram.

⊃ Consistent efforts are being made to attain self-sufficiency in pulses by 2027.

⊃ The government has increased the supply of new varieties of seeds, while also focusing on expanding cultivation of tur and black gram.

Way Forward:

⊃ India will benefit from the global conference with sharing of the best practices and technological advancements in the field from other countries.

INCREASE IN AUTHORIZED CAPITAL OF FOOD CORPORATION OF INDIA FROM RS 10,000 CRORE TO RS 21,000 CRORE

Why in news?

⊃ Recently, the Government of India (GoI) has announced an increase in the authorized capital of the Food Corporation of India (FCI) from Rs 10,000 Crore to Rs 21,000 Crore.

Role of FCI:

⊃ FCI, as the pillar of India's food security architecture, plays a pivotal role in various crucial functions, including the procurement of food grains at Minimum Support Price (MSP), maintenance of strategic food grain stocks, distribution to state governments and Union Territories (UTs), and stabilization of food grain prices in the market.

Why it matters?

⊃ The increase in authorized capital is a significant step towards enhancing the operational capabilities of FCI in fulfilling its mandate effectively. To match

the gap of fund requirement FCI resorts to Cash Credit, Short Term Loan, Ways & Means etc.

- Increase of Authorised capital and further infusion will reduce the interest burden, reducing the economic cost and ultimately affecting the subsidy of GOI positively.
- With this infusion of capital, FCI shall also embark upon modernizing its storage facilities, improving transportation networks, and adopting advanced technologies.

New initiatives:

- GoI provides equity to FCI for working capital requirement and for creation of capital assets. FCI is undertaking a comprehensive initiative to create an Integrated IT system, leveraging existing internal systems (FAP, HRMS) and external systems (State procurement portals, CWC/SWC).
- The E-office implementation has already made FCI a less paper organization. These initiatives of integrated IT solutions serving as the core operational software for FCI, shall provide a single source of information and streamline functions with a common digital backbone.
- As a part of enhancing its efficiency, FCI is diligently executing tasks such as cement roads, roof maintenance, illumination, and weighbridge upgrades, enhancing food security.
- Purchase of lab equipment and the development of a software platforms for QC labs aim to improve quality checking. Studies on "Out-Turn Ratio", "Shelf-Life", and "Pest Management for Fortified Rice" complement FCI's commitment to building an efficient and food security management system.
- The integration of automated digital equipment further aligns with FCI's objectives, aiming to remove human intervention for a transparent procurement mechanism and enhance infrastructure for employees, saving on rent and creating assets for FCI.

About FCI:

- FCI is a statutory body set up in 1965 under the Food Corporations Act 1964. It was established against the backdrop of major shortage of grains, especially wheat.

The Objectives of the Food Corporation of India is as follows:

- Proper price support for to protect the interests of poor farmers
- Effective distribution of foodgrains through a Public Distribution Systems (PDS)
- Maintenance of operational and buffer stocks of food grains to ensure continued supply of essential food supply.
- Regulation of market price for foodgrains so that the population can get them at an affordable price.

FIRST SKILL INDIA CENTRE OF INDIA IN ODISHA

India's First Skill Centre to Empower Odisha Youth with Industry-Relevant Skills

Why in news?

- Recently, the first Skill India Centre (SIC) of the country was inaugurated in Sambalpur, Odisha.

Key Highlights:

- The centre is equipped with best-in-class infrastructure, cutting-edge technologies and modern facilities that will catalyse demand for formal skills and will serve as a catalyst in enabling youth to acquire the skills needed to succeed in their respective fields.
- To further fuel growth, collaborative efforts are being made to harness the potential of demographic dividends to catalyse rural development, nurture local entrepreneurship and spur socio-economic growth.
- The SIC will play a pivotal role in designing curriculum along with industry experts which will be aligned with the changing industry needs, promote standardization, and create employment opportunities that meet the demand for skilled talent across industries.
- It stands as a remarkable opportunity for youth that aims to leverage modern technologies, gain technology-driven learning experiences and explore potential career avenues with renowned organizations.

Implementation:

- To ensure seamless implementation of the training ecosystem, the National Skill Development Corporation (NSDC) will designate a Centre Manager who will monitor the implementation of training programs and ensure adherence to quality standards and the overall functioning of the Centre.
- This transformative step will open new avenues for individuals to pursue education, and acquire new skills and employment linkages.

About National Skill Development Corporation (NSDC):

- National Skill Development Corporation (NSDC) is the principal architect of the skill ecosystem in the country. It is a unique Public Private Partnership (PPP) enterprise working under the Ministry of Skill Development & Entrepreneurship (MSDE), Government of India.

- NSDC was established to catalyze the skilling ecosystem for private sector participation and be the strategic implementation and knowledge partner to Skill India Mission to build efficient vocational training initiatives, empowering India's youth.
- NSDC provides support to enterprises, start-ups, companies, and organizations that are creating an impact by offering a world of opportunities in futuristic skills to the potential workforce.
- The organization develops appropriate models to enhance, support, and coordinate private sector initiatives in skilling by offering funding support to eligible entities, concessional loans to the candidates along with other innovative financial products and building strategic partnerships.

CENTRE DISCLOSES KEY CONSUMPTION EXPENDITURE SURVEY FINDINGS AFTER 11 YEAR GAP

Food spending

Share of cereals and food in average monthly per capita consumption expenditure decreased in both rural and urban areas

Period	RURAL		URBAN	
	% share of cereals	% share of food	% share of cereals	% share of food
1999-00	22.23	59.4	12.39	48.06
2004-05	17.45	53.11	9.63	40.51
2009-10	13.77	56.98	8.16	44.39
2011-12	10.75	52.9	6.66	42.62
2022-23	4.91	46.38	3.64	39.17

Why in news?

- For the first time in about 11 years, the government recently released the broad findings of the All India Household Consumption Expenditure Survey carried out between August 2022 and July 2023.

Background:

- The Household Consumer Expenditure Survey (HCES) is usually conducted by the National Statistical Office (NSO) every five years.
- However, findings of the last survey, conducted in 2017-18 soon after the demonetisation of high-value currency notes and the implementation of the Goods and Services Tax (GST), were never released after the government cited "data quality" issues.

Key Highlights:

- As per the latest survey, the average monthly per capita consumer expenditure (MPCE) in Indian households rose by 33.5% since 2011-12 in urban households to ₹3,510, with rural India's MPCE seeing a 40.42% increase over the same period to hit ₹2,008.
- The numbers show that the proportion of spending on food has dropped to 46.4% for rural households from 52.9% in 2011-12, while their urban peers spent just 39.2% of their overall monthly outgoes on food compared with 42.6% incurred 11 years earlier.

- This reduction could translate into a lower weightage for food prices in the country's retail inflation calculations.
- The MPCE numbers do not take into account the imputed values of items received free of cost by individuals through various social welfare programmes such as the PM Garib Kalyan Ann Yojana or State-run schemes, which were calculated separately, while including a few non-food items received through such schemes, including computers, mobile phones, bicycles, and clothes.

Database:

- The average MPCE, at 2011-12 prices, was a tad higher when these items were included while excluding free education and healthcare sops at ₹2,054 for rural households, and ₹3,544 for urban homes.
- The estimates of the MPCE are based on data collected from 2,61,746 households, of which 1,55,014 were in rural areas, spread over all States and Union Territories.

SECURITY

INS SANDHAYAK, FIRST SURVEY VESSEL LARGE SHIP, COMMISSIONED

Why in news?

- INS Sandhayak (Yard 3025), the first Survey Vessel Large (SVL) ship, was commissioned into the Indian Navy recently at the Naval Dockyard, Visakhapatnam.

Role:

- The primary role of the ship is to carry out full scale hydrographic surveys of ports, harbours, navigational channels/routes, coastal areas and deep seas, towards enabling safe marine navigation.
- In its secondary role, the ship will be capable of undertaking a range of naval operations.

SVL Project:

- The commissioning ceremony marked the formal induction of the first of the four ships of the SVL Project under construction at Garden Reach Shipbuilders & Engineers (GRSE), Kolkata. The project has been steered by the Warship Design Bureau of the Indian Navy.

➲ The keel was laid on March 12, 2019 and the ship was launched on December 05, 2021.

Salient features:

➲ The ship has a displacement of 3,400 tons and an overall length of 110 meters with a beam of 16m.

➲ INS Sandhayak is equipped with state-of-the-art hydrographic equipment including Deep & Shallow Water Multi-Beam Echo-Sounders, Autonomous Underwater Vehicle, Remotely Operated Vehicle, Side scan sonars, Data Acquisition and Processing System, satellite-based positioning systems and terrestrial survey equipment.

➲ The ship is propelled by two Diesel Engines and is capable of achieving speeds in excess of 18 knots.

➲ It has an indigenous content of over 80% by cost and is a tribute to the collaborative efforts between the Indian Navy and Industry, including MSMEs. Its induction underscores the growing maritime interests and capabilities of the nation.

Facts:

➲ 'Sandhayak' means the one who carries out a special search.

➲ The crest depicts the sixteen points of a mariner's compass, enclosing a 'divider' and an 'anchor' riding the sea, symbolising the charting of oceans, which is the basic role of the survey ship.

IAF'S VAYU SHAKTI 2024

Why in news?

➲ The Indian Air Force (IAF) is set to hold 'Exercise Vayu Shakti-24' at Pokhran's Air to Ground Range, near Jaisalmer, on 17 February with several firsts planned for demonstration.

➲ The exercise seeks to "showcase the full spectrum of operations" that the IAF can undertake "in a realistic scenario".

Details:

➲ The last edition of Vayu Shakti was held on 16 February 2019.

➲ The aim of the exercise is not only to practice and showcase the equipment or capability of the crew, but also to showcase the ability to undertake swift operations that involve coordination. The aim is to

be able to deliver 40-50 tonnes of ammunition in a radius of 1-1.5 km.

Key Highlights:

➲ The exercise will feature several firsts, such as the debut of the Rafale fighter, the indigenously developed Prachanda Light Combat Helicopter (LCH) and the Apache attack helicopter.

➲ The C17 transport aircraft will also be seen dropping ammunition for the first time in the exercise.

➲ The participating aircraft will include other indigenously manufactured ones such as the Tejas fighter and the Dhruv Advanced Light Helicopter (ALH). Aircraft such as Mirage-2000, MiG, Su-30, Jaguar, Hawk, C17, C130, Chinook, and Mi-17 will also be a part of the demonstration. The Avros and An-32s will be in support roles.

➲ The exercise will also feature air-to-air and air-to-ground missile systems. Surface-to-air weapons will be fired at targets, in coordination with Army assets.

➲ The Army's M777 howitzer guns will be carried underslung by Chinook helicopters to fire from the ground.

➲ The Indian Army's Rudra helicopters will also take part in the exercise and fire missiles.

➲ In terms of weapon systems, a number of air-to-air missiles are set to take part in the exercise. The French missile, MICA, will be fired from the Rafales. The R-73 missiles will be fired from the Tejas fighter.

➲ Among surface-to-air weapons, the Surface-to-Air Missile for Assured Retaliation (SAMAR) system and Akash missiles will be a part of the exercise.

Supporting role:

➲ Several air force bases under the South Western Air Command (SWAC) will be activated, including Jodhpur, Jaisalmer, Phalodi, Nal and Uttarlai. Bases under the Western Air Command, Hindon and Agra, will also be involved while the exercise is ongoing.

➲ The aircraft taking part in the exercise will come from several air force commands, including Central and Southern, headquartered in Prayagraj and Thiruvananthapuram, respectively.

➲ Twelve unmanned aerial vehicles will also be used for support roles.

IIT-M AND MUNITIONS INDIA TO DEVELOP SMART AMMO FOR 155MM ARTILLERY GUNS

Why in news?

➲ IIT-Madras and the Government-run Munitions India Limited (MIL) have partnered on developing 55mm Smart Artillery shells.

➲ It will be guided by the Indian constellation of NavIC (Navigation with Indian Constellation) satellites, formerly known as Indian Regional Navigation Satellite System (IRNSS).

Key Highlights:

- IIT Madras, Department of Aerospace Engineering will be developing the smart ammunition, which will later be manufactured by Munitions India Limited, a Government-run firm engaged in the Production, Testing Research and Development and Marketing of a comprehensive range of ammunition and explosives for the Army, Navy, Air force and Paramilitary Forces.
- The objective is to increase the accuracy of 155 mm shell within a Circular Error Probable (CEP) of 10 metres.
- At present, ammunitions developed in India have a CEP of 500 m. Another key goal is to increase the lethality at the terminal impact point.

Salient features:

- Based on the specifications of this proposed artillery shell, it can be fired from 155mm artillery guns, without any changes in the gun system.
- Unlike conventional shells, it will have its control surfaces that will help in manoeuvrability-fin-stabilised, canard-controlled, guided shell. It is expected to have a minimum range of 8kms and a maximum range of 38km.
- This Smart shell also offers three modes of detonation, such as - point detonation, height of burst, delayed detonation.

Way Forward:

- In two years, the Indian Army could get their hands on indigenously-designed and developed 155mm Smart Artillery shells that offer 50 times more accuracy than existing ones.

TORPEDOES, REFUELLER AIRCRAFT IN NEW DEALS CLEARED BY DAC

Why in news?

- The Defence Acquisition Council (DAC) recently accorded Acceptance of Necessity (AoN), the first step in the procurement process, for proposals worth ₹84,560 crore.

Key Highlights:

- The proposals include some long-pending deals such as for heavy weight torpedoes (HWT) for the Navy's Scorpene-class submarines and flight refueller aircraft (FRA) for the Indian Air Force (IAF).

- Other major deals include medium range maritime reconnaissance and multi-mission maritime aircraft for the Navy and the Coast Guard, new generation anti-tank mines, air defence tactical control radar, and software-defined radios.
- To keep the Indian naval ships one step ahead of the threats posed by the adversaries, the AoN under Buy (Indian) category has been accorded for procurement of active-towed array sonar having capabilities to operate at low frequencies and various depths for long-range detections of adversary submarines.
- The AoN has also been accorded for procurement of HWT for enhancing the attacking capabilities of Kalvari class submarines.

DAP 2020:

- The procurement of a new generation of anti-tank mines having seismic sensors and the provision of remote deactivation with additional safety features has been approved under Buy (Indigenously Designed, Developed and Manufactured category of Defence Acquisition Procedure (DAP) 2020.
- The DAC has approved amendments in the DAP 2020 with respect to benchmarking and cost computation, payment schedule and procurement quantity.
- The DAC also cleared the AoN for sustainment support through repair replenishment for the 24 MH-60R multi-role helicopters procured by the Navy from the U.S. under the foreign military sale route.

DIGITAL FLIGHT CONTROL COMPUTER FOR TEJAS MK1A FLOWN SUCCESSFULLY

Why in news?

- Recently, the Digital Fly by Wire Flight Control Computer (DFCC) was integrated in prototype LSP7 and successfully flown on 19th Feb 2024.

About DFCC:

- DFCC has been indigenously developed by the Aeronautical Development Establishment (ADE), Bengaluru for the Tejas - Mk1A.
- Digital Fly by Wire Flight Control Computer features Quadraplex Power PC based Processor, high speed autonomous state machine based I/O controller, enhanced computational throughput and complex on-board software complied to DO178C level- A safety requirements.
- All critical parameters and performance of the flight controls were found satisfactory.

Tejas MK1A:

- Aeronautical Development Agency, under the aegis of Department of Defence R&D and Ministry of Defence has successfully type certified Tejas-Light Combat aircraft (LCA).
- Indian Air Force has already operationalised Tejas LCA Mk1.
- The improved version of the aircraft, Tejas MK1A features advanced mission computer, high performance Digital Flight Control Computer (DFCC Mk1A), Smart Multi-Function Displays (SMFD), Advanced Electronically Scanned Array (AESA) Radar, Advanced Self-protection Jammer, Electronic Warfare Suit etc.

EXERCISE DHARMA GUARDIAN

Why in news?

- The 5th edition of Joint Military Exercise 'Dharma Guardian' between the Indian Army and the Japan Ground Self Defence Force commenced recently at Mahajan Field Firing Ranges in Rajasthan.
- The Exercise is scheduled to be conducted from 25th February to 9th March 2024.
- Exercise 'Dharma Guardian' is an annual exercise and conducted alternatively in India and Japan.

Details:

- The contingent of both sides comprises of 40 personnel each.

- The Japanese contingent is being represented by troops from the 34th Infantry Regiment and Indian Army contingent is being represented by a Battalion from the Rajputana Rifles.

Aim:

- It aims to foster Military Cooperation and enhance combined capabilities to execute joint operations in semi-urban environment under Chapter VII of United Nations Charter.
- The Exercise would focus on high degree of physical fitness, joint planning, joint tactical drills and basics of special arms skills.

Key Highlights:

- Tactical drills to be practiced during the Exercise will include establishing of Temporary Operating Base, creating an Intelligence, Surveillance and Reconnaissance (ISR) Grid, setting up Mobile Vehicle Check Post, executing Cordon and Search Operations in a hostile village, Heliborne operations and House Intervention Drills.
- A Weapon and Equipment Display will also be organised showcasing 'Atmanirbhar Bharat' initiative and the growing defence industrial capability of the country.
- It will enable the two sides to share their best practices in Tactics, Techniques and Procedures of conducting tactical operations.
- The Exercise will also facilitate developing inter-operability, bonhomie and camaraderie between troops of both the sides.

Way Forward:

- This will enhance the level of defence cooperation, further fostering bilateral relations between the two friendly nations.

ENVIRONMENT

INDIAN RESEARCHERS UNVEIL WATER-RESISTANT FILM TO BOOST LIFE OF ENERGY SYSTEMS

Why in news?

- Researchers at Shiv Nadar University have unveiled flexible and durable films that could help in harnessing clean energy and its conservation.

Details:

- The superhydrophobic film designed by them promises to enhance the efficiency and longevity of various engineering systems, including solar panels, flexible electronics, and optical equipment.
- The key challenge addressed by the scientists is the performance limitations imposed by atmospheric contamination, such as pollutants, salt-laden aerosols, and rain, which often lead to substantial functionality loss in these systems.
- The team's research focused on creating films that repel water and other liquids, protecting devices from environmental damage.

Key Highlights:

- Through a simple and eco-friendly biofuel-based flame treatment, the researchers successfully crafted superhydrophobic polydimethylsiloxane (PDMS) films.
- The treatment resulted in the formation of coral-like wrinkled morphologies with in-situ synthesised functionalised nano-silica particles.
- What sets these films apart is their exceptional water-repelling capabilities, boasting a water contact angle greater than 160 degrees, ensuring remarkable dewetting characteristics.
- The films also exhibited low hysteresis (less than 5 degrees) and sliding angles (less than 5 degrees), making them highly effective in resisting liquids, including blood.
- Hysteresis refers to the lag or delay in the response of a system to changes in the forces or parameters influencing that system. In the context of superhydrophobic films, low hysteresis is desirable.
- The film's adhesion with water is incredibly low, surpassing that of the famed Lotus leaf.

Unique feature:

- The secret to these films' exceptional performance lies in the Coral-like structures formed from agglomerated nano-silica particles, providing a negative capillary pressure.
- This unique feature results in extreme dewetting and low adhesion characteristics, making the films resilient in harsh physical and chemical environments.

Way Forward:

- The developed films demonstrated outstanding resistance, enduring more than 20,000 droplet impacts and over a year of weathering without severe damage.
- This breakthrough opens the door for the creation of non-wettable, self-cleaning structures, even those with intricate shapes.

ONE FIFTH OF MIGRATORY ANIMAL SPECIES ON BRINK OF EXTINCTION, UN REPORT

Why in news?

- A new report released by the United Nations alarming trend that over 20% of the world's migratory species are teetering on the brink of extinction.
- The comprehensive analysis, which is the first of its kind, highlights the dire consequences of climate change and human interference on these vital natural phenomena.

Details:

- The report scrutinises the status of 1,189 species protected under a 1979 UN convention dedicated to the conservation of migratory animals.
- It paints a grim picture: 44% of these species have experienced population declines, with up to 22% facing the possibility of complete disappearance.
- Data from the International Union for the Conservation of Nature (IUCN) and the Living Planet Index, tracking over 5,000 species since 1970, underpin the report's findings.

Key Highlights:

- The decline in migratory species not only threatens biodiversity but also has far-reaching implications for global food security and human livelihoods.
- Human activities, including unsustainable hunting, fishing, and exploitation, impact 70% of the listed species. Habitat loss, affecting three-quarters of the species, underscores the necessity for interconnected ecosystems.
- The report calls on governments to consider the ecological impact of infrastructure projects like dams and wind turbines, which can disrupt habitats and migration paths.
- The report also points to the exacerbating effects of climate change, such as altered migration timing, heat stress, and extreme weather events like droughts and wildfires. These changes, once predicted, are now unfolding with increasing frequency and intensity.

Way Forward:

- Conservationists are urging governments to fulfill their commitments made under the 2022 global

biodiversity agreement, which includes designating 30% of the world's land and sea territories for nature by 2030.

THE PATTERNS OF GLOBAL WARMING ARE MORE IMPORTANT THAN ITS LEVELS
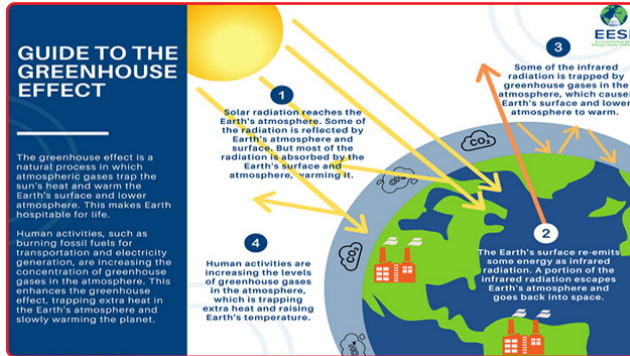
Context:

➲ Many warming records were broken in 2023 along with climate disasters such as wildfires, cyclones, droughts, and floods.

➲ The 1.5 degrees C is not a scientific threshold. It became enshrined in the Paris Agreement after intense negotiations by member-countries of the U.N. Framework Convention on Climate Change (UNFCCC). Measuring the crossing

Palaeo proxies:

➲ Based on estimates of warming from palaeo-thermometry, scientists have said that the earth's surface has already warmed by more than 1.5 degrees C on average over pre-industrial levels.

➲ A major caveat of the study is that the scientists have collected warming data from only one location and have extrapolated it to be indicative of the global mean temperature trend.

➲ This said, these so-called 'palaeo proxies' constitute an amazing technique that uses chemical evidence stored in various organic matter, such as corals, stalactites, and stalagmites, to approximate the temperature at some point in the past. The evidence can't measure the actual overall temperatures.

➲ Since palaeo proxies don't directly measure the temperature, we call them proxies of past temperature deviations (the 'palaeo' denotes the past).

Crossing the 1.5 degrees C threshold:

➲ The expositions that made this claim do not really offer any clear explanation of why such exceptional warming occurred or how it can explain some location-specific disasters.

➲ No one has been able to fully explain the patterns of warming associated with this threshold exceedance or, in fact, the pattern of any level of global warming.

➲ Even the amount and the distribution of the 2023 monsoons have not been explained yet, and it is

unclear how the combination of the El Niño, its unusual pattern, and global warming conspired together to produce the monsoons India experienced. The Indian subcontinent experienced significant cooling during 2023.

El Niño as a warming paradigm:

➲ The tropical Pacific Ocean keeps soaking up heat during normal and La Niña years and belches it out in an El Niño year. This causes a mini global warming, with consequences at distant locations.

➲ Depending on whether warming due to an El Niño is in the eastern Pacific Ocean or closer to the international dateline, the impacts on the monsoon and the other parts of the world can be very different.

➲ The El Niño teleconnections themselves also modify the warming pattern. As a result, droughts can have a stronger feedback that affects temperature than floods in many instances.

➲ The massive deluges that California is experiencing this winter are driven by the El Niño but likely amplified by global warming. The amounts of rain and snow will subsequently feedback to local and global temperatures.

➲ These same processes work in the global warming regime as well. As human-made greenhouse gases initiate the warming, the warming pattern is amplified in the Arctic and over the desert regions of the Middle East but damped over the eastern Pacific and the northern Atlantic oceans.

➲ These local warmings and coolings and their magnitudes determine the net effect of natural variability and global warming in a particular locality.

Way Forward:

➲ It is hardly possible to over-emphasise need for accurate predictions of warming patterns to manage the climate change impacts that have already landed.

➲ There is need for such predictions not only on an event-to-event basis but also in order to adapt to the changing seasons and the unavoidable harm they are rendering to lives, livelihoods, and economies.

CMS COP14, ACTION PLANS FOR AFRICAN-EURASIAN MIGRATORY LANDBIRDS, OTHER AVIAN SPECIES ADOPTED

Why in news?

➲ The 14th Meeting of the Conference of the Parties to the Convention on Migratory Species of Wild Animals (CMS COP14) adopted an action plan for improving the conservation status of migratory landbird species in the African-Eurasian region recently.

➲ The CMS COP14 is being held at Samarkand, Uzbekistan.

Key Highlights of AEMLAP:

➲ The adoption of African-Eurasian Migratory Landbirds Action Plan (AEMLAP) also included annexes in the resolution urging the Parties and encouraging non-Parties and stakeholders to implement it on priority.

➲ It also included the adoption of the 12-year multi-species action plan for vultures.

➲ For parties, it urged the stakeholders to address habitat loss and degradation concerning the migratory landlord species.

➲ It directed that the objectives be met by developing policies aimed at maintaining, managing, and restoring its habitats in collaboration with local communities and other African partners, such as the poverty alleviation community.

➲ It urged parties and non-parties to collaborate with relevant agencies, organisations and local communities to prevent harmful land use and land use changes that would have a negative impact on biodiversity in the African-Eurasian flyway region.

Action plan for other species:

➲ In another discussion on avian species, the summit adopted action plans for species such as far eastern curlew, Baer's pochard and European roller submitted to CMS COP12.

➲ It also adopted Action Plan for Great Bustard in Asia and International Single Species Action Plan for the Conservation of the Christmas Island Frigatebird submitted to CMS COP14.

➲ During discussions, it expressed concerns about the conservation status of the Indian Skimmer (Rynchops albicollis). It noted issues about its riverine and coastal habitats and its possibility of extinction in southeast Asia following its severe decline identified in early 2020.

➲ India and Bangladesh have submitted a joint proposal to list the species under the CMS and development of the international Single Species Action Plan.

Way Forward:

➲ The CMS COP14 highlighted the need to urgently address the concerns of illegal and unsustainable killing and trade of species during their migration and wintering through natural conservation legislation.

➲ It further urged the Parties and encouraged non-Parties to prevent poisoning of these migratory birds by agriculture pesticides and veterinary chemical treatments.

RESEARCHERS FIND NEW CRUSTACEAN IN ODISHA'S CHILIKA LAGOON

Why in news?

➲ Researchers at Odisha's Berhampur University have discovered a new species of marine amphipod, a shrimp-like crustacea of genus Parhyale from the state's Chilika Lake, Asia's biggest brackish water lagoon on India's east coast.

➲ The new species has been named Parhyale odian after Odisha's native language, Odia, as the species was collected there.

Details:

➲ The present contribution has added one more species to the genus Parhyale, raising the global species number in the group to 16.

➲ The researchers collected at least four specimens of the species from the intertidal region of the Chilika lagoon at Barkul in Odisha's Ganjam district, along with the seaweed Gracilaria.

➲ The marine amphipod was separated from other seaweeds for the study.

Key features:

➲ The new species is brown in colour and around eight millimetres in length. It has 13 pairs of legs. The first pair of legs is used for capturing prey and feeding.

➲ The newly discovered Parhyale odian differs from all other 15 species by having a stout robust seta, a spine-like structure on the surface of the propodus of the male gnathopod (first pair of legs).

➲ The genus Parhyale was first reported by Stebbing in 1899 from the Virgin Islands. The genus is represented by 15 species globally, occupying both marine and brackish water environments.

➲ The genus is cosmopolitan, distributed in intertidal and littoral environments along tropical and warm temperate regions.

➲ They are mostly found underneath stones with attached vegetation and also in the burrows of isopods.

Role of Amphipods:

➲ Amphipods are a significant group in the marine ecosystem and play a vital role in the marine food

chain. They also serve as indicators for studying the impact of climate change and health of coastal ecosystems, he said.

- Further research will delve deeper into understanding the specific ecological roles of amphipods in coastal and marine environments.

CENTRAL ASIAN FLYWAY RECOGNISED TO PROTECT OVER 600 MIGRATORY BIRD SPECIES

Why in news?

- The Fourteenth Meeting of the Conference of the Parties to the Convention on the Conservation of Migratory Species of Wild Animals (CMS COP 14) adopted the Initiative for the Central Asian Flyway introduced by India.

Details:

- Led by India, the proposal was supported by conservation non-profit BirdLife International and 30 other governments from Russian Siberia to the Maldives.
- It committed to establish an initiative for the Central Asian Flyway under the CMS.
- The aim of the initiative is to restore and maintain favourable conservation status of migratory species populations and assisting their ecological connectivity in the flyway.

Why it matters?

- Unfortunately, populations of over 240 species of migratory birds are in decline in the Central Asian Flyway, with 48 species listed as Globally Threatened or Near Threatened.
- Several migratory birds in this flyway are also culturally important to the communities that have co-existed with them for hundreds of years; the White Stork in Uzbekistan, the Black-Necked Crane in Bhutan and the Steppe Eagle in Kazakhstan.

Member countries:

- The Central Asian Flyway consists of the following countries: Afghanistan, Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, China, Georgia, India, Iran, Iraq, Kazakhstan, Kuwait, Kyrgyzstan, the Maldives, Mongolia, Myanmar, Nepal, Oman, Pakistan, Qatar, Russian Federation, Saudi Arabia, Sri Lanka,

Tajikistan, Turkmenistan, United Arab Emirates, United Kingdom (British Indian Ocean Territory), Uzbekistan and Yemen.

Significance:

- The Initiative for the Central Asian Flyway will act as a platform for capacity building, knowledge sharing, research and coordination among all range countries and will pave the way to conserve the populations of the 600+ species of migratory birds that use this flyway.
- BirdLife addressed key threats faced by migratory birds such as severe habitat loss, overexploitation and illegal killing. Other threats making these migratory species vulnerable are "rapid development of energy infrastructure", causing collisions and electrocutions.

Way Forward:

- The initiative will work to develop and enforce a Programme of Work aligning with the resolutions, decisions and plans agreed by the CMS.

SC DIRECTS GOVTS TO FOLLOW 'BROAD' DEFINITON OF FORESTS

Why in news?

- The Supreme Court has directed governments to follow the "broad and all-encompassing" definition of forest as laid down in its 1996 judgment in the T N Godavarman case until a consolidated record of all kinds of forests across the country is prepared.
- A three-judge Bench led by Chief Justice of India (CJI) D Y Chandrachud passed the order on petitions that challenged the 2023 amendments to the Forest (Conservation) Act, 1980 (FCA) on the ground that the modifications had "substantially diluted" the definition of forest, and had reduced the ambit of the Act.

Why was the Forest (Conservation) Act amended in 2023?

- In the Statement of Objects and Reasons for the Forest (Conservation) Amendment Bill, 2023, passed by both Houses in July-August 2023, the government said that applicability of the FCA had been widened by the judgment of the Supreme Court in T N Godavarman Thirumalpad v. Union of India (December 12, 1996).

➲ "Subsequent to the said Judgment, the provisions of the Act were applied in... recorded forests which had already been put to various type of non-forestry use, thereby restraining the authorities from undertaking any change in the land use and allowing any development or utility related work," the Statement of Objects and Reasons said.

➲ As a remedy, the amendment made the FCA applicable only to notified forests and lands that were identified as 'forest' in government records.

How exactly did the Supreme Court define 'forest' for the purposes of the Act?

➲ The court ruled that the FCA would apply to all land parcels that were either recorded as 'forest', or which resembled the dictionary meaning of forest.

➲ The 1996 judgment said: "The word 'forest' must be understood according to its dictionary meaning. This description covers all statutorily recognised forests, whether designated as reserved, protected or otherwise... The term 'forest land' will not only include 'forests' as understood in the dictionary sense, but also any area recorded as forest in the Government record irrespective of the ownership."

➲ The CJI-led three-judge Bench reaffirmed this principle, saying that the dictionary meaning of forests had been adopted by the court to align with Parliament's intent behind legislating the FCA in 1980.

To what extent did the SC's 1996 judgment really expand the ambit of the FCA, 1980?

➲ The declared intent of the 2023 amendment was to correct the situation arising out of the perceived expansion of the FCA's applicability by the SC.

➲ However, under sub-sections ii, iii, and iv of Section 2 ("Restriction on the dereservation of forests or use of forest land for non-forest purpose") of the FCA, the ambit of the law is not limited to only "reserved forest", it bars the unauthorised non-forest use of any forest land.

➲ In the FCA, the term "reserved forest" is used only in the limited context of dereservation. Section 2(i) says that no reserve forest "shall cease to be reserved" without prior approval from the Centre. Clearly, a clause on dereservation can only apply to what is reserved.

➲ This principle was reiterated by the Supreme Court in July 2022 in Narinder Singh & Ors vs Divesh Bhutani & Ors. "As clause (i) specifically refers to a reserved forest...it is obvious that clauses (ii), (iii) & (iv) apply to any other forest... Therefore, forest as understood by its dictionary meaning is covered by Section 2" of the FC Act itself.

What about the argument that following the T N Godavarman judgment, the FCA was impeding the government's welfare agenda?

➲ The government had justified the 2023 amendments as a means to address the development needs of forest-dwelling tribes.

➲ However, the basic development needs of tribal communities are covered under Section 3 of the Forest Rights Act, 2006, that requires the Centre to divert forest land "notwithstanding anything contained in the FC Act" for certain facilities managed by the government.

➲ An amendment to the FCA would not have been necessary only to build these facilities such as schools, dispensaries/hospitals, anganwadis, ration shops, power/phone lines, tanks, water pipelines, minor irrigation canals, vocational training centres, roads, community centres, etc.

Who challenged the 2023 amendments to the law, and on what grounds?

➲ The challenge (Ashok Kumar Sharma, IFS (Retd) & Ors v. Union of India & Ors) was filed by a group of retired Indian Forest Service officers and NGOs such as Vanashakti and Goa Foundation.

➲ The petitions echoed some of the concerns raised by the dissenting members of the Joint Parliamentary Committee (JPC) that had examined the amendments. The major apprehension was the potential exclusion of 28% of India's forests that lie outside Recorded Forest Areas from the purview of the FC Act.

➲ The petitioners argued that pending finalisation of the consolidated record of forests — required to be completed within one year under the amended 2023 Rules — land parcels that would have been considered forests under the 1996 judgment could now be used for non-forest purposes without requiring any clearance under the FCA.

➲ At this, the SC explicitly asked its 1996 definition to be followed until the consolidated record of forests was finalised.

What happens now?

➲ The Supreme Court said that while the expert committees set up under the 2023 Rules should take into account the progress made by the previous expert panels, they are free to expand the protection umbrella to any forest land that is worth protecting.

➲ The matter will be heard for final disposal in July.

NEW LAPWING OBSERVED AT WARANGAL LAKE, A FIRST IN INDIA

Why in news?

➲ A birdwatching team from Telangana recently spotted near Warangal a spur-winged lapwing, believed to be the first one sighted in India.

Key Highlights:

➲ The wader bird has the scientific name Vanellus spinosus

⮕ It is native to North Africa, the Middle East and Mediterranean regions; it has never been sighted in the sub-continent.

Hyderabad Bird Race:

⮕ The wader bird was spotted near Bhattupalle village by a team of birdwatchers participating in the Hyderabad Bird Race.

⮕ The 14th edition of the Hyderabad Bird Race was organised by Deccan Birders together with HSBC.

FIRST SOLAR PROJECT OF NTPC RENEWABLE ENERGY LIMITED BEGINS OPERATIONS

Why in news?

⮕ The first solar project of NTPC Renewable Energy Ltd. (NTPC-REL) at Chhattargarh in Rajasthan has declared commencement of commercial operations of 70 MW capacity.

⮕ With this, the installed capacity of NTPC Group has reached 73,958 MW.

Chhattargarh Solar project:

⮕ The slated full capacity of Chhattargarh Solar project is 150 MW and is expected to be commissioned by March 2024.

⮕ The capacity was won under SECI-Tranche:III and the beneficiary of this project is the state of Rajasthan.

⮕ The project is designed to generate 370 million units of energy per year, sufficient for 60,000 households, while also saving 3 lakhs tons of CO2 emissions every year and conserving 1,000 MMTPA of water.

⮕ This is adequate for over 5,000 households in a year.

Capacity of NTPC-REL:

⮕ At present, NTPC-REL has 17 projects under execution, with a total capacity exceeding 6,000 MW.

⮕ With this, the total renewable energy operational capacity of NTPC Group stands at 3,448 MW.

SCIENCE & TECHNOLOGY

CHINA LAUNCHES NINE SATELLITES INTO ORBIT ON POWERFUL JIELONG-3 ROCKET

Why in news?

⮕ The Jielong-3, or Smart Dragon-3, blasted off from a floating barge off the coast of Yangjiang in southern Guangdong province.

⮕ It was the third launch of the rocket, developed by China Rocket Co, a commercial offshoot of a state-owned launch vehicle manufacturer, since December 2022.

Commercialization of space sector:

⮕ President of China has called for the expansion of strategic industries including the commercial space sector, deemed key to building constellations of satellites for communications, remote sensing and navigation.

⮕ Recently, Chinese automaker Geely Holding Group (0175.HK), opens new tab launched 11 satellites to boost its capacity to provide more accurate navigation for autonomous vehicles.

⮕ Critical to the construction of commercial satellite networks is China's ability to open more launch windows, expand rocket types to accommodate different payload sizes, lower launch costs, and increase the number of launch sites, such as building more spaceports and using sea launch vessels.

Jielong-3:

⮕ Jielong-3 can carry a 1,500 kg (3,300 pounds) payload into a 500-km sun-synchronous orbit.

⮕ The rocket could carry over 20 satellites at a launch cost of under $10,000 per kg - a globally competitive rate for small-lift rockets.

⮕ The cost is similar to the launches of other Chinese small-lift rockets including the Long March 11, but their payload sizes are significantly smaller.

Lijian-1:

➲ Jielong-3 is comparable to the powerful Lijian-1, which first flew in 2022.

➲ Developed by CAS Space, a Guangzhou-headquartered commercial spinoff of the Chinese Academy of Sciences, Lijian-1 can also send a 1,500 kg payload to a 500-km sun-synchronous orbit.

Ceres-1:

➲ Other commercial companies in the Chinese vehicle launch sector includes Galactic Energy, whose Ceres-1 rocket made its debut flight in November 2020.

➲ Ceres-1 is capable of delivering a 300 kg payload to a 500 km sun-synchronous orbit.

➲ Beijing-based Galactic Energy made at least seven Ceres-1 launches in 2023, up from four in 2020-2022.

Zhuque-2:

➲ Landspace's launch of the Zhuque-2 in 2023 marked the world's first successful payload delivery by a liquid oxygen-methane rocket and a breakthrough in China's use of low-cost liquid propellants.

Gravity-1:

➲ In the realm of larger rockets, Orienspace in January launched Gravity-1 from a ship off the coast of eastern Shandong province.

➲ The rocket is capable of sending a payload of up to 6,500 kg into low-earth orbit, making it the most powerful launch vehicle developed by a private Chinese enterprise.

DUSTED APOLLO SIGHTED FOR FIRST TIME IN HIMACHAL'S CHAMBA

Why in news?

➲ Dusted Apollo (Parnassius stenosemus), a rare high-altitude butterfly, has been sighted and photographed for the first time in Himachal Pradesh, indicating the flourishing diversity of Apollo butterflies in the region.

➲ The butterfly was sighted and photographed in September 2023, during a trek to Manimahesh Lake in Chamba. The species was discovered in 1890.

Habitat:

➲ The distribution range of Dusted Apollo extends from Ladakh to west Nepal and it flies between 3,500 to 4,800 metres in the inner Himalayas.

➲ Dusted Apollo is extremely rare and has never been photographed before in Himachal Pradesh.

Key features:

➲ The Dusted Apollo species closely resembles Ladakh Banded Apollo (Parnnasius stoliczkanus).

➲ But the discal band on the upper fore wing in Dusted Apollo is complete and extends from costa to vein one, whereas the discal band is incomplete and extends only up to vein four in Ladakh Banded Apollo.

➲ Moreover, the Dark marginal band on the hind wings is much narrower in Dusted Apollo while it is broad in Ladakh Banded Apollo.

Regal Apollo:

➲ Another rare species, Regal Apollo (Parnnasius charltonius), which is protected under Schedule II of the Wildlife Protection Act, 1972, was also photographed at Manimahesh.

Apollo butterflies:

➲ Apollos are considered commercially important butterflies and they fetch high prices in the poaching industry.

➲ There are 11 Apollo species recorded from Himachal Pradesh and five of them are declared as Scheduled species.

➲ Most of the Apollo butterflies are now endangered and need immediate attention for their conservation and protection.

HYPERVELOCITY FACILITY AT IIT KANPUR

Why in news?

➲ Recently, the Indian Institute of Technology Kanpur (IIT-K) has successfully established and tested the nation's first Hypervelocity Expansion Tunnel Test Facility, known as S2.

➲ This state-of-the-art facility propels India into an elite group of countries possessing advanced hypersonic testing capabilities.

➲ Hypersonic speed refers to speeds that are significantly faster than the speed of sound, typically defined as speeds exceeding Mach 5. Mach 5 is five times the speed of sound, which is approximately 343 meters per second.

What has IIT-Kanpur done?

- The S2 facility, affectionately nicknamed 'Jigarthanda', spans 24 meters in length and is housed within IIT Kanpur's Hypersonic Experimental Aerodynamics Laboratory (HEAL) at the Department of Aerospace Engineering.
- It was indigenously designed and developed over three years with the support of the Aeronautical Research and Development Board (ARDB), the Department of Science and Technology (DST), and IIT Kanpur itself.
- S2 is capable of generating flight speeds ranging from 3 to 10 kilometers per second, effectively simulating the extreme hypersonic conditions that vehicles encounter during atmospheric entry, asteroid entry, scramjet flights, and ballistic missile launches.

What will it be used for?

- This unique first-of-its-kind facility is expected to be an invaluable asset for ongoing missions by the Indian Space Research Organisation (ISRO) and the Defence Research and Development Organisation (DRDO), including the Gaganyaan mission, Reusable Launch Vehicles (RLV), and hypersonic cruise missiles.
- Hypersonic missiles are one of the most difficult weaponery to be intercepted. Their extremely high speed gives them a unique advantage of evading radars at times. Two types of hypersonic missiles have been developed over the years: hypersonic cruise missiles and hypersonic glide vehicles.
- The new facility is expected to boost India's testing capabilities. In 2020, the DRDO had tested the hypersonic air-breathing scramjet system for propulsion, which attained a speed of Mach 6 for 23 seconds during the testing.

Way Forward:

- With this indigenous hypervelocity testing capability, India is poised to make significant strides in developing cutting-edge hypersonic technologies and systems, bolstering its position in global aerospace research and defense readiness.

SATELLITE-BASED TOLL COLLECTION MAY ROLL OUT BEFORE LS POLLS

Why in news?

- The government plans to implement satellite-based toll collection on highways.
- The technology, which has been under the government's consideration for the past three years, will allow barrier-free movement of vehicles and they will not be required to stop for toll payments.

How it will work?

- The photo of the registration plate of the vehicle will be captured and the toll amount will be debited based on the actual length of the highway traversed by the vehicle.
- This will replace the radio frequency identification-based FASTag system that was rolled out in 2016 and made mandatory from January 2021.
- A total of 8.13 crore FASTags have been issued and a penetration of 98% has been achieved.
- This will involve every vehicle registering for the Global Navigation Satellite System of toll collection to be equipped with an on-board unit (OBU) that will be linked to a constellation of satellites.
- The OBU will also be linked with a wallet from which the toll amount will be deducted.

Trial:

- It has been tested in Delhi and Gurugram and a trial will soon be conducted in Bengaluru too.

CSIR NAL FLIES TEST-DRONE THAT CAN DOUBLE UP AS PSEUDO SATELLITE

Why in news?

- Scientists at the CSIR-National Aerospace Laboratories (NAL) successfully tested an unmanned aerial vehicle, called High Altitude Pseudo Satellite (HAPS), at Challakere, Karnataka.
- HAPs are like drones, except that they are expected to be in the stratosphere and can be powered enough by solar cells and a battery-system to be able to hover for days on end.

Applications:

- A fully working HAPS can be used for a variety of applications, from surveillance to beaming 5G waves.
- They can double up as "towers in the sky" and have more flexibility than satellites, in being able to map a

piece of land from above. The NAL system is currently far from these goals.

- The HAPS that was flown is a scaled-down HAPS. The 5-metre-long system, with a wingspan of 11 metres and weighing 23 kg, rose to about 3 km and stayed put for about eight hours. This prototype met or exceeded all the performance metrics set out for it.
- However, a series of tests have been planned and they are expected to culminate in a full-bodied craft; with a wingspan of 30 m (nearly as much as a Boeing 737) by 2027. It will be able to rise to 23 km and stay airborne for at least 90 days.

Challenges:

- They are unmanned and must fly days and nights on end, meaning they need solar-powered batteries capable of lifting the airframe up to the stratosphere (which extends from 20-50 km above the earth's surface).
- This ascent into the sky is challenging, given the air turbulence in the atmosphere, and the fact that these are relatively light planes.
- Unlike the familiar solar panels on rooftops, those used to power the plane are extremely thin solar films. There are only one or two companies in the world capable of making solar-cell films that thin.

What's next?

- CSIR-NAL aims to design and build the HAPS' propellers, battery management system, carbon-composite airframe, flight-control system, and the high-powered electric motors that can withstand extreme temperature ranges.

BENGALURU BEGINS TESTING NEW ADAPTIVE JAPANESE TRAFFIC SIGNAL TECH

Why in news?

- A new adaptive traffic signalling system based on Japanese 'MODERATO' technology has been set up in Bengaluru to reduce traffic congestion in the city by automatically adapting traffic signals based on real-time data.

Details:

- This innovative system is poised to be deployed at 28 major junctions across the city after the initial rounds of testing conclude.

- The Directorate of Urban Land Transport (DULT) is overseeing the project, which is currently undergoing testing at the Kensington Road and Murphy Road signals.
- Full-scale testing is scheduled to begin in the last week of February 2024. If successful, all 28 signals are expected to be operational by March 2024.

What is the Japanese MODERATO technology?

- The Management of Origin-Destination Related Adaptation for Traffic Optimisation or 'MODERATO' technology-based area traffic control system uses real-time data to manage traffic. Its sensors pick up on traffic demand in real-time, and signals change automatically in response to traffic conditions, replacing the conventional fixed timers.
- The adaptive traffic signal control system (ATSCS) comprises signals for motorists and pedestrians, automatic traffic counters, and queue-length measurement systems.
- The central control software, MODERATO will optimise signal timing in real-time, while separate pedestrian signals will ensure safe crossings.
- Funded by the Japanese International Cooperation Agency (JICA) and implemented by Nagoya Electric Works Company Limited, the Rs 72-crore project aims to enhance traffic efficiency and reduce congestion in Bengaluru's core areas.

Way Forward:

- The new system is expected to significantly reduce delays and queuing at covered junctions by up to 30 per cent, streamlining traffic management for Bengaluru. Consequently, it will decrease travel time and speed.
- This could greatly benefit the city, as Bengaluru ranked sixth globally among the most congested cities in 2023.

ADITYA L1 PAPA DETECTS FIRST SOLAR WIND IMPACT FROM THE SUN

Why in news?

- The Plasma Analyser Package for Aditya (PAPA) payload onboard the Aditya-L1 has detected the solar wind impact of Coronal Mass Ejections (CMEs) including those that occurred during February 10-11.

Details:

➲ The PAPA payload has been operational and is performing nominally fulfilling its desired role.

➲ Earlier the Coronal Mass Ejections (CMEs) occurred on December 12, 2023, which was a single event.

About PAPA Payload:

➲ PAPA is an energy and mass analyser designed for in-situ measurements of solar wind electrons and ions in the low energy range.

➲ It has two sensors: the Solar Wind Electron Energy Probe (SWEEP, measuring electrons in the energy range of 10 eV to 3 keV) and the Solar Wind Ion Composition Analyser (SWICAR, measuring ions in the energy range of 10 eV to 25 keV and mass range of 1-60 amu).

➲ The PAPA payload is developed by the Space Physics Laboratory and Avionics Entity of the Vikram Sarabhai Space Centre (VSSC)/ISRO.

About Aditya-L1:

➲ Aditya-L1 was launched by ISRO on September 2, 2023, with the mission of observing and helping better understand the Sun.

➲ It arrives at its destination, L1 or the first Sun-Earth Lagrangian point, on January 6.

Objectives:

➲ Understanding Coronal Heating and Solar Wind Acceleration.

➲ Understanding initiation of Coronal Mass Ejection (CME), solar flares and near-earth space weather.

➲ Understanding coupling and dynamics of the solar atmosphere.

➲ Understanding solar wind distribution and temperature anisotropy.

PREHISTORIC CASE OF EDWARDS SYNDROME FOUND FOR THE FIRST TIME

Why in news?

➲ Researchers have reported chromosomal disorders discovered from prehistoric skeletal remains, dating up to approximately 5,500 years old including six cases of Down syndrome and one case of Edwards syndrome.

➲ The findings may represent the first time Edwards syndrome has been identified from historic or prehistoric remains.

Trisomy of chromosomes:

➲ Individuals with chromosomal trisomy carry three copies of a chromosome in their cells, instead of two. Trisomy of chromosomes number 21 or 18 results in Down syndrome and Edwards syndrome, respectively.

➲ There have only been a few documented cases of Down syndrome in ancient individuals, largely owing to difficulties in identifying genetic disorders without modern techniques for analysing ancient DNA samples.

Database:

➲ The Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany and others screened almost 10,000 genomes from ancient human skeletal remains from either Ireland, Bulgaria, Greece, Spain or Finland for chromosomal trisomies and identified six cases of Down syndrome and one case of Edwards syndrome.

➲ These individuals, mostly died either before or shortly after birth. Some of the cases were particularly ancient; two were from as far back as the Bronze Age (about 2,700 BCE) and one from the Neolithic period (about 3,500 BCE).

Burial rituals:

➲ All individuals appear to have been cared for after death through various rituals indicating recognition of them as part of their communities, and in a few cases were given exceptional burials or elaborate grave goods.

➲ For example, the individual buried in Early Iron Age Navarra, Spain, was buried with bronze rings, and a Mediterranean seashell, and surrounded by the remains of three sheep and/or goats.

SOCIAL ISSUES

GHAR (GO HOME AND RE-UNITE) PORTAL FOR RESTORATION AND REPATRIATION OF CHILD

Why in news?

⮞ The Ministry of Women and Child Development developed the "Track Child Portal", which enables tracking of the missing and found children in all States/UTs including Maharashtra, Chhattisgarh, North Eastern States and Jharkhand.

Implementation:

⮞ The Track Child portal is implemented with support and involvement of various stakeholders namely Ministry of Home Affairs, Ministry of Railways, State Governments/ UT Administrations, Child Welfare Committees, Juvenile Justice Boards, National Legal Services Authority, etc.

⮞ Standard operating procedure have been issued for the "TrackChild" Portal.

Integration:

⮞ The TrackChild portal is also integrated with the CCTNS or Crime and Criminal Tracking & Network Systems of the Ministry of Home Affairs, which allows interoperability in terms of matching of F.I.Rs of missing children with database of TrackChild to trace and match missing children by the concerned State/UT police.

⮞ One component of TrackChild Portal has "Khoya-Paya" where any citizen can report for any missing or sighted children.

GHAR - GO Home and Re-Unite:

⮞ Further, a portal namely GHAR - GO Home and Re-Unite (Portal for Restoration and Repatriation of Child) has been developed and launched by NCPCR.

⮞ The GHAR portal has been developed to digitally monitor and track the restoration and repatriation of children as per the protocols under the Juvenile Justice (Care and Protection of Children) Act, 2015 and Rules thereof.

The salient features of the portal:

⮞ Digital tracking and monitoring of children who are in the Juvenile Justice system and have to be repatriated to another Country/State/District.

⮞ Digital transfer of cases of children to the concerned Juvenile Justice Board/Child Welfare Committee of the State for speedy repatriation of children.

⮞ Where there is a requirement of a translator/ interpreter/expert, request to be made to the concerned State Government.

⮞ Child Welfare Committees and District Child Protection Officers can ensure proper restoration and rehabilitation of children by digitally monitoring the progress of the case of the child.

⮞ A checklist format will be provided in the forms so that the children who are hard to repatriate or children who are not getting their entitled compensation or other monetary benefits can be identified.

⮞ List of Government implemented schemes are provided, so that at the time of restoration the Child Welfare Committees can link the child with the schemes to strengthen the family and ensure that child remains with his/her family.

WHY ARE NATIONS REVISING RULES FOR FOREIGN STUDENTS?

Why in news?

⮞ Migrating abroad, especially to English- speaking countries, is set to become harder for Indian students aspiring to pursue a higher education, what with countries such as Canada and the U.K. tightening rules to seek admissions to universities.

What are the new set of changes?

⮞ Following the political turmoil between India and Canada in December 2023, the Canadian government issued revised requirements that it said are 'to better protect international students.'

⮞ The foremost of these was to upwardly revise the Guaranteed Investment Certificate (GIC) amount from 10,000 Canadian dollars, which amounts to ₹6.15 lakh, to over double at 20,635 Canadian dollars, close to ₹12.7 lakh.

⮞ In another instance, the U.K. announced that come 2024, international students will be restricted from bringing in dependant family with them as they pursue their studies.

⮞ Countries such as Germany and Australia too have gradually increased the GIC amount by approximately 10% annually. As on May 2023, the amount required to apply for a German visa is 11,208 euros which is ₹10 lakh, up from the earlier cap of 10,000 euros.

Which students have been hit the most?

⮞ Canada is restricting the total number of study permits or student visas it plans to issue to 3.6 lakh (earlier this was nearly four lakh). India alone used to send up to 1.4 lakh students to Canada, approximately 80% percent of whom went to study diploma level courses there.

⮞ Earlier, aspirants looking to migrate to Canada would take any diploma as the 'study abroad' option, essentially as a passport to migrate to the country in poorly equipped educational institutions, while a spouse visa work permit would allow their spouses

to work while the aspirant studied. People would take on hefty loans to fuel this move.

⮕ Now Canada has stated that while they will issue a spouse visa, the spouse will not have a work permit.

How are tightened rules affecting students?

⮕ While Canada aims to rein in its burgeoning 'diploma mills' problem, it has eased norms for masters program students to come in.

⮕ Masters students can apply for a three-year work permit after their course is complete. However, the stricter guidelines have put those who want to seek a Bachelors' degree in Canada in the lurch.

What about other foreign countries?

⮕ UpGrad Abroad analysed data of 25,000 aspirational students who showed interest in studying abroad. While 18% of this pool was interested in studying in Canada during the data collected between January to July last year, this demand dropped by half to 9.3%, in the data analysed between July and December, last year.

⮕ On the contrary, a destination like Germany, which had initially been in demand with nearly 17% students, is now attracting demand from 32% students.

⮕ Apart from Australia, New Zealand, Ireland, the Netherlands and Finland, the newer destinations like Taiwan and Israel are also emerging in the list of potential study abroad destinations as they want to attract Indian talent to their countries.

EDCIL VIDYANJALI SCHOLARSHIP PROGRAMME

Why in news?

⮕ The Union Minister of Education and Skill Development & Entrepreneurship recently launched the EdCIL Vidyanjali Scholarship Programme.

Key Highlights:

⮕ The EdCIL Vidyanjali Scholarship Programme, in alignment with the National Education Policy 2020, is a powerful force aimed at revolutionizing opportunities for quality education and access to higher education institutions.

⮕ Going beyond mere enrolment, this initiative guarantees access to high-quality learning systems

by facilitating a seamless transition from secondary to higher education and extending financial support for the meritorious Navodaya Vidyalaya students who lack means.

⮕ In addition to extending financial assistance to economically marginalised and meritorious students of Navodaya Vidyalayas, this endeavour by the Government of India also encourages involvement from the private sector through Corporate Social Responsibility (CSR) initiatives, thereby making way of joining forces between the Government and corporates towards an educated India, ensuring no child is left behind.

Way Forward:

⮕ The Vidyanjali Scholarship Program symbolises a whole-of-society approach to empowerment through access and opportunities of education, particularly to students belonging to economically disadvantaged sections.

COACHING CENTRES CAN'T USE MISLEADING ADS, DRAFT GUIDELINES

Why in news?

⮕ The Central Consumer Protection Authority (CCPA), an arm of the Union Consumer Affairs Ministry, has released draft guidelines for the "Prevention of misleading advertisement in coaching sector", which bring such offences under the radar of the Consumer Protection Act.

⮕ The CCPA has invited public comments on the three-page guidelines.

Details:

⮕ The draft Guidelines for 'Prevention of Misleading Advertisement in Coaching Sector' have been framed after detailed deliberations with all stakeholders including coaching institutes, law firms, Government and Voluntary Consumer Organizations (VCO's) and are now being put up for public consultation. Proposed Guidelines shall be issued under section 18 (2) (l) of the Consumer Protection Act 2019.

⮕ The draft guidelines define "Coaching" as tuition, instructions or academic support or learning programme or guidance provided by any person.

Under the Guidelines, conditions for misleading advertisement have been laid out.

Key Guidelines:

➲ Any person who engage in coaching shall be considered to be engage in a misleading advertisement if it employs any of the following practices –

a) Conceal important information related to name of the course (whether free or paid) & duration of course opted by successful candidate or any other important information which can influence a consumer's decision to choose their services.

b) Make false claims regarding success rates, number of selections, or rankings of students in any competitive exam without providing verifiable evidence.

c) Falsely represent that students' success is solely attributable to the coaching, without acknowledging the individual efforts of the students. Clearly state the extent of the coaching involvement in their success.

d) Create false sense of urgency or fear of missing out that may heighten anxieties amongst students, or parents.

e) Any other practices that may mislead consumers or subvert consumer autonomy and choice.

Way Forward:

➲ Guidelines would be made applicable to every person engaged in coaching. The objective of the Guidelines is to protect consumers from misleading advertisements in coaching sector.

➲ Misleading advertisement by coaching sector will be governed as per Consumer Protection Act, 2019 and the proposed guidelines will bring clarity to the stakeholders and protect consumer interests.

CABINET APPROVES PROPOSAL FOR IMPLEMENTATION OF UMBRELLA SCHEME ON SAFETY OF WOMEN

Why in news?

➲ The Union Cabinet approved the proposal of Ministry of Home Affairs of continuation of implementation of Umbrella Scheme on 'Safety of Women' at a total cost of Rs.1179.72 crore during the period from 2021-22 to 2025-26.

➲ Out of the total project outlay of Rs.1179.72 crore, a total of Rs.885.49 crore will be provided by MHA from its own budget and Rs.294.23 crore will be funded from Nirbhaya Fund.

Details:

➲ In its efforts towards Women Safety, Government of India in collaboration with States and Union Territories has launched several projects.

➲ The objectives of these projects include strengthening mechanisms in States/Union Territories for ensuring timely intervention and investigation in case of crime against women and higher efficiency in investigation and crime prevention in such matters.

The Government of India has proposed to continue the following projects under the Umbrella Scheme for "Safety of Women":

➲ 112 Emergency Response Support System (ERSS) 2.0;

➲ Upgradation of Central Forensic Sciences laboratories, including setting up of National Forensic Data Centre;

➲ Strengthening of DNA Analysis, Cyber Forensic capacities in State Forensic Science Laboratories (FSLs);

➲ Cyber Crime Prevention against Women and Children;

➲ Capacity building and training of investigators and prosecutors in handling sexual assault cases against women and children; and

➲ Women Help Desk & Anti-human Trafficking Units.

Way Forward:

➲ Safety of Women in a country is an outcome of several factors like stringent deterrence through strict laws, effective delivery of justice, redressal of complaints in a timely manner and easily accessible institutional support structures to the victims.

HEALTH

KYASANUR FOREST DISEASE, THE ASSAULT OF THE TICK

Why in news?

➲ Since January 1, two people have died due to Kyasanur Forest Disease (KFD), a viral infection, in Karnataka.

➲ The number of deaths reported due to the disease since 1956, when it was noticed in the forests of Shivamogga district, is above 560.

➲ The number of cases in Malnad's districts; Shivamogga, Uttara Kannada and Chikkamagaluru has been increasing, forcing the Health and Family Welfare Department to take measures to contain its spread.

What is KFD?

➲ The disease was first noticed in the Kysanur Forest area of Sorab Taluk in Shivamogga district in 1956, and was named after the region. It is also known as monkey fever, as monkeys also get infected. In fact, the death of a monkey serves as a warning of a KFD outbreak.

➲ The scientists concluded that the virus must have been present in the forests of Malnad region. It became active due to ecological changes.

Transmission:

➲ The disease spreads through ticks. Primates that come in contact with infective ticks contract the disease. Human beings who visit the same forest area can contract the disease.

➲ Normally, the transmission begins from late November to June. It peaks between December and March. A blood test is done to identify if someone has KFD.

➲ Symptoms start to appear three to eight days after the bite, of an infective tick. Fever, redness of the eyes, severe headache, and body pain are common symptoms. Three-four days after the onset of initial symptoms, the patient may have gastro-intenstinal symptoms.

➲ In severe cases, bleeding from the nose is noted. There is no specific treatment, doctors handle the symptoms, and monitor the vitals daily.

➲ An attempt to use a vaccine was given up after studies showed it to be ineffective. The ICMR is said to be in consultation with Indian Immunologicals for development of a vaccine.

Spread:

➲ For nearly 15 years (up to 1971), the disease was confined to Shivamogga district. It was noticed in Uttara Kannada district in 1972. In 1980, cases were reported in Koppa, Chikkamagaluru.

➲ Two years later it was found in Dakshina Kannada. Cases were late reported in Chamarajanagar (2012), Belagavi district (2016), Gadag (2017), Mysuru, and Hassan (2019). The virus has been found in other states too.

➲ It was detected in dead monkeys in the Nilgiri district of Tamil Nadu in 2012.

➲ Six human cases were reported in Wayanad and Malappuram, Kerala in 2013–14.

➲ An outbreak was reported in North Goa district in 2015–16. Maharashtra reported cases in 2016.

WORLD RACE TO ERADICATE GUINEA WORM DISEASE NEARS THE FINISH LINE
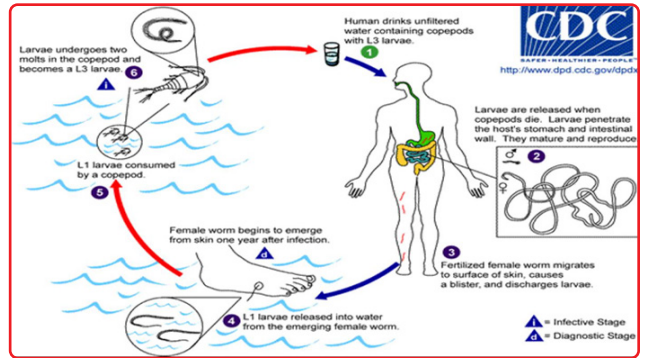
Why in news?

➲ The world is on the brink of a public health triumph as it closes in on eradicating Guinea worm disease.

➲ There were more than 3.5 million cases of this disease in the 1980s, but according to the World Health Organization's (WHO) weekly epidemiological report, they dwindled to 14 cases in 2021, 13 in 2022, and just six in 2023.

Guinea worm disease:

➲ Guinea worm disease, also called dracunculiasis, is the work of the Guinea worm (Dracunculus medinensis), whose infamy dates back to biblical times, when it was called the "fiery serpent" and whose presence researchers have confirmed in Egyptian mummies.

➲ Individuals whose bodies the worm has entered first experience a painful blister, usually on a lower limb. When seeking relief, they may immerse the affected area in water, which prompts the worm to emerge and release hundreds of thousands of larvae, potentially contaminating communal water sources and perpetuating the infection cycle.

➲ While a worm by itself is not lethal, it debilitates those whom it infects and prevents them from earning their livelihoods.

➲ It manifests as a painful skin lesion as the adult worm, sometimes up to a meter long emerges. This process, which can last weeks, often begins with a blister and develops into an ulcer from which the worm slowly exits the body.

➲ The symptoms involve intense pain, swelling, and sometimes secondary bacterial infections at the wound. Victims may experience fever, nausea, and vomiting.

Affected area:

➲ More than 90% of Guinea worm infections manifest in the legs and feet.

➲ The individual has an excruciating experience when the adult female worm emerges through the skin. The open sore left by its exit is also susceptible to secondary infections. The disease affects people of both sexes.

⮎ The disease thrive where access to safe drinking water is a luxury, and health education and resources are scant.

Status in India:

⮎ India eliminated Guinea worm disease in the 1990s, through a rigorous campaign of surveillance, water safety interventions, and education.

⮎ The government of India received Guinea worm disease-free certification from the WHO in 2000.

⮎ This accomplishment was the result of a collaboration between the Indian government, local health workers, and international partners.

Current status:

⮎ The WHO recorded only six cases of Guinea worm disease in 2023.

⮎ Nations like South Sudan and Mali have made commendable progress, although the fight continues in Chad and the Central African Republic.

Way Forward:

⮎ In 2020, researchers also discovered Guinea worms in animal reservoirs, particularly dogs, in Chad, casting a shadow of complexity over the final stages of eradication.

⮎ This development is a crucial reminder of the disease's tenacity and, importantly, signals to countries where the disease was previously endemic, including India, to not let their guard down.

CULTURE

390 YEAR OLD LAMP POST IN NALGONDA UNRAVELS TRADE LINKS OF TELANGANA

Why in news?

⮎ A newly-discovered 390-year-old Deepastambham (lamp post) on the edge of River Krishna in Nalgonda district of Telangana casts a fresh light on trade ties in the region in early medieval times.

Details:

⮎ Archaeologists working in the area found the 20-foot tall pillar with hollows for lamps and a multi-lingual inscription in Mudimanikyam village of Nalgonda.

⮎ While Dhwajasthambam (flag pole) is part of temple architecture, lamp posts are rare in the Deccan while they are common in temples in the west coast, including Goa.

Key Highlights:

⮎ Based on the inscription engraved on the lamp post near the ruined Śiva temple, the pillar can be dated to June 1635 and it is written in Telugu mixed with Tamil language.

⮎ It is dedicated to Kasi Viswanatha and because of its height, it would have served as a lighthouse on the riverine trade route.

⮎ The inscription was engraved by Madiraju Narasayya of Yidupulapāti and erected by Polinedu, son of Vali Munulayya. Similar pillars have been found in Tamil Nadu but they don't have inscriptions.

Other inscription:

⮎ The team of archaeologis ts also discovered an eighth century inscription recording a grant during Badami Chalukya rule in the region showing that the village was part of trade route over the millennia.

Mudimanikyam village:

⮎ The village is about 180 kilometres from Hyderabad which was ruled by the Qutb Shahi rulers at that time.

⮎ European travellers, including the French diamond trader Tavernier who made five trips to the Hyderabad kingdom in the same period, describe land trade routes. But make reference to riverine trade.

IGNCA LANGUAGE ATLAS TO SHINE A LIGHT ON INDIA LINGUISTIC DIVERSITY

Context:

⮎ As India makes efforts towards imparting education in the mother tongue, especially at the primary level, a crucial question remains on the actual number of languages that can be considered to be "active" in the country.

⮎ A proposed linguistic survey across the country by the Indira Gandhi National Centre for the Arts (IGNCA), which aims to enumerate how many languages are spoken and in which States and regions, can provide the answer.

⮎ The IGNCA is an autonomous body under the Union Culture Ministry.

Official Languages in India:

➲ India recognises 22 languages officially, which are part of Schedule 8 of the Indian Constitution. According to Census data, 97% of the Indian population speaks one of these languages.

➲ There are an additional 99 non-scheduled languages included in the Census, and according to the 2011 Census, around 37.8 million people identify one of these non-Scheduled languages as their mother tongue.

➲ The native language of 1.2 million people remains unaccounted for due to the decision not to include languages with less than 10,000 speakers in the Census since 1971. Many of these languages not recorded in the official Census records are spoken by tribal communities.

➲ Thus, of all the Census surveys, the official Census of 1961 was the most exhaustive and detailed with respect to linguistic data. In this Census, even languages with a single speaker were included in the records.

Stakeholders:

➲ According to the Detailed Project Report (DPR) prepared by the IGNCA, the stakeholders in the survey would be the Ministries of Culture, Education, Tribal Affairs, Home, Social Justice and Empowerment, and Development of North East Region, apart from various languages communities.

➲ The IGNCA has identified the Central Institute of Indian Languages, the National Museum, Centres for Endangered Languages, and the Linguistic Departments of various universities as potential partners and collaborators in carrying out the survey.

Way Forward:

➲ There is an urgent need to carry out a comprehensive linguistic survey in order to create the Language Atlas of India

MISCELLANEOUS

JNANPITH FOR GULZAR, SANSKRIT SCHOLAR RAMBHADRACHARYA

Why in news?

➲ Celebrated Urdu poet Gulzar and Sanskrit scholar Jagadguru Rambhadracharya have been selected for the 58th Jnanpith Award.

Gulzar:

➲ Sampooran Singh Kalra, popularly known as Gulzar, is considered one of the finest Urdu poets of his generation. He is also known for his work in Hindi cinema.

➲ Gulzar, born in 1934, received the Sahitya Akademi Award for Urdu in 2002, the Dadasaheb Phalke Award in 2013, and the Padma Bhushan in 2004. He has also won five National Film Awards.

➲ He penned the lyrics for the song Jai Ho from the film Slumdog Millionaire that received an Oscar in 2009 and a Grammy in 2010.

➲ He is known for his work in Maachhis, Omkara, Dil Se, Guru, and Aandhi. Gulzar has also directed classics such as Koshish, Parichay, Mausam, and Ijaazat, as well as the television serial Mirza Ghalib.

➲ In poetry, he invented a new genre 'Triveni' which is a non-mukaffa poem of three lines. Gulzar has always created something new through his poetry. For some time now he has also been paying serious attention to children's poetry.

Jagadguru Rambhadracharya:

➲ He is a renowned Hindu spiritual leader, educator and writer of more than 240 books and texts, including four epics.

➲ He is the founder and head of Tulsi Peeth at Chitrakoot in Madhya Pradesh.

➲ Rambhadracharya, a polyglot who speaks 22 languages, is one of the four Jagadguru Ramanandacharyas of the Ramananda sect and has been holding this position since 1982.

➲ He received the Padma Vibhushan in 2015.

About Jnanpith Award:

➲ The Jnanpith Award is presented by the Bharatiya Jnanpith, which was established in 1944.

➲ The award carries a cash component of ₹11 lakh, a statue of Vagdevi, and a citation.

➲ It is the second time that the award is being given for Sanskrit and the fifth time for Urdu.

PRACTICE QUESTION FOR UPSC PRELIMS EXAM

1. Consider the following statements with respect to Ramsar Convention
   1. It is named after the Iranian city of Ramsar located on the coast of Caspian Sea.
   2. Currently, 80 wetlands from India were listed under the Ramsar Convention on Wetlands of International Importance.
   3. Maharashtra has the highest number of Ramsar sites in India.
   How many of the statements given above are correct?
   a) Only one
   b) Only two
   c) All Three
   d) None of the above

2. Consider the following statements with respect to Geotagging
   1. It refers to the process of adding geographical identification to a media based on the location of GPS-enabled electronic devices.
   2. Geotags can be applied to photos, videos, websites, text messages and QR codes.
   3. Geo-tagging the properties will help in boosting the tax collection potential.
   How many of the statements given above are correct?
   a) Only one
   b) Only two
   c) All Three
   d) None of the above

3. Consider the following statements with respect to Deputy Chief Minister
   1. The office of Deputy Chief Minister is defined under the Article 163(1) of Indian Constitution.
   2. The office of Deputy Chief Minister is equivalent in rank to that of a cabinet minister in the state.
   3. Currently, less than half of the states in India have Deputy Chief Ministers.
   How many of the statements given above are incorrect?
   a) Only one
   b) Only two
   c) All Three
   d) None of the above

4. Consider the following statement regarding Subika Painting:
   1. It is a performing art.
   2. This art is linked to Gond community.
   Choose the correct option from the codes given below:
   a) Only 1
   b) Only 2
   c) Both 1 and 2
   d) None of the above

5. Diamond Rain is possible in which of the following planets
   1. Neptune
   2. Uranus
   3. mini-Neptunes
   4. Mars
   5. Mercury
   Choose the correct codes
   a) 1, 2 and 3 only
   b) 1, 3 and 4 only
   c) 2, 3 and 5 only
   d) 3, 4 and 5 only

6. Consider the following statements with respect to Nano DAP:
   1. It is indigenously developed by the Indian Farmers Fertilizer Cooperative Limited.
   2. It is the top most commonly used fertiliser in India.
   3. India's first Nano DAP plant is located in the state of Punjab.
   How many of the above statement(s) is/are correct?
   a) Only one
   b) Only two
   c) All three
   d) None of the above

7. Consider the following statements with respect to the Panel of Vice Chairperson:
   1. The Chairman of Rajya Sabha nominates from amongst the members, a panel of vice-chairpersons.
   2. Any one of them can preside over the House in the absence of the Chairman or the Deputy Chairman.
   3. A member of the panel of vice chairpersons cannot preside over the House, when the office of the Chairman is vacant.
   How many of the above statement(s) is/are correct?
   a) Only one
   b) Only two
   c) All three
   d) None of the above

8. Consider the following statements with respect to the Pradhan Mantri Awas Yojana (PMAY):
   1. The scheme is an initiative of the Ministry of Housing and Urban Affairs.
   2. The main aim of the PMAY-G scheme is to provide pucca house with some of the basic amenities.
   How many of the above statement(s) is/are correct?
   a) 1 only
   b) 2 only
   c) Both 1 and 2
   d) Neither 1 nor 2

9. Consider the following statements with respect to the C-CARES:
   1. It is a web portal designed by the Centre for Development of Advanced Computing (C-DAC).

2. The portal works under the aegis of the Ministry of Coal.
3. The portal aims at digitizing the records of the Ministry.

How many of the above statement(s) is/are incorrect?
a) Only one
b) Only two
c) All three
d) None of the above

10. Consider the following statements with respect to Bilateral Investment Treaties (BITs):
   1. BITs establish terms for private investment by nationals and companies of one country in the other country.
   2. India signed its first BIT with the United Kingdom.
   3. India has no BITs with any of its neighbours.

   How many of the above statement(s) is/are incorrect?
   a) Only one
   b) Only two
   c) All three
   d) None of the above

11. Consider the following statements with respect to the Payment Banks:
   1. The minimum paid-up capital for payments bank is Rs 100 crore.
   2. These banks cannot lend loans and issue credit cards.
   3. These banks were created on the basis of the Nachiket Committee.

   How many of the above statement(s) is/are correct?
   a) Only one
   b) Only two
   c) All three
   d) None of the above

12. Consider the following statements with respect to Moonquakes:
   1. Moonquakes are concentrated at great depth, which is deeper than earthquakes.
   2. Moonquakes are caused by both meteoroids and the gravitational pull of the Earth.

   Which of the above given statement(s) is/are incorrect?
   a) 1 only
   b) 2 only
   c) Both 1 and 2
   d) Neither 1 nor 2

13. Consider the following statements with respect to the Unified Payments Interface (UPI):
   1. It is a system that powers multiple bank accounts into a single mobile application.
   2. The fund transfer through UPI is faster than National Electronic Fund Transfer (NEFT).
   3. UPI controlled by the Reserve Bank of India (RBI) and IBA (Indian Bank Association).

   How many of the above statement(s) is/are correct?
   a) Only one
   b) Only two
   c) All three
   d) None of the above

14. Arrange the following countries from highest to lowest based on the recent Interim budget allocation of the Ministry of External Affairs' development assistance for 2024-25.
   1. Mauritius
   2. Maldives
   3. Nepal
   4. Bhutan

   Choose the correct code.
   a) 1, 2, 3 and 4
   b) 2, 4, 1 and 3
   c) 3, 1, 4 and 2
   d) 4, 3, 2 and 1

15. Consider the following statements with respect to the GHAR Portal:
   1. It is an initiative of the Ministry of Women and Child Development.
   2. The portal aims to digitally monitor & track restoration and repatriation of children.
   3. The portal works based on the provisions of the Juvenile Justice (Care and Protection of Children) Act, 2015.

   How many of the above statement(s) is/are correct?
   a) Only one
   b) Only two
   c) All three
   d) None of the above

16. Consider the following statements with respect to Dusted Apollo
   1. It is an extremely rare high-altitude butterfly.
   2. It is endemic to the Western Ghats of India.
   3. All the Apollo butterfly species are protected under the Schedule II of the Wildlife Protection Act, 1972.

   How many of the statements given above are correct?
   a) Only one
   b) Only two
   c) All Three
   d) None of the above

17. Ilsenhohle Cave Site, sometimes seen in the news recently, is located in which of the following country?
   a) England
   b) Germany
   c) Greece
   d) Italy

18. Consider the following statements with respect to Lantana Camara
   1. It is an invasive weed that restricts the growth of indigenous vegetation.
   2. It is an evergreen and perennial plant that is native to South America.
   3. "Coexistence: The Great Elephant Migration" is an initiative to promote the awareness about it.

   How many of the statements given above are correct?
   a) Only one
   b) Only two
   c) All Three
   d) None of the above

19. Consider the following statements with respect to Kamakhya temple
   1. It was reconstructed in 1565 by Chilarai, who was the reigning king of the Koch dynasty.
   2. This temple is dedicated to different forms of Mother Shakti.
   3. Ambubachi Mela is one of the major festivals of this temple.

   How many of the statements given above are incorrect?
   a) Only one
   b) Only two
   c) All Three
   d) None of the above

20. With reference to exercises with India, consider the following pairs

Exercises	Partnering Countries
1. Cyclone	Egypt
2. Sada Tanseeq	United Arab Emirates
3. Desert Knight	Saudi Arabia

How many of the statements given above are correct?
a) Only one
b) Only two
c) All of the above
d) None of the above

21. Consider the following statement regarding Unified Payments Interface (UPI):
1. It is an Indian instant payment system developed by the National Payments Corporation of India (NPCI).
2. Recently, India has launched its UPI in Sri Lanka and Mauritius.
Choose the correct option from the code given below:
a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

22. 'Operation Prosperity Guardian' was seen in the news recently, it is related to which of the following?
a) Addressing security challenges in the Red Sea
b) Child sex ratio
c) Monetary help to Disabled people
d) Tacking Piracy incidents across the Globe

23. With reference to the 'Sovereign Gold Bonds (SGBs)', consider the following statements:
1. These are government securities denominated in grams of gold.
2. These are issued by the Government of India.
Which of the statements given above is/are correct?
a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

24. Consider the following pairs:

Name of Military Exercises	Related Countries
1. Desert Cyclone	Iran
2. Sampriti	Bangladesh
3. Khanjar	Egypt
4. Garuda Shakti	Thailand

How many of the above pairs is/are correctly matched?
a) Only one
b) Only two
c) Only three
d) All four

25. Consider the following statements:
Statement-I: The coal production in India is consistently declining in the past two years.
Statement-II: India aims to achieve the "net zero target" by 2070.
Which one of the following is correct in respect of the above statements?
(a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I

(b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
(c) Statement-I is correct but Statement-II is incorrect
(d) Statement-I is incorrect but Statement-II is correct

26. Recently Rio De Janeiro, which is a city in Brazil, declared a Dengue Health Emergency. In the context of the above statement, which of the following countries shares a border with Brazil?
1. Chile
2. Ecuador
3. Venezuela
4. Argentina
5. Bolivia
Select the correct answer using the codes given below.
a) 1, 2 and 5 only
b) 1,3 and 4 only
c) 3 ,4 and 5 only
d) 1, 2, 3, 4 and 5

27. With respect to India's Smart Cities Mission, which of the below given statements is/are correct?
1. The Smart Cities Mission is an initiative of the Ministry of Housing and Urban Affairs, launched in 2015.
2. For real time monitoring of the mission, an Integrated Command and Control Centre (ICCC) was also launched under the mission.
3. The mission primarily aims to enhance the quality of life in rural and nearby urban areas by leveraging technology, innovation, and improved infrastructure.
How many of the statements given above is/are correct?
a) Only one
b) Only two
c) All three
d) None

28. With reference to Payment Aggregators, consider the following statements:
1. The non-bank payment aggregators require authorisation from the RBI to operate.
2. They process payments themselves, similar to traditional banks.
3. Merchants need separate merchant accounts with individual banks for each payment method offered through the aggregator.
Which of the statements given above is/are correct?
a) 1 only
b) 1 and 2 only
c) 3 only
d) 2 and 3

29. With reference to the Pradhan Mantri Matsya Kisan Samridhi Sah-Yojana, consider the following statements:
1. It is a sub scheme under the Pradhan Mantri Matsya Sampada Yojana.
2. It is 100% funded by the Government.
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

30. Consider the following statements with respect to Bharat Ratna Awards:
    1. It is the highest civilian award in the country instituted in the year 1954 that was originally limited only to arts, literature, science and public services.
    2. In terms of Article 18 (1) of the Constitution, the award can be used as a prefix or suffix to the recipient's name.
    3. Tamil Nadu has maximum number of Bharat Ratna recipients.
    How many of the statements given above is/are correct?
    a) Only one   b) Only two
    c) All three   d) None of the above

31. Consider the following statements with respect to Operation Sarvashakti:
    1. The operation is carried out by the Indian army to neutralise terrorist threats in Pir Panjal range.
    2. It is similar to the Operation Sarpvinash.
    Which of the above statement(s) is/are correct?
    a) 1 only   b) 2 only
    c) Both 1 and 2   d) Neither 1 nor 2

32. Consider the following statements with respect to Tax-GDP Ratio:
    1. It reflects the share of taxes in the overall output generated in the country.
    2. It has steadily increased in the recent years.
    3. For the year 2022-23, the growth rate for taxes is higher than the nominal GDP growth.
    How many of the statements given above is/are correct?
    a) Only one   b) Only two
    c) All three   d) None of the above

33. The Belfast Agreement, sometime appeared in the news, is in the context of:
    a) Russia Ukraine negotiation
    b) British-Irish Peace Process
    c) Sudanese peace process
    d) Turkey-NATO negotiation

34. With reference to Dengue, which of the following statements is/are correct?
    1. Dengue is an infection caused by bacteria of the Flaviviridae family.
    2. The virus is transmitted to humans through the bites of infected female Aedes Aegypti mosquitoes.
    Select the correct answer using the code given below:
    a) 1 only   b) 2 only
    c) Both 1 and 2   d) Neither 1 nor 2

35. With reference to the World Trade Organisation, consider the following statements:
    1. It is the only international organisation dealing with the global rules of trade.

2. The General Council is the highest-level decision-making body of the WTO.
    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

36. The Sharmishtha Lake, sometimes mentioned in the news, is located in which of the following Indian states?
    a) Rajasthan   b) Punjab
    c) Gujarat   d) Maharashtra

37. Consider the following reports:
    1. Global Gender Gap Report
    2. Global Inequality Crisis Report
    3. Global Competitiveness Report
    4. Global Financial Stability Report
    Which of the above are published and or released by the World Economic Forum (WEF)?
    a) 1 and 3 only   b) 1, 2 and 3 only
    c) 2, 3 and 4 only   d) 1, 2, 3 and 4

38. Recently, India held the maiden Bilateral Maritime Exercise 'Ex-Ayutthaya', with which of the following countries?
    a) Azerbaijan   b) Thailand
    c) Malaysia   d) Seychelles

39. The 'Annual NeSDA Way Forward Report for 2023' is released by:
    a) NITI Aayog
    b) Department of Administrative Reforms and Public Grievances
    c) The Reserve Bank of India
    d) Department of Investment and Public Asset Management

40. The recent report, 'Death Penalty in India: Annual Statistics 2023' was released by which of the following?
    a) Supreme Court of India
    b) Amnesty International
    c) Ministry of Law and Justice
    d) Project 39A

41. Consider the following statements:
    1. India is the largest producer of the pulses in the world.
    2. Gram is the most dominant pulse having a major share in the production of pulses in India.
    Which of the statements given above is/are correct?
    a) 1 only   b) 2 only
    c) Both 1 and 2   d) Neither 1 nor 2

42. Makaravilakku is an annual festival of great importance held every year during Makara Sankranti in which of the following states?
    a) Karnataka   b) Kerala
    c) Odisha   d) Tamil Nadu

43. 'Kalaram Temple', recently seen in the news, is located in which of the following states?

a) Uttrakhand　　　　　　b) Maharashtra
c) Odisha　　　　　　　　d) Madhya Pradesh

44. Consider the following statements:
    1. Developed jointly by ISRO and JAXA, NISAR is a synthetic aperture radar (SAR) satellite for an Earth-observing mission.
    2. NISAR will operate in L-band and S-band frequencies, providing all-weather and day-night imaging capabilities.
    3. NISAR's primary aim is to study volcanoes, earthquakes and tsunamis.
    4. NISAR will also contribute to shed light on the dynamics of sea ice near both poles.
    How many of the statements given above is/are correct?
    a) Only one　　　　　　b) Only two
    c) All three　　　　　　d) All four

45. The first-ever confirmed record of the Tibetan brown bear in India, was recorded in which one of the following states of India?
    a) Jammu and Kashmir　b) Ladakh
    c) Sikkim　　　　　　　d) Arunachal Pradesh

46. With reference to the Aditya-L1 mission, which of the following statements is/are correct?
    1. It is the first space-based Indian observatory to study the Sun.
    2. The spacecraft will be placed in a halo orbit around Lagrange point 1.
    Select the correct answer using the code given below:
    a) 1 only　　　　　　　b) 2 only
    c) Both 1 and 2　　　　d) Neither 1 nor 2

47. With reference to the Kadamba inscription in Indian history, sometimes appeared in the news, consider the following statements:
    1. It highlighted the historical and socio-cultural importance of Pandya rulers.
    2. Its epigraph is engraved in Tamil and Nagari characters.
    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

48. With reference to the history of India, the terms like 'Perjunka, Bilkoda and Kirukula' were related to:
    a) Architecture　　　　b) Taxation
    c) Religion　　　　　　d) Language

49. Which of the following is not a primary function of the UN Statistical Commission?
    a) Setting international statistical standards
    b) Promoting the development of national statistical systems
    c) Coordinating statistical activities of the UN system
    d) Directly undertaking global censuses and surveys

50. With reference to the Uniform Civil Code (UCC), which of the following statements is/are correct?
    1. It is part of the Directive Principles of State Policy of Indian Constitution.
    2. In India, Uttarakhand and Goa have implemented the UCC.
    Select the correct answer using the code given below:
    a) 1 only　　　　　　　b) 2 only
    c) Both 1 and 2　　　　d) Neither 1 nor 2

51. In trade agreements, the 'negative listing' refers to which of the following?
    a) The list containing prohibited goods and services.
    b) List of goods and services with highest tax and tariffs.
    c) The list of items which have negative externalities when traded.
    d) The list of sectors in which countries do not agree to liberalize trade.

52. With reference to the Brazil, Russia, India, China, and South Africa (BRICS), consider the following statements:
    1. The grouping was formalized during the 1st meeting of BRIC Foreign Ministers on the margins of the UN General Assembly (UNGA) in 2006.
    2. South Africa was inducted in 2010 and from there on it has been referred to as BRICS.
    3. Argentina became a part of the group in 2023.
    How many of the statements given above is/are correct?
    a) Only one　　　　　　b) Only two
    c) All three　　　　　　d) None

53. With reference to the Cyber Crimes, consider the following statements:
    1. It refers to criminal activities that involve the use of computers, networks, and digital technologies.
    2. Malware is an attempt to acquire sensitive information, such as usernames, passwords, and financial details.
    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

54. With reference to palm oil, which of the following statements is/are correct?
    1. The oil palm tree is native to West and Central Africa.
    2. India is the largest exporter of palm oil in Asia.
    Select the correct answer using the code given below:
    a) 1 only　　　　　　　b) 2 only
    c) Both 1 and 2　　　　d) Neither 1 nor 2

55. Consider the following statements with reference to the PRERANA program.
    1. It is an experiential learning for developing leadership qualities in students of class VI to XII.

2. It is a week-long residential program that has been launched by the Ministry of Skill Development and Entrepreneurship.

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

56. Consider the following countries:
1. Maldives
2. Bangladesh
3. Seychelles
4. Mauritius

Which of the above countries are member states of the Colombo Security Conclave?

a) 1, 3 and 4 only
b) 1 and 4 only
c) 1, 2 and 3 only
d) 1, 2, 3 and 4

57. With reference to the Antimicrobial Resistance (AMR), consider the following statements:
1. Self-prescription without proper medical guidance is one of the leading causes of AMR.
2. India's Red Line campaign is to discourage the over-the-counter sale of antibiotics.
3. Indian Council of Medical Research (ICMR) established the AMR surveillance Network to combat AMR.

How many statements given above is/are correct?

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

58. Consider the following pairs:

Reports	Releasing Organisations
1. Global Risk Report	World Economic Forum (WEF)
2. Global Financial StabilityReport	International Monetary Fund (IMF)
3. World Economic Outlook	World Bank

Which of the pairs given above is/are not correctly matched?

a) 1 and 2 only
b) 2 and 3 only
c) 1 and 3 only
d) 1, 2 and 3

59. Consider the following pairs:

Species in news	IUCN Red list status
1. Eurasian Otter	Near Threatened
2. Peninsular Hill Trout	Endangered
3. European bison	Vulnerable

How many of the above pairs are correctly matched?

a) Only one
b) Only two
c) All three
d) None of the above

60. The term 'Articles of Agreement' sometimes appeared in the news, is in context of:
a) Agreement on Agriculture
b) Climate Change
c) Economic Development
d) Water Pollution

61. Indian National Centre for Ocean Information Services (INCOIS), an autonomous body, is under which of the following ministries?

a) Ministry of Environment, Forest and Climate Change
b) Ministry of Earth Sciences
c) Ministry of Electronics and Information Technology
d) Ministry of Science and Technology

62. With reference to the Square Kilometre Array Observatory (SKAO), consider the following statements:
1. It is a joint project between ISRO and NASA.
2. It consists of the two telescopes at radio-quiet sites in South Africa and Australia.
3. India will contribute in the development and operation of the Telescope Manager element, the "neural network".

How many statements given above are correct?

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

63. Consider the following Indian states:
1. Mizoram
2. Tripura
3. Manipur
4. Arunachal Pradesh
5. Nagaland

Which of the above share the border with Myanmar?

a) 1, 2, 4 and 5 only
b) 1, 3, 4 and 5 only
c) 3, 4 and 5 only
d) 1, 2, 3, 4 and 5

64. Which of the following statements is correct regarding Reverse Flipping?
a) It describes the trend of overseas start-ups shifting their domicile.
b) It is used for efforts to reduce the share of public spending in GDP.
c) It is a gradual reduction in the value of an asset over time.
d) It refers to direct swap of goods and services without the use of money.

65. Which among the following countries have joined Brazil, Russia, India, China, and South Africa (BRICS) as new full members in 2023?
1. Argentina
2. Turkey
3. Ethiopia
4. Egypt
5. Iran

Select the correct answer using the code given below:

a) 1, 2 and 3 only
b) 2, 3 and 4 only
c) 3, 4 and 5 only
d) 1, 2, 3, 4 and 5.

66. With reference to Coal production in India, consider the following statements:
1. India is the largest producer and consumer of coal globally.
2. The top three states with highest coal reserves in India are Odisha, Jharkhand, Chhattisgarh, which accounts for approximately 69% of the total coal reserves in the country.
3. Coal deposits in India generally contain low levels of ash (3-5%).

Which of the statements given above are not correct?
a) 1 and 2 only
b) 2 and 3 only
c) 1 and 3 only
d) 1, 2 and 3

67. Consider the following statements with reference to Financial Intelligence Unit – India (FIU-IND):
    1. It is a law enforcement agency responsible for processing information relating to suspect financial transactions.
    2. It directly reports to the Economic Intelligence Council (EIC) headed by the Prime Minister.
    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

68. With reference to Provision Coverage Ratio (PCR), which of the following statement(s) is/are correct?
    1. It indicates the extent of funds a bank has kept aside to meet its CRAR requirements.
    2. High PCR indicates lower is the unexposed part of the bad debts.
    Choose the correct option using the codes given below
    a) 1 only
    b) 2 only
    c) Both 1 and 2
    d) Neither 1 nor 2

69. With reference to the Giant Metrewave Radio Telescope (GMRT), which of the following statements is/are correct?
    1. It operates within the 110-1,460 MegaHertz frequency range.
    2. It was among the top radio telescopes that detected the nano-hertz gravitational waves for the first time.
    Select the correct answer using the code given below:
    a) 1 only
    b) 2 only
    c) Both 1 and 2
    d) Neither 1 nor 2

70. Which of the following is not a core function of Credit Information Companies (CICs)?
    a) Collecting and storing credit data of individuals and businesses.
    b) Analyzing credit data and generating credit reports.
    c) Giving credit reports to lenders and other authorized parties.
    d) Granting loans to consumers.

71. Consider the following statements with respect to e-Jagriti
    1. It is a unified portal that provides simple, fast and cost-effective consumer disputes redressal software solution at all levels.
    2. It uses artificial intelligence (AI) and machine learning (ML) to foster efficiency and innovation in the dispute resolution landscape.
    3. It is developed, designed and maintained by National Informatics Centre (NIC).

How many of the statements given above are correct?
a) Only one
b) Only two
c) All three
d) None of the above

72. Consider the following statements with respect to Bochasanwasi Akshar Purushottam Swaminarayan Sanstha (BAPS) Temple:
    1. It is the first Hindu temple built in the United Arab Emirates (UAE).
    2. To highlight the significance of Indian Architecture, it was built in the Vesara style.
    3. It was built with only Indian marbles which includes pink sandstone from Rajasthan.
    How many of the statements given above is/are correct?
    a) Only one
    b) Only two
    c) All Three
    d) None of the above

73. Which of the following projects are part of the World Restoration Flagships?
    1. Belt and Road Initiative
    2. The Living Indus initiative
    3. Great Green Wall Initiative
    4. The Accion Andina social movement
    Choose the correct codes
    a) 2 and 3 only
    b) 2 and 4 only
    c) 2, 3 and 4 only
    d) 1, 2, 3 and 4

74. Which of the following water body is the world's largest expanse of brackish water?
    a) Baltic Sea
    b) Lake Chilika
    c) Lake Van
    d) Hudson Bay

75. Consider the following statements with respect to Kaji Nemu:
    1. It is a citrus fruit unique for its aroma and health benefits.
    2. It was recently accorded the status of State fruit by the Mizoram Government.
    3. It was granted Geographical Indications (GI) tag in 2019.
    How many of the statements given above is/are incorrect?
    a) Only one
    b) Only two
    c) All Three
    d) None of the above

76. Which of the following animals are found only in India?
    1. Wanderoo
    2. Indian Elephants
    3. Nilgiri Tahr
    4. Greater One-Horned Rhinoceros
    5. Asiatic Lions
    Choose the correct codes
    a) 3, 4 and 5 only
    b) 1, 3 and 5 only
    c) 2, 3, 4 and 5 only
    d) 1, 3, 4 and 5 only

77. With reference to the adjournments in Supreme Court, Consider the following statements

1. The letters for adjournment can be circulated by one party or the counsel to the case only once.
2. No letters of adjournment is allowed in cases relating to bail and anticipatory bail.

Which of the above statement(s) is/are correct?
a) 1 only
b) 2 only
c) Both 1 and 2
d) Neither 1 nor 2

78. Consider the following statements with respect to World Governments Summit
1. The summit explores and supports the next generation governments by leveraging innovation for global problem-solving.
2. It works under the aegis of the United Nations General Assembly.
3. The World Governments Summit, 2024 was recently held at New Delhi, India.

How many of the statement(s) given above is/are correct?
a) Only one
b) Only two
c) All Three
d) None of the above

79. Consider the following statements with respect to Alaskapox
1. It is a viral infection caused by the orthopoxvirus.
2. It can infect both animals and humans.
3. It is related to smallpox, cowpox and mpox.

How many of the statement(s) given above is/are correct?
a) Only one
b) Only two
c) All Three
d) None of the above

80. Consider the following pairs

Organisms	Symbiotic Relationship
1. Barnacles & Swimming Crabs	Parasitism
2. Clownfish & Sea Anemones	Commensalism
3. Barnacles & Humpback Whales	Mutualism
4. Corals & Sponges	Competition

How many of the pair(s) given above is/are correctly matched?
a) Only one
b) Only two
c) Only three
d) All four

81. Consider the following statements with reference to Gulf Stream
1. It is a warm ocean current that originates from the Gulf of Mexico.
2. It acts as a vital conveyor belt and regulates the climate of the South Atlantic region.
3. It is part of the Atlantic Meridional Overturning Circulation (AMOC).

How many of the statements given above is/are correct?
a) Only one
b) Only two
c) All Three
d) None of the above

82. Consider the following statements with respect to Leith's Soft-Shell Turtle
1. They are large freshwater turtle species endemic to peninsular India.
2. They are currently not protected under any Act of the parliament.
3. The turtles possess distinct ocelli on their carapace, which tend to fade as they grow.

How many of the statements given above is/are correct?
a) Only one
b) Only two
c) All Three
d) None of the above

83. Arrange the following countries in descending order in terms of Nominal GDP (Gross domestic product)
1. India
2. China
3. USA
4. Germany
5. Japan

Choose the correct codes
a) 3-2-4-1-5
b) 3-2-5-1-4
c) 3-2-4-5-1
d) 3-2-5-4-1

84. Consider the following statements with respect to National Coal Index
1. It is price index that incorporates prices from all sales channels and plays a vital role in the auction process in the Commercial Mining of Coal Blocks.
2. The base year for the index is 2011-12.
3. The concept and design of the Index is developed by the Central Mine Planning and Design Institute (CMPDI).

How many of the statements given above is/are correct?
a) Only one
b) Only two
c) All Three
d) None of the above

85. Q: Consider the following pairs

Martial Arts	Originating State
1. Krav Maga	Assam
2. Kalaripayattu	Kerala
3. Gatka	Punjab
4. Khukuri Dance	Nagaland

How many of the pair(s) given above is/are correctly matched?
a) Only one
b) Only two
c) All Three
d) None of the above

86. Consider the following statements with respect to Conscription:
1. It is a compulsory enrollment for service in a country's armed forces.
2. The Indian constitution has a provision in Article 23 that allows the government to mandate Conscription.
3. In India conscription was mandated in the year 1976 during the emergency period.

How many of the above statement(s) is/are correct?
a) Only one
b) Only two
c) All three
d) None of the above

87. Consider the following statements with respect to the European Free Trade Association (EFTA):
    1. All members of the European Union are members of the EFTA.
    2. Members of the EFTA are restricted only to the continent of Europe.
    3. Trade and Economic Partnership Agreement (TEPA) is the agreement that promotes investment between member countries.

    How many of the above statement(s) is/are incorrect?
    a) Only one   b) Only two
    c) All three   d) None of the above

88. Consider the following statements with respect to the State of India's Digital Economy (SIDE) Report, 2024:
    1. It is released biannually by the NITI Aayog.
    2. India is the third largest digitized country in the world after the US and China.
    3. The ranking is based on the 5 pillars of Connect, Harness, Innovate, Protect and Sustain (CHIPS) framework.

    How many of the above statement(s) is/are correct?
    a) Only one   b) Only two
    c) Both 1 and 2   d) Neither 1 nor 2

89. Which of the following statements corresponds to the term Simian, recently in news:
    a) Various species of monkeys that live all over the world.
    b) New species of plant that is endemic to Western Ghats.
    c) Disputed island that is located in the South China Sea.
    d) 21 million years old fossil record.

90. Consider the following statements with respect to Crustaceans:
    1. They are a group of invertebrates with soft exoskeleton and segmented body.
    2. All crustaceans are aquatic animals.
    3. Crustaceans include squid, mussels and octopus.

    How many of the above statement(s) is/are correct?
    a) Only one   b) Only two
    c) All three   d) None of the above

91. Which of the following statements is associated with Rhodamine B, recently seen in news?
    a) Toxic and carcinogenic chemical used in food industry as food additive.
    b) The common DNA strand between Neanderthals and modern humans.
    c) Protein found in the flower Rhododendron, used in treating malnutrition.
    d) Recently developed vaccine against rheumatoid arthritis.

92. Consider the following statements with respect to the Macrophages:
    1. Macrophages are a type of red blood cells involved in the detection and destruction of bacteria and other harmful organisms.
    2. They are involved in tissue repair and have an anti-inflammatory role.
    3. Macrophages present in the brain are termed microglia and in the liver, they are called Kupffer cells.

    How many of the above statement(s) is/are correct?
    a) Only one   b) Only two
    c) All three   d) None of the above

93. Consider the following statements with respect to Kaji Nemu:
    1. It is the State fruit of Arunachal Pradesh.
    2. As it is tolerant to abiotic stress, the fruit is cultivated all over India.
    3. It earned a Geographical Indication (GI) tag for its unique growth characteristics, flavor, shape and aroma.

    How many of the above statement(s) is/are incorrect?
    a) Only one   b) Only two
    c) All three   d) None of the above

94. Consider the following statements with respect to the Debt Recovery Tribunals (DRTs):
    1. DRTs were established under the Insolvency and Bankruptcy Code (IBC) 2016.
    2. Under IBC, DRTs adjudicate the proceedings of the insolvency resolution process for companies.
    3. Banks, and financial institutions can approach the DRT for cases of recovery of debt greater than Rs 20 lakh.

    How many of the above statement(s) is/are correct?
    a) Only one   b) Only two
    c) All three   d) None of the above

95. Consider the following statements with respect to the Central Asian Flyway (CAF):
    1. CAF lies entirely within the Northern Hemisphere.
    2. India is one among the countries in Central Asian Flyway.

    Which of the above given statement(s) is/are incorrect?
    a) 1 only   b) 2 only
    c) Both 1 and 2   d) Neither 1 nor 2

96. Consider the following statements with respect to VAIBHAV Scheme
    1. It aims to connect the Indian STEMM diaspora with Indian academic and R&D institutions.
    2. The Scheme is being implemented by the Department of Science and Technology (DST).
    3. The fellowship is open to all scientists working in Indian Institutes of Technology (IIT).

    How many of the statements given above is/are correct?
    a) Only one   b) Only two
    c) All Three   d) None of the above

97. Consider the following statements with respect to YUVIKA
    1. All school students up to class 9 are eligible for this programme.
    2. Students belonging to the rural area have been given special weightage in the selection criteria.
    3. It is an initiative of Ministry of Youth Affairs and Sports.
    How many of the statement(s) given above is/are correct?
    a) Only one   b) Only two
    c) All Three   d) None of the above

98. Consider the following statements with respect to the National Council for Transgender Persons (NCTP)
    1. It was established in 2020 under the Transgender Persons (Protection of Rights) Act, 2019.
    2. Union Minister for Social Justice and Empowerment is the ex-officio Chairperson of the council.
    3. A Member of National Council, other than ex officio member, shall hold office for a term of three years from the date of his nomination.
    How many of the statements given above is/are correct?
    a) Only one   b) Only two
    c) All Three   d) None of the above

99. Consider the following statements with respect to International Energy Agency (IEA)
    1. It was created in 1974 to help co-ordinate a collective response to major disruptions in the supply of oil.
    2. The membership in Organisation for Economic Co-operation and Development (OECD) is a prerequisite to become a full-time member in IEA.
    3. The Emissions Gap Report is an initiative of IEA.
    How many of the statements given above are incorrect?
    a) Only one   b) Only two
    c) All Three   d) None of the above

100. Which of the following best defines the term 'Micellar Water'?
    a) A carbonated water that typically doesn't contain enough minerals to be truly beneficial for one's health.
    b) A water formed by special molecules known as surfactants that can help cleanse and tone the skin.
    c) An alkaline solution that is infused with fulvic acid and contain several nutrients.
    d) A domestic wastewater that has less nitrogen and phosphorous than black water.

101. Consider the following statements with respect to Indian Skimmer
    1. It is a migratory species that breeds in Russia and East Asia.
    2. They spend most of their life cycle above the treeline.
    3. It is listed under the Convention of Migratory Species (CMS).
    How many of the statement(s) given is/are above are correct?
    a) Only one   b) Only two
    c) All Three   d) None of the above

102. Consider the following statements with respect to Article 142:
    1. It bestows the Supreme Court with extraordinary authority to ensure complete justice in situations where existing laws or statutes may lack adequate remedies.
    2. Orders or decrees issued under Article 142 must adhere to existing laws established by the Parliament.
    3. Article 142 is not universally applicable and may not be invoked in every case.
    How many of the statements given above is/are correct?
    a) Only one   b) Only two
    c) All Three   d) None of the above

103. Consider the following statements with respect to Chhatrapati Shivaji Maharaj
    1. The Treaty of Purandar (1665) was signed between Aurangzeb and Shivaji.
    2. He was influenced by the religious heads such as Ramdas and Tukaram.
    3. He allowed his half-brother Venkoji or Ekoji to carry on administering Thanjavur in Tamil Nadu.
    How many of the statements given above is/are incorrect?
    a) Only one   b) Only two
    c) All Three   d) None of the above

104. Which of the following are the objectives of the National Agricultural Cooperative Marketing Federation of India (NAFED)?
    1. Collaborate with any international agency for development of cooperative marketing for mutual advantage in India or abroad.
    2. Act as warehouseman under the Warehousing Act.
    3. Facilitate, coordinate and promote the marketing and trading activities of the cooperative institutions.
    4. Under takes grading, packing, standardization, scientific treatment and process of agricultural produce and other articles.
    Choose the correct codes
    a) 1, 3 and 4 only   b) 2, 3 and 4 only
    c) 1 and 3 only   d) 1, 2, 3 and 4

105. Consider the following statements with respect to African-Eurasian Migratory Land-birds Action Plan (AEMLAP)
   1. It is an initiative of the Convention of Migratory Species of Wild Animals (CMS).
   2. The African-Eurasian migratory birds include Common Cuckoo, the Turtle Dove, swallows and songbirds.
   3. The Agreement on the Conservation of African-Eurasian Migratory Water-birds (AEWA) is a sub-component of the plan.
   How many of the statement(s) given above is/are correct?
   a) Only one
   b) Only two
   c) All Three
   d) None of the above

106. Consider the following statements with respect to Outcome Budgeting
   1. It links the outlay of funds by various government ministries and departments to their expected outcomes.
   2. The concept of outcome budgeting was introduced in India in 2005.
   3. It is mandatory for all State Legislative Assemblies to follow Outcome budgeting.
   How many of the statements given above is/are correct?
   a) Only one
   b) Only two
   c) All Three
   d) None of the above

107. U-Report, a digital community for young people, is an initiative of?
   a) Climate Action Network (CAN)
   b) International Telecommunication Union (ITU)
   c) United Nations Children's Fund (UNICEF)
   d) United Nations Educational, Scientific and Cultural Organization (UNESCO)

108. Consider the following statements with respect to Indian Kangaroo Lizard
   1. It can run on its hind legs with its body held upright, similar to a kangaroo.
   2. It is endemic to the Western Ghats of India.
   3. They are inefficient climbers and primarily inhabit terrestrial environments.
   How many of the statements given above is/are incorrect?
   a) Only one
   b) Only two
   c) All Three
   d) None of the above

109. Consider the following statements with respect to Indira Gandhi National Centre for the Arts
   1. It is an autonomous organisation established in 1987 by the late Prime Minister Smt. Indira Gandhi.
   2. It works under the aegis of the Ministry of Culture.
   3. It is a cultural repository and the custodian of ancient texts.
   How many of the statements given above is/are correct?
   a) Only one
   b) Only two
   c) All Three
   d) None of the above

110. Consider the following statements with respect to INSAT-3DS Mission
   1. It was launched using a Geosynchronous Satellite Launch Vehicle (GSLV).
   2. The mission is fully funded by the Ministry of Earth Sciences (MoES).
   3. The mission will help in environment monitoring, weather forecasting and disaster relief operations.
   How many of the statements given above are correct?
   a) Only one
   b) Only two
   c) All Three
   d) None of the above

111. Greece recently became first Orthodox Christian country to legalize same-sex marriage. In context of the above statement, which of the following countries shares borders with Greece?
   1. Bulgaria
   2. Albania
   3. Tunisia
   4. Italy
   5. Türkiye
   Select the correct answer using the codes given below.
   a) 1, 2 and 5 only
   b) 1, 3 and 4 only
   c) 2, 3 and 4 only
   d) 1, 2, 3, 4 and 5

112. The town of Avdiivka", recently seen in the news, is related to:
   a) Afghanistan
   b) Ukraine
   c) Iran
   d) Israel

113. With reference to Visceral Leishmaniasis (Kala-Azar), consider the following statements:
   1. It is a parasitic infection transmitted by sandflies.
   2. In India, Leishmania donovani is the only parasite causing this disease.
   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

114. With reference to BrahMos missiles, which of the following statements is/are correct?
   1. It is a three-stage missile with a solid propellant booster engine.
   2. The missile derives its name from the Brahmaputra and Moskva rivers.
   Select the correct answer using the code given below:
   a) 1 only
   b) 2 only
   c) Both 1 and 2
   d) Neither 1 nor 2

115. With reference to the Corporate Social Responsibility (CSR), consider the following statements:
   1. The Companies Act, 2013 allows companies to spend 1% of their average net profit in the previous three years on CSR activities.
   2. CSR provisions are applicable to companies with an annual turnover of 1,000 crore and more, or a net worth of Rs. 500 crore and more.

3. Non compliance of CSR provisions has been notified as a criminal offense.

Which of the above given statements is/are correct?

a) 1 and 2 only
b) 3 only
c) 2 only
d) 1, 2 and 3

116. Consider the following statements:

1. The NB8 is a regional cooperation format that brings together the Nordic countries and the Baltic nations.
2. All Nordic countries are members of the European Union.

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

117. With reference to Organic farming in India, which of the following statements is/are correct?

1. India occupies first place at global level in organic farming.
2. Madhya Pradesh has the largest area under organic certification in India.

Select the correct answer using the code given below:

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

118. With reference to the Coronal Mass Ejections (CMEs), consider the following statements:

1. They are stronger than the solar wind.
2. They can travel in any random direction.
3. They are capable of driving the Space Weather in near-Earth space.

How many of the statements given above are correct?

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

119. "Sammakka Saralamma Jatara or Medaram Jatara", recently seen in the news, is related to:

a) Karnataka
b) Tamil Nadu
c) Kerala
d) Telangana

120. Consider the following statements with reference to Raisina Dialogue:

1. It is India's flagship conference on geopolitics which is hosted by the Ministry of Commerce and Industry.
2. The theme of the 2024 edition is "One Earth, One Family, One Future".

Which of the above given statements is/are correct?

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

121. The Government of Tamil Nadu has recently banned the cotton candy due to the presence of which of the following cancer-causing chemicals in it?

a) Rhodamine B
b) Benzidine
c) Aflatoxins
d) Acetaldehyde

122. Consider the following statements with respect to the Animal Welfare Board of India (AWBI):

1. AWBI is a statutory advisory body set up under the Prevention of Cruelty to Animals Act, 1960.
2. AWBI works under the aegis of the Ministry of Environment Forest and Climate Change (MoEFCC).
3. Smt. Rajkumari Amrit Kaur pioneered the setting up of the Board, with its Headquaters at Chennai.

How many of the above statement(s) is/are incorrect?

a) Only one
b) Only two
c) All three
d) None of the above

123. Consider the following statements with respect to Atal Vayo Abhyuday Yojana (AVYAY):

1. The scheme aims to take care of various needs of Senior Citizens.
2. It is implemented by the Department of Social Justice and Empowerment.
3. Earlier the AVYAY, was known as National Action Plan for Senior Citizen (NAPSrc).

How many of the above statements is/are correct?

a) Only one
b) Only two
c) All three
d) None of the above

124. Consider the following cities in news and the country in which they belong to:

Cities in news	Country
1. Rafah	Syria
2. Sinai	Saudi Arabia
3. Belgorod	Belgium
4. Angostura	Turkey

How many of the above pairs is/are matched correctly?

a) Only one
b) Only two
c) All three
d) None of the above

125. Which among the following are known as super pollutants?

1. Methane
2. Black Carbon
3. Hydrofluorocarbons
4. Ground-level ozone

Choose the correct code.

a) 1, 3 and 4 only
b) 1 and 2 only
c) 1, 2 and 3 only
d) 1, 2, 3 and 4

126. With reference to the Gharials, consider the following statements

1. It is a schedule 1 species and listed as a critically endangered species by the International Union for Conservation of Nature (IUCN).
2. Gandak Gharial Recovery Project is an initiative of National Biodiversity Authority (NBA).
3. They live on saline waters and feed exclusively on fishes.

How many of the statements given above is/are correct?

a) Only one
b) Only two
c) All three
d) None of the above

127. Consider the following statements with respect to Kala-Azar
    1. It is a parasitic infection transmitted by sandflies.
    2. India has recently become the 1st country in the world to be officially validated by the WHO for eliminating it as a public health problem.
    3. The National Health Policy (2002) originally sought to eliminate Kala Azar by 2010.

    How many of the statements given above are correct?
    a) Only one   b) Only two
    c) All three   d) None of the above

128. Consider the following statements with respect to Hanooman
    1. It is a series of Indic large language models trained on all Languages included in the 8th Schedule of the Indian Constitution.
    2. It is an initiative of Bharat GPT ecosystem.
    3. It has been designed to work in four fields including health care, governance, financial services and education.

    How many of the statements given above is/are correct?
    a) Only one   b) Only two
    c) All three   d) None of the above

129. MakhaBucha is associated with which of the following?
    a) Jainism   b) Islamism
    c) Vaishnavism   d) Buddhism

130. Consider the following statements with respect to Wild Boars
    1. Both sexes of the Wild Boars have tusks.
    2. They live on every continent except Antarctica.
    3. They are herbivores and eat only plants, fruits, crops, roots, and nuts.

    How many of the statements given above is/are correct?
    a) Only one   b) Only two
    c) All three   d) None of the above

PRACTICE QUESTION FOR UPSC MAINS EXAM

1. The India and France partnership, which is now moving from government domains to commercial and civil spaces, reflects maturity and resilience. Illustrate.

2. What provisional measures did the International Court of Justice order in the case South Africa brought against Israel on its war with Hamas in the Gaza Strip? Can the interim ruling be enforced by the ICJ? What is the verdict's impact and what happens next?

3. The Northern Sea Route is an essential element to harness India's Interests in the Arctic. Elaborate.

4. Why was the fiscal deficit estimate announced in the recent Union Budget considered to be ambitious? How does a government fund its expenditure? What is the difference between fiscal deficit and national debt? How much is the Centre expected to borrow from the market?

5. What was the debate surrounding the Uniform Civil Code (UCC) in the Constituent Assembly? Can a State government implement a State-wide UCC? Why has the Supreme Court not given a definite order regarding the implementation of a UCC?

6. Discuss the success of a decentralized approach to tackling malnutrition in Uttar Pradesh by empowering women through community-based micro-enterprises.

7. What does delimitation mean and what are the constitutional provisions which deal with it? Why were the seats frozen as per the 1971 Census? Will the fresh exercise go against the federal principle, giving an advantage to certain States over others?

8. Discuss the significant changes on marriage, adoption, and related aspects under the Uttarakhand Uniform Civil Code (UCC) Bill, 2024.

9. The high-powered committee announced in the interim Budget needs to adopt an interdisciplinary approach if it is to tackle issues that affect family planning, maternal and child health, education, employment, and socio-economic development in India. Elaborate.

10. Of the target of grid-connected 175 GW of renewables by 2022, the share of the solar sector was 100 GW, which included a solar rooftop capacity of 40 GW. Out of this, India have only about 11 GW in place. Give reasons for failure to achieve set targets? Also discuss the potential of the recently launched Pradhan Mantri Sarvoday Yojana (PMSY).

11. How will the Uniform Civil Code Bill impact divorce, inheritance of property, and live-in relationships? What are the penalties if the new law is violated? Has any community been left outside its purview?

12. What does the Prime Minister Narendra Modi's seventh visit to the United Arab Emirates (UAE) holds for the critical relationship between the two nations? Also give a brief outline of India-Gulf relations?

13. What is Minimum Support Price (MSP)? Is legalising MSP a cure for India's agriculture problem? Discuss the importance of adopting a multi-pronged approach to address concerns in the agricultural sector.

14. Why has the notification of the Thanthai Periyar Sanctuary in the Erode district of Tamil Nadu left forest-dwellers wary? How should national parks and sanctuaries be notified? What was the 'historical injustice' the Forest Rights Act was supposed to rectify?

15. Give a brief note on the European Union Artificial Intelligence Act (EU AI Act). Discuss the broad contours of the act that could prove to be a landmark in the history of AI regulation.

16. Highlight the recommendations made by the Parliamentary Standing Committee on Personnel, Public Grievances, Law, and Justice, to enhance the quality of legal education in India, boosting research and addressing other issues.

17. Discuss how the Supreme Court's recent decision to strike down India's electoral bonds scheme marks a significant victory for transparency in democracy.

18. What are electoral bonds? What were the changes made in existing laws to allow the donor to maintain anonymity? Why did the Supreme Court invalidate electoral bonds? Explained.

19. Discuss the significance of recent Supreme Court ruling in India, which upheld the necessity of specialized qualifications for primary school teaching. Highlight the need for better training programs and government support for primary school teacher education.

20. As global oil markets evolve, India's fuel pricing strategy must also adapt, ensuring that the nation's economic interests are harmoniously balanced with global trends. Discuss and comment.

21. Highlight the need for financial autonomy for the effective functioning of local governance. What are the various sources available for Panchayats to generate revenue? Why despite efforts towards decentralization, many panchayats still rely heavily on grants for revenue.

22. What is the role of the Finance Commission? What is the basis for allocation of tax revenue to various States? Has the percentage share of the divisible pool of taxes been reducing for southern States? What are the potential solutions?

23. While ASEAN is an essential player in Indo-Pacific affairs, its influence over the emerging security shifts in the region is being questioned due to its growing vulnerabilities to power politics. Comment.

24. India's goal of reaching net zero presents a crucial challenge and opportunity. Its success depends on financing key sectors effectively, thus, shaping the pace of decarbonisation. Elaborate.

25. What is the Supreme Court's interim order on the Forest Act? How are forests protected under the Act? What were the changes proposed by the Union government?

26. By penalising consensual relations and violating individual autonomy, the Uttarakhand Uniform Civil Code Bill erodes constitutional rights to liberty, privacy and equality. Discuss and comment.

PRACTICE QUESTION FOR UPSC PRELIMS EXAM

ANSWER KEY

1. (b)	2. (c)	3. (a)	4. (d)	5. (a)	6. (a)	7. (c)	8. (c)	9. (d)	10. (a)
11. (c)	12. (d)	13. (c)	14. (d)	15. (c)	16. (a)	17. (b)	18. (c)	19. (d)	20. (a)
21. (c)	22. (a)	23. (c)	24. (a)	25. (d)	26. (c)	27. (b)	28. (a)	29. (a)	30. (a)
31. (c)	32. (b)	33. (b)	34. (b)	35. (a)	36. (c)	37. (a)	38. (b)	39. (b)	40. (d)
41. (c)	42. (b)	43. (b)	44. (b)	45. (c)	46. (c)	47. (d)	48. (b)	49. (d)	50. (c)
51. (d)	52. (b)	53. (a)	54. (a)	55. (d)	56. (b)	57. (c)	58. (a)	59. (b)	60. (c)
61. (b)	62. (b)	63. (b)	64. (a)	65. (c)	66. (c)	67. (d)	68. (b)	69. (c)	70. (d)
71. (c)	72. (a)	73. (b)	74. (a)	75. (a)	76. (b)	77. (c)	78. (a)	79. (c)	80. (b)
81. (b)	82. (b)	83. (c)	84. (a)	85. (b)	86. (b)	87. (a)	88. (b)	89. (a)	90. (d)
91. (a)	92. (b)	93. (b)	94. (a)	95. (d)	96. (b)	97. (a)	98. (c)	99. (a)	100. (b)
101. (d)	102. (c)	103. (a)	104. (d)	105. (b)	106. (b)	107. (c)	108. (d)	109. (b)	110. (c)
111. (a)	112. (b)	113. (c)	114. (a)	115. (c)	116. (a)	117. (b)	118. (c)	119. (d)	120. (d)
121. (a)	122. (b)	123. (c)	124. (d)	125. (d)	126. (a)	127. (b)	128. (c)	129. (d)	130. (b)