



DIKSHANT TODAY

SEPTEMBER 2023



What's special

- ⇒ Cinematograph (Amendment) Bill, 2023
- ⇒ E-court Mission
- ⇒ The Katchatheevu controversy
- ⇒ China's deflation, a cause for concern?
- ⇒ Draft National Tourism Policy
- ⇒ Chandrayaan-3 land on the near side of the moon
- ⇒ Sub-categorisation of OBCs
- ⇒ SC tackling gender stereotyping
- ⇒ WHO report on tobacco control
- ⇒ New housing scheme for urban poor
- ⇒ Akira ransomware
- ⇒ Practice Question For UPSC Pre. & Mains Exam



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POLITY & GOVERNANCE

PARLIAMENT PASSES CINEMATOGRAPH (AMENDMENT) BILL, 2023



Why in news?

- Recently, the Cinematograph (Amendment) Bill, 2023 was passed by the Parliament after getting the nod from the Lok Sabha.
- It amended the Cinematograph Act after 40 years as the last significant amendments in the Cinematograph Act, 1952 were made in the year 1984.

Piracy:

- The landmark bill aims to comprehensively curb the menace of 'Piracy' causing losses of Rs 20,000 Crores to the film industry, based on certain estimates.
- The provisions include strict punishment of minimum 3 months imprisonment and fine of Rs. 3 lakhs which can be extended up to 3 years imprisonment and fine upto 5% of the audited gross production cost.

Mandate:

- The Bill attempts to address the issue of unauthorised recording and exhibition of films and curb the menace of film piracy by transmission of unauthorized copies on the internet.
- The Bill attempts to improve the procedure for certification of films for public exhibition by the Central Board of Film Certification, as well as improve categorisations of the certifications of the films.
- The the Bill attempts to harmonise the law with extant executive orders, Supreme Court judgements, and other relevant legislations.

Key provisions:

- Provisions to check unauthorised recording and exhibition of films amounting to piracy: To check

film piracy by way of cam-cording in the theatres; and most importantly also prohibit any unauthorized copying and online transmission & exhibition of a pirated copy of any film, strict penal provisions have been incorporated.

- Age-Based Certification: Introduction of age-based categories of certification by further sub-dividing the existing UA category into three age-based categories, viz. seven years (UA 7+), thirteen years (UA 13+), and sixteen years (UA 16+), instead of twelve years. These age-based markers would be only recommendatory, meant for the parents or guardians to consider whether their children should view such a film.
- Aligning with the Supreme Court Judgements: Omission of Revisional Powers of Central Government as per judgment of Supreme Court in the case of K.M. Shankarappa vs Union of India (2000).
- Perpetual Validity of Certificates: Removal of the restriction in the Act on validity of certificate for only 10 years for perpetual validity of certificates of Central Board of Film Certification (CBFC).
- Change of Category of Film for Television: Recertification of the edited film for Television broadcast, as only Unrestricted Public Exhibition category films can be shown on television.
- Reference to Jammu and Kashmir: Omission of references to the erstwhile State of Jammu and Kashmir in line with the Jammu and Kashmir Reorganisation Act, 2019.

Way Forward:

- The Indian film industry is one of the biggest and most globalised industries in the world producing more than 3,000 films annually in more than 40 languages.
- The Cinematograph (Amendment) Bill, 2023 was passed by the Parliament today will go a long way in curbing the menace of piracy and also empowerment of Indian Film Industry with Ease of Doing Business.

PATNA HC UPHOLDS BIHAR CASTE-BASED SURVEY

Why in news?

- Recently, the Patna High Court upheld the caste-based survey being conducted by the Bihar government.
- In May, the Patna HC itself had stayed the caste survey on the grounds that the state was not competent to conduct the caste survey.



Background:

- In January, the Bihar government began conducting a survey of households to collect and publish data on caste with the aim of “ensuring all-round development of all sections of the State.”
- The second stage of the survey was to end in late May, but the survey was halted after the Patna High Court stayed it.
- Expressing concerns on the right to privacy, which has been held to be a facet of the right to life under Article 21 by the SC in its 2017 ruling in Justice KS Puttaswamy vs Union of India, the Bench had directed the state to “immediately stop the caste-based survey and ensure that the data already collected” is “secured and not shared with anybody till final orders are passed.”

The grounds for challenge:

- The caste survey was challenged under two significant grounds: that it violated a citizen's fundamental right to privacy and that the state had no power to carry out such a survey.

Right to privacy:

- Responding to the petitioner's argument that the right to privacy of those being surveyed will be infringed due to the queries concerning their religion, caste, and monthly income, the court referred to the triple-requirement test laid down in Puttaswamy, reiterating that permissible restrictions can be imposed on the fundamental right, in the state's legitimate interests, provided they are proportional and reasonable.
- Over the security concerns raised in the interim order, the Court accepted the Bihar government's counter-affidavit, saying that the survey has a foolproof mechanism with no chance of any kind of data leakage.
- The disclosures “are voluntary” and aimed at “bringing forth development schemes for the identified backward classes”, the court clarified that the data collected is not for “taxing, branding, labeling or ostracizing individuals or groups” but to “identify the economic, educational and other social aspects of different communities/classes/groups, which require further action by the State” for their upliftment.

Competence:

- The petitioners claimed that only the Union government can conduct a “census”. The legislative, and by extension, executive, powers of the Centre and States are divided into three lists found in the Constitution's Seventh Schedule.
- Among these, Entry 69 of the Union List contains the Centre's exclusive power to conduct a “census”. They also relied on Article 246, which deals with the Parliament's power to exclusively legislate “on any of the matters enumerated in List I in the Seventh Schedule”.

States' power under Entry 94:

- The Bihar government argued that even in 2011, a caste census was conducted by the Centre, the details of which weren't disclosed, under Article 73, which states that the Centre's power extends to matters on which Parliament has the power to make laws.
- It also pointed out that Entry 45 of the Concurrent List, containing subjects over which both the Centre and the states can legislate, is similar to Entry 94 of the Union List, as both confer powers to collect statistics for verifying details, to achieve the economic and social planning goals listed under Entry 20 of the Concurrent List.

RAJYA SABHA PASSES JAN VISHWAS (AMENDMENT OF PROVISIONS) BILL, 2023



Why in news?

- The Jan Vishwas (Amendment of Provisions) Bill, 2023 was passed in Rajya Sabha recently.

Background:

- The Bill was first introduced in Lok Sabha on 22nd December 2022. Subsequently, it was referred to the Joint Committee of the Parliament.
- The Joint Committee held detailed discussions with all the 19 Ministries/Departments along with Legislative Department and Department of Legal Affairs.

Details:

- Committee made 7 general recommendations which provide advice and guidance for future decriminalization efforts.

- ⇒ One of the recommendations include constitution of a group consisting of legal professionals, industry bodies, members of bureaucracy and regulatory authorities, etc. to examine other acts and carry out exercise similar to the Jan Vishwas (Amendment of Provisions) Bill, 2023.
- ⇒ Working group has been constituted as per the recommendation of the Committee.
- ⇒ Through The Jan Vishwas (Amendment of Provisions) Bill, 2023, a total of 183 provisions are being proposed to be decriminalized in 42 Central Acts administered by 19 Ministries/Departments. Decriminalization is proposed to be achieved in the following manner:
 - a) Both Imprisonment and/or Fine are proposed to be removed in some provisions.
 - b) Imprisonment is proposed to be removed and fine retained in few provisions.
 - c) Imprisonment is proposed to be removed and Fine enhanced in few provisions.
 - d) Imprisonment and Fine are proposed to be converted to Penalty in some provisions.
 - e) Compounding of offences is proposed to be introduced in few provisions.

Measures for implementation:

- ⇒ For effective implementation of the above, the bill proposes measures such as
 - pragmatic revision of fines and penalties commensurate to the offence committed;
 - establishment of Adjudicating Officers;
 - establishment of Appellate Authorities; and
 - Periodic increase in quantum of fine and penalties

Significance:

- ⇒ The Amendment Bill will contribute to rationalizing criminal provisions and ensuring that citizens, businesses and the government departments operate without fear of imprisonment for minor, technical or procedural defaults.
- ⇒ The nature of penal consequence of an offence committed should be commensurate with the seriousness of the offence. This bill establishes a balance between the severity of the offence/violation committed and the gravity of the prescribed punishment.
- ⇒ The criminal consequences prescribed for technical/procedural lapses and minor defaults, clog the justice delivery system and puts adjudication of serious offences on the back burner. Some of the amendments proposed in the Bill are to introduce suitable administrative adjudication mechanisms, wherever applicable and feasible.
- ⇒ Decriminalization of provisions which affect citizens and certain categories of government employees will help them live without the fear of imprisonment for minor violations.
- ⇒ The enactment of this legislation would be a landmark in the journey of rationalizing laws, eliminating barriers and bolstering growth of businesses.

PARLIAMENT PASSES MINES AND MINERALS (DEVELOPMENT & REGULATION) AMENDMENT BILL, 2023



Why in news?

- ⇒ The Rajya Sabha has passed the Mines and Minerals (Development and Regulation) Amendment Bill, 2023 for making amendments to the Mines and Minerals (Development and Regulation) Act, 1957.
- ⇒ The Bill was passed by the Lok Sabha.

Earlier amendments to MMDR Act, 1957:

- ⇒ The MMDR Act, 1957 was comprehensively amended in 2015 to bring several reforms in the mineral sector, notably,
 - mandating method of auction for grant of mineral concessions to bring transparency in allocation of mineral resources,
 - for establishing District Mineral Foundation (DMF) for the welfare of the people and areas affected by mining and
 - for establishing National Mineral Exploration Trust (NMET) to give thrust to exploration and for ensuring stringent penalty for illegal mining.
- ⇒ The Act was further amended in 2016 and 2020 to address specific emergent issues and was last amended in 2021 to bring further reforms in the sector, such as, removing the distinction between captive and merchant mines, transfer of statutory clearances to ensure continuity in mining operations even with change of lessee, removing the restrictions on transfer of mineral concessions, lapsing of rights of non-auctioned concession holders which have not resulted in mining leases to ensure that concessions to private sector are only granted through auction etc.

Major reforms introduced by Mines and Minerals (Development and Regulation) Amendment Bill, 2023:

- a) Omission of 6 minerals from the list of 12 atomic minerals specified in Part-B of the First Schedule of the Act, namely, Lithium bearing minerals, Titanium bearing minerals and ores, Beryl and other beryllium bearing minerals, Niobium and Tantalum bearing minerals and Zirconium-bearing minerals.

- b) Empowering Central Government to exclusively auction mineral concessions for critical minerals specified in Part D of the First Schedule of the Act. Revenue from these auctions will accrue to concerned State Government.
- c) Introducing exploration licence for deep-seated and critical minerals

Omission of 6 minerals from the list of 12 atomic minerals specified in Part-B of the First Schedule of the Act:

- The Bill provides to remove certain minerals from the list of atomic minerals, viz. minerals of lithium, beryllium, titanium, niobium, tantalum and zirconium are technology and energy critical having use in space industry, electronics, technology and communications, energy sector, electric batteries and are critical in net-zero emission commitment of India.
- Demand of minerals like lithium used in lithium-ion batteries is likely to increase manifold as the focus shift towards clean energy.
- Currently, the country is dependent on imports for most of these important minerals as there is not much exploration or mining of these minerals due to existing legal provisions. These minerals have high economic importance and considerable supply risk due to geo-political uncertainties.
- Upon removal of these minerals from the list of atomic minerals, exploration and mining of these minerals will be open to private sector.

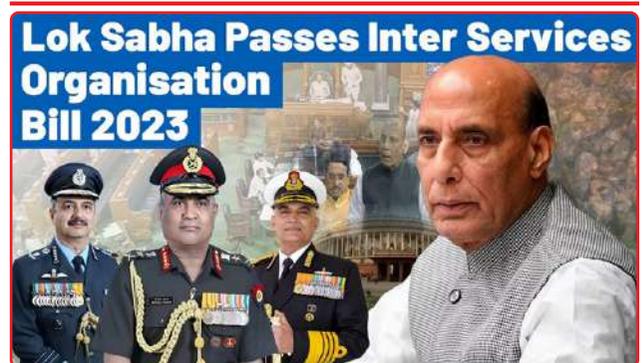
Empowering Central Government to exclusively auction mineral concessions for certain critical minerals:

- Another major amendment passed by the Parliament is to empower the Central Government to exclusively auction mining lease and composite licence for certain critical minerals viz. molybdenum, rhenium, tungsten, cadmium, indium, gallium, graphite, vanadium, tellurium, selenium, nickel, cobalt, tin, platinum group of elements, minerals of "rare earth" group (not containing Uranium and Thorium); fertilizer minerals such as potash, glauconite and phosphate (without uranium) and minerals being removed from the list of atomic minerals.
- Only 19 blocks of minerals have been auctioned so far by the State Government viz. graphite, nickel and phosphate out of 107 blocks handed over to the various State Governments.
- Even though auction would be conducted by the Central Government, the mining lease or composite licence for these minerals to the successful bidders will be granted by the State Government only and the auction premium and other statutory payments shall continue to be received by the State Government.

Introducing exploration licence for deep-seated and critical minerals:

- Even though 100% foreign direct investment (FDI) is allowed in mining and exploration sector through automatic route, currently there is no significant FDI received in these sectors.
- The Bill introduces provisions for grant of a new mineral concession, namely, Exploration Licence (EL), in the Act. The exploration licence granted through auction shall permit the licensee to undertake reconnaissance and prospecting operations for critical and deep-seated minerals mentioned in the newly proposed Seventh Schedule to the Act.
- These minerals are copper, gold, silver, diamond, lithium, cobalt, molybdenum, lead, zinc, cadmium, elements of the rare earth group, graphite, vanadium, nickel, tin, tellurium, selenium, indium, rock phosphate, apatite, potash, rhenium, tungsten, platinum group of elements and other minerals proposed to be removed from the list of atomic minerals.
- Preferred bidder for exploration licence shall be selected through reverse bidding for share in auction premium payable by the mining lease (ML) holder. Bidder quoting lowest percentage bid shall be preferred bidder for exploration licence. This amendment is expected to provide conducive legal environment for attracting FDI and junior mining companies in the country.
- The blocks explored by the Exploration Licence holder can be directly auctioned for mining lease, which will fetch better revenue to the State Governments. The exploration agency would also benefit by getting a share in the auction premium payable by the lease holder.
- Involvement of private agencies in exploration would bring advanced technology, finance and expertise in exploration for deep-seated and critical minerals.

LOK SABHA PASSES INTER-SERVICES ORGANISATION (COMMAND, CONTROL & DISCIPLINE) BILL – 2023



Why in news?

- The Lok Sabha recently passed the Inter-Services Organisation (Command, Control & Discipline) Bill - 2023.

⇒ The bill seeks to empower Commander-in-Chief and Officer-in Command of Inter-Services Organisations (ISOs) with all disciplinary and administrative powers in respect of the personnel serving in or attached to such organisations.

Details:

- ⇒ Currently, the Armed Forces personnel are governed in accordance with the provisions contained in their specific Service Acts - Army Act 1950, Navy Act 1957 and Air Force Act 1950.
- ⇒ The enactment of the Bill will have various tangible benefits such as maintenance of effective discipline in inter-services establishments by the Heads of ISOs, no requirement of reverting personnel under disciplinary proceedings to their parent Service units, expeditious disposal of cases of misdemeanour or indiscipline and saving of public money & time by avoiding multiple proceedings.
- ⇒ The Bill would also pave the way for much greater integration and jointness amongst the three Services; lay a strong foundation for creation of Joint Structures in times to come and further improve the functioning of the Armed Forces.

Salient Features:

- ⇒ The 'ISO Bill - 2023' shall be applicable to all personnel of regular Army, Navy, and Air force, and to persons of other forces as notified by the Central Government, who are serving in or attached to an Inter-Services Organisation.
- ⇒ This Bill empowers the Commander-in-Chief, Officer-in-Command or any other officer specially empowered in this behalf by the Central Government with all the disciplinary and administrative powers in respect of personnel serving in or attached to their Inter-Services Organisations for the maintenance of discipline and proper discharge of their duties, irrespective of the service to which they belong.
- ⇒ The Commander-in-Chief or the Officer-in-Command means General Officer/Flag Officer/Air Officer who has been appointed as Commander-in-Chief of Officer-in-Command an Inter-Services Organisation.
- ⇒ To maintain Command and Control in absence of the Commander-in-Chief or the Officer-in-Command, the officiating incumbent or the officer on whom the command develops in absence of a C-in-C or Oi/C, will also be empowered to initiate all disciplinary or administrative actions over the service personnel, appointed, deputed, posted or attached to an Inter-Services organisation.
- ⇒ The Bill also empowers the Commanding Officer of an Inter-Services organisation to initiate all disciplinary or administrative actions over the personnel appointed, deputed, posted or attached to that Inter-Services Organisation. For the purpose of this Act, Commanding Officer means the officer in actual command of the unit, ship or establishment.

⇒ The Bill empowers the Central Government to constitute an Inter- Services Organisation.

Enabling act:

- ⇒ The ISO Bill, 2023 is essentially an enabling act and it does not propose any change in the existing service acts/rules/regulations which are time-tested and have withstood judicial scrutiny over the last six decades or more.
- ⇒ Service personnel when serving in or attached to an ISO will continue to be governed by their respective service acts.

MONEY BILLS VS FINANCE BILLS, WHAT ARE THE DIFFERENCES, WHAT THE COURT HAS RULED



Why in news?

- ⇒ The Digital Personal Data Protection (DPDP) Bill is a normal Bill and not a Money bill, Parliamentary Affairs Minister held recently.
- ⇒ Earlier, it was reported that Bill was being introduced under Article 117 of the Constitution, which deals with special provisions for Finance Bills.

What is a Finance Bill?

- ⇒ Any Bill that relates to revenue or expenditure is a Financial Bill. A Money Bill is also a specific type of Finance Bill that must deal only with matters specified in Article 110 (1) (a) to (g).
- ⇒ Article 117 of the Constitution deals with the special provisions relating to Financial Bills.
- ⇒ Article 117 (1) indicates that a Bill that makes provision for any of the matters specified in clauses (a) to (f) of Article 110 (1) can be introduced or moved only on the President's recommendation and cannot be introduced in the Rajya Sabha. Examples of this first category of Financial Bills are Money Bills and other Financial Bills originating solely in the Lok Sabha.

Finance Bills II:

- ⇒ The second category of Finance Bills is dealt with under Article 117 (3) of the Constitution. Such Bills are more like ordinary Bills.
- ⇒ The difference between this kind of Financial Bill and an ordinary Bill is that if the former is enacted, it will involve expenditure from the Consolidated Fund

of India and cannot be passed by either House unless the President has recommended its consideration.

- In all other respects, such Financial Bills are just like ordinary Bills, and can even be introduced in the Rajya Sabha, amended by it, or be subjected to deliberation by both Houses in a joint sitting.
- A Financial Bill becomes a Money Bill when it exclusively falls under one of the seven heads listed under Article 110(1), which defines Money Bills. Moreover, a Money Bill is a Financial Bill that is certified by the Speaker.

What is the difference between Money Bills and Financial Bills?

- Article 110 defines a “Money Bill” as one containing provisions dealing with taxes, regulation of the government’s borrowing of money, and expenditure or receipt of money from the Consolidated Fund of India, among others, whereas Article 109 delineates the procedure for the passage of such a Bill and confers an overriding authority on the Lok Sabha in the passage of Money Bills.
- A major difference between money and Financial Bills is that while the latter has the provision of including the Rajya Sabha’s (Upper House) recommendations, the former does not make their inclusion mandatory. The Lok Sabha has the right to reject the Rajya Sabha’s recommendations when it comes to Money Bills.
- While an ordinary Bill can originate in either house, a Money Bill can only be introduced in the Lok Sabha, as laid down in Article 117 (1).
- Additionally, no one can introduce or move Money Bills in the Lok Sabha, except on the President’s recommendation. Amendments relating to the reduction or abolition of any tax are exempt from the requirement of the President’s recommendation.
- The two prerequisites for any financial Bill to become a Money Bill are that first, it must only be introduced in the Lok Sabha and not the Rajya Sabha. Secondly, these bills can only be introduced on the President’s recommendation.

How are money and Financial Bills passed?

- The role of the Rajya Sabha in passing Money Bills is restricted. Such Bills can originate only in the Lok Sabha. After being passed by the Lok Sabha, Money Bills are sent to the Rajya Sabha for its recommendations.
- Within 14 days, the Upper House must submit the Bill back to the Lower House with its non-binding recommendations. If the Lok Sabha rejects the recommendations, the Bill is deemed to have passed by both Houses in the form in which it was passed by the Lok Sabha without the recommendations of the Rajya Sabha.
- Even if the Rajya Sabha doesn’t respond with its recommendations within 14 days, the same consequences would follow. Thus, when it

comes to Money Bills, the Rajya Sabha only has a recommendatory role.

- Meanwhile, ordinary Bills and other Financial Bills still require the agreement of both Houses of Parliament to ensure their passage. They can very well be rejected or amended by the Rajya Sabha, unlike Money Bills.

Joint sitting:

- Also, all other Financial Bills, separate from Money Bills, must go through the rigours of all stages in the Rajya Sabha as ordinary Bills. This means that while the President can summon a joint sitting of both Houses to resolve differences over a deadlock in passing an ordinary Bill, there is no provision for a joint sitting for differences over a Money Bill.
- Over the last seven years, the government has introduced multiple legislations through the Money Bill route, the most notable of which are the Aadhaar Act, 2016, and the Finance Act, 2017.

What is the top court’s view?

- In November 2019, a five-judge Constitution Bench, headed by the (then) Chief Justice of India Ranjan Gogoi, struck down amendments to the 2017 Finance Act, which was passed as a Money Bill, altering the structure and functioning of various tribunals.
- Directing the formulation of fresh norms for appointing tribunal members, the bench, ruled that the amendments were “contrary to the principles envisaged in the Constitution as interpreted by this Court”.
- However, on the issue of whether the amendments could have been passed as a Money Bill, the court referred the matter to a seven-judge bench for consideration.
- It also expressed its doubts over the correctness of the Constitution Bench’s 2018 verdict upholding the 2016 Aadhaar Act, which was passed as a Money Bill too.
- Incidentally, CJI Chandrachud had been the lone dissenter in the Aadhaar ruling of 2018, criticising the government for passing the Aadhaar Act as a Money bill while calling it a “fraud on the Constitution”.

HOUSE PANEL PUSHES FOR 18 YRS AS MINIMUM AGE FOR CONTESTING POLLS



Why in news?

- A parliamentary panel recently battled for bringing down the minimum age for candidacy in national elections to 18 years.
- The panel also suggested reducing the minimum age requirement for candidacy in assembly elections.

Details:

- The Standing Committee on Personnel, Public Grievances, Law and Justice was headed by BJP Rajya Sabha member Sushil Modi.
- Most European countries mandate that candidates for national general elections must be at least 18 years old.
- Reducing the minimum age requirement for candidacy in elections would give young individuals equal opportunities to engage in democracy. This viewpoint is reinforced by a vast amount of evidence, such as global practices, the increasing political consciousness among young people, and the advantages of youth representation.
- He also pushed for increasing punishment for candidates making false declarations/affidavits from the current six-month jail term to two years to ensure fair elections and to protect citizens' rights.

Eligibility criteria:

- As per the present legal mandate to contest in Lok Sabha or Assembly elections, candidates must be at least 25 years old, ensuring that they possess the necessary maturity, experience, and understanding of their responsibilities.
- Article 84 of the Constitution outlines the qualifications for Members of Parliament, requiring a person to be at least 30 years old to hold a seat in the Council of States and at least 25 years old to hold a seat in the House of the People.

Age of Lok Sabha MPs:

- In 2019, 47 percent of Lok Sabha MPs are over the age of 55.
- This trend is particularly disconcerting, given that India's median age is only 27.9 years. Further, only 2.2 percent of Lok Sabha MPs are under the age of 30, while less than 1.7 percent of MPs worldwide fall within this age bracket.
- In the 17th Lok Sabha, there are currently 34 sitting Members of Parliament between the ages of 30 and 40.

Affidavit under the Conduct of Elections Rules:

- The Representation of the People Act sets out qualifications and disqualifications for candidates running for public office and provides a structured framework that promotes free and fair elections. Candidates contesting elections must file an affidavit in Form 26 under the Conduct of Elections Rules, 1961.
- This affidavit discloses various details, such as their assets, liabilities, and educational qualifications, among others.

- It is mandatory for candidates to provide truthful information, failing which will be considered a violation of the law and can result in imprisonment under Section 125A of the Act.
- The panel also recommends that if a candidate is found to have provided false information, under the updated/new provision proposed by the Committee, they should be deemed ineligible for any benefits resulting from such election. This measure is aimed at ensuring a level playing field for all candidates and upholding the integrity of the election process.

Harsher punishment for filing false affidavit:

- It has said that in order to ensure fair elections and to protect citizens' rights according to Article 19(1)(a), punishment under Section 125A of the Representation of People Act, 1951 should be increased to a maximum of two years imprisonment and a fine.
- However, this penalty should only be applied in exceptional cases, and not for minor errors or unintentional mistakes.
- Under the new provision, submitting a false affidavit should be considered a violation of constitutional provisions, and an election may be invalidated under sub-Section 1(d)(iv) of Section 100 of the Act.
- Currently, the punishment under Section 125A is only six months.

WHAT IS A PRIVILEGE MOTION AND HOW DOES THE COMMITTEE OF PRIVILEGES IN PARLIAMENT EXAMINE IT?

**Why in news?**

- Recently, the Rajya Sabha Chairman referred complaints related to the privilege of the House against TMC's Derek O'Brien and AAP's Raghav Chadha to the privileges committee.
- He has referred the matter under Rule 203 of Rules of Procedure and Conduct of Business to the Committee of Privileges for examination, investigation and report.
- This comes amid differences between the ruling party and some opposition parties that have plagued the ongoing Monsoon Session of its sittings.

What is a privilege motion?

- The two rules referred here relate to the concept of parliamentary privilege, which are certain rights conferred to the Members of Parliament for conducting the business of the Parliament.
- There is no codified list of the exact privileges, but it includes the right of free expression in the course of Parliamentary debates and Members of Parliament will not be liable for court proceedings for this.
- If there is a belief that such a privilege has been breached, a motion can be raised by any member. It can be admitted by the Chairman. They can then refer it to the Privileges Committee.
- The Chairman can, from time to time, nominate such a Committee, consisting of ten members. It will also have a Chairman appointed by the Rajya Sabha Chairman.
- The right to raise a question of privilege is based on satisfying two conditions, namely:
 - a) the question shall be restricted to a specific matter of recent occurrence, and
 - b) the matter requires the intervention of the Council.

Provision in both Houses:

- Similar provisions exist in Lok Sabha with the Speaker having the power to make such decisions. The Speaker/RS chairperson is the first level of scrutiny of a privilege motion.
- Therefore, the Speaker/Chair can decide on the privilege motion himself or herself or refer it to the privileges committee of Parliament.

What action can the privileges committee take?

- The mandate of the committee is to examine such cases and “make such recommendations as it may deem fit”. It can call the relevant people as part of its examination and look at related documents.
- It has to then make a report and if the Council has not fixed any time for its presentation, the report shall be presented within one month of the date on which reference to the Committee was made.
- A motion has to be passed for the consideration of the report and amendments can be suggested.
- The Chairman or any member of the Committee or any other member can move that the Council agrees, disagrees, or agrees with amendments, with the recommendations contained in the report.

Are privilege notices rejected often?

- A large number of notices are rejected, with penal action recommended in only a few cases.
- The most significant case was in 1978 when Indira Gandhi, who had just won the Lok Sabha elections from Chikmagalur, was expelled from the House.
- Then home minister Charan Singh moved a resolution of breach of privilege against her following observations made by the Justice Shah Commission, which probed excesses during the Emergency.

- Another case was the expulsion of Subramanian Swamy from the Rajya Sabha in 1976. Swamy was charged with bringing disrepute to Parliament through his activities through interviews in foreign publications that were construed as “anti-India propaganda”.

THE ‘RIGHT TO BE FORGOTTEN’, INCLUDED IN DATA PROTECTION BILL Tabled IN LOK SABHA



Why in news?

- Recently, the Digital Personal Data Protection Bill, 2023, was tabled in Parliament. Among its other features, the bill codifies the right to be forgotten.
- The proposed law comes six years after a landmark Supreme Court case, K.S.Puttaswamy vs Union of India, recognised the right to be forgotten as an aspect of the right to privacy that emanates from Article 21.
- Chief Justice of India D.Y. Chandrachud had said that informational privacy is a facet of the right to privacy and called for a law on data protection.

Recent Gujarat High Court verdict:

- The Gujarat High Court observed last week that once a court quashes a First Information Report (FIR) against an individual, the press should delete all news items connected to it.
- The division bench of Chief Justice Sunita Agrawal and Justice N.V. Anjaria made these observations while hearing an appeal filed by an NRI businessman, who wanted tech giant Google and news publications to remove news items related to a 2020 FIR that was eventually quashed.

What 2023 Bill says about right to be forgotten?

- The Bill provides for the right to be forgotten under the heading ‘right to correction and erasure of personal data’.
- According to Section 12 of the proposed law, a data principal will have the right to correction, completion, updating, and erasure of their personal data for the processing of which they have previously given consent.
- This includes consent given for the specified purpose for which the data principal has voluntarily provided their personal data to the data fiduciary, the entity that collects and stores the data.

- However, the proposed provision is subject to the condition that retaining the data is necessary for the specified purpose or for compliance with any existing law.

What court rulings say?

- Successive judicial rulings have recognised the right to be forgotten. In 2017, the Supreme Court held in the Puttaswamy case that the right to be forgotten was inherent to the right to privacy under Article 21 of the Constitution.
- The bench referred to the European Union's General Data Protection Regulation (GDPR) in its ruling. It said that an individual who no longer wants their personal data to be processed or stored should be able to remove it from the system when it's "no longer necessary, relevant, or is incorrect and serves no legitimate interest".
- The court, however, qualified this by saying that the right cannot be exercised where the information or data is necessary for exercising the right of freedom of expression and information, for compliance with legal obligations, or for the performance of a task carried out in public interest.
- Such grounds, according to that ruling, includes public health, for archiving purposes in public interest, scientific or historical research purposes, statistical purposes, or for the establishment, exercise, or defence of legal claims.

Related cases:

- In the 2019 Zulfiqar Ahman Khan vs M/S Quintillion Business Media, the petitioner wanted two articles written about him on a news website removed. The articles were part of reportage on the #MeToo campaign.
- The Delhi High Court recognised "right to be forgotten" and the "right to be left alone" as being inherent aspects of the right to privacy and the articles were eventually pulled down.
- The right to be forgotten once again came up in the 2021 Jorawer Singh Mundy vs Union of India. In that case, Jorawer Singh, an American citizen, approached the Delhi High Court seeking removal of all public records of a case registered against him under the Narcotics Drugs and Psychotropic Substances Act, 1985.
- In his petition, Singh said that even though he was acquitted by the trial court in 2011, he was unable to find employment in the US because records of the ruling were available on Google, which put off employers who ran background checks on him.

What Indian laws say?

- While the 'right to be forgotten' isn't a law yet, there are existing provisions in Indian laws that seek to prevent private data from being compromised.
- For instance, the Information Technology Act 2000 has a provision for compensation for failure to protect

data. Under Section 43A of the law, an organisation is liable to pay damages to a person whose sensitive personal data has been compromised.

- Meanwhile, the 2022 amendment to Information Technology Rules, 2021, provides for the establishment of Grievance Appellate Committee(s) to allow individuals to appeal against the inaction of, or decisions taken by intermediaries on user complaints. The amendment also gives users the right to approach courts for remedy.

Where other countries stand?

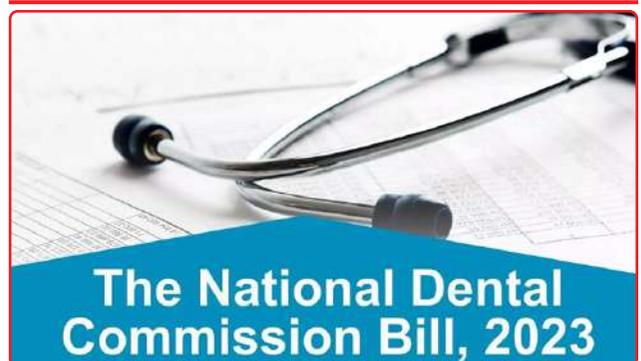
Origin:

- Some countries have already put the concept of 'right to be forgotten' into practice. It was the Court of Justice of the European Union that first raised the subject in its 2014 ruling in Google Spain SL, Google Inc v Agencia Española de Protección de Datos, Mario Costeja González. The case pertains to a Spanish man's request that a 1998 advertisement on the forced sale of his house be taken down.
- In its ruling, the Court of Justice of the European Union ruled that it was incumbent upon an internet search engine operator "for the processing that it carries out of personal data which appear on web pages published by third parties", thus upholding the right of erasure.
- The 2014 judgment set the precedent for the right of erasure under the European Union's GDPR, which, under Article 17, provides the specific circumstances under which it can be applied.

Law in Philippines:

- The Philippines also recognised the right under its Data Privacy Act, 2012.
- Under the law, data subjects had the right to suspend, withdraw, or order the blocking, removal, or destruction of their personal information from the personal information controller's filing system.
- The right can be exercised upon discovery and substantial proof that the personal information is incomplete, outdated, false, unlawfully obtained, used for unauthorised purposes, or is no longer necessary for the purposes for which it was collected.

NATIONAL DENTAL COMMISSION BILL, 2023 PASSED BY THE PARLIAMENT



Why in news?

- Recently, the Parliament has passed the National Dental Commission Bill, 2023.
- It underscores the government's unwavering commitment to ensuring the highest standards of dental care for its citizens.
- The National Dental Commission Act 2023, will introduce a groundbreaking regulatory framework by establishing the National Dental Commission (NDC), which will replace the existing Dental Council of India (DCI) and repeal the Dentists Bill, 1948.

Key Highlights:

Constitution of National Dental Commission and State Dental Councils:

- The Act establishes the National Dental Commission and mandates the formation of State Dental Councils or Joint Dental Councils.
- This structure aims to decentralize authority and enhance effective regulation.

Three Autonomous Boards:

- The Act will empower three distinct Autonomous Boards: the Under-Graduate and Post-Graduate Dental Education Board, the Dental Assessment and Rating Board (DARB), and the Ethics and Dental Registration Board (EDRB).
- These boards will carry out specific functions, contributing to a comprehensive regulatory framework.

Fixed Tenure and Professional Development:

- The Act will introduce a fixed tenure for the Chairperson, Members, and Secretary of the Commission, with no possibility of reappointment.
- The NDC will emphasize promotive and preventive dental care services and will focus on fostering the soft skills necessary for career advancement among dentists and dental auxiliaries.

Industry Collaboration and Technological Innovation:

- Recognizing the importance of collaboration and research, the Act will encourage partnerships with industry and institutions to promote advancements in dental research.
- It also emphasizes the integration of cutting-edge technology into dental education.

Online National Register and Dental Advisory Council:

- The Act will provide for maintaining an online and live National Register of licensed dentists and dental auxiliaries.
- It establishes a Dental Advisory Council with representation from all States/Union Territories to ensure comprehensive insights and guidance.

Merit-Based Selection Process:

- Under the Act, the NDC will be led by a 'selected' Regulator.
- This entails the appointment of the NDC Chairman and Members through a merit-based selection process conducted by a Search-cum-Committee chaired by the Cabinet Secretary.

Collaborative Approaches:

- The Act will facilitate joint sittings with relevant statutory bodies, including the National Medical Commission, Pharmacy Council of India, Indian Nursing Council, National Commission for Indian System of Medicine, National Commission for Homeopathy, and National Commission for Allied and Healthcare Professions.

Fee Regulation and Constitutions:

- The Act will empower the Commission to frame guidelines for fee determination for fifty percent of seats in private dental colleges and deemed Universities.
- Additionally, within a year of the Act's commencement, all State governments will establish State Dental Councils or Joint Dental Councils.

Way Forward:

- It is poised to usher in vital regulatory reforms in the dental education sector.

GOVT INTRODUCES BILL TO REPLACE CJI WITH MINISTER IN EC SELECTION PANEL, NEGATES SC ORDER



Why in news?

- Recently, the government introduced a bill in the Rajya Sabha that seeks to negate a March 2023 Supreme Court verdict on the selection of the chief election commissioner (CEC) and other election commissioners (ECs) in the Election Commission.

Background:

- The Supreme Court said the selection should be made by the President on the advice of a panel headed by the Prime Minister, and comprising the leader of the Opposition in the Lok Sabha and the Chief Justice of India (CJI).

Highlights of the bill:

- However, the Chief Election Commissioner and other Election Commissioners (Appointment, Conditions of Service and Term of Office) Bill, 2023 seeks to replace the CJI in the panel with a Cabinet minister to be nominated by the PM, thus giving greater say to the central government.
- The bill says that if the leader of the Opposition (LoP) in the Lok Sabha has not been recognised as such, then the leader of the largest party in the Opposition in the Lower House shall be deemed the LoP.
- Currently, the CEC and election commissioners are appointed by the President on the aid and advice of the Council of Ministers. The judiciary does not have any say in the appointments.

Petition before SC:

- Hearing a writ petition from 2015 that sought an independent mechanism to appoint the CEC and election commissioners, a five-judge Constitution Bench headed by Justice K.M. Joseph had said that the founding fathers clearly contemplated a law by Parliament in this respect, and did not intend the executive exclusively calling the shots in the matter of appointments to the Election Commission.
- The ruling said that the process of appointment outlined by the Supreme Court will continue to hold until a law is made by Parliament.

Objects and reasons of the bill:

- The bill's statement of objects and reasons says that it provides for the appointment and qualifications of the candidates, besides a search committee to shortlist names for consideration by the selection committee.
- It seeks to replace the Election Commission (Conditions of Service of Election Commissioners and Transaction of Business) Act, 1991, which does not contain provisions regarding the candidates' qualifications, or the search committee.
- The bill states that the CEC and election commissioners shall be persons of integrity, who have knowledge of and experience in management and conduct of elections.
- The process to appoint the CEC and election commissioners will start with a search committee headed by the cabinet secretary and comprising two other members not below the rank of secretary to the Government of India.
- The committee shall prepare a list of five people, who will then be considered for selection by the PM-chaired committee.
- The bill also says that the salary of the CEC and election commissioners shall be the same as those of the cabinet secretary.

Tenure & removal:

- The CEC and election commissioners may, at any time, "by writing under his hand addressed to the President", resign, the bill says.

- The CEC and election commissioners shall not be removed except in accordance with the provisions contained in clause (5) of Article 324 of the Constitution.
- It suggests no change in the terms of the CEC and election commissioners, saying they will hold office for a term of six years from the date on which they assumed office or until age 65, whichever is earlier.
- The bill also states that the CEC and election commissioners shall not be eligible for re-appointment.

E-COURT MISSION, DEVELOPMENT OF DIGITAL, PAPERLESS ONLINE COURTS IN INDIA**Why in news?**

- The Centre has launched the E-courts Mission Mode Project as part of a national e-governance plan to modernise the court system in the country.

Details:

- This comes under the implementation for information and communication technology (ICT) development of the district & subordinate courts in the country based on the "National Policy and Action Plan for Implementation of Information and Communication Technology in the Indian Judiciary".
- The Department of Justice executes the project in collaboration with the e-Committee of the Supreme Court (SC).
- With the successful completion of Phase II and the announcement of Phase III, the nation is moving closer to paperless, online courts. Here is an overview of the project so far:

Phase I (2011-15):

- Basic computerisation and local network connectivity achieved at an expenditure of Rs 639.41 crore. 14,249 court sites were computerised in this phase.

Phase II (2015-2023):

- Focus on further development with an outlay of Rs 1,670 crore. So far, Rs 1,668.43 crore has been released by the government.
- 18,735 district & subordinate courts were computerised in this phase.

Some of the initiatives taken under this phase to make courts more accessible are:

- Wide Area Network (WAN) Project connects 99.4 per cent of court complexes across India with 10 Mbps to 100 Mbps bandwidth speed.
- National judicial data grid (NJDG) offers access to 235.8 million case information and 225.6 million orders/judgements, as of August 1.
- Case information software (CIS) has been developed for District and High Courts based on customised free and open-source software (FOSS).
- Seven real-time information platforms for lawyers and litigants have been launched through SMS push & pull, email, multilingual eCourts services portal, judicial service system, and information kiosks. This includes real-time information on case status, cause lists, judgements etc. Electronic case management tools (ECMT) have also been created with mobile app for lawyers JustIS app for judges.
- Video conferencing facilities for hearings and proceedings. Up till June 2023, 27.7 million virtual hearings have been conducted.
- Live streaming of court proceedings in Gujarat, Gauhati, Orissa, Karnataka, Jharkhand, Patna, Madhya Pradesh High Courts and the Supreme Court have been started to let concerned parties follow proceedings.
- 22 Virtual courts in 18 States/UTs handling traffic challan cases and collecting fines online have been operationalised.
- e-Filing System: This has been rolled out with upgraded features. A total of 20 High Courts have implemented e-payments.
- eSewa Kendras: 819 centers assisting with legal advice, information, and eFiling have been rolled out.
- Tele Law Programme: This e-interface platform connects disadvantaged sections with panel lawyers via video conferencing, telephone, and chat facilities.
- NSTEP: National service and tracking of electronic processes (NSTEP) is a technology-enabled process serving and issuing of summons implemented in 28 States/UTs.

Phase III

- The eCourt project has planned Phase III which aims to further ease the justice system by moving towards digital, paperless, and online courts.
- The budget allocation for this phase is Rs 7,000 crore, as announced in Union Budget 2023-2024.
- According to the "Detailed Project Report" approved by the e-committee of the Supreme Court, the Expenditure Finance Committee recommended Phase III of the project with a budget outlay of Rs 7,210 crore on February 23. The project is still pending approval.

Revenue Courts:

- The Revenue Courts are not part of the e-courts Mission Mode Project, as they fall under the jurisdiction of state governments.

KEY PROVISIONS AND PROCESSES PROPOSED IN BILL TO REPLACE CRPC



Why in news?

- Recently, the Union Home Minister introduced three new bills in the Lok Sabha to replace major sections of the law such as the Indian Penal Code (IPC) and the Code of Criminal Procedure (CrPc).
- He claimed that the following three bills would overhaul India's criminal justice system:
 - a) The Bharatiya Nyaya Sanhita Bill, 2023 (to replace Indian Penal Code)
 - b) The Bharatiya Sakshya Bill, 2023 (to replace the Indian Evidence Act, 1872)
 - c) The Bharatiya Nagrik Suraksha Sanhita Bill, 2023 (to replace The Code of Criminal Procedure, 1973)

Bharatiya Nagarik Suraksha Sanhita, 2023:

- The Bharatiya Nagarik Suraksha Sanhita, 2023 proposes several important changes to the Criminal Procedure Code (CrPC) which guides the criminal justice system.
- From technological changes to allow trials via video-conferencing to allowing handcuffs for the arrest of persons in some cases including murder, rape, and counterfeit currency, these are some of the main changes proposed in the CrPC.

Greater use of technology:

- Trials, appeal proceedings, recording of depositions including those of public servants and police officers, may be held in electronic mode. The statement of the accused too can be recorded through video-conferencing. Summons, warrants, documents, police reports, statements of evidence can be done in electronic form.
- The search and seizure of articles and properties, the visit to a crime scene by a forensic expert, and the recording of the victim's statement shall be audio-video-graphed, preferably on a mobile phone.

- The name and address of an arrested accused and the nature of the offence will be maintained by a designated officer in each police station and district, and shall be "prominently displayed" including in digital mode in every police station and district headquarters.
- Information to police too can be sent electronically, and it shall be taken on record on being signed by the person sending it, within three days.

Communication devices:

- On the directions of a court or police officer, a person is required to produce any document and now devices, that is likely to contain digital evidence for the purpose of an inquiry.
- Electronic communication is defined as "the communication of any written, verbal, pictorial information or video content transmitted (whether from one person to another, from one device to another or from a person to a device or from a device to a person)."

Use of handcuffs:

- A police officer may be permitted to use handcuffs while arresting a person if he is a habitual, repeat offender who escaped from custody, or has committed an organised crime, terrorist act, drug-related crime, illegal possession of arms, murder, rape, acid attack, counterfeit currency, human trafficking, sexual offence against children or offences against the state.

Specific safeguards:

- Section 41A of CrPC which has a prominent safeguard against arrests will get a new number, Section 35.
- It has an additional provision: no person can be arrested without prior permission of an officer, not below the rank of a deputy SP, in cases where the offence is punishable with less than three years, or if the person is infirm above 60 years of age.
- On receiving information in cognizable cases where the offence attracts 3-7 years, the police officer will conduct a preliminary inquiry to ascertain whether there exists a prima facie case to proceed within 14 days.

Mercy petitions:

- There is a provision on procedures for the timeframe to file mercy petitions in death sentence cases.
- After being informed by jail authorities about the disposal of the petition of a convict sentenced to death, he, or his legal heir or relative can submit a mercy petition within 30 days to the Governor.
- If rejected, the person can petition the President within 60 days. No appeal against the order of the President shall lie in any court.

Sanction to prosecute:

- A decision to grant or reject sanction to prosecute a public servant must be reached by the government within 120 days of receiving a request.

- If the government fails to do so, the sanction will be deemed to have been accorded. No sanction is required in cases including sexual offences, trafficking, etc.

Arms in procession:

- Section 144A of the CrPC gives the district magistrate the power to prohibit the carrying of arms in any procession, mass drill or mass training, to preserve the public peace.
- While the provisions granting powers to the DM to pass orders in urgent cases of nuisance or apprehended danger remain as they are in Section 144 of the CrPC, the provision to prohibit carrying arms does not find a mention.

Samples without arrest:

- The Bill has provisions for the magistrate to order any person to give samples of his signature, handwriting, voice or finger impressions for the purpose of investigation without being arrested.

Detention by police:

- There are provisions for police to detain or remove any person resisting, refusing or ignoring, or disregarding directions given as part of preventive action.

BULLDOZING THE LAW AND THE CONSTITUTION

Context:

- The Nuh and Gurugram districts of Haryana have just witnessed the demolition of dwellings and business establishments of people who are accused in criminal cases especially offences having communal sensitivity without following the procedure as established by law.



- The Punjab and Haryana High Court made a rare interference by taking judicial notice suo motu and stayed the demolition drive.
- The High Court's question whether an exercise of ethnic cleansing is being carried out by the State brings to the heart of the issue.

What Indian Constitution says about it?

- Ethnic cleansing is not defined by the Indian Penal Code or international law.
- Its first use is attributed to a UN appointed Commission of Experts (1992) chaired by Prof. Cherif

- Bassiouni mandated to look into the war crimes in former Yugoslavia.
- In its final report, the five member commission referred to ethnic cleansing as "... a purposeful policy designed by one ethnic or religious group to remove by violent and terror-inspiring means the civilian population of another ethnic or religious group from certain geographic areas."
 - The commission enumerated state actions like arbitrary arrest and detention, destruction of property, forcible removal, displacement, deportation of civilian population and extra judicia executions in the list of coercive practices that constitute ethnic cleansing.
 - Despite the lack of statutory recognition, any such subversive act is grossly inimical to the constitutional guarantees under Part III of India's Constitution. Hence, the concern and judicial intervention under Article 226 of the Constitution of India.

Violation of Article 21:

- The High Court took cognisance of the fact that the demolition drive was carried out without "demolition orders and notices", thereby violative of the procedure established by law.
- Article 21 of Indian Constitution commands that no person shall be deprived of his life and personal liberty except according to the procedure established by law.
- In the Maneka Gandhi case (1978), the Supreme Court had expanded the scope of procedure established by law by ruling that such procedure has to be "fair, just and reasonable, not fanciful, oppressive or arbitrary", thereby introducing the principle of "procedural due process".
- Despite such an expansion of the scope of Article 21, it is a constitutional travesty that scant regard for such basic principles is demonstrated by elected governments.

The rule of law or rule by law?

Rule of law:

- While the rule of law is declared a basic feature of the Constitution, rule by law is the antithesis of all that is represented by rule of law. The rule of law is a government run by law, not men.
- The roots of the idea of a rule of law can be seen in Article 39 of Magna Carta (1215) that declares that "No freemen shall be taken or imprisoned or disseised or exiled or in any way destroyed, nor will we go upon him nor send upon him, except by the lawful judgment of his peers or by the law of the land."
- It has found its reflection in Article 21 of Indian constitution and had its contours expanded by the Supreme Court.

Rule by law:

- Rule by law is when the law is used as an instrument of suppression, oppression and social control in the course of implementing a political agenda.

➤ The administrative act of demolishing dwellings and buildings without issuing notice and hearing the affected, to further selective social control necessarily warrants judicial interference. Any justification to the contrary amounts to the delegitimation of the constitutional process.

Conclusion:

- "Justice must never take the form of revenge", recited the then Chief Justice S. A. Bobde in 2003, in a different context when police allegedly took law into their hand and shot dead the accused.
- When the state tends to persecute on the basis of religion, the Constitution suffers a breakdown. Constitutional Courts are expected to prevent such happenings.

NOW, DRONES TO MONITOR PROGRESS, QUALITY OF ASSETS PRODUCED AT MGNREGS WORKSITES



Why in news?

- Increasing its surveillance of worksites under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), the Union Ministry of Rural Development is brining drones into service to monitor both the progress and quality of assets produced.

Four types of monitoring:

- According to a standard operating procedure (SOP) recently issued by the Ministry, the drones will be used for four types of monitoring:
 - a) surveying the ongoing works,
 - b) inspecting the completed works,
 - c) impact assessment, and
 - d) special inspection in case of complaints.
- The drones will be used by the ombudsperson in every district, who is responsible for registering suo moto complaints and disposing of them within 30 days.

Financing mechanism:

- For efficient monitoring and redressal of grievances, it is decided by the Ministry that the ombudsperson may use drone technology facilities for verification of the works virtually. It has directed State governments to provide the facility to ombudspersons.
- However, the Union government is not providing the States with any extra funds to deploy these drones. According to the guidelines, State governments are expected to draw the necessary funds from the administrative head, which is roughly 10% of a State's MGNREGA budget.
- Rather than purchasing drones, the Union government has directed States to hire agencies specialising in drones for this purpose.

Centralised dashboard:

- ⇒ The Ministry proposes to form a centralised dashboard to store the videos and photos collected from the drones, for data analysis and reporting purposes.
- ⇒ From May 2022, the Union government had made it mandatory to capture attendance at all worksites using a specially-developed mobile-based application.

About MGNREGA:

- ⇒ MGNREGA is one of the largest work guarantee programmes in the world launched in 2005 by the Ministry of Rural development.
- ⇒ The primary objective of the scheme is to guarantee 100 days of employment in every financial year to adult members of any rural household willing to do public work-related unskilled manual work.
- ⇒ This act was introduced with an aim of improving the purchasing power of the rural people, primarily semi or un-skilled work to people living below poverty line in rural India.

INDIA'S FIRST EVER 3D-PRINTED POST OFFICE IN BENGALURU

**Why in news?**

- ⇒ Recently, the Union Railways Minister inaugurated India's first post office constructed using 3D printing technology in Karnataka.

Details:

- ⇒ The new structure has been named "Cambridge Layout PO," and will house the Halasuru Bazaar Post Office.
- ⇒ The project was taken up by Larsen and Toubro (L&T) with technological support from IIT Madras.
- ⇒ The overall construction cost was about Rs. 26 lakh, which is approximately 30 per cent to 40 per cent less expensive than a structure constructed conventionally.

About 3D printing:

- ⇒ Robotics are used to deposit building materials in layers to create walls, floors and roofs in 3D printing in construction, also known as 3DCP. The machine may create some necessary supports and reinforcements in advance and incorporate them into a house as it is being built.

- ⇒ A 1,000 square foot 3D printed house can be built in as little as five to seven days rather than eight to 12 months.
- ⇒ For a developing nation like India, 3D printing holds enormous promise for the future of cheap housing.

How it works?

- ⇒ A 3D-printed home is built from the ground up, starting with the blueprint, the foundation of any construction plan. Instead of having construction workers translate it to the ground, a larger 3D printer uses a computer design to build a physical structure at the scale decided upon by the engineers.
- ⇒ Dimensional information, information on whether a particular wall is load-bearing, and information on the necessary thickness are all details available to the printer. Several construction components are layered throughout the printing process.
- ⇒ A dry-mix material feeding system, continuous mixer, pumping unit, motion assembly, operating software, and other components make up a 3D concrete printer. The nozzle is a vital element in construction printers.
- ⇒ A 3D printer uses plans to construct the walls, pillars, and roof; any extra components, such as windows, doors, electrical, and plumbing systems, are added afterwards.
- ⇒ A printing mix requires to possess certain properties, such as faster preliminary setting; ability to be pumped out (pumpability), flowing nature (flowability), and ease of building one layer upon another without deformation (buildability), these are properties are not found in the mortar used in conventional construction.

Potential to transform the construction industry:

- ⇒ L&T was one of the first significant construction businesses in India to adopt 3-D printing technology.
- ⇒ The global market for 3D-printed homes was estimated to be worth \$13.84 billion in 2021 and is projected to expand at a compound annual growth rate of 20.8 per cent through 2030. There were 2.2 million 3D printers shipped globally in 2021, and by 2030, that figure might reach 21.5 million.
- ⇒ India's construction industry, which had a 2016 value of \$126 billion, is predicted to increase by up to 7 times by the year 2028.
- ⇒ The researchers at the University of Nantes conducted a study that found concrete buildings manufactured using 3D printing technology might last up to 100 years.

Other similar buildings:

- ⇒ Earlier, the Indian Institute of Technology (IIT) Guwahati constructed a 3D-printed sentry post for the Indian Army as part of indigenous research and development research.
- ⇒ India's first 3D-printed home, built by the tech start-up Tvasta in Chennai (on the campus of IIT-Madras), was inaugurated in April 2021.

- The walls of a 3D-printed house created in 2014 by the Chinese business Winsun were built using concrete sprayed on layers by four huge 3D printers.
- A family in Nantes, France, became the first in the world to live in a 3D-printed home in 2018. It was printed in 54 hours using cement and insulator polyurethane as the main building materials.
- The Dubai Future Academy offices, a 2,600 square foot building that is 20 feet (ft) high, 120 feet long and 40 feet wide, hold the Guinness World Records distinction for the first commercially produced 3D-printed building.

MINISTRY OF DEVELOPMENT OF NORTH EASTERN REGION RELEASES NEW SCHEME



Why in news?

North East Special Infrastructure Development Scheme (NESIDS):

- Continuation of the North East Special Infrastructure Development Scheme (NESIDS) with an approved outlay of Rs.8139.50 crore for the period from 2022-23 to 2025-26 was approved by the Cabinet, with two components viz. NESIDS-Road and NESIDS-Other Than Road Infrastructure (OTRI).
- The objective of the NESIDS is to support infrastructure development in identified sectors including connectivity in the North Eastern States.

Details:

- The scheme is a central sector scheme with 100% central funding.
- The decisions of the Government including merger of the erstwhile North East Road Sector Development Scheme (NERSDS) into NESIDS-Road component etc. necessitated formulation of fresh guidelines to administer and implement the restructured NESIDS during the balance period of the 15th Finance Commission.
- Accordingly, the newly-formulated separate Guidelines to administer and implement both the components of the NESIDS have now been issued after having extensive consultations with the stake holders and detailed discussions internally.

Schemes of NEC:

- The Union Cabinet had approved continuation of the 'Schemes of NEC' for the period from 2022-23 to 2025-26 with a total outlay of Rs.3202.7 crore.
- The objectives of the aforesaid schemes of the MDoNER are to supplement the efforts of the different Central Ministries & Departments on one hand and the felt needs of the NE States on the other, for uncovered development/welfare activities.
- The MDoNER Schemes help provide gap-filling support to the eight North Eastern States as per their felt needs, by taking up projects – e.g., for developing infrastructure to mitigate connectivity and social sector deficits and enhancing livelihood and employment opportunities in the region.

Way Forward:

- The newly issued detailed schemes' guidelines combined with the concerted efforts of the Ministry and with the kind support of NE States will facilitate to achieve intended objectives in a transparent and accelerated manner.

WHAT THE SUPREME COURT ORDER ON THE VALIDITY OF 'SELF-RESPECT' MARRIAGES



Why in news?

- The Supreme Court recently observed that there is no blanket ban on advocates solemnising "self-respect" marriages under Section 7(A) of the Hindu Marriage Act, 1955.
- In doing so, a Bench of Justices set aside a 2014 ruling of the Madras High Court holding that marriages performed by the advocates are not valid and that "suyamariyathai" or "self-respect" marriages cannot be solemnised in secrecy.

What are 'self-respect' marriages?

- On January 17, 1968, the Hindu Marriage (Tamil Nadu Amendment) Act, 1967, received the President's approval and became the law. This amendment modified the Hindu Marriage Act of 1955, by inserting Section 7-A into it. However, it extended only to the state of Tamil Nadu.
- Section 7-A deals with the special provision on "self-respect and secular marriages". It legally recognises

“any marriage between any two Hindus”, which can be referred to as “suyamariyathai” or “seerthiruththa marriage” or by any other name.

- Such marriages are solemnised in the presence of relatives, friends, or other persons, with parties declaring each other to be husband or wife, in a language understood by them.
- Further, each party to the marriage garlands the other or puts a ring on the other’s finger or ties a “thali” or mangal sutra. However, such marriages are also required to be registered as per the law.

Doing away with priests and rituals:

- The rationale behind the Tamil Nadu government amending the Hindu Marriage Act, 1955, to include “suyamariyathai” or “self-respect” marriages, was to radically simplify weddings by shunning the need for mandatory Brahmin priests, holy fire and saptapadi (seven steps). This allowed marriages to be declared in the presence of the couple’s friends or family or any other persons.
- In a nutshell, the amendment was made to do away with the need for priests and rituals, which were otherwise required to complete wedding ceremonies.
- In its recent order, the Supreme Court allowed a petition challenging a Madras High Court order dated May 5 where the court had ordered the initiation of disciplinary action against the advocates who solemnised such marriages in their offices and issued marriage certificates to consenting adults.

What did the Supreme Court say?

- In the case of “Ilavarasan v. Superintendent of Police”, a Bench of Justices was hearing an appeal of a man called Ilavarasan against a Madras High Court order passed in May 2023, rejecting his habeas corpus petition to present his wife before the court.
- The petitioner had claimed that he had performed “suyamariyathai” with his wife, who was currently under her parents’ “illegal custody”.
- Refusing to accept the “self-respect” marriage certificate issued by the advocate, the Madras High Court dismissed Ilvarasan’s habeas corpus plea. Thus, he was compelled to move the top court, which successfully admitted his plea.
- In doing so, the court overruled the 2014 ruling of the Madras High Court in “Balakrishna Pandian v. The Superintendent of Police”, where it was held that marriages performed by the advocates are invalid and that “suyammariyathai” or “self-respect” marriages cannot be solemnised in secrecy.
- Further, the Supreme court also relied on its 2001 ruling in “Nagalingam v. Sivagami”, which said that there is no blanket ban on advocates to solemnise marriages under Section 7(A) of the Hindu Marriage Act (Tamil Nadu State Amendment Act).

What has the top court ruled on ‘self-respect’ marriages in the past?

- In “S. Nagalingam vs Sivagami” (2001), a bench of Justices recognised the petitioner’s marriage with his wife to be a valid one despite the ceremony of “saptapadi” or seven steps around the sacred fire, not taking place.
- Clarifying that the parties in the present case did not consider the “saptapadi” ceremony to be as essential as per their personal law, the court said that Section 7-A of the Hindu Marriage Act (Tamil Nadu State Amendment) would apply instead.

INTERNATIONAL RELATIONS

THE KATCHATHEEVU CONTROVERSY



Why in news?

- Recently, the Tamil Nadu Chief Minister revived the debate over Katchatheevu, an uninhabited and barren 285 acre islet about 14 nautical miles off Rameswaram.
- He reiterated the demand for retrieval of the islet from Sri Lanka, which will, according to him, put a permanent end to the problems of fishermen of the State.

When did Katchatheevu become a part of Sri Lanka?

- During June 26-28, 1974, the then Prime Ministers of India and Sri Lanka, Indira Gandhi and Sirim R.D. Bandaranaike, signed an agreement to demarcate the boundary between the two countries in the historic waters from Palk Strait to Adam’s Bridge.
- A joint statement issued on June 28, 1974, stated that a boundary had been defined “in conformity with the historical evidence, legal international principles and precedents.”
- It also pointed out that “this boundary falls one mile off the west coast of the uninhabited” Katchatheevu.

How important is Kachatheevu?

- Fisherfolk of the two countries have been traditionally using the islet for fishing.
- Though this feature was acknowledged in the 1974 agreement, the supplemental pact in March 1976 made it clear that fishermen of the two countries

- “shall not engage” in fishing in the historic waters, territorial sea and exclusive zone or exclusive economic zone of either of the countries “without the express permission of Sri Lanka or India.”
- Certain sections of political parties and fisherfolk in Tamil Nadu believe that the retrieval of Katchatheevu would resolve the problem of fishermen having to illegally cross the International Maritime Boundary Line.
 - The fishermen of the Northern Province in Sri Lanka say that this would only add to their suffering from the adverse impact of T.N. fishermen using the fishing method of bottom trawling on their territorial waters.

What triggered the negotiations between India and Sri Lanka?

- Sri Lanka claimed sovereignty over Kachatheevu on the ground that the Portuguese who had occupied the island during 1505-1658 CE had exercised jurisdiction over the islet.
- India's contention was that the erstwhile Raja of Ramnad (Ramanathapuram) had possession of it as part of his zamin.

How was the 1974 pact received?

- The present demand for the Katchatheevu retrieval traces its origin to the opposition that the pact generated in 1974.
- During the debates in both Houses of Parliament in July 1974, most of the Opposition including the Dravida Munnetra Kazhagam (DMK), All India Anna Dravida Munnetra Kazhagam (AIADMK), Jan Sangh, Swatantra and the Socialist Party, staged walk outs in the two Houses.
- Former Prime Minister Atal Bihari Vajpayee, who was the Jan Sangh's leader, had contended that the decision to transfer the islet had been taken “behind the back” of the people and Parliament.
- The then Chief Minister M. Karunanidhi, in 1973 had urged Indira Gandhi that the popular feeling was in favour of retaining Katchatheevu which “belonged to India and not to Tamil Nadu alone”.

When did the issue emerge again?

- The Katchatheevu issue was revived in August 1991 with the then Chief Minister Jayalalithaa demanding retrieval during her Independence Day address.
- She later modified her demand to one of getting the islet back through “a lease in perpetuity.”

What has the Centre said?

- In August 2013, the Union government told the Supreme Court that the question of retrieval of Kachatheevu from Sri Lanka did not arise as no territory belonging to India was ceded to Sri Lanka.
- It contended that the islet was a matter of dispute between British India and Ceylon (now Sri Lanka) and there was no agreed boundary, a matter of which was settled through 1974 and 1976 agreements.

- In December 2022, the Centre pointed that Katchatheevu “lies on the Sri Lankan side of the India-Sri Lanka International Maritime Boundary Line.” It added that the matter was sub-judice in the Supreme Court.

WHAT ARE THE CONCERNS ABOUT DRILLING IN THE NORTH SEA?



Why in news?

- The U.K. Prime Minister recently backed plans for new fossil fuel drilling off Britain's coast, worrying environment experts even as the world continues its stride towards irreversible climate change.
- The North Sea Transition Authority (NTSA), responsible for regulating oil, gas and carbon storage industries, expects the first of the new licences to be awarded in autumn, with the round expected to award over 100 licences in total.

What is the history of drilling there?

- Geographically, the North Sea lies between England and Scotland on its west, the Netherlands, Belgium, and France on its south, and Norway, Denmark, and Germany on its east.
- The 1958 Geneva Convention on the Continental Shelf was the first international legislation to establish the rights of countries over the continental shelves adjacent to their coastlines and paved the way for exploration in the North Sea.
- The treaty came into force in 1964, shortly after the U.K. Parliament passed the Continental Shelf Act in April of the same year.
- The Act provides for exploration and exploitation of the continental shelf based on the 1958 convention. It delineated the jurisdiction the U.K. had over oil and gas resources under the seabed near its shores.

Timeline:

- The first licence for exploration in the U.K. North Sea was awarded to British Petroleum (BP) in September 1964. The following year, BP discovered natural gas in the North Sea, off the east Anglian coast.
- In 1970, BP made its first discovery of commercial oil in the large Forties Field east of Aberdeen, Scotland. In the next 15 years, BP started more than 15 fields in the U.K. North Sea (and four in the Norwegian North Sea).

- More British, European, and U.S. companies continued their exploration of the North Sea, and by the 1980s, there were over a hundred installations looking for oil and gas.
- The production from the North Sea peaked in 1999, but it declines by 2022.

Why is offshore drilling problematic?

- The offshore drilling puts “workers, waters, and wildlife” at risk. Drilling in seas and oceans for fossil fuels not only aggravates the threat of climate change but also warms oceans and raises sea levels.
- Offshore drilling is associated with a direct risk to marine biodiversity, as well as with indirect risks to coral reefs, shellfish and the marine ecosystem from acidic waters because of carbon pollution settling into oceans.

What about climate commitments?

- In its March 2023 Progress Report to the U.K. Parliament, the Climate Change Committee (CCC) which advises the U.K. and devolved governments on emissions targets, said that the U.K. has not adequately prepared for climate change under the second National Adaptation Programme.
- In the U.K., National Adaptation Programmes are statutory programmes that the government must follow to help prepare the country for climate change, as required under the Climate Change Act. The second National Adaptation Programme covered the period from 2018-2023.
- As per the CCC’s report, there is “very limited evidence” of the implementation of adaptation at the scale needed to fully prepare for climate risk. U.K.’s climate action is not consistent with the Paris Agreement.
- Although its overall rating is “almost sufficient”, U.K.’s Nationally Determined Contributions (NDCs) and long-term targets do not represent a fair share of the global effort to address climate change. Licensing new oil and gas extraction plans is incompatible with the 1.5°C limit in the rise in temperature.

BRICS NOW A NON-WESTERN GROUPING WITH THE INDUCTION OF SIX MORE MEMBER NATIONS



Why in news?

- During the ongoing BRICS Summit 2023, the member countries on Thursday announced the expansion of the grouping by welcoming six new countries; Argentina, Egypt, Ethiopia, Iran, Saudi Arabia, and the United Arab Emirates (UAE) into the fold.
- The full membership will take effect in 2024.

A major shift:

- By doubling its number of members from five to 11 in one quick sweep, the BRICS grouping has strengthened its position as a global grouping to be reckoned with.
- In addition, the choice of countries, bringing in four major players from the West Asian region – Egypt, Iran, Saudi Arabia and the UAE, apart from Ethiopia and Argentina from Africa and South America is significant, as it denotes a shift in the non-western economic grouping’s underpinnings, to make it a more politically relevant bloc.
- BRICS founders chose from 22 countries that formally applied for BRICS membership, and more than 40 in all that have evinced interest in the group.

India’s role:

- While India may not have been in favour of such a rapid expansion, it took the lead in drafting the criteria for membership, and the fact that most of the new members are strategic partners of India is the result of India’s efforts.
- The induction of Iran in BRICS sends a message against U.S. sanctions, just as Iran’s induction in the SCO in 2023 did, and it is significant that Indian Prime Minister spoke to Iranian President Ebrahim Raisi before the summit.

Concerns:

- However, many international observers have pointed out that all the new members have very close economic ties to China, and the acceptance of Iran and Saudi-UAE to the same grouping has only been made possible by the peace deal brokered by China earlier in 2023.
- This factor means that in the future, India may have to lobby harder to make its vote in the BRICS grouping count.

What is BRICS?

- BRICS, an acronym for Brazil, Russia, India, China, and South Africa, is an association of five major emerging economies that have come together to foster international collaboration across various key sectors.
- Formed in 2006, BRICS plays a crucial role in impacting economics, politics, and global governance.
- Originally, the BRICS was identified for highlighting investment opportunities and had not been a formal intergovernmental organisation.

- Since 2009, they formed a more cohesive geopolitical bloc, with the governments of the five nations meeting annually at formal summits and coordinating multilateral policies.

How did BRICS come into being?

- The roots of BRICS can be traced back to 2001 when the term 'BRIC' was coined by Goldman Sachs economist Jim O'Neill to highlight the economic potential of Brazil, Russia, India, and China and showcase that these four countries will collectively dominate the global economy by 2050.
- South Africa joined the group in 2010, transforming it into "BRICS".
- The BRICS have about 26.7 per cent of the world's land surface and 41.5 per cent of the global population.
- The inaugural BRIC summit was held in 2009, and these nations recognised their shared interests and common challenges. This laid the foundation for regular meetings, setting the stage for deeper cooperation.

What are its major roles?

- Economic cooperation: The BRICS economies represent a significant portion of the global gross domestic product (GDP) and trade. They work on enhancing economic ties through trade agreements, investment partnerships, and the promotion of intra-BRICS trade.
- Political diplomacy: The grouping acts as a platform for these five nations to discuss political and strategic issues of mutual concern, including global security, regional stability, and international governance reform.
- Development and innovation: The BRICS emphasises cooperation in science, technology, and innovation, facilitating joint research and knowledge-sharing.
- Global governance reform: The five countries advocate for the reform of international institutions such as the United Nations (UN), the International Monetary Fund (IMF), and the World Bank to represent the interests of emerging economies.
- Cultural exchange: BRICS fosters cultural ties through educational exchanges, tourism, and interactions to enhance understanding and collaboration.

What is the funding structure of the grouping?

- Currently, two entities make up the financial architecture of BRICS, namely the New Development Bank (NDB), sometimes referred to as the BRICS Development Bank; and the Contingent Reserve Arrangement (CRA).
- Both entities were signed into the treaty in 2014, and they became active in 2015.
- Established in 2014, the NDB is a notable initiative that provides funding for infrastructure and sustainable development projects in BRICS nations and other emerging economies. The NDB operates

on a subscription-based model, with each member contributing to the bank's capital and having an equal say in its functioning.

- The CRA is a framework that protects against global liquidity pressures.

ASIAN DEVELOPMENT BANK, CENTRE TO OPEN CLIMATE CHANGE AND HEALTH CENTRE IN DELHI



Why in news?

- Having bagged the first WHO Centre for Global Traditional Medicine, to be set up in Gujarat, India is now all set to open a climate change and health hub in New Delhi in partnership with the Asian Development Bank (ADB).
- Global Traditional Medicine in Jamnagar will aim to
 - a) provide leadership on global health matters pertaining to traditional medicine;
 - b) ensure the quality, safety, efficacy, accessibility, and rational use of traditional medicine;
 - c) develop norms, standards, and guidelines in relevant technical areas; and
 - d) develop tools and methodologies for data collection and analytics.

Commitments at G-20:

- In recently released G-20 outcome document, India also noted that climate change will continue to drive health emergencies, including the emergence and re-emergence of infectious diseases, and by increasing the severity and frequency of natural disasters, thereby threatening to overwhelm health systems' ability to deliver essential services.
- Countries commit to prioritising climate-resilient health systems development, building sustainable and low-carbon/low greenhouse gas (GHG) emission health systems and healthcare supply chains that deliver high-quality healthcare, mobilise resources for resilient, low-carbon sustainable health systems, and facilitate collaboration, including initiatives such as the WHO-led Alliance for Transformative Action on Climate and Health (ATACH).

Emerging infectious diseases:

- At the G-20 Health Ministers' experts expressed their concern about the rising cases of zoonotic spill

- overs, and consequently emerging and re-emerging diseases.
- India and other countries have acknowledged the need to identify new drivers and address the existing drivers using a science and risk-based approach, and to strengthen existing infectious disease surveillance systems.
 - G-20 countries have also welcomed the work of the International Pathogen Surveillance Network, and the opportunity to work closely with the WHO Hub for Pandemic and Epidemic Intelligence and its endeavour to globally expand communities of practice and establish knowledge exchange programmes that disseminate and share good practices.

ECONOMY

CONSIDER SETTING UP ONE EXCLUSIVE SHOP FOR MILLETS IN EVERY DISTRICT, PANEL TO CENTRE



Why in news?

- Recently, the Parliamentary Standing Committee on Food, Consumer Affairs and Public Distribution gave recommendations with a view to give impetus to the consumption of coarse grains and millet-based food products.
- The United Nations has declared 2023 as the International Year of Millets.

Details:

- It recommended that the central government should consider setting up at least one shop initially selling exclusively millets and millet-based products in every district of the country, preferably by Khadi and Village Industries Commission, Tribes India, self-help groups especially run by women.
- This initiative will introduce the variety of coarse grains to the people at one place and will give them liberty to choose coarse grains as per their taste and choice.

Millets in PDS system:

- Earlier the committee had also suggested to the ministry that the beneficiaries of different schemes

- should be given the option to bundle millets along with wheat and rice within their entitled quantity.
- It reiterated in the new report that the government should explore the possibility of distributing millets in addition to rice / wheat under the Targeted Public Distribution System and other welfare schemes (Integrated Child Development Services and PM-Poshan), with a view to encouraging more states to opt for nutritious and healthy millets in combination with rice and wheat.

Initiatives taken by the Government:

- The Department of Consumer Affairs said it has drawn a roadmap to increase production / consumption / exports and branding of coarse grains / millets.
- Following this, the government was implementing the National Food Security Mission with the strategy of focusing on low productivity and high potential districts including cultivation of coarse grain and millets in rainfed areas, fallow lands and waste lands, and implementation of cropping system centric interventions.

Challenges:

- The government, highlighted the challenges in procurement and processing of coarse grains.
- The procurement of coarse grains as it relies on factors such as market price, climatic conditions (unseasonal rainfall, among others), stated the Union Ministry of Consumer Affairs, Food and Public Distribution.
- The primary processing of millets was the major challenge faced by millet farmers.
- To address this problem, the Union Ministry of Agriculture and Farmers Welfare is supporting rural farmers through 12 farmer-producer organisations (FPO) for the purchase of primary processing equipment, they said.
- This is being done with the financial support of NABARD, National Cooperative Development Corporation (NCDC), Small Farmers agri-business consortium (SFAC) and other state government agencies, the representatives added.

Millets production:

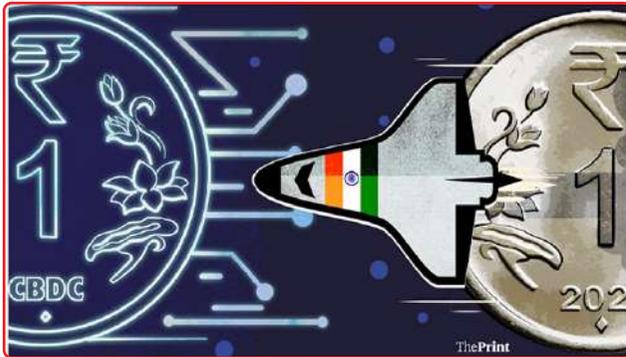
- There has been a marginal increase in sowing of millets in the ongoing Kharif season compared to 2022. This year, 16.42 million hectares area was sown under different coarse grains like jowar, bajra, ragi, maize and small millets.
- This was an increase of 1.09 per cent compared to 2022, when 16.24 million hectares was sown.

RBI WANTS TO SCALE UP E-RUPEE VIA UPI

Why in news?

- The Reserve Bank of India piloted a Central Bank Digital Currency (CBDC), the e-rupee, in November 2022.
- Now, the RBI aims to scale up CBDC usage through the popular Unified Payments Interface (UPI) platform,

with a target of 1 million daily CBDC transactions by year-end.



Background:

- Finance Minister unveiled the introduction of CBDC during the February 2022 Union Budget presentation. Subsequently, the wholesale pilot commenced in November 2022, followed by the retail pilot in December 2022.
- As of June 2023, around 13 lakh users downloaded the CBDC wallet, with around 3 lakh vendors accepting payments in e-rupees.
- However, some experts claim that the goal is “far-fetched”, especially given a lack of awareness about the e-rupee and the limited number of banks that are participating in the pilot programme.

What is CBDC?

- CBDC refers to sovereign currency issued by a nation's central bank, but existing digitally rather than as notes and coins.
- While they function similarly to private cryptocurrencies, they are positioned as ‘safer’ and serve as a medium of exchange rather than as assets.
- On the retail front, the pilot involves only 13 partnering banks, some of which include State Bank of India (SBI), Bank of Baroda, HDFC Bank, IDFC First Bank, and Kotak Mahindra Bank. These banks have provided a limited number of customers with an option to experiment with the digital rupee and be a part of the retail pilot.
- HDFC Bank is the first and so far, only bank that has introduced UPI scan codes for transacting in CBDC for select users.

How are CBDCs different from UPI and crypto?

- CBDCs are a type of digital money based on distributed-ledger technology similar to cryptocurrencies, but they function differently.
- And though CBDCs are similar to UPI in that they both use wallets to store digital currency, they differ in how they are issued and used.
- One major difference between CBDC and the existing UPI facility is that the latter requires a bank to facilitate the transaction.
- While transacting through CBDCs, the digital currency is debited from the sender's e-wallet and credited

directly to the receiver's wallet. It skips the process of money being deposited in the bank accounts of customers.

- However, the issuance of CBDCs to retail customers involves transacting through a bank.
- The way the system works is that retail customers can use a wallet-based app from where they can raise tokens requesting the issuance of the CBDC. The request will be processed through the app and the partnering bank will then transfer the CBDC to the customer's wallet.

How will scaling up CBDCs help?

- At a macro level, CBDCs offer an avenue to reduce the costs of printing, storing, and distributing physical notes. Printing currency constitutes a substantial portion of the RBI's expenditure, reportedly amounting, for instance, to Rs 5,000 crore in 2021-22.
- In addition, the RBI also controls the cash circulating in the economy. The central bank cannot keep printing currency notes continuously on a large scale, as it would in the longer term, increase the purchasing power of consumers, diminish the value of money, and eventually lead to inflation.
- CBDC can help mitigate this risk by providing a more controlled way to inject money into the economy through the token system.
- Further, CBDC reduces the issue of counterfeit currency.
- RBI has said that with the digital rupee, the additional layer of banks would be subtracted from the system.
- In the current UPI payment system, when a user sends money to a merchant/user, the money gets debited from the sender's bank account and then through UPI system, gets credited to the receiver's bank account. The receiver cannot directly use the money without having to go through the bank.

Downsides of the digital rupee:

- The CBDC system suffers from some drawbacks, most notably the inability to accrue interest.
- Though CBDC is a digital currency and store of value, it does not yield interest in savings accounts. User cannot deposit CBDC in fixed deposits, or recurring deposits with banks as you do with the current currency. It can only be stored in the wallet.
- This factor serves as an obstacle to adoption as it is difficult to convince users to transfer their money into a non-interest-bearing account.

CHINA'S DEFLATION, A CAUSE FOR CONCERN?

Why in news?

- The Consumer prices in China declined for the first time in over two years in July. The consumer price index declined 0.3% in July from a year earlier, leading to calls for steps to boost demand.

- Producer prices also dropped for the 10th consecutive month, contracting 4.4% in July. This is in contrast to the rest of the world where inflation has been the most pressing problem of late.



What is deflation?

- Deflation is a term that is used these days to refer to a general fall in the prices of goods and services in an economy.
- The definition of deflation, however, has not always remained constant. In the past, the terms inflation and deflation were used to refer to a rise or a fall, respectively, in the money supply rather than a rise or fall in prices.
- A rise in the money supply was expected to contribute to higher prices in the wider economy while a fall in the money supply was believed to lead to lower prices.

Why is it a worry?

- Many economists believe that deflation is a sign of falling demand for goods and services which could lead to a slowdown in economic growth. According to them, the demand for goods and services is the driver of economic growth.
- Falling prices, can also push buyers to postpone their purchases expecting lower prices in the future; this in turn can further dampen demand in the economy, they argue.
- Further, it can lead to business losses and lower growth as costs remain sticky. It can also mess up credit contracts as borrowers will have to pay back lenders more in real terms.

Other side:

- Many economies including the U.S. and China in the past, have experienced deflation during times of rapid economic growth. Even a country like Japan, which has been plagued by persistent deflation for years, actually witnessed a rise in per capita real income levels during the era of deflation.
- Deflation in such cases is the result of a rise in the supply of goods and services that outpaces the rate of money supply growth.

Why is China experiencing deflation?

- China is experiencing deflation at a time when the People's Bank of China, or the Chinese central bank, continues to keep interest rates low to boost demand

in the economy. This is in contrast to other central banks which have been tightening policy to fight high inflation after the Covid-19 pandemic.

- The likely reason behind Chinese deflation may not be the lack of liquidity but rather something more fundamental.
- The Chinese economy has been experiencing turmoil even before the pandemic, in the property sector which contributes to a share of Chinese GDP.
- The Chinese policymakers have been trying to bring about a soft landing of their economy. Credit booms like the one witnessed in China can cause the misallocation of resources and the bust can involve a fall in broader prices.

WHAT IS A DEVELOPED COUNTRY, A STATUS INDIA IS AIMING TO ACHIEVE BY 2047?



Why in news?

- Addressing the nation on 77th Independence Day, Prime Minister said that India will be a developed country by 2047.
- He also said that during his third term, India would become the third-largest economy. It is currently the fifth largest.

What is a developed country?

- A developed country typically has a mature and sophisticated economy. These economies may not have a high growth rate currently but must have shown rapid growth in the past.
- Developed countries have advanced technological infrastructure and diverse industrial and service sectors. Their citizens typically enjoy access to quality health care and higher education.

How is a country considered developed?

- Several factors are considered to determine if a country is developed or not.
- The economic factors include per capita income, level of industrialisation, the general standard of living and technological infrastructure.
- The non-economic factor includes the human development index, which measures several parameters like levels of education, health and literacy.

Per capita income:

- The main benchmark that is used to determine the level of development of an economy is per capita income. It is generally derived by dividing a country's gross domestic product (GDP) by its total population.
- Some economists consider \$12,000 to \$15,000 per capita income to be sufficient for developed status. Others, however, consider a country to be developed if its per capita income is above \$25,000 or \$30,000.
- According to the World Bank, India's per capita income is around \$2,400. At the same time, USA's and China's per capita incomes are \$76,400 and \$12,700, respectively.

Standard of living and other measures:

- For countries that are difficult to categorise according to per capita income, economists turn to the standard of living for measurement.
- Most developed countries have less than ten infant deaths per year per 1,000 live births. Moreover, they have a life expectancy of over 75 years.
- One such example is Qatar. It has one of the highest per capita incomes in the world at \$88,000.
- However, it is not considered developed due to vast income inequality and a lack of educational opportunities for citizens.

Human Development Index:

- The United Nations' HDI ranks countries on three parameters: literacy rate, education access and healthcare.
- The countries are scored between 0 and 1 based on these three parameters.
- A country with an HDI index over 0.8 is generally considered developed. According to the latest data, India's score is 0.633, and it stands at 132nd place out of 192 countries ranked.

Which Asian countries are 'developed'?

- According to the International Monetary Fund, Australia, Hong Kong, Japan, Korea, New Zealand, Singapore, and Taiwan can be categorised as developed countries.
- The list of 'emerging' or developing economies includes names like China, India, Malaysia, Thailand, Philippines and Vietnam.

JAN DHAN YOJANA CROSSED 50-CRORE MARK

Why in news?

- The national Mission on Financial Inclusion popularly known as Pradhan Mantri Jan Dhan Yojana (PMJDY) was launched on 28th August 2014 and it has completed almost 9 years.
- As per the latest reports, the total number of Jan Dhan accounts have crossed 50 crore as on 9th August 2023.

Key Highlights:

- Out of these accounts 56% accounts belong to women and 67% accounts have been opened in Rural / Semi-urban areas.



- The deposits in these accounts are above Rs. 2.03 lakh crore and about 34 crore RuPay cards have been issued in these accounts free of cost.
- The average balance in PMJDY accounts is Rs. 4,076 and more than 5.5 crore PMJDY accounts are receiving DBT benefits.

Background:

- Pradhan Mantri Jan-Dhan Yojana (PMJDY) is National Mission for Financial Inclusion to ensure access to financial services, namely, Banking/ Savings & Deposit Accounts, Remittance, Credit, Insurance, Pension in an affordable manner.

Objectives:

- Ensure access of financial products & services at an affordable cost
- Use of technology to lower cost & widen reach

Basic tenets of the scheme:

- Banking the unbanked: Opening of basic savings bank deposit (BSBD) account with minimal paperwork, relaxed KYC, e-KYC, account opening in camp mode, zero balance & zero charges
- Securing the unsecured: Issuance of Indigenous Debit cards for cash withdrawals & payments at merchant locations, with free accident insurance coverage of Rs. 2 lakh
- Funding the unfunded: Other financial products like micro-insurance, overdraft for consumption, micro-pension & micro-credit

Initial Features:

- The scheme was launched based upon the following 6 pillars:
- Universal access to banking services – Branch and BC
- Basic savings bank accounts with overdraft facility of Rs. 10,000/- to every eligible adult
- Financial Literacy Program– Promoting savings, use of ATMs, getting ready for credit, availing insurance and pensions, using basic mobile phones for banking
- Creation of Credit Guarantee Fund – To provide banks some guarantee against defaults
- Insurance – Accident cover up to Rs. 1,00,000 and life cover of Rs. 30,000 on account opened between 15 Aug 2014 to 31 January 2015

Extension of PMJDY with New features –

- Focus shift from 'Every Household' to Every Unbanked Adult'
- RuPay Card Insurance - Free accidental insurance cover on RuPay cards increased from Rs. 1 lakh to Rs. 2 lakh for PMJDY accounts opened after 28.8.2018.
- Enhancement in overdraft facilities -
- OD limit doubled from Rs 5,000/- to Rs 10,000/-; OD upto Rs 2,000/- (without conditions).
- Increase in upper age limit for OD from 60 to 65 years

Way Forward:

- The success of PMJDY lies in the comprehensive nature of the scheme with an attempt to connect the last mile with the formal banking system through technology, collaboration and innovation.

WHAT IS RBI'S NEW PILOT FOR FRICTIONLESS CREDIT?

**Why in news?**

- Recently, the RBI commenced a pilot programme endeavouring to evaluate the feasibility and functionality of the 'Public Tech Platform for Frictionless Credit'.
- The suggested platform would strive to "enable delivery of frictionless credit by facilitating seamless flow of required digital information to lenders."

What is the platform for?

- Digital delivery of credit (delivering credit/loans though digital means) or any loan is preceded by a process of scrutiny known as credit appraisal.
- The process attempts to evaluate and accordingly predict the prospective borrowers' ability for repayment of credit/loan and adhering to the credit agreement. This pre-disbursal process is particularly important for banks since it would in turn determine their interest income and impact on the balance sheet.
- The data required for the process rests with different entities like central and state governments, account aggregators, banks, credit information companies, and digital identity authorities.
- Thus, being in separate systems, it creates "hindrances in frictionless and timely delivery of rule-based lending.

Pilot Project:

- To facilitate "frictionless" and "timely delivery" of loans, the central banking regulator had instituted a pilot project for the digitalisation of Kisan Credit Card (KCC) loans, of less than ₹1.6 lakh, in September 2022.
- It tested "end-to-end digitalisation of the lending process in a paperless and hassle-free manner".
- The pilot is currently ongoing in select districts of Madhya Pradesh, Tamil Nadu, Karnataka, Uttar Pradesh and Maharashtra.
- It provides for "doorstep disbursement of loans in assisted or self-service mode without any paperwork."

What is this pilot about?

- The platform is premised around the learnings from all the ongoing programmes, and further expands the scope to all types of digital loans. The public platform will be developed by its wholly owned subsidiary, the Reserve Bank Innovation Hub (RBIH).
- The proposed end-to-end platform will have an open architecture, open Application Programming Interfaces (API) and standards, to which all financial sector players would be able to connect seamlessly in a 'plug and play' model.
- With the participation from certain banks, the platform would extend its focus also towards dairy loans, MSME loans (without collateral), personal loans and home loans.
- It is expected to link with services like Aadhar e-KYC, Aadhar e-signing, land records from onboarded State governments, satellite data, PAN validation, transliteration, account aggregation by account aggregators (AAs), milk pouring data from select dairy co-operatives, and house/property search data.

What purpose does it serve?

- The improved access to information provides the basis for fact-based and quick credit assessments. It ensures that credit is extended to a larger set of borrowers with good credit history.
- The borrowers too would benefit by the resulting lower cost of accessing capital, which would translate into productive investment spending. Availing formal credit may entail multiple visits to the bank alongside cumbersome documentation.
- This translates to higher operational costs for lenders which may also get distributed to borrowers.

GADKARI LAUNCHES INDIA'S CAR SAFETY ASSESSMENT SYSTEM BHARAT NCAP

Why in news?

- Recently, the Union Minister for Road Transport and Highways launched the Bharat New Car Assessment Programme (NCAP), India's own crash safety assessment system for new vehicles.



Details:

- It will be rolled out on 1 October, is voluntary and would be similar to international NCAP tests, which seek to evaluate the safety features of a car through multiple crash tests.
- The car taking the new safety test will be rated out of five and the findings of the test will be made public.

What Bharat NCAP tests entail?

- The Bharat NCAP is a voluntary programme and applies to vehicles weighing less than 3.5 tonnes (3,500 kg) and with a capacity of up to eight passengers including the driver.
- The programme allows a consumer to make their decision based on how a vehicle performs under crash tests, and make comparisons.
- Under the programme, a vehicle manufacturer will offer some cars of its preferred model for testing.
- The programme will test vehicles under different scenarios; frontal crash impact, side-crash impact and side-pole crash impact using dummies. A new vehicle will have to be used for each new situation.

Rating:

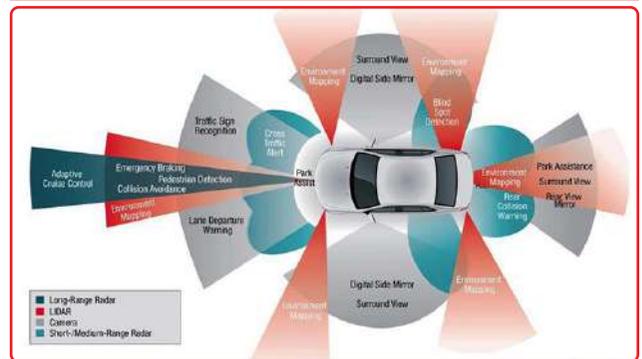
- The programme will assess safety protocols for adults and children, rating vehicles on the basis of these. For instance, for a 5-star rating for adult safety, a car will be assessed on its anti-locking braking (ABS) system, seat-belt reminders (SBR), pedestrian protection and electronic stability control (ESC), a system that helps prevent the vehicle from skidding.
- For a child, vehicles will need a child restraint system (CRS) to get rated 5-star.
- According to Regulation 44 of the United Nations Economic Commission for Europe, CRS has been classified into categories based on the weight of the child.
- Under this, CRS faces the rear for children weighing up to 13 kg and needs an integrated harness for those up to 18 kg. For those up to 36 kg, meanwhile, the vehicle's seat belt is used for restraining.

International standards & NCAP:

- Globally, there are nine other NCAPs, with the first programme being launched in the United States in 1978.

- Global NCAP, is a major project of the Towards Zero Foundation, a UK-based charity foundation that promotes safe and sustainable mobility.
- Three car manufacturers in India; Tata Motors, Mahindra and Skoda are in the race to achieve 4- and 5-star ratings for their fleets.
- There is no regulation for electronic stability control (ESC) in India. An ESC is a safety provision that helps prevent a car from skidding while turning, applying brakes or making any such sudden manoeuvres.

IMPLEMENTING A CAR SAFETY PROGRAMME



Why in news?

- The Ministry of Road Transport and Highways has rolled out an indigenous star-rating system for crash testing cars under which vehicles will be assigned between one to five stars indicating their safety in a collision.
- Called the Bharat New Car Assessment Programme (NCAP), the rating system will be voluntary and will come into effect from October 1, 2023.

Objective:

- The objective of the programme is to help consumers make an informed decision before purchasing a car, thereby spurring demand for safer cars.
- India sees nearly 1.5 lakh road fatalities in a year, accounting for 10% of deaths due to road crashes globally with only 1% of the world's vehicles.
- According to a World Bank study, road crashes are estimated to cost the Indian economy between 5 to 7% of GDP a year.

What is Bharat NCAP?

- Under the Bharat NCAP, cars voluntarily nominated by automobile manufacturers will be crash tested as per protocols laid down in the soon-to-be-published Automotive Industry Standard 197.
- The programme is applicable to passenger vehicles with not more than eight seats in addition to the driver's seat with gross vehicle weight not exceeding 3,500 kgs. Only the base model of a particular variant will be tested.
- Cars will be assigned a rating between one star to five stars after being evaluated on three parameters;

- a) adult occupant protection,
 - b) child occupant protection and
 - c) safety assist technologies present in the car.
- The first two parameters will be calculated with the help of three different kinds of tests, which include a frontal offset test where a vehicle is driven at 64 kmph and with 40% overlap into a deformable barrier which represents the oncoming vehicle, which replicates a crash between two cars of the same weight.
 - Other tests are the side impact test at 50 kmph and the pole-side impact test (where a car is crashed into a rigid pole sideways) at 29 kmph.
 - Though Bharat NCAP is voluntary, in certain cases cars may be subjected to a crash test such as for a base model of a popular variant (minimum clocked sale of 30,000 units), or when the Ministry of Road Transport and Highways recommends a model for testing based on market feedback or in the interest of public safety.

How has Bharat NCAP evolved?

- The testing protocols adopted by the Bharat NCAP are modelled on the Global NCAP, which is a project of the U.K.-based NGO, Towards Zero Foundation.
- It serves as a platform for co-operation among new car assessment programmes worldwide, including countries such as the U.S. which has the world's oldest crash testing regime since 1978.
- The NGO launched a Safer Cars for India campaign in 2014 when it released the country's first independent crash tests covering the Suzuki-Maruti Alto 800, the Tata Nano, Ford Figo, Hyundai i10 and Volkswagen Polo. All but one of the five models failed the test at 56km/h and all scored zero stars at 64 km/h.
- With no airbags, the Swift also scored zero stars but a separate test of a version sold in Latin America with air bags scored three stars which demonstrated the model's potential for improvement.
- In 2018, Tata achieved India's first 5-star cars and now manufacturers are competing to obtain four and five- star results and using ratings in their marketing and there has been a sharp fall in the number of zero-star models in the Indian market.

What is the way forward?

- India will need to develop its crash testing capabilities and knowledge expertise for the Bharat NCAP programme to be implemented meaningfully, such as a software system wired to the dummies placed inside cars to assess the nature and extent of injuries to analyse scores.
- Over the years, India will also have to align Bharat NCAP with global standards by expanding testing parameters.
- For example, the U.S. NCAP also includes a roll-over test which tests whether a vehicle is vulnerable to tipping up on the road in a severe manoeuvre.
- Japan's NCAP covers electric shock protection performance after a collision, performance of neck

injury protection in a rear end collision, passenger seat belt reminder evaluation, evaluation of pedestrian protection technologies apart from preventive safety performance such as autonomous emergency braking system, lane departure prevention system, rear-view monitoring system and pedal misapplication, among others.

G20 TRADE AND INVESTMENT MINISTERS MEETING (TIMM)



Why in news?

- The G20 Trade and Investment Ministers' meeting concluded at Jaipur, recently.
- Under India's Presidency, the G20 Trade and Investment Ministerial reached a groundbreaking consensus on five concrete and action-oriented deliverables which have been adopted in the Outcome Document of Trade Ministerial Meeting.

Five concrete and action-oriented deliverables:

Principles on digitalization of trade documents:

- Adoption of High-Level Principles on digitalization of trade documents wherein the G20 Ministers have enunciated 10 broad principles that comprehensively cover various dimensions of an effective transition to paperless trade.
- These principles will provide guidance to the countries in implementing measures related to the cross-border exchange of electronic trade-related data and documents, emphasizing the need for a secure interoperable and transparent paperless cross-border trade environment.
- Moreover, inclusivity has been prioritized as one of the principles, ensuring that such a transition accommodates businesses of all sizes.

Jaipur Call for Action:

- G20 Ministers also issued a Jaipur Call for Action for enhancing access to information for MSMEs.
- The Ministers called upon the International Trade Center (ITC), Geneva to work on a detailed implementation plan, in consultation with UNCTAD and WTO, for upgradation of ITC's Global Trade Helpdesk which would address the informational gaps faced by MSMEs.

G20 Generic Mapping Framework for GVCs:

- The Ministers also endorsed a G20 Generic Mapping Framework for GVCs which contained key building blocks of data, analysis, and representation of GVC data.
- The framework also advocated to identify key dimensions to help evaluate the resilience of GVCs both at the sectoral and product levels.
- Moreover, guiding principles for collaboration to address the need for keeping critical GVCs resilient and robust were also enunciated in the framework.

Sharing of best practices on MRAs:

- G20 Ministers welcomed the voluntary sharing of best practices on Mutual Recognition Agreements (MRAs) for professional services and supported the development of a Presidency’s Compendium of best practices on MRAs for Professional Services.
- The compilation of good practices will spur successful entering into MRAs which will enable recognition of technical qualifications our doctors, nurses, lawyers, architect and other professionals by other countries.

G20 Standards Dialogue in 2023:

- G20 Ministers acknowledged the importance of mutual dialogues to reduce regulatory divergences and associated trade costs and also to prevent unnecessary trade frictions, monitor trade and investment-related measures and solve existing irritants.
- G20 Ministers welcomed the Presidency’s suggestion to hold a G20 Standards Dialogue in 2023 that will bring together members, policymakers, regulators, standard-setting bodies and other stakeholders to discuss topics of common interest such as good regulatory practices and standards.

Way Forward:

- In her keynote address, the Director General of the World Trade Organization, exhorted all the G20 Ministers to narrow down realistic deliverables for agreement at the WTO’s 13th Ministerial Conference (MC13) in early 2024.
- In this regard, G20 Ministers reaffirmed the essential role of the multilateral trading system with the WTO at its core.
- They reiterated their commitment to strengthening the rule making arm of the WTO and underscored the importance of the ongoing negotiations in the WTO.

SECURITY

ARMY AIMS TO FAST-TRACK FUTURE READY COMBAT VEHICLE TO REPLACE T-72 TANK

Why in news?

- The Indian Army is in the process of finalising the technical parameters of Future Ready Combat Vehicle

(FRCV), which will gradually replace T-72 tanks. The plan is to have the first prototype in four years and inductions starting 2030.

- The project is currently in the feasibility study stage, to be followed by the issuance of the Preliminary Staff Qualitative Requirements (PSQR) in a few months.



Details:

- The Army had floated Request for Information (RFI) for FRCV in June 2021. The project for procurement has attained the Approval in Principle (AIP) under the Make-I Category, which involves government funding of up to 90 percent, released in a phased manner based on the progress of the project.
- The FRCV will be developed under the Make-I category involving the ‘Indigenously Designed, Developed and Manufactured’ (IDDM) component, which requires the platform to not only be designed indigenously but also have a minimum of 50 percent indigenous content.
- Once commissioned, the FRCV are expected to remain in service for a period of 35-45 years.

Key features:

- The combat weight of the FRCV is envisaged to not exceed 60 tonnes as opposed to the 45-tonne T-72 tanks which they seek to replace.
- The FRCV would be designed to carry a crew of four troops. Moreover, the Army has expressed its need to be able to transport the FRCV by aircraft, ships, rail and road.
- As for firepower and lethality, it is conceptualised that the calibre of the main gun would be of 120 mm and above, capable of engaging targets in static and dynamic mode by day and night using suitable ammunition.

Make-I projects:

- The FRCV is among the six big-ticket Make-I projects in the works at various stages, besides Light Tanks, Tactical Communication Systems and the Terminal End Secrecy Device etc.
- The Terminal End Secrecy Device could enable formation commanders to disseminate classified material in a secure manner.
- Under various schemes and categories of the Make in India initiative, the Army is also procuring niche

technologies like logistic and nano drones, counter-drones, loitering munitions, Unarmed Aerial Vehicle-launched precision-guided missiles and Automatic Spectrum Monitoring Systems.

BOEING BEGINS PRODUCTION OF APACHE HELICOPTERS FOR ARMY



Why in news?

- American aviation major Boeing began the production of the AH-64E Apache attack helicopters for the Indian Army, the first of which will be delivered early 2024.
- It was in 2020 that the Army went in for the procurement of the Apache helicopters, 22 of which are already in use with the Indian Air Force (IAF).

Details:

- The fuselage of every single Apache helicopter sold in the world is manufactured in India by Tata Boeing Aerospace Limited (TBAL) in Hyderabad.
- The production of the helicopters for the Army has begun at its plant in Mesa, Arizona.

Helicopters with Indian army:

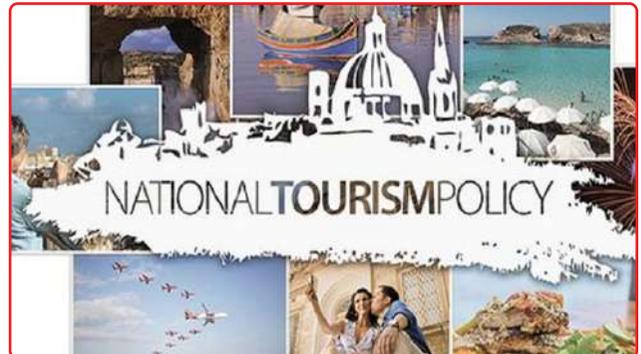
- The Apache helicopter is one of the deadliest attack helicopters and comes equipped with a cannon, rockets and missiles.
- Until recently, this was the only pure attack helicopter in India's possession. Now the forces are equipped with the Hindustan Aeronautics Limited (HAL)-made Light Combat Helicopter Prachand. Both these helicopters are two-seaters.
- The IAF, however, operated Mi-35 helicopters, classified as 'assault' choppers. The Mi-35s were designed to carry troops into heavily-defended territories.

Attack helicopters:

- Attack helicopters are used to provide direct close air support for ground troops and can perform anti-tank operations.
- It was in 2015 that the IAF went in for the procurement of 22 AH-64E Apache helicopters at a cost of \$2.1 billion, or Rs 14,910 crore. Their delivery was completed in 2020.

ENVIRONMENT

DRAFT NATIONAL TOURISM POLICY



Why in news?

- The Ministry of Tourism has drafted a National Tourism Policy incorporating suggestions received from Central Ministries, State Governments/UT Administrations and Industry Stakeholders.

Key strategic objectives:

- a) To enhance the contribution of tourism in Indian economy by increasing the visitation, stay and spend and making India a year-round tourist destination,
- b) To create jobs and entrepreneurial opportunities in tourism sector and ensure supply of skilled work force,
- c) To enhance the competitiveness of tourism sector and attract private sector investment,
- d) To preserve and enhance the cultural and natural resources of the country,
- e) To ensure sustainable, responsible and inclusive development of tourism in the country.

"Adopt a Heritage: Apni Dharohar, Apni Pehchaan"

- Ministry of Tourism, has launched the "Adopt a Heritage: Apni Dharohar, Apni Pehchaan" project for developing tourism amenities at heritage/natural/tourist sites spread across India for making them tourist friendly, in a planned and phased manner.
- It aims to encourage companies from public sector, private sector, trusts, NGOs, individuals, and other stakeholders to become 'Monument Mitras' and take up the responsibility of developing and upgrading the basic and advanced tourist amenities at these sites as per their interest and viability in terms of a sustainable investment model under CSR and other funds.

Other initiatives:

- The guidelines for Swadesh Darshan 2.0 envisage encouraging the States for opportunities for Private-Sector and Public-Private Partnerships.
- PRASHAD Scheme provides for PPP mode in only operation and maintenance of the facilities created/ to be created under the project.

- Ministry of Tourism has launched the Travel for LiFE Initiative. Travel for LiFE aims to promote sustainable tourism in the country, through mindful and deliberate actions mobilized toward tourists and tourism businesses in the consumption of tourism resources.
- Ministry of Tourism is organizing webinars under Dekho Apna Desh initiative to create awareness among the citizens about the rich heritage and culture of the country, generate a sense of national pride and belongingness among the citizens, and encourage the citizen to travel widely within the country, enhanced tourist footfalls, development of local economy and creation of job at local level.

FDI in Tourism:

- In order to attract foreign investment in the tourism sector, 100% Foreign Direct Investment (FDI) is allowed under the automatic route in the tourism and hospitality industry in India, subject to applicable regulations and laws.
- 100% FDI is allowed in tourism construction projects, including the development of hotels, resorts and recreational facilities.

WHAT CAN AMENDED FOREST (CONSERVATION) ACT CHANGE?



Why in news?

- The controversial Forest (Conservation) Amendment Bill 2023, passed by the Lok Sabha awaits discussion in the Rajya Sabha.
- The bill aims to restrict conservation scope, exempt border lands for strategic projects, and allow some non-forest activities.
- The Bill was introduced in the Lok Sabha in March. Thereafter, it was referred to a Joint Parliamentary Committee (JPC) comprising 32 members from both Houses of Parliament.

How does the Bill restrict the scope of the Act?

- The Bill stipulates that only those lands that were notified as 'forest' under the Indian Forest Act 1927, any other relevant law or were recorded as 'forests' in government records will be acknowledged as 'forests' under this Act as well.

- This revision stands in stark contrast to the wide applicability of the extant Act at present.
- A Supreme Court judgement in 1996 had reiterated such a broad application. It said, that a 'forest' includes all land recorded as such in government records regardless of ownership as well as "deemed forests", which are not officially classified as 'forests' but satisfy the dictionary meaning of the word: any large area with significant tree cover and undergrowth.
- The court had also asked States to undertake an exercise to identify and notify their own deemed forests.
- As such, the amendment opens up all land that hasn't been officially classified as 'forests' to commercial activity. It also removes the checks and balances the Act currently includes, in the form of forest clearance permissions and the informed consent of the local community.

Why is the exemption for border infrastructure controversial?

- The Bill seeks to exempt linear infrastructure projects like roads and highways from seeking forest clearance permissions if they are located within 100 km of the national border.
- Experts have raised concerns because "strategic linear projects of national importance" is an undefined term and can thus be misused to push through infrastructure projects that are devastating for the local ecology.
- This Bill was not referred to the relevant Parliamentary Standing Committee, which in this case would have been the Standing Committee on Science and Technology, Environment, Forests and Climate Change, headed by Congress MP Jairam Ramesh.

Did the JPC flag any concerns with the Bill?

- The JPC did not propose a single change to the Bill in its report despite receiving objections from tribal groups, conservationists, environmental lawyers, activists, and citizen groups. Six members of the JPC itself wrote dissent notes.
- The Ministry of Tribal Affairs also raised concerns about the amendment's implications on community rights enshrined in the Forest Rights Act 2006.

WHY IS THE BIOLOGICAL DIVERSITY BILL FACING OPPOSITION?

Why in news?

- Recently, the Rajya Sabha passed the Biological Diversity (Amendment) Bill, 2021, after it was cleared by the Lok Sabha.
- The Act aims to conserve biodiversity, promote its sustainable use and equitable sharing of benefits that arise therein. Amendments proposed in the Bill however are at odds with this aim.



Why the Bill is considered problematic?

- The Bill exempts "codified traditional knowledge" and the AYUSH industry (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy) from benefit sharing, denying local communities benefits from accessing biological resources.
- The term 'codified traditional knowledge' lacks a clear definition, leading to potential exploitation.
- Experts regard this exemption as regressive because a reason why the legislation was enacted in the first place was to ensure "fair and equitable sharing of benefits".
- It decriminalises offences and proposes monetary penalties instead, raising concerns over resource exploitation.

To what extent has the Act been implemented?

- The proposed relaxations come at a time when the Act hasn't even been implemented in full.
- A 2022 investigation by the Centre for Science and Environment showed that in many States, there was no data available on money received from companies and traders for access and benefit sharing and in cases where money was collected, the same wasn't shared with local communities.
- A 2016 study by legal researchers also showed that many difficulties have cropped up in many States when it comes to implementing provisions of the Act, especially those related to access and benefit sharing.
- Some of these issues were also challenged in High Courts and the National Green Tribunal.

Precedence to "ease of doing business":

- In the 'Statement of Objects and Reasons' section, the Bill clearly states that "concerns were raised by the stakeholders representing Indian system of medicine sector, seed sector, industry sector and research sector urging to simplify, streamline and reduce compliance burden in order to encourage a conducive environment for collaborative research and investments, simplify patent application process...".
- Earlier, the Rajya Sabha also cleared the Forest (Conservation) Amendment Bill which limits the conservation scope of the Act. The two Bills are part of a trend of dilution of environmental regulations that are underway.

- The fact that the Environment Ministry has given precedence to "ease of doing business" rather than its mandate to protect the environment is a cause for concern.

THE ENIGMATIC INDIAN EAGLE-OWL



Context:

- The Indian eagle-owl was classified as a species only in recent years, thus distinguishing it from the Eurasian eagle-owl.

Characteristic features of Indian species:

- The slightly larger female can reach a total length of two and a half feet, with a wingspan of six feet. Prominent ear tufts that look like horns are seen to project from its head.

Lack of data:

- Its nocturnal habits have meant that very little is known about this bird.
- The widespread range would seem to indicate that it is a stable population. Their total numbers have never been estimated.

Food habits:

- Many bird species face decline today as the total forested area in our country has suffered a decline. But the Indian eagle-owl does not have a dependency on forests.
- The regular items on their menu, such as rats, bandicoots, and even bats and doves are best hunted over open scrubland and agricultural tracts.

Nesting habits:

- Nearby rocky perches and crags provide ideal settings for its nests.
- Near human settlements, they prefer mango trees.
- The nest, with up to four eggs, is often no more than a scratched out hollow, easily approached by a mongoose or a human.
- These owls show heckling behaviour, and will swoop down on the intruding person, striking the head from behind with its talons.

Benefits to agriculture:

- Farmers definitely profit from the presence of this owl. Research done by the Ela Foundation and the Zoological Survey of India has shown that Indian

eagle-owls nesting near agricultural lands had more, and healthier, owlets than scrubland nesters.

- The former benefited from the abundant populations of rodents near farms.

What lies ahead?

- Birding, as the hobby is called, attracts more and more enthusiastic volunteers, who add data to bird counts, surveys and migration maps.
- But these are mostly daytime activities in which owls are always under-represented. It is hoped that nocturnal birds such as the Indian eagle-owl will have their day too.

COASTAL AQUACULTURE AUTHORITY (AMENDMENT) BILL, 2023 CLEAR BY PARLIAMENT



Why in news?

- The Coastal Aquaculture Authority (Amendment) Bill, 2023 was recently passed by the both Houses of the Parliament.
- The Government intends to reiterate that the coastal aquaculture and activities connected therewith are permitted activities within the CRZ under the CRZ notifications.

Key Highlights:

Exemptions:

- Specific exemption has been granted under the CAA Act, through this amendment for the establishment of aquaculture units like hatcheries, Brood stock multiplication centres (BMC) and Nucleus Breeding Centres (NBC) within the No Development Zone (NDZ) (200m from the HTL) of Coastal Regulation Zone (CRZ).

Penalty:

- The principal Act has a provision of imprisonment for a period up to 3 years for carrying out coastal aquaculture without registration.
- This appears to be a very harsh punishment for an offence of purely civil nature and hence the amendment bill replaces the same with suitable civil instruments such as penalty in line with the principle of decriminalizing civil transgressions.

Purview:

- The Amendment Bill provides for broad basing "coastal aquaculture" to comprehensively cover all activities of coastal aquaculture under the purview of this Act and to remove the ambiguity existing in the Principal Act between the farm and other verticals of coastal aquaculture.
- This is likely to ensure that no coastal aquaculture activity is left out of the ambit of the Act and operate in an environmentally hazardous manner.

Scale of activities:

- In 2005, coastal aquaculture activity was essentially shrimp farming. Now newer forms of environment friendly coastal aquaculture such as cage culture, seaweed culture, bi-value culture, marine ornamental fish culture, pearl oyster culture etc. have come up which can be done in coastal areas and mostly within CRZ.
- These activities also have the potential for generating huge revenue and creating large scale employment opportunities for coastal fisher communities especially fisherwoman and hence need to be promoted which can be done by bringing them within the ambit of Coastal Aquaculture Authority Act.

Ease of doing business:

- The Government intends to promote ease of doing business in coastal aquaculture by fine tuning some of the operational procedures of Coastal Aquaculture Authority.
- The present amendment provides for effecting changes to the certificate of registration in case of changes in ownership or size of the activity and for providing new certificate in case of mutilation, damage or loss of certificate etc.
- It also provides for condoning the delay in applying for renewal of registration with compounded fee which was absent in the principal Act.

Authority:

- Many of the administrative matters such as the powers of Member Secretary of the CAA and normal functioning of the Authority in the absence of Chairperson which were ambiguous have been suitably resolved under the Amended Act for administrative efficiency and accountability.
- The Amendments empower the Authority to appoint Committees which can contain experts, stake holders and public representatives for the efficient discharge of its duties and performance of its functions under Act.

Disease prevention:

- The Government intends to create facilities that produce genetically improved and disease-free stocks for use in coastal aquaculture.
- Such facilities, that is Hatcheries, Brood stock Multiplication centers and Nucleus Breeding Centers

can be established only in areas having direct access to seawater and the Government intends to enable and facilitate them.

- Simultaneously, it also intends to prevent use of antibiotics and pharmacologically active substances in coastal aquaculture by making express provisions in the Act.

Background:

- The Coastal Aquaculture Authority Act was enacted in 2005 with an aim to protect coastal environment, while promoting orderly growth of coastal aquaculture farming in coastal areas in a manner consistent with it.
- The Act provisions have also ensured continued operation of coastal aquaculture within Coastal Regulatory Zone (CRZ) area subject to restrictions imposed by the Authority.

Economic aspect:

- Today, coastal aquaculture is one of the major success stories crafted by diverse and hardworking small farmers and educated youth of 2-4 hectares land holding around the fulcrum of vibrant policy support of government.
- During the last 9 years, the shrimp production of the country increased by 267% from 3.22 lakh tons in 2013-14 to a record 11.84 lakh tons (provisional figures) in 2022-23.
- India's seafood exports doubled from Rs 30,213 crore in 2013-14 to Rs 63,969 crore in 2022-23 with shrimp contributing the lion's share of exports i.e. Rs. 43,135 crore.
- Shrimp exports have more than doubled with an increase of 123% from Rs. 19,368 crore in 2013-14 to Rs 43,135 crore in 2022-23 with USA being the largest importer.
- In fact, the states of Andhra Pradesh, Gujarat, Odisha and Tamil Nadu have contributed substantially to the growth of coastal aquaculture shrimp production and export.

HOW NATIONAL GREEN HYDROGEN MISSION SEEKS TO REDUCE COST OF GREEN HYDROGEN



Why in news?

- Recently, the Union Minister for New & Renewable Energy has informed in written reply in Rajya Sabha about the Green Hydrogen production in India.

Green Hydrogen production in India:

- Green Hydrogen can be produced through electrolysis of water using renewable electricity, and from biomass through thermochemical and biochemical routes.
- At present, there is very limited production of Hydrogen through renewable sources in the country.
- The costs of the electrolyzers and input renewable energy are the two major components of Green Hydrogen production cost.
- The costs of capital, supply and treatment of water, storage and distribution, conversion of hydrogen to suitable derivatives, and enabling infrastructure would also contribute to the final delivered cost of Green Hydrogen for any particular application.

National Green Hydrogen Mission:

- On 4th January 2023, the Union Cabinet approved the National Green Hydrogen Mission with an outlay of ₹ 19,744 crore.
- The overarching objective of the Mission is to make India a Global Hub for production, usage and export of Green Hydrogen and its derivatives.

Key components:

- Facilitating demand creation through exports and domestic utilization;
- Strategic Interventions for Green Hydrogen Transition (SIGHT) programme, a major financial measure with an outlay of ₹ 17,490 crore. The programme comprises two distinct financial incentive mechanisms to support domestic manufacturing of electrolyzers and production of Green Hydrogen;
- Pilot Projects for green steel, mobility, shipping, decentralized energy applications, hydrogen production from biomass, hydrogen storage, etc.;
- Development of Green Hydrogen Hubs;
- Support for infrastructure development;
- Establishing a robust framework of regulations and standards;
- Research & Development programme;
- Skill development programme; and
- Public awareness and outreach programme.

Expected outcome:

- The Mission does not have a provision of incentives for consumption of Green Hydrogen or its derivatives.
- The Mission is expected to lead to development of 5 MMT (Million Metric Tonne) Green Hydrogen production capacity per annum by 2030, contributing to reduction in dependence on import of fossil fuels.
- Achievement of Mission targets is expected to reduce a cumulative ₹ 1 lakh crore worth of fossil fuel imports by 2030. This is likely to leverage over ₹ 8 lakh crore in total investments and create over 6 lakh jobs.

- Nearly 50 MMT per annum of CO2 emissions are expected to be averted through production and use of the targeted quantum of Green Hydrogen.
- The Mission aims to develop and scale up Green Hydrogen production technology and make it affordable and widely accessible.

Other steps taken by the Government to turn India into a global hub for the production, use and export of Green Hydrogen, including inter-alia:

- Waiver of inter-state transmission charges has been granted for a period of 25 years to the producers of Green Hydrogen and Green Ammonia for the projects commissioned before 31st December 2030.
- The Electricity (Promoting Renewable Energy through Green Energy Open Access) Rules, 2022, notified in June 2022 have specified provisions for facilitating supply of renewable energy through Open Access for Green Hydrogen production.

FLYING FOX BATS FOR VIGILANCE WHILE DAY-ROOSTING, FINDS STUDY



Why in news?

- India's largest species of bats, spends 7% of its day-roosting time being environmentally vigilant, a new study has said.
- The study focused on the environmental and social vigilance of one of two subspecies of the Indian flying fox.

Details:

- The nectar and fruit-eating flying fox (*Pteropus giganteus*) is generally considered a vermin as they raid orchards.
- It had a similar official status under the Schedule V of the Wildlife (Protection) Act of 1972 until it was put on the Schedule II list, entailing a higher degree of protection.
- It is a keystone species causing seed dispersals of many plants in tropical systems.

Keystone species:

- A keystone species is one that has a disproportionately large effect on its natural environment relative to its abundance, impacting many other organisms in an

ecosystem and helping to determine the types and numbers of other species in an ecological community.

Vigilance behavior:

- The study describes vigilance behaviour as an individual scanning its surroundings for both competition and predation risk.
- Vigilance is social if an individual looks directly at another close-by individual approaching or likely to fight while vigilance of the environmental kind is gazing elsewhere, primarily watching for any signs of danger.

Key findings:

- Most bats forage at night and spend more than half of their lives roosting during the day in camps or colonies.
- Being external roosters, the flying fox is exposed to predators and disturbances apart from environmental indicators such as heat and light.
- It showed varying levels of vigilance according to roosting architecture. Across all positions, on average, they spent 7% of their roosting time being vigilant. Peripheral bats on a roosting tree showed a significant increase in environmental vigilance compared to the core, thus confirming the edge effect hypothesis.
- The flying foxes studied spent 82% of their roosting time sleeping but remain alert to their surroundings. Dependence on auditory perception gives the added advantage of not sacrificing sleep entirely.

Predators:

- The predators found in the area studied included jungle cats, golden jackals, common palm civets (found to use the roosting trees at night), crested serpent eagles, black kites, spotted owlets, collared scops owls, and barn owls.
- The biggest threat to the flying fox is from humans.
- Hunting for meat and medicine and probable threats like the felling of roost trees have contributed to the dramatic decrease in the population of the species.

UNDERSTANDING THE MOEFCC'S U-TURN



Why in news?

- In June, the Ministry of Environment, Forests and Climate Change (MoEFCC) issued a notification

merging offices of the Forest Survey of India (FSI), the National Tiger Conservation Authority (NTCA), the Wildlife Crime Control Bureau (WCCB), and the Central Zoo Authority (CZA), and thus bring them under the Ministry.

Background:

- The NTCA is the managing authority of Project Tiger and India's Tiger Reserves.
- The FSI is a scientific body that primarily deals with forest data.
- The WCCB is an enforcement authority. And the CZA's purview is limited to the functioning of zoos.

What did the Ministry's plan say?

- The idea for such reorganisation was announced during the COVID-19 lockdown and came under criticism from activists that it would render key environmental organisations "toothless".
- For example, in the existing structure, the NTCA can oppose a forest clearance for an infrastructure project for diverting Tiger Reserve areas.
- The proposed merger would have rendered this difficult as the NTCA would have come under the Deputy Director General of Forests, who is in charge of the Integrated Regional Office and reports to the Ministry.

What was the Ministry's rationale?

- Giridhar Kulkarni, a Belgaum-based wildlife conservationist, had filed a petition against this reorganisation plan in the Karnataka High Court in 2020, arguing that it would amount to a merger of entities and authorities that is impermissible in law.
- The MoEFCC replied that the notification does not amount to a merger and that the intention was to get the various authorities to function at 19 regional offices, under one roof.
- Following this assurance, the Karnataka High Court disposed of the petition but gave the petitioner the liberty to approach the Court if the merger was found to adversely affect the functioning of the various bodies.
- But more than two years later, the MoEFCC dropped the merger plan, likely owing to technical and administrative difficulties in merging the institutions in question.

What does the new notification state?

- The same notification also proposes to reorganise existing regional offices, and this idea too has come under criticism because it does not appear to be based on any objective criteria.
- For example, the Bengaluru regional office would have had jurisdiction over three States and a Union Territory with different geographic and ecological characteristics; Karnataka, Kerala, Goa, and Lakshadweep.
- Earlier, the Indian government announced a plan to merge Project Tiger and Project Elephant.

- It risked undermining the autonomy of the NTCA. Activists were also concerned about implications for Project Elephant given that it does not have any legal backing at present.
- Tiger Reserves are recognised under the Wildlife Protection Act 1972 but Elephant Reserves are not.

How is the Ministry changing?

- Broadly, experts articulated a need for disintegrated and dedicated efforts across the board, including to strengthen environmental monitoring functions.
- In recent years, the role and functions of regional offices of the Ministry have been widened both to process environmental approvals and monitor compliance of legally mandated safeguards during project construction, operation, and closures.
- As a result, such widened roles require additional funding and infrastructural support, but it remains unclear if such support has been provided.

NATURAL VARNISH ON ROCKS IN ARID REGIONS COULD INSPIRE PROTECTIVE PAINTS AND PIGMENTS



Why in news?

- Interactions between minerals and microbes present in rocks in arid regions result in rock varnish, an orange-yellow to black coating found on exposed rock surfaces in these areas, according to a study carried out in Ladakh.
- It shields the rocks from further weathering could help in the design of similar bio-inspired products and raw materials for the paint and pigment industries, manufacturing of water-resistant materials as well as natural UV protectors.

Surface wettability characteristics:

- The researchers from the Birbal Sahni Institute of Palaeosciences are probing into their formation.
- They accidentally dropped a few drops of water on the rock varnish, and observed that the droplets did not spread on the surface but instead adhered to it.
- Struck by change in surface wettability characteristics from hydrophilic to hydrophobic in the transition from host rock to varnish, they decided to compare this surface wettability phenomenon observed on the

rock samples with a hydrophobic material such as a raincoat.

Geochemical fingerprinting:

- Microbial fingerprinting using organic biomarkers and isotopic analyses in conjunction with electron microscopy revealed the presence of organic metabolites such as fatty acids, alkyl benzenes, oxime, amide, and fatty acids which the scientists interpreted as resulting from mineral, microbial interactions.
- The research sheds light on the intricate relationship between microbial communities, surface characteristics, and organic biomarkers in the formation and stability of rock varnish in extreme environments.

Key observations:

- The scientists speculated that the nearly hydrophobic characteristic of the rock-varnish layer creates a niche for microbial life to thrive at the interface between the host rock and varnish layer while providing protection against environmental factors like UV radiation, particle abrasion, and extreme temperature fluctuations.
- This hydrophobic feature of the varnish layer may contribute to its longevity, as evidenced by the preservation of petroglyphs discovered worldwide over thousands of years.
- They concluded that Mn and Fe, along with surface hydrophobicity, play an important role in shielding the inner biotic entities in extreme conditions.

Way Forward:

- Introducing the concept that surface chemistry and hydrophobicity could play a crucial role in facilitating microbial processes related to varnish formation.
- The study paves new avenues in the field of bioinspired materials, as rock varnish possesses characteristics that make it a unique geomaterial.

**WARMING-INDUCED GLACIER RETREAT
COULD CREATE NOVEL ECOSYSTEMS**



Why in news?

- Climate change caused by human activity under a high-emissions scenario may halve the area covered

by glaciers outside the Antarctic and Greenland ice sheets by the end of the century, as per a study.

- This will have marked ecological and societal cascading consequences, as novel ecosystems develop to fill emerging new habitat. However, there has been no complete spatial analysis carried out to quantify or anticipate the important changeover.

Ecological impact:

- Under a high-emissions scenario (in which global greenhouse gas emissions triple by 2075), about half of 2020 glacier area could be lost by 2100. However, this could be curbed by a low-emissions scenario (in which net zero is achieved by 2050), which would reduce this loss to approximately 22%.
- As per the modelling exercise, the loss of glacier area will range from 22% to 51%, depending on the climate scenario.
- It would mean that by 2100, the decline of all glaciers outside the Antarctic and Greenland ice sheets may produce “new terrestrial, marine and freshwater ecosystems over an area ranging from the size of Nepal (1,49,000sq. km) to that of Finland (3,39,000 sq. km)”.

New ecosystems:

- In the deglaciated areas, the new ecosystems will be characterised by “extreme to mild ecological conditions” encompassing terrestrial, freshwater and even marine habitats.
- While such drastic changes might favour primary productivity, it may also lead to increased numbers of non-native species and those that can thrive under certain conditions such as cold-adapted species and generalist species.
- Such vast emergence on a relatively short timescale will add to the complexity of glacial dynamics and will increase the challenge of glacier conservation. Ironically, less than half of glacial areas are located in protected areas.

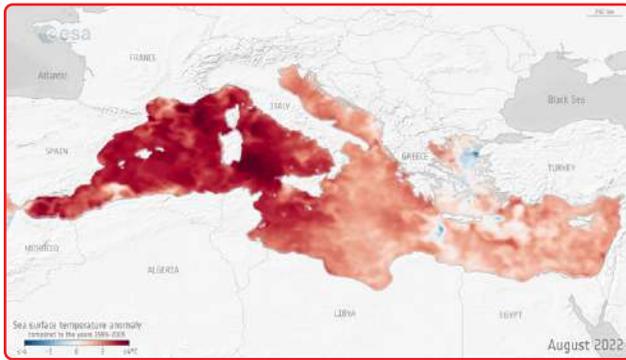
Way Forward:

- In response to the possible scenarios, the authors “emphasise the need to urgently and simultaneously enhance climate-change mitigation and the in-situ protection of these ecosystems to secure their existence, functioning and values”.
- This is the first ever attempt towards getting a full understanding of the ecosystem shift associated with global deglaciation.

**EXTREME HEAT, WHAT DOES IT MEAN
FOR THE MEDITERRANEAN SEA?**

Context:

- Frequent heat waves cause huge damage to underwater ecosystems and researchers expect more of them in the future.



Details:

- Wildfires raged across at least nine countries in the region from Algeria to Greece. But the soaring temperatures are not only a danger for people and ecosystems on land, they're also harming marine life.
- At the end of July, Mediterranean Sea surface temperatures hit a record 28.7 degrees Celsius (83.66 Fahrenheit), with some eastern parts of the waters reaching more than 30°C. Those temperatures could rise further in August, which is usually hotter.

But why are high sea temperatures a problem?

- In a warming world, marine creatures are in danger of suffocating. Gases like oxygen and carbon dioxide dissolve better at colder temperatures, so that means the warmer the water, the less oxygen is available to breathe.
- Conversely, higher temperatures also cause an increase in metabolism, which in turn means animals have to breathe even more than usual. That combination also heightens the risk of death by starvation for marine life.
- Algal blooms are more common in hotter waters too. Such blooms can further deplete oxygen levels and produce toxins harmful for fish, marine mammals and birds, for instance.

What species and ecosystems are worst hit by marine heat waves?

- High water temperatures are most harmful for animals living at the bottom of oceans, lakes or rivers. These benthic species include corals, mussels, sponges, starfish and plants like sea grasses, and are often attached to rock or solid ground. They can't migrate when it gets too hot.
- Scientists observed mass deaths of benthic species along thousands of kilometers of Mediterranean coastline between 2015 and 2019.
- Many benthic species are crucial to the marine ecosystem. They filter the water and keep seas, rivers and lakes clean by eating dead organisms.
- Some species are an important food source for other creatures or are harvested by humans. Benthics like soft corals, seaweed and seagrasses provide some of the main ocean habitats.

Neptune grass:

- Heat is particularly harmful for *Posidonia oceanica* or Neptune grass. And the large, slow-growing seagrass is found only in the Mediterranean.
- This species is of particular importance to humans as it serves as a major natural carbon sink and stores more carbon per square meter than forest ecosystems, making it one of the most effective ecosystems for long-term carbon storage.

Is heat good for any animals in the Mediterranean?

- Jellyfish are thriving because of higher temperatures, as well as nutrient run-off from farms and sewage. Overfishing and loss of fish habitat mean the jellyfish have few or no predators. When currents push the animals together, the Mediterranean turns into a crowded jellyfish hotspot.
- The sea also hosts around 1,000 invasive species, the highest number in the world. While this is not directly linked to climate change or rising temperatures "such conditions clearly favor species introduced from warmer seas".

Alien species:

- Alien species can have a major impact on ecosystems.
- For instance, invasive Rabbitfish native to the Indo-Pacific and Red Sea feed on seaweed and have reshaped the habitat of the eastern Mediterranean. Underwater deserts have replaced dense seaweed forests.

What does extreme heat in the Mediterranean mean for people?

- Warming seas are already affecting fishing activities in the area. Fishermen are catching fewer familiar species and instead are finding more invasive fish which they have difficulty selling.
- Rabbitfish and lionfish are edible, but other invasive fish aren't. Some are even poisonous, like the puffer fish.
- Habitat loss could also lead to an overall decline in fish populations, while disappearing seagrass means coasts will be more exposed to future storms. This could also have a knock-on effect for tourism because divers will be less likely to visit an impoverished underwater landscape.

Can anything be done about rising temperatures in the Mediterranean?

- One thing all the researchers agree on is that to save the Mediterranean Sea habitat, humans must stop emitting greenhouse gases.
- One important step in doing so is combatting the growth of algal blooms which are worsened by run-off from agriculture, wastewater and industry.
- Scientists also hope that the UN goal of protecting 30% of the world's oceans by 2030 will directly benefit the Mediterranean. So far, just 8% of the sea is protected.

New inhabitants:

- Some of the Mediterranean's new inhabitants could also be a helpful addition as the planet heats up.
- Tropical seaweed *Halophila stipulacea* Ascherson, originally native to the Red Sea, copes well with rising temperatures and salinity levels compared to other seaweeds.
- It's an invasive species that could potentially help "seagrass beds survive in a smaller part of the Mediterranean and continue to provide some of their essential ecosystem services.
- There may also be hope for the native Neptune grass. Studies show that the plants can deal with rising Mediterranean temperatures if they are intentionally exposed to heat as young seedlings.

ON PROTECTING THE BIODIVERSITY OF THE NORTHEAST



Context:

- Fostering tourism, undertaking construction projects and developing infrastructure are ways through which a State generates revenue and creates employment opportunities.
- However, some of them come at a steep environmental cost.

Recent case:

- In the recent case of *Re: Cleanliness of Umiyam Lake versus State of Meghalaya (2023)*, the division Bench of Chief Justice Sanjib Banerjee and Justice W. Diengdoh, in its order, stated that "In the absence of any other employment opportunities and in the name of promoting tourism, the natural beauty of the State should not be destroyed".
- The Meghalaya High Court was hearing a Public Interest Litigation (PIL) on the cleanliness of the Umiyam Lake.
- The court in its observation of the Meghalaya Waterbodies (Preservation and Conservation) Guidelines, 2023, said that they did not deal with the "most serious aspect of buildings and construction mushrooming around waterbodies".

The biodiverse northeast India:

- Northeast India is a green belt region due to its abundant natural resources such as oil, natural gas,

minerals and fresh water. The Garo-Khasi-Jaintia hills and the Brahmaputra valley are some of the most important biodiversity hotspots.

- Though the northeast is industrially backward, deforestation, floods, and existing industries are causing serious problems to the environment in the region.
- Both flora and fauna of the areas are under threat due to deforestation, mining, quarrying, shifting cultivation.

Environmental laws:

- Thus far a considerable number of environmental laws and policies have been developed in the country, especially during the 1980s. Offences related to or against the environment have also taken the shape of "public nuisance" under Sections 268 to 290 of the Indian Penal Code (IPC), 1860, dealing with pollution of land, air, and water.
- However, as the Sixth Schedule of the Constitution grants autonomy to District Councils, it limits the authority of the State over matters pertaining to the jurisdiction of the District Councils, including the use of land.
- In many instances, like in the case of the Umiyam Lake, the District Councils do not place any regulations for the preservation and protection of land, especially those around waterbodies.

Environmental litigation:

- PILs and judicial activism encouraged under Articles 32 and 226 of the Constitution led to a wave of environmental litigation.
- For example, the National Green Tribunal imposed a fine of ₹100 crore on the Meghalaya State government for failing to curb illegal mining in 2019. It also imposed a fine of ₹200 crore on the Manipur government for improper waste management in 2022.

The pressing priority:

- Central and State governments have to develop infrastructure, generate revenue and create employment through sustainable policies.

Negative List:

- The 'Negative List' in the North East Industrial Development Scheme (NEIDS), 2017 is a step in the right direction.
- If an entity is not complying with environment standards; not having applicable environmental clearances; does not have consent from the concerned pollution boards, it will not be eligible for any incentive under the NEIDS and will be put on the 'negative list'.

Way Forward:

- Similarly, the 'Act Fast for Northeast' policy should not only include "trade and commerce" but also the preservation of "environment and ecology" in the region.

- To aim for a 10 trillion-dollar economy, without protecting India's environment, is a goal not worth pursuing.
- The government should consider the case of creating a uniform environmental legislation, which caters to environmental issues at all levels of governance.

ERRATIC, DEFICIT RAINFALL HITS BREEDING CYCLES OF FROGS



Why in news?

- Erratic and deficit rainfall in monsoon 2023 in the Western Ghats have affected the breeding cycles of amphibians, according to scientists. Animals usually found abundantly in the region during the season have been absent.

Deficient rainfall:

- Coastal Karnataka in the Western Ghats has recorded a 13 per cent deficit in rainfall since June, according to the India Meteorological Department.
- Most parts of Kerala have also seen over 50 per cent of rainfall deficit.

How it impacts breeding of frogs?

- Rainfall results in the formation of temporary rock pools and replenishment of the permanent water bodies where frogs breed.
- However, in the northern Western Ghats, water remains in some pools for only two to three days under short-duration rainfall.
- Frogs lay eggs in this period but they desiccate or dry up before the tadpoles metamorphose into adults, as the pools lose water and moisture essential to complete the breeding cycle.
- Species such as bull frogs, cricket frogs breed during the beginning of monsoon, while night and dancing frogs breed in late monsoons.
- The tadpoles feed on algae, which helps them develop and fully grow. But if the rains are erratic, algae does not form, depriving these tadpoles of their food for growth and development.
- Another species *Xanthophryne tigerina* or the Amboli toad breeds only for two to three days in a year and lives in lateritic rock, commonly found in tropical regions. If the breeding is disturbed for consecutive years, the population will drop significantly.

Disturbing ecosystem:

- Another factor to consider is that rock pools or water ponds where eggs develop need a certain ecosystem.
- Though temporary, these ponds have a certain pH level of water, have optimum temperatures, life-supporting oxygen and other parameters ideal for eggs to hatch and eventually for tadpoles to survive. If the rainfall stops for a long period, the water remains stagnant, changing all the above mentioned parameters.
- Even a slight rise in temperature and polluting of water can impact the survival of these small creatures.
- Animals like birds and reptiles that prey on frogs will get affected directly if the life cycle of frogs gets disturbed. Such food chain links will be broken in the long run.

CLIMATE CHANGE MAY CAUSE UP TO 38% DECLINE OF LOW & MID LATITUDE DEODAR TREES



Why in news?

- Climate change and increased greenhouse gas emissions are likely to trigger forest losses in Himalayan Cedar (*Cedrus deodara*), commonly known as deodar, pointed out a recent study.
- Researchers from India conducted studies at 17 sites from low, middle and high-latitude areas under two climate regimes of the Himalayas. The two climates are dominated by monsoon rainfall and westerly disturbances.

Why it matters?

- Deodar has a high demand in the market owing to its fine-grade timber, medicinal qualities and sacred use.
- The growing climate crisis will result in up to 38 per cent decline in deodar growth for plantations in low- and mid-latitude regions.

RCP:

- The scientists predicted possible greenhouse gas and aerosol emissions scenarios under representative concentration pathways (RCP) 4.5 and 8.5.
- RCP 4.5 is a moderate scenario where global emissions peak around 2040 and then decline, as defined by the Intergovernmental Panel on Climate Change.

- RCP 8.5 is a climate scenario where business is as usual and emissions will continue to rise for the entire 21st century.
- Hence, the projections due to climate change owing to RCP 8.5 will typically have more impact compared to the former.
- The predicted growth trends show forest loss between 34 per cent and 38 per cent under RCP 4.5 scenario while the decline is predicted to be for 29 per cent and 32 per cent for RCP 8.5 scenario.

Threats to Deodar:

- Deodar located in inner dry and outer moist ranges receives precipitation due to western disturbances from December to February and summer monsoon between June and September.
- The tree is also known for its capacity to sequester a significant amount of carbon. However, climate change combined with anthropogenic activities such as deforestation and competition with other species has shrunk its distributional range.
- Deodar faces threats from chir pine species, which shows more tolerance towards drought and fire and is also outcompeted at higher elevations by silver fir in moist areas and blue pine in dry regions.
- Moreover, deodars also face insect attacks, causing heavy losses.

Suitable conditions:

- While temperatures from March to May have a negative impact on tree growth, the spring precipitation leads to positive tree ring growth.
- Heavy snowfall in 2022 winter is another factor favouring deodar growth, followed by pre-monsoon spring. The snowmelt in spring offers soil moisture and further helps the growth of deodar, enhancing photosynthesis.
- The process increases food production and cambial (a tissue layer that helps plant growth) activity in March, April and May. However, dry conditions due to increased temperature during the growing season stunts tree ring growth.
- The high temperatures cause quick evaporation of snow-pack water that reduces moisture in the soil, suppressing photosynthetic activity and slowing the cambium activity.

Concerns:

- The new findings revealed that deodar trees located at low and mid-latitudes may be unable to keep up with the increasing temperatures at RCP 4.5 and RCP 8.5 conditions.
- The decline in the growth of deodar is primarily due to temperature increase and precipitation decline during pre-monsoon months between March and May.
- The researcher added that trees hypersensitive to drought and heat stress become vulnerable to pathogens and insect infestation.

Way Forward:

- These findings may be used to take suitable migratory steps for the conservation of deodar in the HKH.

WHAT TERAI TIGERS EAT AND WHAT IT TELLS ABOUT THE HABITAT



Why in news?

- The dung of tigers has helped a team of scientists at the Wildlife Institute of India (WII) understand the prey selection patterns of the tiger (*Panthera tigris*) in the Indian part of the Terai-Arc Landscape, or TAL.
- The faeces also helped the scientists gather information about the hotspots of conflicts related to livestock predation across 15,000 sq. km of the animal’s habitat along the foothills of the Himalayas.

TAL:

- The scientists chose the 900-km linear stretch of the TAL, recognised as one of the most productive habitats on the subcontinent, for the study between November 2014 and December 2020.
- It is characterised by a mosaic of forests and grasslands covering both protected areas and others.
- Overall, the TAL represents three major habitat types:
 - a) Shivalik covering parts of the lower Himalayas,
 - b) Bhabar covering the foothills of the lower Himalayas marked by pebbles and boulders, and
 - c) Terai comprising the lowland region below the Himalayan foothills and north of the Indo-Gangetic plains covering the entire Uttar Pradesh, southern parts of Uttarakhand, and Bihar.
- About 22% of the wild tiger population in India is found across the TAL, living amid some of the highest human and livestock densities on the subcontinent.
- The landscape also has a high mammalian diversity with herbivores such as gaur, nilgai, sambar, northern swamp deer, wild pig, chital and goral, some primates, carnivores such as leopard, wild dog, and hyena apart from the tiger, and omnivores including the sloth bear and Asiatic black bear.

Basis of study:

- The faeces of an animal yield information about its lineage, genetic relatedness, diet preference, population status, and the use of the landscape.

- A total of 510 genetically confirmed samples of tiger faeces were collected across the landscape and 10 wild ungulates and livestock as prey species were identified.
- Field sampling was conducted across the Rajaji, Corbett, Amangarh, Pilibhit, Dudhwa, and Valmiki tiger reserves, Nandhaur and Sohagibarwa wildlife sanctuaries, two conservation reserves, and 11 non-protected areas, including nine forest divisions and two social forestry divisions across Bihar, Uttarakhand, and Uttar Pradesh.

Key Findings:

- Large-bodied species; sambar, swamp deer, nilgai, chital, wild pig, and livestock comprised about 94% of the diet, with sambar, chital, and livestock having the highest relative proportions.
- Habitat-specific (Shivalik-Bhabar and Terai) analyses indicate that prey selection is driven by prey abundance and body weight but not determined by protection status (protected areas vs non-protected).
- Results also suggest that protected and non-protected areas in the Terai region were more prone to livestock predation-related conflict.

Reducing threats:

- Given the significant role of large carnivores in maintaining ecological diversity and interactions within their respective biological communities, the scientists suggested careful management interventions with community involvement to reduce threats of livestock predation-related conflict.
- They suggested long-term conservation plans including prey abundance estimation outside the protected areas, reduction of grazing pressures, and detailed records of tiger mortalities with causal investigations to ensure future conflict-free tiger persistence across the TAL.

TROPICAL FORESTS MAY BE GETTING TOO HOT FOR PHOTOSYNTHESIS



Why in news?

- A small percentage of leaves on trees in tropical forests may be approaching the maximum temperature threshold for photosynthesis to work, suggests a study.

Details:

- An estimated 0.01% of all leaves currently surpass this critical temperature but there are uncertainties in the range of potentially critical temperatures in tropical trees.
- Modelling suggests that tropical forests can withstand up to a 3.9 degree C increase over current air temperatures before a potential tipping point, therefore action is needed to protect the fate of tropical forests under future climate change.
- Recent studies have indicated a resilience of tropical forests to how warming impacts carbon uptake and long-term drought.

Impact of deforestation:

- In addition to temperature increase caused by global warming, deforestation and fragmentation can amplify local temperature changes.
- The combination of climate change and local deforestation may already be placing the hottest tropical forest regions close to, or even beyond, a critical thermal threshold.

Concerns:

- Tropical forests serve as critical carbon stores and host most of the world's biodiversity and may be particularly sensitive to increasing temperatures.
- The critical temperature beyond which photosynthetic machinery in tropical trees begins to fail averages at about 46.7 degrees C.
- However, whether leaf temperatures experienced by tropical vegetation approach this threshold, or soon will under climate change, remains unclear.

Way Forward:

- It suggest that the combination of ambitious climate change mitigation goals and reduced deforestation can ensure that these important realms of carbon, water and biodiversity stay below thermally critical thresholds.

INVASIVE ALIEN SPECIES IN FOCUS AT 10TH PLENARY OF IPBES



Why in news?

- The 140+ members of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem

Services (IPBES) have gathered at Bonn, Germany for its 10th plenary.

Agenda:

- On agenda is the scientific assessment report on "Invasive Alien Species and their Control", which is set to be released.
- The delegates at the plenary would approve the text of the report that has taken four years to be developed by 86 leading experts from 49 countries.

Target 6 of GBF:

- Invasive alien species are a key driver of biodiversity loss and they are part of the targets set under the Kunming-Montreal Global Biodiversity Framework (GBF) adopted by 193 members of the Convention on Biological Diversity in December 2022.
- The GBF has 23 targets that have to be met by 2030.
- Target 6 sets down that by 2030, the impacts of invasive alien species on biodiversity and ecosystem services would be eliminated, minimised, reduced and mitigated.
- The aim is to prevent and reduce the rate of introduction and establishment of invasive alien species by at least 50 per cent by 2030.
- IPBES10 is the first meeting of this global body since the adoption of GBF. IPBES has already received requests for assessments to support the GBF's implementation. This is likely to be a global assessment on biodiversity, the second of its kind.

About IPBES:

- Since it was established in 2012, IPBES has produced 10 assessment reports, which provide the most authoritative source of policy-relevant knowledge on biodiversity and nature's contributions to people.
- IPBES reports were instrumental in providing the scientific basis for the GBF, which prominently cites the assessment report on Biodiversity and Ecosystem Services published in 2019.
- The organisation is currently working on three more assessments:
 - a) The assessment of the interlinkages among biodiversity, water, food and health (nexus assessment)
 - b) The assessment of the underlying causes of biodiversity loss and the determinants of transformative change and options for achieving the 2050 Vision for Biodiversity (transformative change assessment)
- The methodological assessment of the impact and dependence of business on biodiversity and nature's contributions to people (business and biodiversity assessment).



Why in news?

- The study, 'Record low 2022 Antarctic sea ice led to catastrophic breeding failure of emperor penguins', was published recently.

Details:

- Up to 10,000 emperor penguin chicks across four colonies in Antarctica's Bellingshausen Sea may have died as the sea ice underneath their breeding grounds melted and broke apart in late 2022.
- It's the first recorded incident of widespread breeding failure of emperor penguins at multiple sites in a region due to sea ice loss.

Factors responsible:

- The sea ice disappeared before the start of the emperor chicks' fledging period, during which they develop their waterproof adult wings and learn to swim. The birds most likely either drowned or froze to death, they couldn't regulate their body temperature after getting drenched.
- Since 2016, the Antarctic sea ice extent, the total region with at least 15% sea-ice cover has been shrinking with the total area of frozen water around the continent reducing to new record low levels almost every year.
- This puts more than 90% of emperor penguin colonies at risk as they may go extinct by the end of this century, if Earth continues to get warmer at the present rate.

Sea-ice and the emperor penguin breeding cycle:

- The role of stable sea ice in the emperor penguin breeding cycle is crucial.
- The birds arrive from the sea to their preferred breeding sites on sea-ice in late March to April. They court and mate, and then lay eggs in May and June.
- Eggs hatch in August after which parent emperor penguins take turns to feed their chick.
- By late December or early January, the fledgling period comes to an end, leading chicks to go into the water and look for food themselves.
- Therefore, the sea ice on which emperor penguins breed needs to remain stable between April to January to ensure successful breeding.

HOW ANTARCTICA'S MELTING SEA ICE KILLED THOUSANDS OF EMPEROR PENGUINS CHICKS

Antarctic sea ice extent shrinking:

- Like 2022, the Antarctic sea ice extent has diminished to a new record low in 2023. But this time, the ice cover is exceptionally low.
- Throughout July 2023, sea ice averaged 13.5 million sq km, the lowest extent observed for this time of year since the continuous satellite record began in late 1978, according to a NASA Earth Observatory report.
- Although it's currently the winter season in the Southern Hemisphere, ice growth has been really slow in Antarctica.

Global consequences:

- For instance, less sea ice exposes more of the continent's ice to the open ocean, leading it to melt and break off more easily. This will contribute to rising sea levels, which can affect millions of people living in coastal regions.
- Decline in the ice sheet also causes a spike in sea surface temperatures as sea ice reflects solar rays back into space and thwarts heat from getting absorbed in the oceans. Warmer oceans mean more difficulty in the formation of ice and a wide range of other consequences.

Way Forward:

- The findings show a clear link between negative sea ice anomalies and emperor penguin breeding failures that may represent a snapshot of a future, warming Antarctica where such events become more frequent and widespread, with grave consequences for emperor penguin population viability.

**FIRST-OF-ITS KIND UN GUIDANCE CALLS
FOR CLIMATE ACTION BY STATES TO
PROTECT CHILDREN'S RIGHTS**

**Why in news?**

- For the first time, the United Nations has recognised and affirmed children's rights to a clean, healthy and sustainable environment in a new guidance on children's rights and the environment, with a special focus on climate change.

Details:

- The new guidance, formally known as General Comment No. 26, was adopted on August 28, 2023.

- It provides a legal framework to address the adverse effects of environmental degradation and climate change on the enjoyment of children's rights and to ensure a clean, healthy, and sustainable world now and to preserve it for future generation.

UN convention on rights of the child:

- In 1989, the UN convention on rights of the child outlined children's rights, which includes the right to life, health, clean drinking water and survival and development.
- It has been ratified by 196 countries.

Stakeholders:

- The efforts of children to draw attention to these environmental crises motivated the UN Committee on Rights of the Child to come out with the 20-page document.
- The document was adopted after two rounds of consultation with UN member states, national human rights institutions, international organizations, civil society, thematic experts and the children too.
- Children from at least 121 countries had shared and reported on the negative effects of environmental degradation and climate change on their lives and communities.
- They asserted their right to live in a clean, healthy and sustainable environment stated the UN Human Rights office of the high commissioner in a statement.

Key Guidelines:

- The UN member states have been asked to take all necessary, appropriate and reasonable measures to protect against harms to children's rights related to climate change that are caused by businesses.
- Nations have been urged to equitably phase out the use of coal, oil and natural gas. They have also been asked to ensure a fair and just transition of energy sources and invest in renewable energy, energy storage and energy efficiency to address the climate crisis.
- Establishing inclusive early warning systems must be a priority of all the nations to protect children from impacts of the extreme weather events.
- Echoing the concerns of voices on developing countries on gaps in climate finance, the UN child rights committee has also urged upon the developed countries to provide grants rather than loans for actions to avoid negative impacts on children's rights.
- It has voiced its concerns over the unequal share of finances provided for adaptation and loss and damage measure.

Concerns:

- The future of children around the world including India, is being threatened by environmental degradation and climate change, alerted WHO-UNICEF-Lancet in a 2020 report.

- So, ahead of the 28th Conference of Parties (COP28) to the UN Framework Convention on Climate Change, the UN document reminded that insufficient progress in achieving international commitments to limit global warming exposes children to hazards associated with greater concentrations of greenhouse gas emissions, which includes rising temperature.
- Reducing carbon emissions can prevent 4,000 to 6,000 child deaths due to heat in Africa every year. In 2022, extreme weather events around the world displaced at least 12 million children in 2022.

Way Forward:

- Adaptation frameworks should address climate change-induced migration and displacement and include provisions for ensuring a child rights-based approach to these issues.

REROUTE RAIL TRACK THROUGH GIBBON SANCTUARY



Why in news?

- Primatologists have suggested rerouting a 1.65-km long railway track that has divided an eastern Assam sanctuary dedicated to the western hoolock gibbon (Hoolock hoolock) into two unequal parts.

Artificial canopy bridge:

- Their report follows that of the Wildlife Institute of India (WII) on designing an artificial canopy bridge to facilitate the movement of the hoolock gibbons across the broad-gauge line within the Hollongapar Gibbon Sanctuary. The track is yet to be electrified.

Why it matters?

- The sanctuary has become a 'forest island', having lost connectivity with surrounding forest patches. Since gibbons are exclusively arboreal animals inhabiting the forest's upper canopy, they are particularly sensitive to canopy gaps.
- Gibbon families on both sides of the railway track have thus been effectively isolated from each other, thereby compromising their population's genetic variability and further endangering their already threatened survival in the sanctuary.

About hoolock gibbons:

- Housing about 125 hoolock gibbons, India's only ape,

the sanctuary in the Jorhat district covers an area of 21 sq. km.

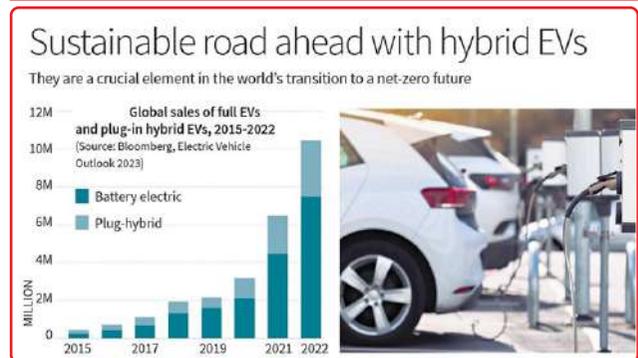
- Like the other 19 gibbon species on earth, it is marked endangered due to habitat loss and habitat fragmentation.

Threat:

- The current population of hoolock gibbons is estimated to be around 12,000 individuals.
- They are found in forested areas of Northeast India, Bangladesh, Myanmar and Southern China.

SCIENCE & TECHNOLOGY

THE HYBRID EV IMPERATIVE



Context:

- A crucial element of the world's transition to becoming net-zero is electric vehicles (EVs).

What is net-zero for a vehicle?

- Net-zero for a vehicle includes emissions at both the tailpipe of the vehicle and at the power plant. Making vehicles net-zero requires cutting emissions from both new and existing vehicles.

What are the different types of EVs?

- Any vehicle propelled by an electric drivetrain, taking electric power from a portable, electrical energy source, is called an Electric vehicle (EV).
- In a hybrid EV, an internal combustion engine (ICE) is used to produce electricity with an electrical generator. A small battery, typically 1-5kWh, is used in a hybrid EV as an energy buffer to store the electricity.
- The battery can't be charged from the grid.
- A full EV – a.k.a. a battery EV or a plug-in EV, has no ICE and hence no tailpipe emissions. The battery typically is much larger at 20-120 kWh. And it can only be charged from the grid.
- A plug-in hybrid EV is still a hybrid EV with a much larger battery, typically 5-15 kWh. This larger battery can also be charged from the grid. This means a plug-in hybrid operates like a fully electric vehicle as long as there is energy in the battery.
- A fuel-cell EV uses a fuel cell to produce electricity for the drivetrain together with a small battery buffer to manage variations.

What is the fuel economy of hybrid and fully electric EVs?

- The use of an ICE in combination with a generator and battery in a hybrid EV results in the fuel economy of these vehicles being 1.5-2x times higher than in conventional ICE vehicles for city driving and 1-1.5x times higher for highway driving.
- A plug-in hybrid EV combines the best of both hybrid and full EVs.
- Using a small battery (5-15kWh) that can be charged from the grid, it can cover 80-90% of all short, day-to-day commutes in a fully electric mode with 3-4x higher fuel economy than conventional vehicles. A driver on intercity trips can switch to the hybrid mode.

What are the net emissions of hybrid EVs?

- Apart from fuel economy, an important metric is the net emissions of a vehicle. Well-to-wheel emissions include both tailpipe emissions and emissions due to fuel production, electricity or fossil fuels.
- The life-cycle emissions is a more comprehensive index that includes well-to-wheel emissions and emissions due to vehicle and battery production, maintenance, and end-of-life recycling.
- The grids of different countries are decarbonised to different extents at present.
- In the case of full EVs: the lower the emissions from power production, the lower the vehicle's well-to-wheel and life-cycle emissions.

What are the challenges to transitioning to electric mobility?

Fast-charging infrastructure:

- A successful transition to full EVs requires fast-charging infrastructure along highways. The lack of a fast-charging infrastructure will discourage people from buying full EVs. Fast-charging means power levels of 50-350 kW for cars and up to 1,000 kW for heavy-duty vehicles.
- The high cost and wide variation are due to the high-capacity power connections required, the cost of making and installing a new transformer and cables; service-level agreements; DC charger plug options and quantities; customisation costs; labour costs; and permits.

Access to grid:

- Many parts of the world, especially economically developing nations, don't yet have access to a grid or the grid isn't 100% reliable.
- The relatively high charging power for slow-charging (<22kW) and fast-charging (<350kW) make the problem more prominent vis-à-vis generation and transmission capacities. This in turn could retard the transition to EVs.

How can hybrid or plug-in hybrid EVs help decarbonise?

- The current focus in the industry is on full EVs, which isn't practical for the immediate future, given grid reliability, state of highway charging infrastructure, and prohibitive vehicle costs.
- The 1.5-2x higher fuel economy of hybrids and 3-4x higher fuel economy of plug-in hybrids in electric mode drastically reduces fuel costs, emissions, and oil imports.
- Plug-in hybrids in particular can match several (but not all) of the benefits of full EVs vis-à-vis emissions and performance without requiring large batteries. With a limited all-electric range, this may not cater to all use cases, such as taxis.
- Regenerative braking in hybrid EVs – i.e. recovering the kinetic energy of the vehicle while slowing down instead of dissipating it as heat in the braking system can improve fuel economy esp. in urban areas with frequent stop-go conditions and in hilly conditions.
- An engine start-stop mechanism can also save fuel at traffic junctions and in heavy traffic.
- Finally, the purchase price of hybrid cars is only 5-15% higher than conventional vehicles and is independent of the vehicle range.

WHAT IS LK-99?



Why in news?

- Two Recent studies have indicated the possibility of a room-temperature superconductor.

What is a superconductor?

- Superconductors are a class of materials that exhibit near-zero electrical resistance and expel magnetic fields while allowing electric charges (usually electrons) to move freely through them.
- They are a critical component of modern-day transportation systems, medicine, energy transmission, and scientific research.
- When it comes to conventional conductors like copper and aluminum, the flow of electric current encounters resistance, leading to energy loss in the form of heat. That's where the discovery of superconductivity changed everything.

Applications:

- In superconductors, a quantum phenomenon causes electrons to pair up allowing them to move through

the structure of the material with remarkable ease and near-zero electrical resistance and no loss of energy.

- But that happens only at very low temperatures, typically near absolute zero or minus 273.15 degrees Celsius, and extremely high pressure.

Recent research:

- The two new papers by researchers from South Korea, state the creation of a material known as LK-99 that can conduct superconductivity at room temperatures.
- The lead-based compound, which could conduct electricity without any resistance under normal conditions, could have long-term advantages.
- A room-temperature superconductor would exhibit superconducting properties at temperatures that are easily attainable and sustainable with conventional cooling methods. This could lead to transformative advancements in various industries at low costs.
- The superconductivity of LK-99 is proved with the critical temperature, zero-resistivity, critical current, and critical magnetic field.

Characteristic features:

- LK-99, can be synthesised through a baking process that involves combining the minerals lanarkite and copper phosphide.
- The resulting material exhibits two essential characteristics of superconductivity even at normal air pressure and temperatures as high as 127 degrees Celsius: zero resistance to electric current and the ability to levitate in the presence of magnetic fields.
- While the researchers have put forward a plausible theory explaining how LK-99 could achieve room-temperature superconductivity, they have not yet provided definitive experimental evidence to support their claims.

Way Forward:

- However, if it is experimentally proved, it would be game-changing for the energy sector, which will see a new world with near-zero loss of energy in power transmissions.

AFTER CHANDRAYAAN-3, THESE THREE MINI ROVERS WILL EXPLORE MOON, MAP IT IN 3D



Why in news?

- As India prepares for the landing of the Chandrayaan-3 mission on the surface of the Moon with a lander and rover, NASA is set to launch a trio of miniature rovers to the Moon in 2024 as part of its robotic exploration project.

Key Highlights:

- The mission aims to demonstrate how robots can operate autonomously and cooperate with each other without direct human intervention, potentially enhancing the efficiency of future space missions.
- The three rovers, each about the size of a carry-on suitcase, will be deployed onto the Reiner Gamma region of the Moon.
- They will spend approximately 14 Earth days conducting experiments designed to test their capabilities.
- The mission's goal is to demonstrate that a network of mobile robots can work together to accomplish a task autonomously.

How rovers will work?

- The rovers will receive broad directives from mission controllers on Earth via a base station aboard the lander.
- They will then elect a "leader" who will distribute work assignments to achieve the collective goal. Each rover will determine the safest and most efficient way to complete its assigned task.
- The rovers will undergo several tests, including driving in formation while maintaining their relative positions and avoiding obstacles.

Experiments to be conducted:

- They will also independently explore a designated area, creating a topographic 3D map with stereo cameras.
- The project will assess how well the team adapts if a rover stops working, indicating the viability of multirobot missions for exploring hazardous but scientifically rewarding terrain.
- In addition to testing autonomy and teamwork capabilities, the rovers will carry multistatic ground-penetrating radars. By driving in formation and receiving the reflection of radio signals sent by the others, they will create a 3D image of the subsurface structure up to 33 feet below, gathering more comprehensive data than current state-of-the-art ground-penetrating radars.

Challenges:

- The rovers face the challenge of surviving the harsh thermal environment near the Moon's equator.
- With midday temperatures reaching up to 237 degrees Fahrenheit, the rovers, made from a combination of commercial off-the-shelf parts and custom-built components, must be robust enough to withstand the heat while being compact and lightweight.

- To prevent overheating, the team has devised a solution involving 30-minute wake-sleep cycles, allowing the rovers to cool off and recharge their batteries before resuming their lunar exploration.

MUSK'S STARLINK, WHY THE NEW SOVEREIGN OF LOW-EARTH ORBIT IS BAD NEWS?



Context:

- In January 2023, Telegram channels in Russia were flooded with undated pictures of an unmanned Ukrainian drone that included a retrofitted Starlink satellite dish made by SpaceX.
- The images, showed that the dish's rear plastic casing had been hacked off to reduce its weight and make it easier to fit on the drone.

Network of Starlink:

- The integration of Starlink's satellite internet service meant that the machine could be controlled from anywhere and be used for everything from surveilling Russian troops to coordinating military strikes.
- For most of the world, Starlink's importance in Ukraine has hammered in how high-speed satellite Internet access is quickly becoming the most valuable strategic resource in a conflict or war-stricken region.
- Today, Musk's Starlink service is the undisputed king of the section of space called low-earth orbit (LEO).
- Of the roughly 7,500 active satellites that orbit Earth today, more than half are Starlink satellites.
- There are a handful of competitors, some backed by governments: Viasat, OneWeb, Avanti, SES, Immarsat, and Iridium. But none of them come close to offering the convenience, speed or affordability of Starlink.

Significance:

- After the Russia-Ukraine war broke out in 2022, fibre network lines and cell towers were the first pieces of infrastructure to be destroyed, rendering Starlink as the lifeblood of Ukraine's communication network.
- When Internet connectivity is deployed in a region, the nature of the technology is such that its operations aren't controlled by the user, but by the company.
- In June 2023, the Pentagon approved a new deal to buy 500 new Starlink terminals for Ukraine that would reduce the company's ability to interfere in operations.

Warping how the internet works?

- Traditional infrastructure works on a public-utility principle. The telecom companies don't get to decide whether a particular region deserves no internet access because its inhabitants might use it for unsavoury purposes.
- Yet satellite internet companies get to insert themselves in key debates because of how the technology works and the lack of regulation.
- After the September 2022 protests in Iran, the government shut off internet access in large parts of the country. Musk quickly stepped in to turn on Starlink connectivity.
- Activists and protestors smuggled in satellite dishes, and to date over 100 Starlink terminals are active in Iran, although the government there has declared it illegal.

Reasons for Starlink's monopoly:

- Elon Musk's foresight is one; extremely light regulation from the Federal Communications Commission is another.
- The SpaceX's partly reusable rockets give Starlink a non-stop elevator to get satellites into LEO in a relatively inexpensive manner. This is where its serious competitors trip up.
- Rival firm OneWeb, whose biggest shareholders are Bharti Airtel's holding company and the U.K. government, were forced to abort a launch in Russia after it demanded the satellites not be used against Russia. OneWeb took a \$230 million hit after Russia refused to return its satellites too.

Way Forward:

- The obvious solution is need more LEO satellite constellations; government, private or some combination of the two; that provide Internet access.
- In 2022, the European Union earmarked EUR 2.4 billion to set up a "sovereign" satellite constellation to be rolled out by 2027.
- China has its own plans to deploy a 13,000-satellite LEO mega constellation to rival Starlink.

RUSSIA LAUNCHES LUNA-25 TO MOON, TARGETS LANDING AHEAD OF CHANDRAYAAN-3

Why in news?

- Russia recently launched its first moon-landing spacecraft in a bid to be the first nation to make a soft landing on the lunar south pole, a region believed to hold coveted pockets of water ice. A Soyuz 2.1v rocket carrying the Luna-25 craft blasted off from the Vostochny cosmodrome, 5,550 kilometers east of Moscow.
- The lander is expected to touch down on the moon on August 21.

Race to the Moon: Will India beat Russia
Chandrayaan-3 has a competitor, Luna 25, which was launched by Russia on Aug 11 (IST)

Chandrayaan-3	Luna-25
Jul 14 9:05 UTC	Aug 10 23:10 UTC
LVM3 M4	Soyuz-2.1b/Fregat
Satish Dhawan Space Centre, India	Vostochny Cosmodrome, Russia
3,900 kg	1,750 kg
1,752 kg + 26 kg (lander)	31 kg
South Pole (09.367021 S, 32.346120 E)	Boguslavsky (Near southern lunar limb)
19 days + 5 days + 18 days (Earth Orbit, Earth to Moon, Moon Orbit)	5 days + 7 days (Earth Orbit, Moon Orbit)
Aug 23	Aug 22
14 Days	1 Year

*tentative dates
Source: ISRO, NASA | Graphics: Mushti Singh & Subham Singh

Luna-25:

- Luna-25, roughly the size of a small car, will aim to operate for a year on the moon's south pole, where scientists at NASA and other space agencies in recent years have detected traces of water ice in the region's shadowed craters.
- The primary objective of Luna-25 is to collect samples of moon rock and dust.
- These samples are crucial for understanding the lunar environment before any potential base construction.
- The European Space Agency had planned to test its Pilot-D navigation camera by attaching it to Luna-25, but severed its ties to the project after Russia invaded Ukraine.

Luna-2 mission:

- US astronaut Neil Armstrong gained renown in 1969 for being the first person to walk on the moon, but the Soviet Union's Luna-2 mission was the first spacecraft to reach the moon's surface in 1959, and the Luna-9 mission in 1966 was the first to make a soft landing there.
- Russia then focused on exploring Mars and since the 1991 fall of the Soviet Union, Russia has not sent scientific probes beyond Earth orbit.

Race to Moon:

- Major powers such as the US, China, India, Japan and the European Union have all been probing the moon in recent years. A Japanese lunar landing failed in 2022 and an Israeli mission failed in 2019.
- No country has made a soft landing on the south pole. An Indian mission, Chandrayaan-2, could not make it to the moon as its lander lost communication and subsequently crashed in 2019.
- Rough terrain makes a landing there difficult, but the prize of discovering water ice could be historic, large could be used to extract fuel and oxygen, as well as be used for drinking water.

Presence of water:

- There are signs of ice in the soil of the Luna-25 landing area, this can be seen from the data from orbit.
- With a mass of 1.8 tons and carrying 31 kilograms of scientific equipment, Luna-25 will use a scoop to take rock samples from a depth of up to 15 centimetres to test for the presence of frozen water.

What it hold for Russia?

- This mission is particularly significant as it comes at a time when Russia is facing severe economic challenges and international sanctions due to its ongoing war with Ukraine. Despite these hurdles, Russia's space program remains undeterred.
- The Luna-25 mission is being projected as a symbol of national power and resilience against the West's sanctions, many of which have targeted Moscow's aerospace sector.
- The launch also signifies Russia's growing independence in space exploration after its ties with the West were severed following the invasion of Ukraine in February 2022.

WHY IS INDIA'S DEFENCE MINISTRY DITCHING MICROSOFT WINDOWS FOR MAYA OS?



Why in news?

- India's Defence Ministry has decided to replace the Microsoft Operating System (OS) in all its computers that can connect to the Internet with Maya, an Ubuntu-based OS built locally.
- The new OS is currently being rolled out only in the Defence Ministry computers, and not the three Services. While the Navy is said to have cleared Maya for use in its systems, the Army and the Air Force are still evaluating the software.

About Maya:

- Maya has been developed by Indian government agencies within six months.
- It is aimed at preventing malware attacks by cybercriminals who are increasingly targeting critical infrastructure and government agencies.
- The new OS will be backed by a protection system called Chakravyuh. This end point system is also being deployed in the computers that have Maya installed.

How does it differ from Microsoft's Windows?

- While the two operating systems provide a platform for the user to interact with computer hardware, Maya and Windows differ significantly, both in terms of cost and build.
- Windows is a commercial software sold by Microsoft for a license fee. It is the most widely used OS, and is easy to install and run.
- Devices powered by Microsoft's OS run on the Windows NT kernel.
- A kernel is the core of an operating system. It runs on a computer's Random Access Memory (RAM) and gives the device instructions on how to perform specific tasks.
- Prior to building the kernel architecture, programmers used to run codes directly on the processor.
- In the 1970s, Danish computer scientist Per Brinch Hansen introduced the kernel architecture in the RC 4000 multiprogramming system. It separated policy from mechanism in the OS design.

Difference in the core:

- This design was monolithic, meaning a single programme contained all necessary codes to perform kernel-related tasks.
- Limitations in the traditional architecture led to a new kernel design called the microkernel. This design broke down the monolithic system into multiple small servers that communicate through a smaller kernel while giving more space for user customisations. This change allowed developers to run patches easily without rebooting the entire kernel.
- It did have some drawbacks like larger running memory space and more software interactions that reduced the computer's performance.
- Windows runs on a hybrid kernel architecture which is a microkernel design coupled with additional codes that help enhance performance.
- Apple's MacOS also uses a hybrid kernel called XNU.
- And Ubuntu, a Linux OS that was used to build Maya, runs on monolithic architecture. Linux versions are called "distributions" or "distro", and they comprise free and open-source software. In fact, Android is also based on the Linux kernel.

Cyber threats and malware:

- India's switch to the Ubuntu-based Maya OS comes at a time when cyberspace is increasingly becoming vulnerable to malware and ransomware attacks. An almost three-year old cyberattack made governments around the world rethink their cyber strategy.
- In December 2020, cybersecurity firm FireEye, now rebranded as Trellix, discovered a cyber spy campaign that compromised dozens of government agencies and private organisations in the U.S.
- Additionally, IT software provider SolarWinds' network management software, Orion, deployed on hundreds of computers globally was used by hackers

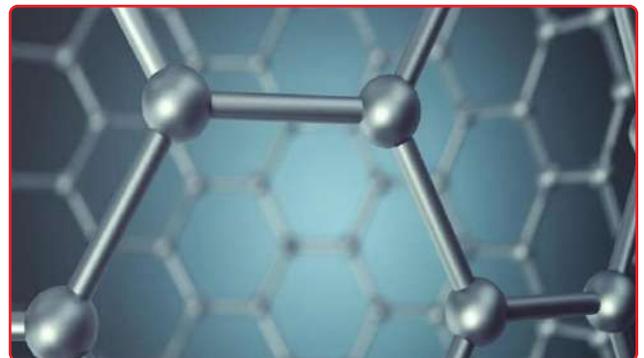
to plant malware masquerading as a software update from the company. Microsoft's own systems were breached in this attack.

- The Redmond-based company also sends software patches, similar to the Orion update, to fix bugs and install updates in users' computers. These kinds of updates are a common affair in proprietary commercial software.

An open source future:

- Such cyber threats arising from proprietary software are once again making global governments look to free and open-source software (FOSS) to develop their own OS.
- Apart from cybersecurity, the reason behind this move is to assist IT modernisation efforts that are underway like digitising government services and making them interoperable.
- While the SolarWinds attack has brought home the graveness of the cyberthreat, the move to Maya underscores the Indian government's emphasis on using open source software to build on the India stack model.

INDIAN SCIENTIST DEVELOPS NOVEL METHOD TO IMPROVE ACCURACY AND PRECISION OF NANOMECHANICAL TESTING TECHNOLOGY



Why in news?

- A novel method to test nanomechanical properties of materials at very minute scales with high precision and accuracy has been developed by an Indian scientist in collaboration with two international institutions.
- The new methodology not only significantly improves the precision and accuracy of what is known as nanoindentation technique or testing of mechanical strength, but enables testing at much higher rates, thus facilitating high throughput.

Nanoindentation technique:

- With Conventional testing methods not always feasible at nano scales, which are usually of the order of 1/100th of the diameter of a human hair, the nanoindentation technique was invented by Dr. Warren Oliver and Dr. John Pethica in the 80s.

- ⇒ The technique has been widely used to measure the strength of semiconductor devices and structural materials that have ubiquitously penetrated every aspect of our daily life through electronic gadgets.
- ⇒ The technique has been used for a wide range of applications from identifying cancerous cells to establishing how meteorites are formed in deep space.

Key Highlights:

- ⇒ The novel approach involved a combination of extensive modeling and simulation to understand the material response during an indentation test and subsequent tailoring of the methodology to improve the precision and accuracy.
- ⇒ The modeling results have also been validated by experiments under extreme conditions.

Way Forward:

- ⇒ Setting the tone for high precision and high accuracy nanoindentation measurements at much higher rates, the new methodology is expected to impact a broad spectrum of scientific research on measuring the strength of materials at small scales.

HOW AI IS USED TO INCREASE THE FREQUENCY OF ACOUSTIC SIDE CHANNEL ATTACKS



Why in news?

- ⇒ Recently, a research paper by the ethics committee of Durham University, U.K., revealed that Artificial Intelligence (AI) can be used to decode passwords by analysing the sound produced by keystrokes.
- ⇒ The paper is titled as "A Practical Deep Learning-Based Acoustic Side Channel Attack on Keyboards".
- ⇒ The study highlighted the accuracy of Acoustic Side Channel Attacks (ASCA) when state-of-the-art deep learning models were used to classify laptop keystrokes and their mitigation.

What are ASCA?

- ⇒ Side Channel Attacks (SCAs) are a method of hacking a cryptographic algorithm based on the analysis of auxiliary systems used in the encryption method.
- ⇒ These can be performed using a collection of signals emitted by devices, including electromagnetic waves,

power consumption, mobile sensors as well as sound from keyboards and printers to target devices. Once collected, these signals are used to interpret signals that can be then used to compromise the security of a device.

- ⇒ In an ASCA, the sound of clicks generated by a keyboard is used to analyse keystrokes and interpret what is being typed to leak sensitive information.
- ⇒ The sound of keyboard clicks has become less profound with devices making use of non-mechanical keyboards, the technology with which the acoustics can be accessed and processed has also improved drastically.
- ⇒ Additionally, the use of laptops has increased the scope of ASCAs as laptop models have the same keyboard making it easier for AI-enabled deep learning models to pick up and interpret the acoustics.

How accurate are Acoustic Side Channel Attacks?

- ⇒ The research investigated the use of audio recordings taken from Zoom video conferencing calls, smartphone microphones, and off-the-shelf equipment and algorithms to launch ASCA attacks.
- ⇒ The study found that when trained on keystrokes by a nearby phone, the classifier achieved an accuracy of 95%, the highest accuracy seen without the use of a language model.
- ⇒ When a deep learning model was trained on the data with default values, the model was able to acquire a meaningful interpretation of the data.

Are such attacks new?

- ⇒ ASCA attacks are not new and have been around since 1950 when acoustic emanations of encryption devices were used to crack their security.
- ⇒ Additionally, the United States National Security Agency (NSA) declassified documents listed acoustic emanations as a source of compromise in 1982.
- ⇒ With the increasing use of AI and the accuracy with which deep learning models can recognise and analyse keystrokes, the threat from ASCA has resurfaced.
- ⇒ Especially since users may not take ample precautions while typing in sensitive information including banking data and password on their laptops in public spaces like coffee shops, airports, and cafes.

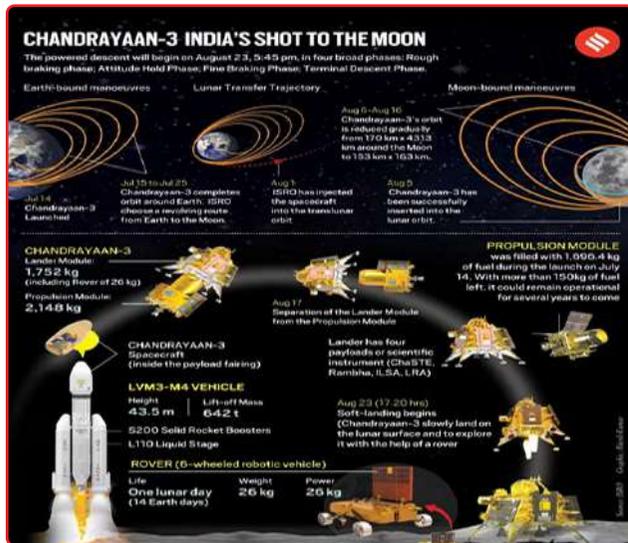
How can users protect against ASCAs?

- ⇒ While there is no explicit means of defence against ASCAs, simple changes to typing could reduce the chances of attacks.
- ⇒ Using touch-based typing can also reduce the chances of successful keystroke recognition from 64% to 40%, making it more difficult for threat actors to leak sensitive information.
- ⇒ Additionally, changes in typing style and creating stronger passwords that use a combination of upper- and lower-case alphabets can make it more difficult for criminals to launch successful ASCA attacks;

the study found that even deep learning models had a difficult time recognising the use of shift key to change the case of alphabets when typing.

- ⇒ Users should also avoid the use of easily recognisable phrases which can make it easier for AI models to predict the text.

AFTER CHANDRAYAAN-3'S LANDING, THE EXPERIMENTS: LUNAR QUAKES AND WATER-ICE ON MOON



Why in news?

- ⇒ After rolling down a ramp from the Chandrayaan-3 lander, the six-wheel, 26-kg rover, which is capable of slowly moving up to 500 metres, will begin its job of lunar exploration.

Details:

- ⇒ The landing has happened at lunar dawn, and the six payloads on board the lander and rover will start collecting data soon after to get as much science as possible in the single lunar day or 14 Earth days for which they will remain operable.

Mission experiments:

The lander has four experiments on board.

- The Radio Anatomy of Moon Bound Hypersensitive ionosphere and Atmosphere (RAMBHA) will study the electrons and ions near the surface of the moon and how they change over time.
- The Chandra's Surface Thermo physical Experiment (ChaSTE) will study the thermal properties of the lunar surface near the polar region. Chandrayaan-3 has landed around 70 degree south latitude, the closest that any spacecraft has reached to the lunar South Pole.
- The Instrument for Lunar Seismic Activity (ILSA) will measure the lunar quakes near the landing site and study the composition of the Moon's crust and mantle.

- The LASER Retroreflector Array (LRA) is a passive experiment sent by NASA that acts as a target for lasers for very accurate measurements for future missions.

There are two scientific experiments on the rover:

- The LASER Induced Breakdown Spectroscope (LIBS) will determine the chemical and mineral composition of the lunar surface.
- The Alpha Particle X-ray Spectrometer (APXS) will determine the composition of elements such as magnesium, aluminium, silicon, potassium, calcium, titanium, and iron in the lunar soil and rocks.

Discovery of water:

- ⇒ The southern polar region of the Moon is known to have deep craters that remain in permanent darkness, with a high likelihood of having water-ice.

Findings by Chandrayaan-1:

- ⇒ Perhaps the most important discovery made by instruments on board Chandrayaan-1 was the discovery of water and hydroxyl (OH) molecules in the Moon's thin atmosphere (exosphere) as well as on the lunar surface.
- ⇒ India's Moon Impact Probe (MIP), a payload that was deliberately crashed on the lunar surface near the South Pole helped study the concentration of water and hydroxyl molecules in the lunar atmosphere.
- ⇒ Another payload called mini-SAR helped detect the subsurface deposits of water-ice in the permanently shadowed regions within the craters near the South Pole.
- ⇒ A third payload developed by NASA called Moon Mineralogy Mapper or M3 also helped detect these molecules on the surface of the Moon.

Chandrayaan-2:

- ⇒ Chandrayaan-2, which was designed to further study the water on the Moon, helped in separately identifying the water and the hydroxyl molecules, and mapping water features across the Moon for the first time.

Buried lava tubes:

- ⇒ The terrain mapping camera and hyperspectral imager on board Chandrayaan-1 detected an underground lava tube, which can provide a safe environment for human habitation in the future.
- ⇒ It can protect against hazardous radiation, small meteoric impacts, extreme temperatures, and dust storms on the surface of the Moon.

Magma ocean thesis:

- ⇒ The Moon is believed to have been formed after an early piece of the Earth separated due to an impact. The energy generated by the impact is believed to have led to the melting of the Moon's surface. This is called the magma ocean hypothesis.
- ⇒ The M3 payload on board Chandrayaan-1 picked up a specific type of lighter-density crystals on the surface

of the Moon, which could be found on the surface only if it were liquid once.

A dynamic Moon:

- Findings from the Chandrayaan-1 mission also showed that the Moon's interior was dynamic and interacted with the exosphere, contrary to the belief that it was dormant.
- The terrain mapping camera found evidence of volcanic vent, lava pond, and lava channels as recent as 100 million years old, indicating recent volcanic activity.
- Measurements of carbon dioxide by the MIP also pointed towards de-gassing from the surface. This shows an interaction of the lunar surface with the exosphere even in the absence of impacts by meteors.

Solar flares:

- The Solar X-Ray Monitor on the Chandrayaan-2 orbiter was able to observe many solar microflares outside the active region as well as the elemental abundance from the not-so-bright solar corona.
- These observations, which were so far only done for larger solar flares, can give scientists clues to the mystery of coronal heating, why the Sun's atmospheric layer (corona) is a million degrees hot even though the surface is just over 5,700 degrees Celsius.

Mapping of minerals

- CLASS X-ray Fluorescence experiment has mapped ~ 95% of the lunar surface in X-rays for the first time. X-ray spectrometers flown to the Moon in the past 50 years together have covered only less than 20% of the surface, according to ISRO.
- Both the Chandrayaan missions have mapped even regions from where sample return missions haven't happened.
- These studies have shown that oxygen is abundant as oxides within the minerals on the Moon. This can be exploited as fuel for future missions.

Way Forward:

- The Chandrayaan-3 payloads will further the science learnings of the two predecessor missions by studying lunar quakes, mineral compositions, and the electrons and ions near the surface of the Moon.
- The mission will attempt to study water-ice, the presence of which was detected by Chandrayaan-1.

WHY DID CHANDRAYAAN-3 LAND ON THE NEAR SIDE OF THE MOON?

Why in news?

- The controlled descent of the Vikram lander of Chandrayaan-3 made it one of the closest approaches of a lunar mission to the moon's South Pole.
- However like most of the lunar-landing missions before, Vikram too landed on the near side, making the Chinese Chang'e 4 mission the only one to have landed on the far side.



What are the moon's 'near' and 'far sides' and is there a 'dark' side?

- The near side refers to the portion of the moon, about 60% that is visible to us. It is always the same side that is visible from Earth because the moon takes the same time to rotate about its axis as it does to circle around the Earth. However this doesn't imply that the half the moon is in perpetual darkness.
- The 'new moon' or when the moon is invisible from Earth is the time when the other 'far side' of the moon is bathed in sunlight and continues to receive light for nearly a fortnight.
- The 'dark side' is thus dark only in the sense that it was mysterious and its various topographical features hidden until the Soviet spacecraft Luna 3 in 1959 photographed it and the Soviet Academy of Sciences released an atlas of these images.
- Astronauts aboard the Apollo 8 mission of 1968 were the first humans to see the far side of the moon.

Is the dark side very different from the near side?

- The major difference between the two sides is that the near side is relatively smoother and has many more 'maria' or large volcanic plains compared to the far side.
- On the far side however, there are huge craters, thousands of kilometres wide, which have likely resulted from collisions with asteroids.
- While both sides of the moon in its formative phase were similarly bombarded, the crust on the near side is thinner because of which, over millions of years, the volcanic lava in the lunar crust has flowed more extensively into the thinner side and filled up its craters.
- The resulting plains that have thus formed are far more conducive to space missions because they provide a relatively flat terrain for landers and rovers.
- Chandrayaan-3 identified an area 2.4 km wide and 4.8 km long that had spots of 150 m spaces that would be conducive to a safe descent.
- China's Chang é-4 lander remains the only one to have successfully landed on the far side. This vehicle landed on the Von Karman crater situated within a larger 2,500 km wide crater called the South Pole Aitken basin.

What's special about the Chandrayaan-3's landing?

- The Chandrayaan-3 mission, while still on the near side, has managed to land Vikram the closest ever to the lunar South Pole. The coordinates of Chandrayaan-3 at 69.36 S and 32.34 E make it about 600 km away from the South Pole.
- The choice of being as close as possible to the South Pole was to get closer to a "permanently shadowed region" or where no sunlight ever reaches. This would mean increasing the chances of encountering frozen water-ice along with several "interesting deposits" that can reveal more about the moon and its harvestable resources.
- The Vikram lander "wasn't exactly in a shadowed region" as it was necessary to shine sunlight on the lander and rover to charge their solar batteries to keep them powered.
- The mission's guiding purpose was to execute a successful controlled or 'soft landing' and the chances of doing that best while being near the South Pole were best served by keeping it in the near side.

Communication after landing on the far side:

- Crucially, landing on the far side would have meant no direct, line-of-sight communication with the Earth, necessary for regular near-real-time updates.
- While the Chandrayaan-2 orbiter (from the 2019 mission) is still functional, its orbit is to be reoriented to function as a relay. This would not only mean moving it further away from the moon in a different elliptical orbit but also delays of up to half a day in transmitting and receiving information.

AS PRAGYAN DIGS DEEP INTO MOON, SCIENTISTS AT A VSSC LAB TURN THEIR GAZE TO SOLAR WIND



Why in news?

- Scientists at the Space Physics Laboratory of the Vikram Sarabhai Space Centre (VSSC) are getting ready to unravel the secrets of the solar wind as the Aditya-L1 mission, meant to study the sun, lifts off in September.

PAPA payload:

- The Plasma Analyser Package for Aditya (PAPA) payload aboard Aditya-L1, one of seven scientific payloads aboard the challenging mission, was developed by the SPL to gain deeper insights into the phenomenon of solar wind, as the constant stream of charged particles from the sun is called.
- The PAPA payload will study the composition of the solar wind.
- It will look at the energy of electrons and the energy and mass of protons and ions in it. The study will also cover the angular variations.

Aditya-L1 mission:

- The ISRO describes Aditya-L1 as the "first space-based Indian mission to study the sun" from a halo orbit around the Lagrangian point 1 (L1) of the sun-earth system.
- Weighing roughly 8 kg, the PAPA payload shares space on the Aditya-L1 spacecraft with six other payloads developed by sister ISRO units and other scientific establishments collaborating with the ISRO.
- The payloads are designed "to study the chromosphere, the photosphere and the outermost layers of the sun using electromagnetic and particle detectors".

Where is Aditya L1 going?

- Aditya L1 will position itself in a halo orbit around the Lagrange point 1 (L1) of the Sun-Earth system, approximately 1.5 million kilometers from Earth.
- This strategic location will enable Aditya L1 to continuously observe the Sun without being hindered by eclipses or occultation, allowing scientists to study solar activities and their impact on space weather in real time.
- The L1 point is a unique location in space where the gravitational pull of two large masses, in this case, the Sun and the Earth, precisely equals the centripetal force required for a small object to move with them.
- This equilibrium allows a spacecraft to maintain its position with minimal energy expenditure.
- The L1 point of the Earth-Sun system affords an uninterrupted view of the sun and is currently home to the Solar and Heliospheric Observatory Satellite SOHO.

Objectives:

- The Aditya L1 mission will take over 100 Earth days after launch to reach the halo orbit around the L1 point.
- The 1,500 kg satellite carries seven science payloads with diverse objectives, including but not limited to, the coronal heating, solar wind acceleration, coronal magnetometry, origin and monitoring of near-UV solar radiation, and the continuous observation of photosphere, chromosphere, and corona.
- One of the major objectives of the mission is to study the reasons behind the formation and composition

of solar wind and space weather. It will also provide information about how coronal mass ejections (CMEs) and solar flares are formed.

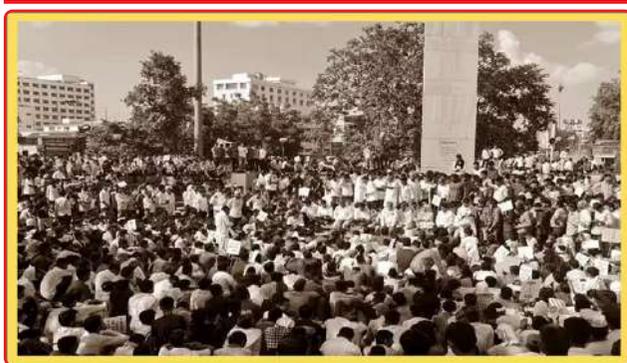
- ⇒ These combined observations promise to unlock the mysteries behind solar dynamics and their effects on the interplanetary medium.

Way Forward:

- ⇒ The ISRO will use an XL variant of the Polar Satellite Launch Vehicle (PSLV) to place the Aditya-L1 spacecraft in a low earth orbit.
- ⇒ Once launched, it will take 125 days to travel to its destination at L1.

SOCIAL ISSUE

PANEL SUBMITS REPORT ON SUB-CATEGORISATION OF OBCS AFTER 6 YEARS



Why in news?

- ⇒ Recently, the Justice G. Rohini Commission for the sub-categorisation of Other Backward Classes (OBC) caste groups submitted its report to the Ministry of Social Justice and Empowerment.

About Justice G. Rohini Commission:

- ⇒ The four-member commission headed by Justice G Rohini, a retired Chief Justice of Delhi High Court, was appointed on October 2, 2017, and received as many as 13 extensions to its tenure.
- ⇒ The commission also had as a member J.K. Bajaj from the Centre for Policy Studies, along with others.
- ⇒ The commission was asked to examine the extent to which reservation and other benefits for OBCs are concentrated among some dominant caste groups.
- ⇒ Based on this, the commission was then tasked with suggesting a breakdown of the over 2,600 caste groups on the Central OBC list so that these benefits could be equitably redistributed.

What is the need for sub-categorisation of OBCs?

- ⇒ OBCs get 27% reservation in central government jobs and admission to educational institutions. There are more than 2,600 entries in the Central List of OBCs, but over the years, a perception has taken root that only a few affluent communities among them have benefited from the quota.

- ⇒ Therefore, there is an argument that a “sub-categorisation” of OBCs, quotas within the 27% quota is needed in order to ensure “equitable distribution” of the benefits of reservation.

- ⇒ The five-judge Bench in ‘E V Chinnaiah vs State of Andhra Pradesh’ had held that no special sub-quota can be introduced within the quota for SCs and STs for the benefit of castes or tribes that were more backward than the others on these lists.

- ⇒ The 2020 verdict of the SC referring ‘Chinnaiah’ to a larger Bench was passed in ‘State of Punjab vs Davinder Singh’ in which the court examined the validity of a 2006 Punjab law that created sub-classification within the SCs, and sought to reserve half the SC quota for certain identified castes.

Way Forward:

- ⇒ The commission has suggested breaking the caste groups into broad categories, with the dominant castes getting the smallest share of the 27% reservation, and the historically crowded-out caste groups getting the largest share of the reservation pie.
- ⇒ Now that the commission's report is with the Social Justice Ministry, the government is expected to hold deliberations on the recommendations contained in it.

STUDY IN INDIA (SII) PORTAL LAUNCHED



Why in news?

- ⇒ Recently, the Ministry of Education launched Study in India Portal in New Delhi.

What is Study in India Portal?

- ⇒ Study in India Portal is a dedicated website that will provide comprehensive information about the Indian Higher Education Institutions (HEIs).
- ⇒ It will illustrate academic programs covering but not limited to undergraduate (UG), postgraduate (PG), Doctoral level programs as well as courses in Indian Knowledge System like Yoga, Ayurveda, classical arts etc.
- ⇒ It will present information about the academic facilities, research support, and related information.
- ⇒ It will now have the provision for students to apply in more than one institute/course of their choice.

- The new portal will provide an integrated one-stop solution for student registration and visa application process.

Key Features:

- Partnership with Premier Education Institutes: The Study in India programme involves partnership with educational institutes fulfilling one of the following criteria:
 - a) National Institutional Ranking Framework (NIRF) ranking (≤ 100)
 - b) National Assessment and Accreditation Council (NAAC) accreditation score (≥ 3.01)
 - c) Institutes of National Importance (INI)
- This ensures premier institutions being the partner to enrolling international students coming to study in India.

What is Study in India programme?

- Study in India is a flagship program of the Government of India, under the aegis of the Ministry of Education (MoE).

Objectives:

- The Study in India programme aims to increase the number of international students in India.
- The program also envisions promoting India as the preferred study destination, providing affordable and quality education comparable with global standards thereby contributing to improving the overall quality improvement in higher education.

Details:

- The Study in India programme offers a streamlined and well-organized application process for international students seeking higher education opportunities in Indian Higher Education Institutes.
- From registration to visa approval, the online platform simplifies the entire journey, enabling students to choose their desired courses, receive institute offer letters, and successfully pursue their academic dreams in India.
- By providing a seamless experience, the SII programme continues to attract talented and ambitious students from around the world to study in India's vibrant and culturally diverse academic environment.

VULNERABLE 'KAMAR' TRIBE IN CHHATTISGARH'S DHAMTARI GETS HABITAT RIGHTS

Why in news?

- The 'Kamar' tribe in Chhattisgarh's Dhamtari district, which is a particularly vulnerable tribal group (PVTG), has received habitat rights.
- It which would help in the protection of their culture and livelihood means and enable the government to work for their development.



Status of Kamar tribe:

- The Kamar tribe families living in 22 settlements in Magarlod development block of Dhamtari district will be benefited by the move.
- The Kamar tribe members mainly reside in Gariaband, Dhamtari, Mahasamund and Kanker districts.
- Their population as per the 2011 census was 26,630.
- The recognition of habitat rights under the Forest Rights Act (FRA) would not only help in protection and promotion of customary arrangements, culture, tradition, livelihood means, habitat of the PVTG by officially documenting them, but also enable the government to work for their empowerment and development of their areas through schemes of various departments.
- This is the first time that habitat rights have been given to a PVTG in the state. With this move, Chhattisgarh has become the second state in the country to have issued such a right to a PVTG after neighbouring Madhya Pradesh.

PVTGs in Chhattisgarh:

- Chhattisgarh has five PVTGs declared by the Centre that include the Abujmadia, Baiga, Kamar, Birhor and Hill Korva, while the state government has given the PVTG status to two tribal groups- Pando and Bhunjia.

What is Habitat rights?

- Habitat rights is a special provision under the Forest Rights Act (FRA)-2006, specially meant for the recognition of traditional rights of PVTG/Pre-agricultural Communities while community forest rights extend to all types of Scheduled Tribes and Other Traditional Forest Dwellers (OTFDs).
- The habitat rights include rights of habitation and customary habitat of a PVTG community.
- Under this, the habitat is defined in four parameters; demographic and geographic composition of the PVTG, socio-cultural parameters and cultural intangibles, economic parameters and ecological and knowledge of biodiversity including traditional knowledge.
- The habitat right is recognised over customary territories.

Habitat of Kamar tribe:

- The territory/habitat of Kamar tribe is divided into sub-habitats which are called as Pali and the sub-habitat comprise multiple para/tola (settlements), the official said.
- Every para/tola has a traditional leader called 'Mukhdihvar' and every Pali has a traditional leader named 'Mudadaar'.
- They have a distinct social structure of administration and cultural system. The habitat right also recognises such social, cultural systems.

Way Forward:

- Efforts will soon be made to give similar rights to the Kamar tribe in other areas of Chhattisgarh as well as other PVTGs in the state.

**BIHAR'S CASTE-BASED SURVEY
FACING LEGAL CHALLENGES**



Why in news?

- The Supreme Court is set to hear petitions challenging the Patna High Court (HC)'s verdict upholding the Bihar government's ongoing caste survey.

What is the 'caste-based survey'?

- The State government launched a two-phase caste survey in Bihar, stating that detailed information on socio-economic conditions would help create better government policies for disadvantaged groups.
- The survey is estimated to collect the socio-economic data for a population of 12.70 crore in the 38 districts of Bihar.
- The first phase of the survey, which involved a house listing exercise, was carried out from January 7 to January 12. The State was in the middle of the second phase, when the survey was halted due to a stay order from the HC in May.
- However, a recent HC verdict dismissed all petitions opposing the move, and the government on resumed work on the second phase of the survey.
- In the second phase, data related to castes, sub-castes, and religions of all people is to be collected. The final survey report can be expected in September.

Why the need for a caste census?

- The Census conducted at the beginning of every decade does not record any caste data other than for

those listed as Scheduled Castes (SCs). In the absence of such a census, there is no proper estimate for the population of OBCs, various groups within the OBCs, and others.

- Despite this ambiguity, the Union government has categorically ruled out conducting a socio-economic caste census, saying it is unfeasible, 'administratively difficult and cumbersome.'
- Responding to a writ petition filed by the State of Maharashtra, the Centre in its affidavit said that excluding any castes other than the SCs and Scheduled Tribes was a 'conscious policy decision' adopted since the 1951 Census, and that there was a policy of 'official discouragement of caste'.
- The Union government in 2011 had undertaken a survey of castes through the Socio-Economic and Caste Census of 2011. However, the collected raw data of nearly 130 crore Indians was never made public due to flaws in the data.

Why is it being challenged?

- The petitions in the Supreme Court contend that the State's order notifying the survey is unconstitutional since only the Centre is exclusively authorised to conduct a census under the Constitution.
- They also point out that the State Government does not have any independent power to appoint District Magistrates and local authorities for collating data, without a notification under Section 3 of the Census Act, 1948 by the Centre.

HC verdict:

- The HC verdict has also been assailed on the ground that it violates the Puttaswamy judgment as it permits the collection of personal data by the State under an executive order.
- However, the HC had observed that the State is competent to frame a policy for better administration and that the policy is not arbitrary. Besides, States "cannot wait on their haunches" for the Centre to carry out a caste census.
- It also dismissed concerns about right of privacy of those surveyed by referring to the triple-test requirements in the Puttasamy judgment.

**HOW IS THE SC TACKLING
GENDER STEREOTYPING?**

Why in news?

- Recently, the Supreme Court of India has released a set of new words and phrases to be used by both lawyers and judges in court.

Details:

- The 'The Handbook on Combating Gender Stereotypes' aims to assist the legal community in "identifying, understanding and combating stereotypes about women.

- It contains a glossary of gender-unjust terms and suggests alternative words or phrases which may be used while drafting pleadings as well as orders and judgments.



What are some of the changes?

- To avoid the use of harmful gender stereotypes in judicial decision-making and writing, the handbook identifies language that promotes such stereotypes, and offers new words.
- For example, under the guidelines, it will be incorrect to say “adulteress”; instead, the following words have to be used: “Woman who has engaged in sexual relations outside of marriage.” It is no longer proper to prefix “chaste” or “obedient” before woman and wife; plain “woman” and “wife” will do.

How should sexual violence be looked at?

- The handbook says an individual who has been affected by sexual violence may identify as either a “survivor” or “victim”.
- Stressing on consent, the guidelines point out that the clothing or attire of a woman must be independent of questions of sexual relations. “A man who touches a woman without her consent must not be permitted to take the defence that the woman invited his touch by dressing in a particular way.”
- There are a host of dos and don’ts on how to handle issues of rape and assault. The Court shatters the stereotype that women who are sexually assaulted or raped file a complaint about the injustice immediately and if they complain after a time, they are lying.

Why are stereotypes harmful?

- On a micro-level, the handbook states that stereotypes lead to exclusion and discrimination at the workplace, educational institutions and in public places.
- It cites the example of a stereotype that individuals from oppressed castes are not as accomplished in school or university in comparison to individuals from oppressor castes. This may cause members of oppressed castes to face additional mental pressure when writing an examination.
- As for women, the OHCHR (Office of the High Commissioner for Human Rights) points out that labels whether overtly hostile (such as “women

are irrational”) or seemingly benign (“women are nurturing”), perpetuate inequalities.

- For example, it says, the traditional view of women as care givers means that child care responsibilities often fall exclusively on women.
- The Supreme Court has taken care of it with these directives: “A person’s gender does not determine or influence their capacity for rational thought,” and “People of all genders are equally suited to the task of caring for others.”

Has the Supreme Court taken up stereotypes in its verdicts?

- The Supreme Court has highlighted verdicts that have rejected stereotypes and which can be utilised by judges to shun gender stereotypes.
- For instance, in Joseph Shine versus Union of India, a Constitution Bench struck down the offence of “adultery” under Section 497 of the Indian Penal Code.
- Observing that the law on adultery was but a codified rule of patriarchy, it said, “Society ascribes impossible virtues to a woman and confines her to a narrow sphere of behaviour by an expectation of conformity.”
- In State of Jharkhand versus Shailendra Kumar Rai, the Court reiterated its categorical ban on the “two finger test” and said it was irrelevant to determination of rape and that it violated the dignity of rape survivors or victims.
- In State of Punjab versus Gurmit Singh, it held that a testimony of a rape survivor or victim is “inherently credible.” The delay in lodging an FIR can be due to a variety of reasons.

Will it have an impact on the ground?

- For Uma Mahadevan-Dasgupta, who is in the IAS, it’s a great first step.
- The table in the handbook, which lays down the stereotype and the reality in two columns side by side, is an important takeaway for her, because it removes so many qualifiers that judge women.

NATIONAL CURRICULUM FRAMEWORK FOR SCHOOL EDUCATION RELEASED



National Curriculum Framework for Foundational Stage

2022

Why in news?

- Recently, the Union Minister for Education released National Curriculum Framework for School

Education (NCF-SE), marking an important and transformative step towards the implementation of National Education Policy.

- He addressed the 1st Joint workshop of the National Curriculum Framework Oversight Committee and the National Syllabus and Teaching-Learning Material Committee.

K. Kasturirangan Committee for NCF-SE:

- Under the stewardship of Prof. K Kasturirangan, a Steering Committee was formed to create a curriculum aligned with the National Education Policy 2020, emphasizing the 5+3+3+4 design of schooling.
- This framework addresses the entire educational journey from foundational to secondary stages.
- The framework introduces multidisciplinary education, nurturing values, fostering creative pedagogies, and preparing students for practical problem-solving.

Details:

- The National Curriculum Framework for School Education (NCF-SE) is the curriculum framework for the 5+3+3+4 design of schooling as proposed by the National Education Policy 2020 (NEP 2020).
- It also recommended the formulation of a new and comprehensive National Curriculum Framework for School Education (NCF-SE) to respond to this four-stage school design.
- The entire curriculum framework was released for all the four stages:
 - a) Foundational Stage
 - b) Preparatory Stage
 - c) Middle Stage
 - d) Secondary Stage

Key Highlights:

- Comprehensive curriculum framework covering all 4 stages of schooling: It comprehensively covers all the four stages of schooling. The NCF-SE has articulated the learning standards to be achieved and the principles for selection of content, pedagogy, and assessments for achieving the learning standards.
- Enable real improvement in practise of education in the country: It is designed to enable and help actual change in practise on the ground. The NCF-SE has made conscious and deliberate effort to communicate to all stakeholders in school education including Curriculum and Syllabus developers, so that it is useable in practical circumstances.
- Learning Standards with clear, specific, and rigorous flow-down: It articulates specific learning standards for all school subjects that gives clear direction for action for all stakeholders in the school system, particularly Teachers. The Learning Standards have defined specific competencies to be achieved at the end of each stage for each school subject.
- Development of Knowledge, Capacities, and Values: The curriculum focuses on development of knowledge

with genuine understanding, fundamental capacities such as critical thinking and creativity, and constitutional and human values.

- Empowering teachers and schools: The NCF-SE designed to enable and empower teachers and schools for the full flowering of their creativity and enhanced engagement.
- Engaging and effective pedagogy: It enables the entire range of age and context appropriate pedagogy, from play-based, activity-based, inquiry-based, dialogue based, and more. This would also use effective, widely available, and highly engaging teaching-learning-material, including textbooks.
- Transforming assessment including exams: Assessment and exams at all levels to be transformed, to enable genuine learning and reduce stress, including the Board exams.
- Importance of School Culture: School culture and practises are to be developed as an integral and important part of the curriculum.
- Rooted in India: The curriculum is rooted in India and is informed by the wealth of Indian knowledge and thought on education. Contributions to the knowledge in various disciplines by Indians from the ancient to contemporary times have been integrated into the curricular goals of all school subjects.
- Multidisciplinary education: All children to go through multidisciplinary education to develop an integrated and holistic perspective and learning.
- Equity and inclusion: The NCF-SE is informed by principles to ensure equity and inclusion in all its aspects, from content and pedagogy, to, school culture and practises.
- Renewed emphasis on Art, and, Physical Education & Well-being: The school subjects of Art Education and Physical Education & Well-being are given a renewed emphasis in the curriculum by defining specific learning standards to be achieved and recommended time allocation in the school timetables. Art Education encompasses both visual arts and performing arts and has equal emphasis on making, thinking about, and appreciating artwork.
- Environmental Education: Responding to the triple challenge of climate change, biodiversity loss, and pollution, and the criticality of environmental awareness and sustainability in today's world, Environmental Education is given due emphasis across all stages of schooling culminating in a separate area of study in the Secondary Stage.
- Vocational Education: The NEP 2020 has made strong recommendations for Vocational Education to be an integral part of school education and the NCF-SE has included specific learning standards, content, pedagogy, and assessments for Vocational Education for all stages of schooling. The curriculum proposes engagement in the three different forms of work –

work with life forms (agriculture, animal husbandry), work with materials and machines, and work in human services.

- **Multilingualism and Indian Languages:** The NCF-SE has given the necessary emphasis on multilingualism and on learning languages native to India. It expects all students to be proficient in at least three languages, at least two of which are native to India.
- **Conceptual understanding and procedural fluency in Mathematics:** The school subject of Mathematics & Computational Thinking has emphasis on conceptual understanding along with procedural fluency. Higher order curricular goals such as problem solving, mathematical thinking, coding, and communication are given due importance.
- **Capacities for Scientific Inquiry:** Science Education emphasises the development of capacities for scientific inquiry along with acquiring knowledge of fundamental theories, laws, and conceptual structures of science in disciplines such as Biology, Chemistry, Physics, and Earth Science.
- **Interdisciplinary understanding of Social Science through themes:** The social science curriculum expects students to systematically study human societies and explore the relationships between individuals, society, the natural environment, social institutions, and organizations. This is to be studied through themes in an interdisciplinary manner in the Middle Stage and developing disciplinary depth in the Secondary Stage.
- **Flexibility and Choice in Secondary Stage:** There are no hard separations between academic and vocational subjects, or between science, social science, art, and physical education. Students can choose interesting combinations of subjects for receiving their school-leaving certificates.
- **Interdisciplinary Areas of Study:** Interdisciplinary Areas of Study has been introduced as a separate subject of study in the Secondary Stage.

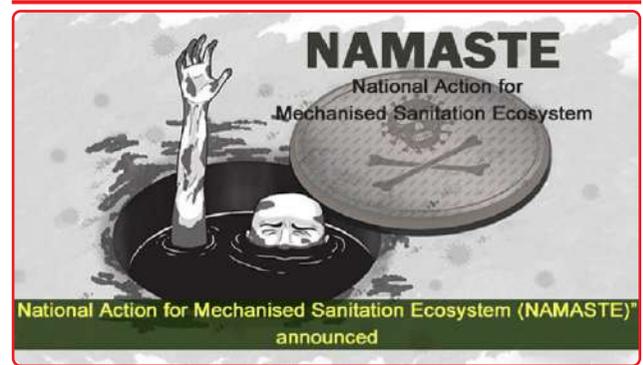
The NCF-SE is organised into five parts:

- a) Part A articulates the broad aims of school education, and the desirable values and dispositions, capacities and skills, and knowledge that are required for achieving these aims. It also lays down the principles and approaches for content selection, pedagogy, and assessment and gives the rationale and design principles for the four stages of schooling.
- b) Part B focuses on some of the important cross-cutting themes of NCF-SE, viz., rootedness in India, education for values, learning and caring about the environment, inclusive education, guidance and counselling, and use of educational technology.
- c) Part C has separate chapters for each school subject. Each of these chapters have Learning Standards defined for all the relevant stages of schooling along with specific guidelines for content

selection, pedagogy, and assessments appropriate for that subject. The part also has a chapter on the Foundational Stage and one on design and range of subjects in Grades 11 and 12.

- d) Part D handles school culture and processes that enable a positive learning environment and inculcate desirable values and dispositions.
- Part E, outlines the requirements for an overall ecosystem of schooling that would enable the achievement of the aims of the NCF-SE. This includes aspects of teacher capacities and service conditions, physical infrastructure requirements, and the role of the community and family.

NATIONAL ACTION FOR MECHANISED SANITATION ECOSYSTEM (NAMASTE)



Context:

- Although, with the efforts under Self Employment Scheme for Rehabilitation of Manual Scavengers (SRMS) and other efforts of the Government, the menace of manual scavenging has been almost eliminated, a number of sewer/septic tank related deaths due to hazardous cleaning of sewers and septic tanks, are reported in the press from time to time.
- Such cases are taken up with the concerned State Government for payment of compensation of Rs.10 lakh as per Supreme Court orders.
- Thus, the main problem these days is hazardous cleaning of Sewer and Septic tanks and non observance of safety precautions due to which precious human life is lost.

About NAMASTE:

- To eliminate hazardous cleaning, stop deaths of sewer and septic tank workers and ensure their safety and dignity, Ministry of Social Justice and Empowerment (MoSJE) and Ministry of Housing and Urban Affairs (MoHUA) have jointly formulated a Scheme namely National Action for Mechanised Sanitation Ecosystem (NAMASTE).
- The existing components of SRMS have been kept as components of NAMASTE Scheme.

➤ The scheme is to be implemented in all 4800+ Urban Local Bodies (ULBs) of the country, during the three years upto 2025-26 with an outlay of Rs. 349.70 crore.

Interventions of NAMASTE Component:

- Profiling of SSWs: NAMASTE envisages profiling of the Sewer/Septic Tank Workers (SSWs). List of SSWs would be obtained from the concerned ULBs and thereafter detailed profiling of the SSWs would be undertaken through profiling camps.
- Occupational Safety Training and distribution of Personal Protective Equipment (PPE) Kits to SSWs.
- Assistance for Safety Devices to Sanitation Response Units (SRUs) for hazardous cleaning operations.
- Extending Health Insurance Scheme Benefits: For providing a safety net to identified SSWs and their families, they will be covered under the Ayushman Bharat- Pradhan Mantri Jan Arogya Yojana (AB-PMJAY). The premium for AB-PMJAY for those identified Manual scavengers and SSWs families who are not covered earlier shall be borne under NAMASTE.
- Livelihood Assistance: The Action Plan will promote mechanization and enterprise development. National Safai Karamcharis Finance & Development Corporation (NSKFDC) will provide funding support and capital subsidy to the Manual Scavengers, sanitation workers and their dependents to procure sanitation related equipment and vehicles under Swachhata Udyami Yojana (SUJ) to make them "Saniprenure". In addition to this, providing capital subsidy to identified manual scavengers and their dependents for self employment project will be continued.
- Identified manual scavengers and their dependents will be provided skill development training for a period upto two years with monthly stipend of Rs.3000/-.
- Convergence of Programmes of MoSJE & MoHUA: The safety of SSWs is a joint responsibility of MoSJE and MoHUA. Hence, the intent of NAMASTE is to strengthen convergence amongst both Ministries for governance and implementation of the NAMASTE components.
 - The Action Plan leverages the available financial allocations of existing SRMS, Swachh Bharat Mission (SBM), Deendayal Antyodaya Yojana-National Urban Livelihoods Mission (DAY-NULM) and NSKFDC and brings in a focused approach to provide occupational, social and financial safety nets to the SSWs.
- IEC Campaign: Massive campaigns would be undertaken jointly by the ULBs & NSKFDC to spread awareness about the interventions of NAMASTE. Electronic and print media and hoardings at prominent locations shall be used for the campaign

in local language and English/Hindi. Maximum use of social media during the publicity would be ensured.

➤ MIS and Website: There will be strong MIS implementation and monitoring with the help of dedicated website for NAMASTE.

What is Manual Scavenging?

- Manual Scavenging under Section 2 (1)(g) of the Prohibition of Employment as Manual Scavengers and their Rehabilitation (PEMSR) Act, 2013 is defined as the lifting of human excreta from insanitary latrines.
- It is not just limited to dry latrines but also applies to cleaning sewers, septic tanks and railway tracks.
- In a landmark judgement (2014) on the prohibition of manual scavenging, the Supreme Court directed that the families of all persons who have died in sewerage work (manholes, septic tanks) since 1993 be identified and for each such death, a compensation of Rs 10 lakh should be given to the family of the deceased.

THE STATE OF SCHOLARSHIPS FOR MINORITIES



Context:

➤ In the past few years, the Centre has discontinued two key educational schemes for religious minorities, narrowed the scope of another and gradually cut down on the expenditure incurred on multiple programmes of the Ministry of Minority Affairs.

Why are there scholarships for religious minorities?

- India is home to over 30 crore (20%) people from religious minority communities. These include six religions notified under Section 2(c) of the National Commission for Minorities Act, 1992.
- Among them, Muslims make up the largest religious minority but face challenges in various sectors. Their participation in salaried jobs is low and many are engaged in the informal sector, characterised by low wages, weak social security and poor working conditions.

Sachar Committee:

➤ The Justice Rajinder Sachar Committee was constituted by the UPA government to look into

the social, economic and educational standing of Muslims in India.

- In the report tabled in Parliament in 2006, the Sachar Committee concluded that the Muslim minority was neglected in almost all dimensions of development.

Ministry of Minority Affairs:

- Around the same time, the Manmohan Singh-led UPA government accepted the long-pending demand for a Ministry of Minority Affairs in 2006.
- The new Ministry was to “ensure a more focused approach” on issues affecting the notified minorities, especially “educational empowerment, economic empowerment, infrastructure development and special needs.”

What are the welfare schemes?

- Over the past 20 years, the Central government has implemented roughly 10 schemes to provide educational empowerment to religious minorities.

Pre-Matric Scholarship Scheme:

- The Pre-Matric Scholarship Scheme was one of the first central sector programmes implemented by the Ministry of Minority Affairs.
- The scholarship was initially awarded to minority students from class 1 to 10 and ranged between ₹1,000 and ₹10,700 for each selected candidate. The scheme has now been discontinued for classes 1 to 8, only covering class 9 and 10 in its revised form.

Post-Matric Scholarship Scheme:

- The Post-Matric Scholarship Scheme was for students of class 11 and above (till Ph.D).
- It aimed to give minority students access to quality higher education, with a scholarship ranging between ₹2,300 and ₹15,000. The funds for this scheme increased from ₹515 crore to ₹1,065 crore this fiscal year.

Merit-cum-Means based Scholarship Scheme:

- The Merit-cum-Means based Scholarship Scheme targeted professional and technical courses at undergraduate and post-graduate levels.
- Eligible candidates in any of the 85 institutes listed under the scheme are reimbursed full course fees, while those in other institutions are reimbursed course fees worth ₹20,000 per annum.
- The scholarship scheme saw a major reduction in funds in 2023-24. It was allotted ₹44 crore in 2023, while last year's allotment was ₹365 crore.

Maulana Azad National Fellowship (MANF):

- Another central sector scheme was the Maulana Azad National Fellowship (MANF). The scheme provided financial assistance for five years to research scholars pursuing M.Phil and Ph.D. from institutions recognised by the University Grants Commission (UGC).
- Under the scheme, junior research fellows received a grant of ₹31,000 for the first two years while senior

research fellows got ₹35,000 per month for the remaining tenure.

Padho Pardesh scheme:

- The Padho Pardesh scheme was launched to provide better opportunities for higher education abroad, providing an interest subsidy on education loans for overseas studies to students belonging to economically weaker sections of minority communities.
- However, this scheme was discontinued from 2022-23. The scheme benefited 20,365 beneficiaries since its inception in 2006.

Begum Hazrat Mahal National Scholarship:

- The Begum Hazrat Mahal National Scholarship was for meritorious girls to pursue higher secondary education and was provided by the Maulana Azad Education Foundation (MAEF).
- The scholarship has had zero allocation in 2023.

Naya Savera:

- The Naya Savera was a separate programme launched to provide free coaching to minority students for entrance to technical and professional courses and competitive examinations.
- In the Union Budget 2023-24, the scheme was allotted ₹30 crore but the Centre has since discontinued the scheme stating that the New Education Policy 2020 does not support coaching programmes.

Scheme for Providing Education to Madrasas and Minorities (SPEMM):

- The Scheme for Providing Education to Madrasas and Minorities (SPEMM), a centrally sponsored umbrella programme, has a sub-scheme, the Scheme for Providing Quality Education in Madrasas (SPQEM), under which recognised madrasas receive financial assistance to introduce ‘modern’ subjects such as science, mathematics, social studies, Hindi and English in their curriculum.
- The scheme was allocated ₹10 crore for the financial year 2023-24 – more than 90% less than the allocation in 2022-23, which was ₹160 crore.

How much has the budget reduced?

- An analysis of the latest Ministry of Minority Affairs data shows that beneficiaries of the first six central educational schemes mentioned above dropped by around 7% in three years, between 2019 and 2022. While a total of 67.3 lakh minority students were awarded scholarships in 2019-20, only 62.6 lakh benefited in 2021-22.
- The MANF and the Begum Hazrat Mahal National Scholarship took the biggest hit during this period; MANF beneficiaries dropped from 2,580 in 2019-20 to 2,061 in 2021-22, while girls benefiting under the scholarship saw a dip of 44% in three years.
- The expenditure on the six schemes also declined by 12.5%.

- The Budget allocation for the Ministry of Minority Affairs this fiscal reduced by 38% as compared to the year 2022-23 when it was allocated ₹5,020.5 crore (revised to ₹2,612.6 crore).
- A 2022 report by the Centre for Budget and Governance Accountability (CBGA) highlighted a “declining trend” in the share of the overall budget expenditure towards minorities.
- The CBGA found that the allocation of funds for the year 2022-23 was not in line with proportional representation of minorities.
- It also concluded that utilisation of the budget under the scholarship schemes appeared to take place in the last quarter of each financial year, which meant that beneficiaries were receiving their scholarships only towards the end of the academic year.

Why is educational aid necessary?

- As pointed out by the NITI Aayog in its Strategy Document-2018, affirmative action is the need of the hour to improve the socio-economic status of religious minorities, particularly Muslims, who continue to lag behind the rest of the population in several areas.
- There is a significant disparity in education accessibility between Muslims and the general population, with Muslim representation in total enrolment declining as one moves to higher levels of education.
- Experts worry that scrapping scholarships and limiting the scope of others such as the pre-matric scholarship and the Begum Hazrat Mahal National Scholarship will adversely affect the community and impact their enrolment rate, which is already worrisome.

All India Survey on Higher Education (AISHE):

- The All India Survey on Higher Education (AISHE), 2020-2021, conducted by the Ministry of Education, revealed that Muslim students were significantly behind other communities in terms of higher education enrolment.
- While overall enrolment recorded a 7.5% increase, the enrolment of Muslim students dropped from 5.5% (21 lakh) in 2019-20 to 4.6% (19.21 lakh) in the academic year 2020-21. Of the total 4.13 crore college students, less than 20 lakh Muslims are enrolled in higher education institutes.

What is the way forward?

- NITI Aayog has suggested enhancing pre-matric, post-matric and merit-cum-means scholarships as well as the MANF and national overseas scholarships, recommending a 15% annual increase from 2019-20.
- It also recommended increasing the number of scholarships for girls from minority communities by 10% every year.

HEALTH

IRAQ ELIMINATES TRACHOMA AS A PUBLIC HEALTH PROBLEM



Why in news?

- Iraq has now joined the league of 17 other countries that have eliminated trachoma, the World Health Organization (WHO) announced recently.

100-country target:

- The country is also the 50th to be acknowledged by the WHO for eliminating at least one neglected tropical disease globally.
- This major milestone is the halfway mark to the 100-country target set for 2030 in the WHO road map for neglected tropical diseases.

Iraq's national trachoma programme:

- Iraq established its national trachoma programme in 2012 to coordinate the final domestic push against the disease.
- A trachoma surveillance system was developed to detect and manage cases within secondary and tertiary eye care facilities, as well as through school pre-enrollment and school eye screening programmes conducted in collaboration with the Ministry of Education.

Burden of trachoma:

- Trachoma is the world's leading infectious cause of blindness and is one of the conditions known as neglected tropical diseases.
- The disease is still known to be endemic in six countries of the WHO's Eastern Mediterranean Region.
- There has been substantial progress in the number of people in the region requiring antibiotic treatment for trachoma elimination purposes, which has fallen from 39 million in 2013 to 6.9 million in April 2023.

Symptoms and transmission:

- Trachoma starts off as a bacterial infection caused by Chlamydia trachomatis and can be easily treated. Over time, it causes the eyelashes to be pushed inward into the eye. So with every blink, they brush against the eyeball.

- This advanced form of trachoma is called trichiasis. Over time, if it's not treated, trichiasis can lead to blindness.
- The disease thrives where there are water shortages, poor sanitation and infestations of flies, which are considered physical vectors of the disease.

SAFE strategy:

- To eliminate trachoma as a public health problem, WHO recommends the SAFE strategy, a comprehensive approach to reduce transmission of the causative organism, clear existing infections and deal with their effects.
- The SAFE strategy includes: Surgery to treat the blinding stage (trachomatous trichiasis); Antibiotics to clear the infection, particularly the antibiotic azithromycin; Facial cleanliness and Environmental improvement, particularly improving access to water and sanitation.
- The 17 other countries that have eliminated trachoma are: Benin, Cambodia, China, Gambia, Ghana, Islamic Republic of Iran, Lao People's Democratic Republic, Malawi, Mali, Mexico, Morocco, Myanmar, Nepal, Oman, Saudi Arabia, Togo and Vanuatu.

PARLIAMENT PASSES NATIONAL NURSING AND MIDWIFERY COMMISSION (NNMC) BILL, 2023



Why in news?

- In a landmark move aimed at bringing transformative changes to the nursing education and practice landscape, the Parliament has passed the National Nursing and Midwifery Commission (NNMC) Bill, 2023.
- The Act will replace the existing Indian Nursing Council with a modern regulatory structure, marking a significant legislative reform in the sector.

Key Highlights:

Establishment of National and State Commissions:

- Under the NNMC Act, a National Nursing and Midwifery Commission and Autonomous Boards at the National level will be established.
- Corresponding State Nursing and Midwifery Commissions will also be set up to regulate and maintain education and service standards, oversee

professional conduct, and manage online and live Registers.

Tenure and Accountability:

- One of the pivotal reforms introduced by the Act will be the provision of fixed tenures for members and the chairperson of the Commission, eliminating reappointment and preventing vested interests. This measure ensures transparency and accountability among regulators in the nursing education sector.
- The Act will also grant the government the authority to issue directions to the Commission in the interest of the public.

Uniform Admission Process and Competence:

- The National Commission will implement a standardized admission process to ensure consistency across nursing education.
- It will focus on maintaining the competence of nursing and midwifery professionals to ensure high-quality healthcare services.

Embracing Innovation and Collaboration:

- The NNMC Act will encourage the use of cutting-edge technology and innovation in nursing education.
- The Commission will collaborate with industry and other institutions to foster synergy, excellence, and research in the nursing field.

Development of Soft Skills and Specialized Courses:

- The Act will emphasize on the development of soft skills among registered professionals and recognizes specialized courses and certification programs in nursing and midwifery.
- This move aims to enhance the expertise of nursing professionals in various domains.

Global Mobility and Expertise:

- The NNMC Act will seek to facilitate global mobility and employability of Indian nurses by inviting foreign experts and domain specialists to participate in the National Commission's meetings.
- This international collaboration will contribute to enhancing the skills and expertise of Indian nurses.

National Advisory Council and Coordination:

- The Act will provide for the formation of a National Advisory Council to ensure balanced representation from all states and Union Territories. This Council will offer advice on matters related to nursing education, services, training, and research.
- Additionally, joint sittings with relevant statutory bodies, including the National Medical Commission, Pharmacy Council of India, National Commission for Allied and Healthcare Professions, National Commission of Indian system of Medicine, and National Commission of Homeopathy, will promote a team-based approach to healthcare delivery.

Way Forward:

- It is a crucial milestone that underscores the government's commitment to nurturing a highly skilled and competent nursing workforce, thus ensuring the delivery of quality healthcare services to the nation.

LOK SABHA PASSES ANUSANDHAN NATIONAL RESEARCH FOUNDATION BILL FOR RESEARCH



Why in news?

- Recently, the Lok Sabha passed the Anusandhan National Research Foundation Bill to set up a national agency to fund research across universities in the country
- Science and Technology Minister Jitendra Singh had introduced the Anusandhan National Research Foundation Bill.

National Research Foundation (NRF):

- The National Research Foundation (NRF) will be set up with a budget of about 50,000 crore for a period of five years, with Rs 10,000 crore from the government, Rs 4,000 crore from the Science and Engineering Research Board (SERB) and Rs 26,000 crore from places like the private sector, from philanthropists or other aid.
- The NRF will focus on creating a policy framework and putting in place regulatory processes that can encourage collaboration and increased spending by the industry on R&D.

The bill seeks to set up different funds –

- a) the Anusandhan National Research Foundation Fund, for the financing of activities under the Act;
- b) the Innovation Fund for supporting outstanding creativity in the areas supported by the Foundation;
- c) the Science and Engineering Research Fund for continuation of the projects and programmes initiated under the Science and Engineering Research Board Act, 2008; and
- d) one or more Special Purpose Funds for any specific project or research.

Composition:

- It will have a governing board consisting of 15 to 25 eminent researchers and professionals, and it will

be headed by the Prime Minister. The Education Minister and the Science and Technology Minister will be the vice presidents of the NRF. There will also be a provision to nominate members to bring in the private sector.

- The proposed foundation will also have an executive council under the principal scientific advisor.

Way Forward:

- It will foster a culture of research and innovation throughout India's universities, colleges, research institutions, and R&D laboratories.

CAN IMPROVED NUTRITION HELP PREVENT TB?



Why in news?

- According to recent reports, nutritional support has helped prevent both tuberculosis (TB) among household contacts and mortality among TB patients in a trial in Jharkhand.

Why it matters?

- In 2017, the World Health Organization had estimated that undernutrition is responsible for twice the number of TB cases than HIV globally.
- Any attempt to end/eliminate TB in India by 2025 will become possible only if undernutrition among people is addressed. As per conservative estimates, 40% of new TB cases annually in India are due to undernutrition.

What are the key achievements of the trial?

- A large field-based trial was undertaken between August 2019 and August 2022 in four districts of Jharkhand.
- The RATIONS (Reducing Activation of Tuberculosis by Improvement of Nutritional Status) trial enrolled 2,800 people with pulmonary TB disease and 10,345 household contacts of TB patients.
- While all the TB patients received nutritional support, household contacts were randomly assigned to receive either nutritional support or usual diet alone.
- Among the household contacts, nutritional support led to a 39%-48% reduction in TB disease in the intervention group compared with the control arm.

- In the study that lasted for six months, 122 people in the control group developed TB whereas the intervention arm had only 96 TB cases.
- There was a 39% reduction in TB incidence while there was 48% reduction in pulmonary TB.
- The 39%-48% reduction in TB disease in the household contact intervention arm was after adjusting for confounding factors such as TB preventive treatment to children below five years, diabetes, smoking, and alcohol use.

What was the nutritional support provided?

- Each adult household contact in the intervention arm received 5 kg of rice, 1.5 kg of split pigeon peas (tur dal), and micronutrient pills every month for six months.
- Each child (below 10 years) household contact received 50% of the adult nutrition support. Those in the control arm did not get any nutritional supplementation.
- For TB patients, monthly nutritional support included 5 kg of rice, 1.5 kg of milk powder, 3 kg of roasted chickpea flour, 500 ml of oil, and micronutrient pills for a period of six months for people with drug-susceptible TB, and 12 months for people with MDR-TB.

What effect does undernutrition have?

- Many new cases of TB are attributable to five risk factors: undernourishment, HIV infection, alcohol use disorders, smoking (especially among men) and diabetes.
- In TB-endemic countries such as India, undernutrition is the most widely prevalent risk factor, accounting for the "highest population attributable risk for TB in India". It is also responsible for increased TB disease severity, higher mortality and poor treatment outcomes.
- A study in India found that severe undernutrition at diagnosis was associated with a two-fold higher risk of death. For each unit reduction in BMI, the risk of TB increases by about 14%.
- Undernourished patients also tend to have poor bioavailability of drugs such as rifampicin, leading to treatment failure and development of multidrug resistance.

How do schemes like Nikshay Poshan Yojana and Ni-kshay Mitra help?

- Nikshay Poshan Yojana is a direct benefit transfer (DBT) scheme for nutritional support to TB patients.
- It was launched in 2018. All notified TB cases are provided with a financial incentive of ₹500 per month.

ARE TURMERIC SUPPLEMENTS ADVISABLE?

Why in news?

- Australia's Therapeutic Goods Administration (TGA), recently issued a medical advisory warning

Australians of the risk of liver injury from using medicines and herbal supplements containing turmeric or its active ingredient, curcumin.



Why this was advisory issued?

- The TGA said that until June 29, 2023, it had received 18 reports of liver problems experienced by consumers taking products containing curcuma longa (turmeric) and/or curcumin.
- These followed an investigation the agency undertook to review the safety of the products, after instances of their consumption and liver injury were reported in Australia and internationally.
- The evidence from nine of these reports had enough information to suggest that a liver injury may have been caused by curcuma longa or a curcumin product. Two of these cases were severe, including one that resulted in death.
- The TGA's verdict, following the investigation, is that there is a "rare risk" of liver injury from taking curcuma longa and/or curcumin in medicinal dosage forms.
- People with existing or previous liver problems were more likely to develop this rare adverse event. There are over 600 listed medicines, legally available in Australia, that contain these curcuma species and/or curcumin.

Does turmeric have health benefits?

- The TGA warning says that the risk of liver injury did not appear to relate to curcuma longa consumed in "typical" dietary amounts as a food.
- As a staple ingredient in South and South East Asian cuisine, turmeric is also used in Ayurvedic and Chinese-medicine concoctions.
- Several studies, over the last five decades, have investigated the properties of curcumin and report it to have anti-oxidant properties that can help with inflammation. These include arthritis and infections.

Is Australia the only country to warn about turmeric supplements?

- The Australian TGA cites reports of 20 hepatitis cases in France and an investigation by ANSES, the French Agency for Food, Environmental and Occupational Health & Safety, into 100 reports of adverse effects,

including 15 reports of hepatitis, potentially related to the consumption of food supplements containing turmeric or curcumin.

- The ANSES report underlines that turmeric has "choleretic" properties, which means it stimulates the secretion of bile to improve digestion, and therefore, it is advisable that those with bile duct disease should avoid turmeric.
- Curcumin could also interact with medications such as anticoagulants, cancer drugs and immunosuppressants, reducing their safety and effectiveness.

Is there a 'safe limit' on the amount of turmeric that can be consumed?

- The European Food Safety Authority has set an acceptable daily intake of 180 mg of curcumin per day for a 60 kg adult as the safe level of consumption.
- A World Health Organization/Food and Agricultural Organisation advisory recommends 3 mg/kg of body weight.
- India's Food Safety and Standards Authority of India has standards that packaged turmeric must comply with but nothing on the recommended dietary allowance.

INDIA'S ULTRA-FOOD PROCESSING SECTOR GROWING, WHO CALLS FOR NUTRIENT-BASED TAX MODEL



Why in news?

- India's ultra-processed food sector grew at a compound annual growth rate of 13.37 per cent in retail sales value from 2011 to 2021, a report by the World Health Organization with the Indian Council for Research on International Economic Relations found.
- The upward trend needs to be curtailed with policy interventions to prevent an obesity epidemic in India similar to what some western countries are experiencing.

What are ultra-processed food?

- The ultra-processed food as those with a long shelf life and generally have five or more ingredients, including but not limited to preservatives, emulsifiers, sweeteners and artificial colours and flavours.

- They are a key risk factor for non-communicable diseases early in life, as documented by several researchers.

Ultra-processed food sector:

- The Indian ultra-processed food sector's annual growth rate declined sharply when the pandemic first struck, dropping from 12.65 per cent in 2019 to 5.50 per cent in 2020, the report showed.
- However, a significant rebound in sales occurred the following year when an 11.29 per cent growth was observed during 2020-2021.
- Chocolate and sugar confectionery, salty snacks, beverages, ready-made and convenient foods and breakfast cereals were identified as the five popular categories of ultra-processed foods.

Share of beverages:

- In terms of retail sales volume, the share of beverages was the highest during 2011-2021, followed by chocolate and sugar confectionery and ready-made and convenience food in the second and third place, respectively, the analysis highlighted.
- Among beverages, the retail volumes in 2021, concentrates / squashes accounted for 77 per cent of the market (a decline from 80 per cent in 2011), followed by soft drinks / concentrates at 13 per cent and juices at 9 per cent.
- In the chocolate and sugar confectionery category in 2021, the subcategory of sweet biscuits accounted for over 43 per cent of the market share in terms of retail sales value.
- Retail sales of salty snacks rose at a rate of 16.78 per cent from 2011 to 2021, the data indicated. High salt content can make consumers vulnerable to hypertension and heart and kidney diseases, among others.

Recommendations:

- The report made recommendations to help India attain nutritional security and meet the United Nations-mandated Sustainable Development Goals by 2030.
- The Food Safety and Standards Authority of India (FSSAI), in consultation with other stakeholders, should come up with a clear and transparent definition of High Fat Sugar Salt (HFSS) food.
- Once the FSSAI defines HFSS foods, the GST Council needs to link their tax structure with the HFSS food definitions.
- A nutrient-based tax model focuses on higher taxes for products which have fat, sugar, and salt beyond the recommended levels and lower taxes for the healthier and reformulated options.
- India's policies and programmes such as Saksham Anganwadi and Poshan 2.0 do not adequately cover the issue of overnutrition and unhealthy diet-related diseases.

Way Forward:

- Low intake of whole grains was the leading dietary risk factor for the increased prevalence of NCD-induced deaths, mostly cardiovascular diseases and diabetes, in India, according to the Global Burden of Disease study in 2019.
- The authors of the report called for a nutritional transition to a healthier lifestyle.

WHAT IS THE CARE PROTOCOL FOR BABIES IN INDIA?

**Why in news?**

- Former British nurse Lucy Letby was sentenced to life in prison recently after being found guilty in the worst child serial killer case in the history of the U.K. Letby was convicted of murdering seven babies and trying to kill six others while working at the Countess of Chester Hospital.

What are patient safety provisions in India?

- Patient safety is a fundamental element of public healthcare and is defined as the freedom for a patient from unnecessary harm or potential harm associated with provision of healthcare, as per the Union Health Ministry document titled, 'National Patient Safety Implementation Framework (2018-2025).'
- Patients in India are protected under multiple layers of law that are largely fragmented. The first idea of patient safety is enshrined in the Hippocratic Oath itself.
- Additionally, the Consumer Protection Act deals with medical negligence and deficiency of services; legal rights of the patients are set out in the Clinical Establishment Act, and the National Pharmaceutical Pricing Authority and Drugs Controller General of India have mechanisms to see that patients' rights in terms of medication and devices are protected and that they are not overcharged, among other things.

How is neonatal safety maintained?

- While there are no exclusive rules for neonatal care and safety, or protection against external harm in Indian hospitals, there are provisions and checks against issues like inadvertent mix-up of babies at birth and abduction.

- The healthcare staff is also trained to counsel parents and provide emotional support, contributing to the safety and development of neonates.
- The adequate staffing ensures that trained healthcare providers can closely monitor each baby's condition and respond swiftly to any concerns.
- Proper equipment for respiratory support, temperature regulation, and monitoring vital signs are readily available. Neonates are typically kept in controlled environments to avoid exposure to external infections and temperature fluctuations.
- Parental involvement is encouraged but with precautions to prevent the spread of infections.

What are some of the issues neonates face?

- Although the global number of neonatal deaths declined from 5 million in 1990 to 2.4 million in 2019, children face the greatest risk of death in their first 28 days, according to the World Health Organization. Its data shows that in 2019, 47% of all under-five deaths occurred in the newborn period with about one third dying on the day of birth and close to three quarter dying within the first week of life.
- The current infant mortality rate for India in 2023 is 26.6 deaths per 1,000 live births, a 3.89% decline from 2022. The infant mortality rate for India in 2022 was 27.6 deaths per 1,000 live births, a 3.74% decline from 2021.
- Children who die within the first 28 days of birth suffer from conditions and diseases associated with lack of quality care at birth or skilled care and treatment immediately after birth and in the first days of life.
- Pre-term birth, intrapartum-related complications (birth asphyxia or lack of breathing at birth), infections and birth defects cause most neonatal deaths.
- Women who receive midwife-led continuity of care (MLCC) provided by professional midwives, educated, and regulated to international standards, are 16% less likely to lose their baby and 24% less likely to experience pre-term birth.

CULTURE

GOVT. PLANNING LAW ON PROTECTION OF INDIAN MANUSCRIPTS



Why in news?

- The government is planning to introduce the National Manuscripts Bill, 2023.
- The primary aim of the Bill is to document and catalogue Indian heritage texts wherever they may be in India or abroad, maintain accurate and up-to-date information about them, and detail the conditions under which they may be consulted.

Why it matters?

- The Bakhshali manuscript, an ancient Indian mathematical text written on birch bark, is considered to be the earliest recorded example of the use of zero.
- The seminal text, dating back roughly to the third or fourth century AD, is in one of the Bodleian Libraries of the University of Oxford.
- Many other Indian manuscripts lie in libraries across the globe or are with private collectors, both in India and abroad.

National Manuscripts Authority:

- The Bill envisages setting up a 10-member National Manuscripts Authority (NMA).
- While the Culture Minister will be the Chairperson of this body, the members will include the Secretaries of Culture, Finance and Education, the Vice-Chancellor of Central Sanskrit University, special invitees representing the States, and private agencies.

Functions & powers of NMA:

- The NMA will have the powers of a civil court to regulate the allocation of access to manuscripts and will also have an investigation wing for the purpose of conducting an inquiry into thefts and desecration of texts. It will also ensure that the manuscripts are not lost by damage or theft.
- It can collaborate with universities and other educational institutions or agencies to provide fellowships and scholarships for study of manuscripts.
- The NMA will also prepare a dedicated digital portal for indexing, cataloguing, uploading, and downloading copies of manuscripts.
- It will be vested with the right to take over a manuscript from a private owner based on the uniqueness and the importance of the content. The sum to be paid will be fixed by an expert committee.

What is Manuscript?

- Manuscripts are written on materials such as palm leaf, paper, cloth, and bark on themes ranging from history and religion to literature, astrology, and agricultural practice.
- While 75% of the existing manuscripts are in Sanskrit, 25% are in regional languages.
- India possesses an estimated 10 million manuscripts in 80 ancient scripts such as Brahmi, Kushan, Gaudi, Lepcha, and Maithili.

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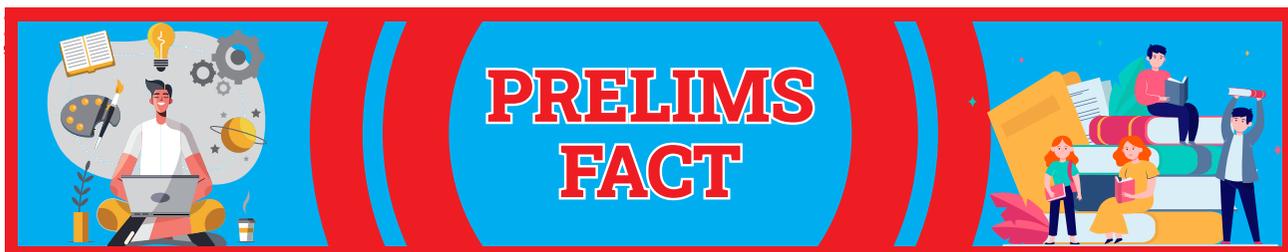
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POLITY & GOVERNANCE

VILLAGES, CITIES TO DISPLAY PLAQUES ON LOCAL BRAVEHEARTS



Why in news?

- Recently, the Prime Minister announced that 'Meri Mati Mera Desh' campaign will be launched before Independence Day in honor of the country's martyrs.
- Under this, the soldiers of the three armies will take part in the 'Meri Mati, Mera Desh' campaign from August 9 to 15, 2023.

Key Highlights:

- Villages and cities across the country will install a memorial plaque each in their limits with names of local heroes, along with a quote by Prime Minister from August.
- Freedom fighters and defence, Central Armed Police Force and State police personnel who laid down their lives in the line of duty will have their names inscribed on the plaque.
- The plaques, Shilaphalakam, will come up as part of a campaign called Meri Mati, Mera Desh.
- The plaques will be installed near waterbodies, if available, or near panchayat offices and schools.
- The specifications of the plaques, including dimensions and the model art work to be used, have been shared on a portal designed for the purpose.

Amrit Vatika:

- Youth volunteers would collect soil from each panchayat or village and bring them to the block level. From each block, an urn containing all the soil would be brought to the national capital.
- In urban areas, the urns would be brought to the larger municipalities and towns from smaller local bodies before being brought to the capital.

- 8,000 urns were expected in Delhi where they would be used to create a garden, Amrit Vatika. A memorial would also be constructed.

LOK SABHA PASSES BILL TO EMPOWER PRESIDENT WITH MANAGEMENT OF IIMS



Why in news?

- The Lok Sabha recently passed a Bill seeking to entrust the management accountability of the IIMs with the President, who will be a Visitor and have powers to audit their functioning, remove directors and nominate a member in the selection committee.

Mandate:

- The Indian Institutes of Management (Amendment) Bill, 2023, will only ensure its management accountability as the Centre has spent over Rs 6,000 crore in setting up the IIMs.
- Under the existing dispensation, the President of India is also a visitor at IITs and NITs, but no questions are being raised on the academic autonomy of these institutes.

Key Highlights:

- The Bill seeks to amend the IIM Act of 2017, the President will be a Visitor to the Indian Institutes of Management (IIMs) with powers to audit their functioning, order probes and appoint as well as remove directors.
- The Visitor may appoint one or more persons to review the work and progress of any institute, to hold enquiries into affairs thereof and to report in such manner as the Visitor may direct.
- The board may also recommend to the Visitor an enquiry as deemed proper against the institute which has not been functioning in accordance with provisions and objectives of the Act.

Board of governors:

- Under the IIM Act, which came into force in January 2018 and granted the premier B-schools greater autonomy, the board of governors of each institute has 19 members which includes just one representative each from the central and state governments.
- The board nominates its remaining 17 members from among eminent personalities, faculty and alumni.
- It also appoints the search panels for the appointment of new directors and chairpersons, and later, makes the appointments if it agrees with the search panels' recommendations.
- However, according to the amendment Bill, the search-cum-selection panel for the director's appointment will have a Visitor's nominee.

WHY ARE ROHINI PANEL'S FINDINGS IMPORTANT?



Why in news?

- The Justice G. Rohini-led Commission on the sub-categorisation of Other Backward Classes groups, constituted in October 2017, submitted its report to the President of India recently, after having received 14 extensions in the last six years.
- The Commission was initially asked to finish its report in 12 weeks.

What has the Commission examined?

- The President had formed the Commission headed by former Delhi High Court Chief Justice G. Rohini in October 2017, to examine the question of sub-categorising the over 2,600 caste groups listed in the Central OBC list.
- The Commission was tasked with first examining how much of 27% reservation (jobs and education) and other government benefits meant for OBCs was dominated by which caste groups.
- The Commission had arrived at the conclusion that a small number of caste groups among all OBC groups, were dominating reservation and other government benefits.
- It went on to explore ways of sub-categorising these existing OBC groups in order to make sure benefits can be redistributed equitably. This involved breaking

up all OBC caste groups into further categories based on how dominant the communities have been in availing government benefits meant for OBCs.

- Subsequently, the Commission proceeded to work out a formula for breaking up the caste groups in a way that would make the highest share of the 27% reservation pie available to the groups that have historically been crowded out of them; and the least share of the pie going to caste groups that have so far dominated this sphere.
- It was also tasked with rationalising the Central OBC list by suggesting corrections and replacements in spellings, which will result in minor changes to the entries.

Why are the findings significant?

- With the Rohini Commission's findings expected to throw up exact numbers on OBC communities that have availed benefits since reservation for them began in 1992, this data set will for the first time show the changes, if any, in the socio-economic status of OBC communities that have historically been able to avail benefits.
- It will inevitably have a direct effect on the electoral mathematics of political parties, where communities that have been dominating benefits are also politically dominant.

SC TO APPOINT ALL-WOMAN PANEL TO OVERSEE RELIEF IN MANIPUR

By order of the Supreme Court

A Bench, headed by the Chief Justice of India, took the following decisions to help out the affected people in Manipur

<ul style="list-style-type: none"> ■ To appoint three former women High Court judges to provide a 'healing touch' ■ To order DGPs of six States to name six DIG-rank officers to take charge of six SITs each ■ To enforce multiple layers of monitoring 	<p>of the investigation</p> <ul style="list-style-type: none"> ■ To make five officers of the rank of DSP or SP from other States part of the CBI ■ To make the officers carry on the investigation under supervision of a CBI Joint Director
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Why in news?

- Recently, the Chief Justice of India announced in open court that the Supreme Court would appoint an all-woman committee of three former High Court judges.

Composition:

- It will be headed by Justice Gita Mittal, former Chief Justice of the Jammu & Kashmir High Court, to provide a "healing touch" in violence-torn Manipur.
- Justice Shalini Phansalkar Joshi, a retired Bombay High Court judge, and Justice Asha Menon, a former Delhi High Court judge, will be the members of the committee.

Terms of reference:

- This will be a broad-based committee which will be constituted to supervise, intervene and monitor relief and rehabilitation, restoration of homesteads, religious places of worships, better relief work, etc.

Inquiry by Manipur govt:

- The Manipur government, represented by Solicitor General Tushar Mehta, said it has transferred 11 FIRs concerning sexual violence committed against women, including the Thoubal sexual violence incident, to the Central Bureau of Investigation (CBI).
- As for the other cases, which would remain with the Manipur Police, the State government said it had formed 42 special investigation teams (SIT).

Monitoring by SC:

- The Supreme Court would direct the Directors-General of Police (DGP) from six States to name six officers of the rank of Deputy Inspector-General to take charge of six SITs each and monitor its work.
- Similarly, the court said it would enforce multiple layers of monitoring of the investigation.
- In the case of the 11 FIRs, the court said it would order five officers of the rank of Deputy Superintendent of Police or Superintendent of Police from other States to be made a part of the CBI.

LS PASSES AMENDMENT TO DECRIMINALISE OFFENCES IN COASTAL AQUACULTURE BIZ**Why in news?**

- Recently, the Lok Sabha passed an amendment bill to decriminalise the offences committed in carrying out the coastal aquaculture activities and ensure ease of doing business.
- The Coastal Aquaculture Authority (Amendment) Bill, 2023, also seeks to expand the scope, remove regulatory gaps and reduce the compliance burden without diluting environmental protection rules in the coastal areas.

Key Highlights:

- To decriminalise the offences, the bill seeks to remove the jail term of up to three years and impose only a penalty of up to Rs 1 lakh.

- It also seeks to fine-tune the operational procedures of the Coastal Aquaculture Authority to make it more responsive to the needs of the stakeholders, promote newer forms of environment-friendly coastal aquaculture like cage culture and seaweed culture, and usher in global best practices in this sector, including mapping and zonation of aquaculture areas, quality assurance and safe aquaculture products.
- It also seeks to encourage the establishment of facilities in areas having direct access to seawater to produce genetically improved and disease-free broodstocks and seed for use in coastal aquaculture besides preventing the use of antibiotics and pharmacologically active substances, which are harmful to human health in coastal aquaculture.

Standing committee:

- After its introduction in the Lok Sabha, it was sent to the standing committee.
- The ministry has accepted 45 amendments of the committee out of 56.
- The government has removed a number of provisions, where imprisonment was there for minor offences.

RAJASTHAN CABINET APPROVES CREATION OF 19 NEW DISTRICTS, THREE DIVISIONS**Why in news?**

- Recently, the Rajasthan Cabinet gave its approval to a high-level committee's proposal to establish 19 new districts and three additional divisions within the state.

Mandate:

- This decision aims to enhance the administrative framework and accessibility of public services. As a result, Rajasthan's district count will go up from the existing 33 to 50.
- The expansion will alleviate the burden on district headquarters and reduce the need for people to undertake extensive journeys for official matters.

New changes:

- The changes include the division of the Jaipur district into 'Jaipur' and 'Jaipur Rural', as well as the division of the Jodhpur district into 'Jodhpur' and 'Jodhpur Rural'.

- New districts include Apongarh, Balotra, Beawar, Deeg, Didwana-Kuchaman, Dudu, Gangapur City, Kekri, Kotputli-Behror, Khairthal-Tijara, Neem ka Thana, Phalodi, Slumber, Sanchore, and Shahpura.
- The state will now consist of 10 divisions, with the introduction of Banswara, Pali, and Sikar as the new divisions.

WHAT IS THE JAN VISHWAS BILL, 2023 PROPOSED BY CENTRE?



Why in news?

- The Jan Vishwas (Amendment of Provisions) Bill, 2023 was passed in Parliament recently.
- Introduced by Commerce and Industry Minister Piyush Goyal, the Bill aims at giving further boost to ease of living and ease of doing business.
- It proposes to amend 183 provisions to be decriminalised in 42 Central Acts administered by 19 Ministries/Departments.

What is the Jan Vishwas Bill about?

- The Jan Vishwas (Amendment of Provisions) Bill, 2022 amends 42 laws, across multiple sectors, including agriculture, environment, and media and publication and health.
- The Bill converts several fines to penalties, meaning that court prosecution is not necessary to administer punishments.
- It also removes imprisonment as a punishment for many offences.

Changes introduced:

- Covered under the Jan Vishwas (Amendment of Provisions) Bill, 2023 are changes in the Drugs and Cosmetics Act, 1940, the Food Safety and Standards Act, 2006 and the Pharmacy Act, 1948.
- This has evoked heated debate about its pros and cons among health care activists, experts in the field of pharmacy and patient-welfare groups.
- Among these, the changes proposed to the Drugs and Cosmetics Act, 1940 have been the most contentious. The Act regulates the import, manufacture, distribution and sale of drugs and cosmetics in the country.

- Currently, the Act defines four categories of offences; adulterated drugs, spurious drugs, mislabelled drugs, and Not of Standard Quality drugs (NSQs) and lays out degrees of punishment (a combination of prison time and fine) based on the degree of offence.

What are the issues in the recent amendments?

- It allows manufacturers of Not of Standard Quality Drugs (NSQ) drugs to escape significant penalties despite the fact that these drugs can have an adverse effect on the patient.
- The bill also reduces penalties for owners of pharmacies who violate the terms of their licence.
- The Indian pharmaceutical sector, manufacturing and pharmacies included, are already subject to extremely lax regulation as evidenced by the explosion of scandals recently across the world linked to 'Made in India' medicine.

LOK SABHA PASSES AMENDMENTS TO CENTRAL, INTEGRATED GST LAWS TO LEVY 28% TAX ON E-GAMING, CASINOS



Why in news?

- Recently, the Lok Sabha passed amendments to Central, Integrated GST laws to levy 28 per cent tax on e-gaming, casinos.
- The Central Goods and Services Tax (Amendment) Bill, 2023, and the Integrated Goods and Services Tax (Amendment) Bill, 2023, has been proposed to levy 28 per cent tax on the full face value and bets in online gaming, casinos and horse race clubs

Key Highlights:

- The amendments pertain to insertion of a provision in the Schedule III of the CGST Act, 2017, to provide clarity on the taxation of supplies in casinos, horse racing and online gaming.
- The amendment in IGST Act relates to inserting a provision to impose GST liability on online money gaming provided by offshore entities. Such entities would be required to get GST registration in India.
- It will also provide for blocking access to online gaming platforms located overseas in case of failure to comply with registration and tax payment provisions.

Background:

- The amendments to the Central GST (CGST) and Integrated GST (IGST) laws were approved by the GST Council.
- The council had approved levy of 28 per cent GST on full face value of entry level bets in online gaming, casinos and horse racing.

BUNCH OF NEW PLACENTA IN CHIP DEVICES CAN HELP MAKING PREGNANCIES SAFE

**Why in news?**

- Recently, the researchers at IIT Bombay and ICMR-NIRRH, Mumbai, have developed devices called placenta-on-a-chip (POC).

Why it matters?

- A bunch of devices mimicking the placenta at various stages of pregnancy can help in drug discovery, study of toxicity of chemicals like caffeine, and understanding the effects of conditions such as preeclampsia and diabetes mellitus during pregnancy.
- In pregnancy, the placenta shields the baby from harmful drugs and chemicals. But some can still cross this barrier and cause harm to the baby in the womb. Thus, pregnant women are not given most medications and they continue to suffer.
- Determining which medicines can be given during pregnancy that would not cross the placenta is a daunting task.

Key Highlights:

- They have used microfluidic technology which can integrate processes, to create an environment that represents basic organ structure and functions of the placenta.
- The placenta in a lab dish developed by them allows different cells to interact with each other, incorporate mechanical properties and mimic the blood flow, which closely resembles the in-vivo condition.
- Among various available POC models, these devices are more suitable for probing placental development as well as diseases caused due to defects in the placenta.
- Also, patient-specific sample screening will be possible for personalised medicine.

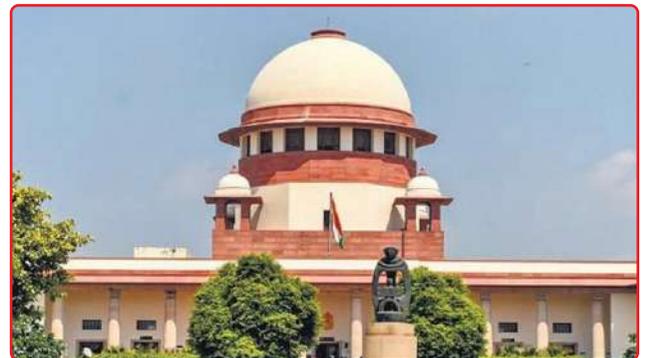
Future prospects:

- The placenta-on-chip will enable early detection of adverse conditions and allows researchers and healthcare professionals to observe, study, and identify potential issues that may arise during pregnancy.
- Placenta-On-Chip technology offers novel advancements in making pregnancies safe.
- It enables the study of placental function, detection of complications, personalized medicine, and the development of new therapies.

Way Forward:

- This will lessen the need for animal use and revolutionize the pharma industry to enhance the lives of countless people worldwide.
- Patent filing is under process for this technology that offers benefits to both the industry and academia.

SC PROPOSES 'PERMANENT SECURITY UNITS' FOR ALL COURTS

**Why in news?**

- Recently, the Supreme Court has proposed "permanent security units" to guard court complexes across the country, recalling incidents of gunfire and violence on court premises.

Why it matters?

- It is appalling that court premises in New Delhi itself, in the past year or so, have witnessed at least three major incidents of gunfire.
- Preserving the sanctity of a court as a space where justice is administered and the rule of law upheld being non-negotiable, it is critical that judicial institutions take comprehensive steps to safeguard the well-being of all stakeholders.
- Such incidents, that too on court premises, are deeply concerning and pose significant risks to the safety of not only judges but also lawyers, court staff, litigants and the general public.

Key directive by the SC:

- The court has asked the High Courts to prepare "security plans" in consultation with the Principal Home Secretaries, Directors-General of Police and Police Commissioners to protect the courts.

- The security plan may include a proposal for setting up of permanent court security unit(s) in each complex.
- The security plan ought to indicate the strength and source of manpower for these security units, including armed and unarmed personnel and supervisory officers for each unit, the minimum term and mode of deployment of manpower, their list of duties and additional financial benefits, special modules for training and sensitising personnel in matters of court security and so on.

Technology inputs:

- The Bench said the schematics of CCTV camera installation should be laid down on a district-wise basis where the State governments have to provide funds.
- The court stressed the need for digitisation of judicial infrastructure, particularly at the district level.

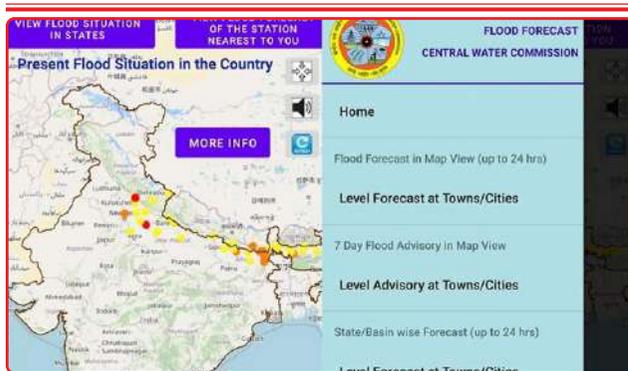
- The location will be zoomed in on the map when the name of the station will be selected from the dropdown.
- The app will also provide State-wise/Basin-wise Flood Forecast or Flood Advisory which can be accessed by selecting specific stations, state wise or basin wise from the dropdown menu.

Way Forward:

- "FloodWatch" app utilizes advanced technologies such as satellite data analysis, mathematical modelling, and real-time monitoring to deliver accurate and timely flood forecasts.
- The user-friendly interface will make it easy for anyone to stay informed and minimise risk during flood events.

CRIMINAL LAW BILLS SENT TO COMMITTEE ON HOME AFFAIRS

MOBILE APP 'FLOODWATCH'



Why in news?

- Recently, the Chairman, Central Water Commission (CWC), launched the mobile application, "FloodWatch" with the aim of using mobile phones to disseminate information related to the flood situation and forecasts up to 7 days on a real-time basis to the public.
- The in-house developed user-friendly app has readable and audio broadcast and all the information is available in 2 languages, viz. English and Hindi.

Key features:

- It includes real-time flood monitoring where users can check up-to-date flood situation throughout the country.
- The app utilizes near real-time river flow data from various sources.
- The app also provides flood forecast at nearest location where users can check the flood advisory at the station nearest to them on the Home Page itself.
- It include forecast using an Interactive Map where users can check the CWC Flood Forecast (up to 24 hours) or Flood Advisory (up to 7 days) either by directly selecting the station from map or the user can also search for the name of the station in the search box.

Why in news?

- The Bharatiya Nyaya Sanhita Bill, 2023, Bharatiya Nagarik Suraksha Sanhita Bill, 2023, and Bharatiya Sakhshya Bill, 2023, have been referred to the Standing Committee on Home Affairs.
- The Committee has three months to carry out consultations and submit its report on the three Bills.
- The Standing Committee on Home Affairs is headed by BJP Rajya Sabha MP Brij Lal.

Details:

- The Bharatiya Nagarik Suraksha Sanhita Bill, which will replace the Cr.PC, will now have 533 Sections; 160 Sections have been changed, nine new sections have been added, and nine Sections have been repealed.
- The Bharatiya Nyaya Sanhita Bill, which will replace the IPC, will have 356 Sections instead of the earlier 511 Sections; 175 Sections have been amended, eight new Sections have been added, and 22 Sections have been repealed.
- The Bharatiya Sakhshya Bill will now have 170 Sections instead of 167; 23 Sections have been changed, one new section has been added, and five repealed.
- These bills seek to replace the Indian Penal Code, 1860, the Code of Criminal Procedure, 1898, and the Indian Evidence Act, 1872.

Background:

- ⇒ The government argued that these Bills are aimed at decolonising the Indian justice system.
- ⇒ All the three laws that are being repealed were framed by the British and enacted by the British Parliament.

**PANEL CALLS FOR UNIFORMITY IN
TENURES, SELECTION PROCESS OF
HEADS OF VARIOUS AKADEMIS**

**Why in news?**

- ⇒ A parliamentary committee has sought uniformity in the tenures and selection processes for heads and governing bodies of autonomous institutions run by the Culture Ministry.
- ⇒ It has recommended that one MP should be included in the governing bodies to provide “ground reports”.

Details:

- ⇒ The department-related Standing Committee on Transport, Tourism and Culture, in its report, “Functioning of national akademis and other cultural institutions”, evaluated bodies under the Culture Ministry such as the Indira Gandhi National Centre for the Arts, the Lalit Kala Akademi, the Sahitya Akademi and the National School of Drama.

Current procedure:

- ⇒ As of now only the chairman of the Sahitya Akademi is elected.
- ⇒ The process for appointment of the heads of the various other institutes and their governing bodies as well as their tenures vary.
- ⇒ For example, the term of office for the governing body of the Lalit Kala Akademi is three years, while that of the Kalakshetra Foundation is 10 years.

Gaps:

- ⇒ There were no fixed guidelines with regard to the number of members in the governing council or the number of meetings to be held.
- ⇒ Also, there are no people’s representatives in the governing council of the Akademis.

Recommendations:

- ⇒ It recommended that the government formulate a policy emphasising uniformity among all the Akademis in terms of the tenure of the chairman or

president, representation and election of the general council and the minimum number of meetings to be held each year.

- ⇒ It said that if required, the legislation governing the akademis or institutions may be amended to ensure uniformity.
- ⇒ The committee suggested that one MP be included on the governing Board of each of the Institutions on the lines of the All India Institute of Medical Sciences and other such institutions to assist in the working of the akademis and to provide them ground reports.

**CAUSING FLOODS IS A TERRORIST
OFFENCE IN LAW PROPOSED TO
REPLACE THE INDIAN PENAL CODE**

**Why in news?**

- ⇒ The proposed Bharatiya Nyaya Sanhita Bill (BNS) says that causing “floods” is a terrorist offence.

Details:

- ⇒ The Bill that seeks to replace the British-era Indian Penal Code defines terrorism as a separate offence for the first time as part of a general law. The Unlawful Activities (Prevention) Act, 1967 is a special law focused on terrorist activities.
- ⇒ Section 111 (6) (a) of the Bill says that a “terrorist” refers to any person who “develops, manufactures, possesses, acquires, transports, supplies or uses weapons, explosives, or releases nuclear, radiological or other dangerous substance, or cause fire, floods or explosions.”
- ⇒ The Bill has been referred to a Parliamentary Committee on Home Affairs for examination.

Concerns:

- ⇒ The section on terrorism and organised crimes in the proposed law lacks procedural safeguards against false implication as available under the UAPA and the Maharashtra Control of Organised Crime Act (MCOCA).
- ⇒ The UAPA has often been criticised for draconian provisions. Under the anti-terror law, 4,690 persons were arrested between 2018 and 2020, but only 3% were convicted. Its constitutional validity has been challenged in the Supreme Court.

Penalty:

- Section 111 proposes a minimum five-year imprisonment and the death sentence as maximum punishment for a terrorist offence.

Safeguard provision under MCOCA & UAPA:

- Under the MCOCA and the UAPA, there is a provision that before filing of FIR there has to be an approval by a senior police officer.
- Secondly, the investigation can only be carried out by an officer of a particular rank and there is a bar on the court to take cognisance of the case without government sanctions.
- If these safeguards are not there, the trial cannot proceed. Such safeguards are missing in the proposed law.

INTERNATIONAL RELATIONS

WHO REPORT ON TOBACCO CONTROL, KEY FINDINGS, HOW INDIA FARES



Why in news?

- Recently, a report was released by the World Health Organisation (WHO) related to implementation of MPOWER measures.
- Fifteen years ago, WHO had developed the MPOWER measures, monitor tobacco use and prevention policies; protect people from tobacco smoke; offer help to quit tobacco; warn about dangers of tobacco; enforce bans on tobacco advertising; and raise taxes on tobacco products.
- Across the world, there are 300 million fewer smokers today, with the prevalence of smoking declining from 22.8% in 2007 to 17% in 2021.

What does the report say?

- Since the MPOWER measures were first introduced, 5.6 billion people in the world— or 71% of the entire population, remain protected by at least one of the measures. This has increased from just 5% of the population in 2008.
- The number of countries implementing at least one MPOWER measure has increased from 44 countries in 2008 to 151 in 2022. At least four countries; Brazil, Turkiye, Netherlands, and Mauritius have implemented all the measures.

- There are at least 44 countries in the world that still do not implement any MPOWER measure. There are 53 countries that do not completely ban smoking in healthcare facilities. And only half of the countries have smoke-free workplaces and restaurants.

Why is it important to curb second-hand smoke?

- Almost 40% countries now have completely smoke-free indoor public spaces.
- The report focuses on controlling second-hand smoking (being in the presence of someone who is smoking) by creating smoke-free public areas and also de-normalising the act of smoking in the society.
- Of the estimated 8.7 million tobacco-related deaths each year, 1.3 million are of non-smokers exposed to second-hand smoke, the report says quoting the Global Burden of Disease 2019.
- The severe asthma, respiratory tract infections, and sudden infant death syndrome are more common among children exposed to second-hand smoke.

How does India fare?

- India has the highest level of achievement when it comes to putting health warning labels on tobacco products and providing tobacco dependence treatment.
- With 85% of cigarette packs carrying health warnings both on the front and back, India figures among the top 10 countries in terms of the size of health warnings. The cigarette packets in the country also carry a toll-free number for a quit-line.
- India has also banned the sale of e-cigarettes, and banned smoking in healthcare facilities and educational institutions. The report ranks the implementation of these bans and 8 out of 10 in healthcare facilities, 6 in schools, and 5 in universities.

What do experts say?

- One of the biggest steps in the works is implementing warnings on OTT platform content when actors are seen using tobacco products.
- India already has a comprehensive law on tobacco control, but some amendments are needed in the 20-year-old legislation.

INDIA, UK LAUNCH HEALTH CARE ALLIANCE IN A BID BOOST BILATERAL TIES



Why in news?

- United Kingdom's National Health Service (NHS) delegation visited India recently to launch the India-UK healthcare alliance.

Details:

- The initiative is aimed at promoting excellence in the healthcare sector, providing a platform for healthcare institutions in two countries and creating synergetic partnerships aimed at improving health outcomes.
- The Alliance is an initiative of Bapio Training Academy.
- The proposal shall strategize its actions in the domains like
 - a) promoting excellence in education, research, training and capacity building of Human Resources in the healthcare sector in both countries,
 - b) identifying healthcare providers in India to promote medical tourism, share learning around low-cost innovative models of care to promote healthcare sustainability and
 - c) promoting the culture of patient safety and clinical governance across Indian health systems through policy, advocacy and projects.

2030 Roadmap for India-UK future relations:

- The 2030 Roadmap for India-UK future relations was launched on May 4, 2021, at a virtual summit between India's Prime Minister and then UK PM Boris Johnson.
- The roadmap set out the jointly held vision for a reinvigorated and stronger relationship between the UK and India over the next ten years.

INDIA TO SUPPORT CLEAN WATER PROJECT AT SCHOOL IN TUVALU WITH \$700,000

**Why in news?**

- India will be providing support worth \$700,000 from the India-UN Development Partnership Fund to the project in Tuvalu to store and provide clean water in school.

Details:

- 'Motufoua Secondary School' is Tuvalu's only public school.
- The proposed concrete water cistern, with a capacity of 760 metric cubes will store and provide clean water

to students, teachers and school staff promoting hygiene and reducing water-borne diseases.

Developmental projects by India:

- In May 2023, Prime Minister Narendra Modi announced the 'Sagar Amrut Scholarship' scheme for the Pacific Island countries, at the Summit of the Forum for India-Pacific Islands Cooperation.
- He had also announced a 12-point action plan focusing on health, wellness and community development sectors as per priorities of the Pacific island countries.
- The water cistern project in Tuvalu is in pursuance of these initiatives focused on the importance of high-impact community development projects in areas of choice by the Pacific countries.

India-UN Development Partnership Fund:

- The India-UN Development Partnership Fund, established by the Government of India in June 2017, provides support to projects in developing countries that aim to contribute to achieving the Sustainable Development Goals.
- It adheres to the principles of South-South cooperation and places a priority on national ownership and leadership, equality, sustainability, development of local capacity and mutual benefit.
- A total of 150 million \$ over the next decade has been committed by the Government of India for the Fund. Till date, 75 development projects across 56 countries have been supported through the Fund.

CABINET APPROVES SIGNING OF MOU BETWEEN INDIA AND SURINAME IN THE FIELD OF MEDICAL PRODUCTS REGULATION

**Why in news?**

- The Union Cabinet was apprised of a Memorandum of Understanding (MoU) signed between the Central Drugs Standard Control Organization (CDSCO), and Ministry of Health, Suriname on cooperation in the field of Medical Product Regulation.

Mandate:

- The purpose of this Memorandum of Understanding is to facilitate a constructive dialogue on the laws and regulations pertinent to medical products as well as other relevant matters.

Areas of cooperation:

- The main areas of cooperation between the two Regulatory Authorities include the following:
 - Promoting an understanding between the Parties of each other's regulatory framework, requirements and processes and facilitating future regulatory strengthening initiatives for both Parties,
 - Exchange of information and cooperation on Good Laboratory Practices (GLP), Good Clinical Practices (GCP), Good Manufacturing Practices (GMP) and Good Pharmacovigilance Practices (GPvP).
 - Recognition of Indian Pharmacopoeia
 - Exchange of safety information, including Pharmacovigilance, and adverse events where there is a particular safety concern related to the other Party. This includes safety concerns relating to medicines and medical devices.
 - Participation in scientific and practical conferences, symposiums, seminars and forum organized by the Parties.
 - Capacity building in mutually agreed areas,
 - Coordination at the international fora,
 - Any others areas of common interest.

Way Forward:

- It will facilitate better understanding of medical products regulation with regard to pharmaceuticals including raw materials for pharmaceutical use, biological products, medical devices and cosmetic products.
- The MoU will promote exchange of information and cooperation in areas pertinent to medical products and relevant administrative and regulatory matters within the jurisdiction of the parties.

INDIA, ASEAN AGREE TO REVIEW GOODS TRADE PACT BY 2025 TO FIX 'ASYMMETRY'



Why in news?

- India and the ASEAN countries reached an agreement recently to review their free trade pact for goods and set a 2025 goalpost for concluding the review aimed at addressing the "asymmetry" in bilateral trade.

Review by AITIGA:

- A Joint Committee of the ASEAN-India Trade in Goods Agreement (AITIGA), signed in 2009, deliberated on the roadmap for the review of the pact and finalised the terms of reference for the fresh negotiations.
- The AITIGA review will now be taken up at the India-ASEAN Leaders' Summit scheduled in early September for further guidance.

What's next?

- The Ministers at the India-ASEAN Leaders' Summit agreed to follow a quarterly schedule of negotiations and conclude the review in 2025.
- The review of AITIGA is expected to enhance and diversify trade while addressing the current asymmetry in the bilateral trade.

India-ASEAN trade:

- In 2022-23, India's exports to ASEAN increased to \$44 billion from \$42.32 billion in 2021-22. Imports, however, grew faster jumped to \$87.57 billion in 2022-23 against \$68 billion a year ago.
- The trade deficit widened to \$43.57 billion in the last financial year, from \$25.76 billion in 2021-22. It was just \$5 billion in 2010-11.
- Apart from the widening trade deficit, India has been worried about the routing of goods from third countries in India through ASEAN countries members by taking the duty advantages of the agreement.

About ASEAN:

- ASEAN was established on 8th August 1967 in Bangkok, Thailand with the signing of the Bangkok Declaration by the founding fathers of the countries of Indonesia, Malaysia, Thailand, Singapore, and the Philippines.
- The preceding organisation was the Association of Southeast Asia (ASA) comprising of Thailand, the Philippines, and Malaysia.
- ASEAN members include Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam.

WHAT ARE THE AMENDMENTS TO THE PAKISTAN ARMY ACT?



Why in news?

⇒ Recently, the Pakistan senate passed a Bill to amend the Pakistan Army Act, 1952.

What are the new amendments?

- ⇒ The Bill has expanded the ambit of the Army Act by inserting clause 1A in Section 8 of the Act. With this change, the Act will include civilians working in entities affiliated with or controlled by the Pakistan Army like the Fauji Foundation, Army Welfare Trust, Fauji Urea, Fauji Cement, etc.
- ⇒ The Bill has added two new sections to Section 26 of the Act.
 - a) Section 26A on 'unauthorised disclosure', states that "if any person who is or has been subject to this act, discloses or causes to be disclosed any information, acquired in an official capacity, which is or may be prejudicial to the security and interest of Pakistan or the Armed Forces of Pakistan, shall be guilty of an offence, and on conviction by the court constituted under this Act, be punished with rigorous imprisonment for a term which may extend to five years."
 - b) Section 26B prohibits a person who has been subjected to this Act from participating in any kind of political activity for two years "from the date of his retirement, release, resignation, discharge, removal, or dismissal from the service."

Amendment to Section 55:

- ⇒ Section 55A bars the subject of this Act from getting into any form of engagement, consultation, or employment, directly or indirectly, with any entity that might have a conflict of interest with the Armed Forces of Pakistan and its affiliate entities.
- ⇒ Section 55B outlines the punishment applicable to individuals who, whether currently or previously subjected to this legislation, undermine, ridicule, or scandalise the Armed Forces.

Why now?

- ⇒ The addition of clause 26A must be seen through the prism of the May 9 incident, wherein the supporters of the Pakistan Tehreek-e-Insaf (PTI), the party of former Pakistan Prime Minister Imran Khan, attacked army installations across the country.
- ⇒ The information regarding the installations was leaked from within the Army. The amendments have been specifically designed to intimidate the veterans who have been supporting the former Pakistan PM by expressing their views on social media and public platforms.
- ⇒ The changes proposed in the Bill are not just about strengthening the power of the Army Chief and dissuading critics.
- ⇒ Through the addition of Section 175C (on welfare and rehabilitation), Section 175D (on welfare through affiliated entities), and Section 176E (on national development), the Pakistan Army has formalised its

intervention in the functioning of the country in the name of rehabilitating serving, retired, or wounded personnel and families of martyrs as well as in national development and advancement of strategic interests.

What are the implications?

- ⇒ The manner in which the Bill was passed has exposed the government's docile behaviour towards the Army.
- ⇒ The Bill was taken up in the morning without adhering to a two-day notice. Only two senators raised concerns about how the Bill was being pushed through the house.
- ⇒ The amendments in the Army Act clearly aim to silence criticism of the Pakistan Army, especially from retired personnel.
- ⇒ A section of journalists and human rights advocates have expressed concerns as these amendments would jeopardise the rights and liberties of individuals as well as impose restrictions on the dissemination of information.
- ⇒ With the implementation of such draconian laws, the authorities would end up with absolute power to target anybody.

WHY WAS THE WFI SUSPENDED BY UNITED WORLD WRESTLING?



Why in news?

- ⇒ In the backdrop of the wrestlers' protest over various issues, United World Wrestling (UWW), the world governing body for the sport, has provisionally suspended the Wrestling Federation of India (WFI) primarily for not conducting its elections on time.

What is the impact?

- ⇒ This means that Indian wrestlers cannot compete under the national flag in UWW events, including the World championships in Belgrade in September.
- ⇒ No national anthem will be played if an Indian wrestler wins a gold medal.

What caused the delay?

- ⇒ As some prominent wrestlers brought allegations of sexual harassment, intimidation, financial irregularities and administrative lapse against the then WFI president Brij Bhushan Sharan Singh and

others and sat in protest at Delhi's Jantar Mantar in January, the Union Sports Ministry asked the federation chief to step aside until an M.C. Mary Kom-headed Oversight Committee (OC) completed its enquiry.

- After the enquiry, even though the OC report was not made public, the WFI on April 16 announced that its elections, which were due in February, would be held on May 7.
- The wrestlers then returned to the protest site and demanded the arrest of former WFI president.
- They also demanded that Brij Bhushan's family members should be stopped from contesting the elections. Brij Bhushan himself was not eligible to contest the WFI polls after completing three terms (12 years),
- The UWW Disciplinary Chamber found sufficient grounds to provisionally suspend the WFI due to the prevailing situation for at least six months. The absence of an elected president and a board did not comply with UWW regulations and its conditions for membership.

What is the way forward?

- Different factions of the WFI need to realise the immense loss the sport has suffered because of the ongoing issue.
- The only way to bail the country out of international ignominy and give the athletes their right to compete under the Tricolour is to conduct the WFI elections in a free and fair manner.

ECONOMY

TAMIL NADU'S JADERI 'NAMAKATTI', CHEDIBUTTA SAREE AND KANNIYAKUMARI MATTI BANANA GET GI TAG



Why in news?

- Three famous products from Tamil Nadu; Jaderi namakatti, Kanniyakumari Matti banana, Chedibutta saree were given the GI tag by the Geographical Indications Registry recently.

Jaderi namakatti:

- Jaderi namakatti are clay sticks that are white in colour, usually available in finger-like shape with a smooth texture.
- Jaderi is a small village in Tiruvannamalai district. There are around 120 families in Cheyyar taluk whose primary occupation has been making namakatti for more than hundreds of years now.
- The namakatti is made up of the rich deposit of hydrous silicate minerals that form fine grain particles of clay. The clay is processed and shaped in a finger like structure.
- The production of namakatti depends on the climatic condition as it needs a lot of sunlight to dry.

Kanniyakumari Matti:

- Matti banana is mostly grow in the Agatheeswaram, Thovalai, Thiruvattar taluks of Kanniyakumari district.
- It is a traditional table banana cultivar of medicinal value and the fruit is highly fragrant, sweet with sub-acid flavour, firm texture and powdery nature.
- The Matti banana fruit's apex is 2.5 – 3 cm long and looks like mouth of a crocodile. It is also called as 'Crocodile Finger Banana'.

Chedibutta saree:

- The Chedibutta saree is a handloom saree which depicts the Chedibutta design in art silk and cotton mix fabric.
- The name 'Chedibutta' is a combination of two Tamil words- 'Chedi' (plant) and 'Butta' (repeated motif or design).
- The Chedibutta saree has the iconic "plant and flower" motif woven on the border and pallu (edge of the saree). This flower plant design or the Chedibutta design is the intrinsic characteristic of this saree, hence the name.
- The saree is woven using art silk thread while the Chedibutta designs are made using brightly coloured cotton threads.
- The Sowrashtra community are the primary weavers of the saree. These sarees are woven by skilled weavers of the Veeravanallur town in the Tirunelveli.

Other products:

- Apart from this, seven other products from across India were also given GI tags. It includes
 - a) Agra leather footwear
 - b) Rajasthan's Nathdwara Pichhwai Painting
 - c) Kashmir's Mushqbudji rice
 - d) Bihar's Marcha Rice
 - e) Jammu Kashmir's Rajouri Chikri Wood Craft
 - f) Agsechi Vayingim (Agassaim Brinjal) of Goa
 - g) Sat Shiro Bheno (Sat Shirancho Bhendo) also known as Okra, a vegetable crop of Goa.

About GI Tag:

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

origin.

- Geographical Indications are part of the intellectual property rights that comes under the Paris Convention for the Protection of Industrial Property.
- In India, Geographical Indications registration is administered by the Geographical Indications of Goods (Registration and Protection) Act of 1999. Geographical indications are typically used for agricultural products, foodstuffs, wine and spirit drinks, handicrafts, and industrial products.

RAJYA SABHA PASSES MULTI-STATE COOPERATIVE SOCIETIES (AMENDMENT) BILL



Why in news?

- The Rajya Sabha recently passed to the Multi-State Cooperative Societies (Amendment) Bill 2023.

Details:

- This Bill introduces significant amendments to the Multi-State Cooperative Societies (MSCS) Act.
- These modifications aim to enhance the transparency and accountability of these cooperatives' operations in a bid to improve governance.
- The MSCS Act has not seen changes since 2002, making these updates noteworthy. The Lok Sabha had previously approved the Bill.

Key provisions:

- Suspension of MSCS Board: It empowers the Centre to suspend a MSCS Board if it fails to meet within a prescribed time frame. The Union government also establishes a process for the liquidation of such cooperatives.
- Cooperative election authority: To improve multi-state cooperative societies' governance, the Bill includes provisions for the creation of a cooperative election authority, cooperative information officer, and a cooperative ombudsman. The election authority will ensure that elections are conducted in a fair, free, and timely manner, thus reducing complaints and malpractices.
- Disqualification: The Bill includes a provision to disqualify offenders from elections for three years, enhancing electoral discipline.
- Ombudsman: The ombudsman will establish a

structured system for member grievance redressal. And, the cooperative information officers will improve transparency by providing members with timely access to information.

- Ease of doing business: For ease of doing business, the amended Bill proposes a reduction in the registration period. It allows applicants to seek an additional two months to rectify errors.
- Digital ecosystem: The Bill also promotes a comprehensive digital ecosystem through the provision for electronic submission and issuance of documents.
- Fund raising: The amendment introduces a provision for the issuance of non-voting shares in MSCS, aiding in fund-raising. It also proposes the creation of a rehabilitation, reconstruction, and development fund to rejuvenate struggling cooperative societies.
- Transparency: The Bill also bans the appointment of related persons, enhancing transparency and implementing a system of regular elections.

Way Forward:

- India is home to around 1,500 multi-state cooperative societies and the majority of them are in Maharashtra. Credit societies constitute a majority of these multi-state cooperatives.
- The cooperative sector's progressive role is essential for India to become a \$5-trillion economy.

WHAT IS FITCH'S DOWNGRADE OF U.S. ABOUT?



Why in news?

- Recently, rating agency Fitch downgraded the United States of America's (U.S.A.) rating to 'AA+' from 'AAA', a rating that it had been holding at the agency since 1994.
- This was the first major downgrade for the country since Standard & Poor's (S&P) actions in 2011.

What is downgrade?

- The rating agencies are institutions that assess the creditworthiness or financial capability of a region, country, its institutions or individual organisations. They assess its ability to meet future payment obligations particularly important for those making investment decisions.
- Fitch rates credit quality from 'AAA' (its highest

rating) to 'D' (lowest rating).

- ⇒ 'AAA' is assigned to entities with "exceptionally strong capacity for payment of financial commitments".
- ⇒ The downgrade in discussion, that is 'AA', denotes "very low default risk".

What were Fitch's concerns?

- ⇒ There has been a steady deterioration in standards of governance over the last 20 years, including on fiscal and debt matters. This is despite the bipartisan agreement reached in June for suspending the debt limit until January 2025.
- ⇒ It observed that the "repeated debt-limit political standoffs and last-minute resolutions have eroded confidence in fiscal management."
- ⇒ The second of the observations relates to lacking a medium-term fiscal framework, unlike most peers, and having a complex budgeting process.
- ⇒ These combined with several economic shocks, tax cuts and new spending initiatives has led to successive increases in debt over the last decade.

Future predictions:

- ⇒ Fitch expects the general government deficit (balance of income and expenditure) to rise to 6.3% of the GDP in 2023 from 3.7% in 2022. This results from cyclically weaker federal revenues, new spending initiatives and a higher interest burden.
- ⇒ It held that over the next decade, higher interest rates and rising debt would translate to an increased interest service burden.
- ⇒ Additionally, an ageing population and rising healthcare costs would require more spending on the elderly absent fiscal policy reforms.
- ⇒ To sum up, increasing national debt and rising interest rates result in interest costs to rise. Other than restricting the scope for investment in priority areas, it creates a potentially unwanted cycle of further borrowing, servicing interest and expanding debt.
- ⇒ Fitch also projected that tighter credit conditions, weakening business investment and a slowdown in consumption would push the U.S. economy into mild recession in Q4 of 2023 and Q1 of next year. It also sees U.S. annual real GDP growth slowing to 1.2% this year from 2.1% in 2022.

**STANDING COMMITTEE ON
ECONOMIC STATISTICS RENAMED,
MOS TELLS PARLIAMENT**

Why in news?

- ⇒ The Standing Committee on Economic Statistics (SCES) has been renamed as Standing Committee on Statistics.
- ⇒ The committee will advise Ministry of Statistics and Programme Implementation (MoSPI) on all surveys.



About Standing Committee on Statistics (SCoS):

- ⇒ SCoS will review the extant framework and address the issues raised from time to time on the subject/ results/methodology, etc related to all surveys as brought before SCoS by MoSPI.
- ⇒ It will advise on survey methodology including sampling frame, sampling design, survey instruments, etc and to finalize tabulation plan of surveys. It will also aid finalization of survey results.
- ⇒ The panel will provide guidance to conduct pilot surveys/pre-testing, if necessary, before finalizing schedules for data collection.
- ⇒ It will also provide guidance for study and exploring the availability of administrative statistics relating to surveys/statistics.
- ⇒ SCoS will also provide guidance for studying/ identifying data gaps/additional data requirements, if any, in respect of surveys/statistics and suggest appropriate strategy for improvement.
- ⇒ The panel will provide technical guidance to the central and state-level agencies for conducting the surveys.
- ⇒ It will also look into any other matter relating to the surveys/survey results referred to SCoS by MoSPI from time to time.

Background:

- ⇒ SCES chaired by former Chief Statistician Pronab Sen was set up in December 2019 for improving quality of data amid criticism of the government over political interference.
- ⇒ In March 2019, expressing concerns over 'political interference' in influencing statistical data in India, as many as 108 economists and social scientists had called for restoration of 'institutional independence' and integrity to the statistical organisations.
- ⇒ Their statement had come against the backdrop of a controversy over revision of gross domestic product (GDP) numbers and withholding employment data by the National Sample Survey Organisation (NSSO).
- ⇒ In November 2019, MoSPI had decided not to release the Consumer Expenditure Survey results of 2017-18, citing data quality issues.

FLOATING RATE LOANS, WHY RBI WANTS PROPER LENDING CONDUCT BY BANKS

HOW HOME LOANS ARE STRUCTURED

HOME LOANS are structured in such a way that payments in the early years are mostly interest. When more of their payment is going to interest rather than principal, it will take longer for home buyers to build equity and own more of the home. It also means that they have a reduced opportunity to benefit from appreciation if they sell the property, because less principal has been paid back, Anarock Research said in a report.

IT IS NOT a good sign for borrowers

or the broader housing market if interest exceeds principal. "This would need to be addressed...so that the affordable housing segment is not detailed further," it said.

FLOATING INTEREST RATES for home loans up to Rs 30 lakh have risen from 6.7% in mid-2021 to almost 9.15% now. Home buyers who paid an EMI of around Rs 22,700 in July 2021 are now shelling out around Rs 27,300 – 20% more per month, according to Anarock.

INTEREST RATE RESET

THIS CLAUSE in the home loan agreement allows the lender to review the interest rate after a certain period, as per the occurrence of a scheduled reset date. The reset rate is the new interest rate a borrower must pay from the reset date.

FLOATING RATE EMIS change with changes in reset interest rates. These rates and the calculation are not uniform for banks, as the cost of funds differs from bank to bank.

Why in news?

- The Reserve Bank of India (RBI) has decided to stop the rampant elongation of the tenor of floating rate loans and resetting of the tenor by banks without informing borrowers.
- The RBI announced that it will bring a framework of transparency and proper rules while resetting equated monthly instalments- (EMI-) based floating rate loans.

Why the decision?

- Supervisory reviews by the central bank, and feedback and references from the public have revealed several instances of unreasonable elongation of tenor of floating rate loans by lenders without proper communication and consent from borrowers.
- Banks can change the interest rate by changing the internal benchmark rate and the spread during the term of the loan, potentially harming borrowers' interests and impairing monetary transmission.
- Borrowers have complained that banks change or reset EMIs arbitrarily, and extend tenors without informing them.
- Borrowers are also not informed about foreclosure charges. The RBI has also observed that unduly long elongation of tenors has camouflaged stress in banks. The borrower can in theory refinance the floating rate loan by going to another bank, but this does not work well in practice.

Framework planned by the RBI:

- A proper conduct framework will have to be implemented by all regulated entities (including banks and non-banking financial companies) to address issues faced by borrowers.
- The framework envisages that lenders should communicate clearly with borrowers on resetting the tenor and/ or EMI, provide options of switching to fixed rate loans or foreclosure of loans, make transparent disclosure of various charges incidental to the exercise of these options, and properly communicate key information to borrowers.

- Banks increase the tenor of the loan when interest rates go up in the floating rate system. Sometimes this is done to maintain EMIs at the same level. However, many banks have been extending tenors and raising EMIs without informing the borrower.

And what do the banks say?

- According to banks, when an external benchmark rate is adopted for fixing the lending rate, the reset period should be linked to the tenor of the underlying external benchmark.
- While longer reset periods increase transmission lags, shorter resets increase interest rate risk for banks.
- Banks have indicated that retail customers would resist a shorter (quarterly) reset, particularly in a rising interest rate cycle, because of the increase in EMIs or longer repayment period with uniform EMIs. Conversely, in a falling interest rate regime, borrowers prefer shorter resets.

UNVIABLE ARUNACHAL HYDEL PROJECTS GIVEN TO CENTRAL PSUS



Why in news?

- The 12 hydropower projects in Arunachal Pradesh that were officially handed over to three Central public sector undertakings (CPSUs) are economically unviable.

Details:

- Private companies had given up on these projects with a total installed capacity of 11,523 megawatts, which would require at least ₹1,42,000 crore to be executed by the CPSUs.
- The Satluj Jal Vidyut Nigam and the North Eastern Electric Power Corporation Ltd. have been awarded five of these long-stalled projects each, with a total installed capacity of 5,097 MW and 2,626 MW, respectively.
- According to the agreement, the National Hydroelectric Power Corporation (NHPC) would handle two projects (3,800 MW).

Concerns:

- Apart from being unviable, these guarantee disaster for Arunachal Pradesh and downstream regions in Assam.

Background:

- In 2008, the Arunachal Pradesh Government came out with a Hydro Power Policy that entailed payment of upfront money per MW for projects to be set by private and public sector firms.
- The State government signed a total of 233 memorandums of understanding with 159 private and public companies for projects with power generation capacities of 47,000 MW.

Future prospects:

- The CPSUs would start work on at least seven of the 12 projects by March 2024.
- The push for hydropower would contribute to the objective of net-zero carbon emissions by 2070, besides the employment opportunities.
- The development of these projects will help achieve the declared nationally determined contribution target of India's non-fossil energy capacity to reach 500 gigawatts by 2030.

RAJASTHAN'S ANNAPURNA FREE FOOD PACKET SCHEME TO BENEFIT 1.10 CR. PEOPLE



Why in news?

- The Annapurna food packet scheme launched by the government in Rajasthan as part of its public welfare measures is set to benefit about 1.10 crore people, including the poor and destitute families covered in a survey during the COVID pandemic.

Details:

- Chief Minister of Rajasthan inaugurated the scheme at a function marking the 77th Independence Day here, while announcing that free food packets would be supplied to the poor families, which had received an assistance of ₹5,500 each during the pandemic, in addition to the NFSA families.
- About 1.05 crore NFSA beneficiaries have got themselves registered for the scheme at the inflation relief camps.
- The State government will spend ₹4,500 crore annually on the scheme's implementation.

Key Highlights:

- The Annapurna scheme is the latest among a host

of public welfare schemes announced in the 2023-24 State budget.

- The eligible beneficiaries will get the Annapurna food packets every month from the fair price shops (FPS) for free, for which the FPS will get a commission of ₹10 per packet.
- Each packet will contain one kg each of gram pulses, sugar, and iodised salt, one litre of soybean refined edible oil, 100 grams each of chilli powder and coriander powder, and 50 grams of turmeric powder.

Food security:

- The scheme is primarily meant for the families covered by the National Food Security Act (NFSA).

PM ANNOUNCES NEW HOUSING SCHEME FOR URBAN POOR

	<p>Cabinet Decisions</p> <p>Existing vacant government funded housing complexes to be converted to ARHCs</p>
	<p>Special incentives like use permission, 50% additional FAR/FSI, tax reliefs to be offered</p>
	<p>Expenditure of ₹600 crore is estimated in the form of Technology Innovation Grant</p>
	<p>3 lakh beneficiaries to be covered initially</p>
<p>Complexes will revert to ULB after 25 years to restart next cycle</p>	

Why in news?

- Recently, the Prime Minister announced a new scheme to help the urban poor build houses in cities.

Details:

- Under this programme, they will receive relief in interest rates and loans taken from banks to construct their houses.
- It will benefit those families that live in cities but are living in rented houses, or slums, or chawls and unauthorised colonies.

PMAY-U:

- The government already has a scheme to address the housing shortage for the urban poor called the Pradhan Mantri Awas Yojana Urban (PMAY-U), which was launched in 2015.
- The PMAY-U is a flagship mission of the government which is implemented by the Housing and Urban Affairs Ministry.
- The mission aims to address the urban housing shortage among the economically backward sections, including the slum dwellers by ensuring a pucca house to all eligible urban households by 2022.
- The scheme period though now has been extended up to December 2024 to complete all the houses sanctioned without changing the funding pattern and implementation methodology.

CABINET APPROVES PM-EBUS SEWA



Why in news?

- The Cabinet recently approved a bus scheme "PM-eBus Sewa" for augmenting city bus operation by 10,000 e-buses on PPP model.
- The Scheme would have an estimated cost of Rs.57,613 crore, out of which support of Rs.20,000 crore will be provided by the Central government.
- The Scheme will support bus operations for 10 years.

Key Highlights:

- Reaching the Unreached:
- The scheme will cover cities of three lakh and above population as per census 2011 including all the Capital cities of Union Territories, North Eastern Region and Hill States.
- Under this scheme priority will be given to cities having no organized bus service.

Direct Employment Generation:

- The scheme will generate 45,000 to 55,000 direct jobs through deployment of around 10,000 buses in city bus operation.

The Scheme has two segments:

Segment A – Augmenting the City bus services: (169 cities)

- The approved bus scheme will augment city bus operations with 10,000 e-buses on Public Private Partnership (PPP) model.
- Associated Infrastructure will provide support for Development/ up-gradation of depot infrastructure; and Creation of behind-the-meter power infrastructure (substation, etc.) for e-buses.

Segment B– Green Urban Mobility Initiatives (GUMI): (181 cities)

- The scheme envisages green initiatives like bus priority, infrastructure, multimodal interchange facilities, NCMC-based Automated Fare Collection Systems, Charging infrastructure, etc.
- Under the scheme, States/Cities shall be responsible for running the bus services and making payments to the bus operators. The Central Government will support these bus operations by providing subsidy to the extent specified in the proposed scheme.

Boost to E-Mobility:

- The scheme will promote e-mobility and provide full support for behind-the-meter power infrastructure.
- Cities will also be supported for development of charging infrastructure under Green Urban Mobility Initiatives.
- The support to bus priority infrastructure shall not only accelerate the proliferation of state-of-the-art, energy efficient electric buses but also foster the innovation in the e-mobility sector as well as development of resilient supply chain for electric vehicles.
- This scheme shall also bring in economies of scale for procurement of electric buses through aggregation for e-buses.
- Adoption to Electric mobility will reduce noise and air pollution and curb carbon emission.
- Modal shift due to increased share of bus-based public transportation will lead to GHG reduction.

UNION CABINET APPROVES NEW CENTRAL SECTOR SCHEME 'PM VISHWAKARMA'



Why in news?

- The Cabinet Committee on Economic Affairs recently approved a new Central Sector Scheme "PM Vishwakarma" with a financial outlay of Rs.13,000 crore for a period of five years (FY 2023-24 to FY 2027-28).

Aim:

- The scheme aims to strengthen and nurture the Guru-Shishya parampara or family-based practice of traditional skills by artisans and craftspeople working with their hands and tools.
- The scheme also aims at improving the quality, as well as the reach of products and services of artisans and craftspeople and to ensure that the Vishwakarmas are integrated with the domestic and global value chains.

Key Highlights:

- Under PM Vishwakarma scheme, the artisans and craftspeople will be provided recognition through PM Vishwakarma certificate and ID card, Credit Support upto Rs.1 lakh (First Tranche) and Rs.2 lakh (Second Tranche) with a concessional interest rate of 5%.

- The Scheme will further provide Skill Upgradation, Toolkit Incentive, Incentive for Digital Transactions and Marketing Support.
- The scheme will provide support to artisans and craftspeople of rural and urban areas across India.

Trades to be covered:

- Eighteen traditional trades will be covered in the first instance under PM Vishwakarma.
- These trades include (i) Carpenter (Suthar); (ii) Boat Maker; (iii) Armourer; (iv) Blacksmith (Lohar); (v) Hammer and Tool Kit Maker; (vi) Locksmith; (vii) Goldsmith (Sonar); (viii) Potter (Kumhaar); (ix) Sculptor (Moortikar, stone carver), Stone breaker; (x) Cobbler(Charmkar)/ Shoemaker/Footwear artisan; (xi) Mason (Rajmistri); (xii) Basket/Mat/Broom Maker/Coir Weaver; (xiii) Doll & Toy Maker (Traditional); (xiv) Barber (Naai); (xv) Garland maker (Malakaar); (xvi) Washerman (Dhobi); (xvii) Tailor (Darzi); and (xviii) Fishing Net Maker.

INDIA IS SET TO ACHIEVE \$150 BILLION BIO-ECONOMY BY 2025



Why in news?

- Recently, the Union Minister of Science & Technology said, India is set to achieve \$150 billion Bio-Economy by 2025, which stood at over \$100 billion in 2022.
- He was speaking, while overseeing the signing up of the 'Implementation Arrangement' between the Department of Biotechnology (DBT) and the United States-National Science Foundation (US-NSF) in New Delhi.

India's position:

- India has a 3-5% market share in the global biotechnology industry and it ranks 12th in the world in biotech and 3rd in Asia-pacific.
- India has the 3rd largest Startups ecosystem globally; and the largest vaccine manufacturer.
- India's ranking in global science and technology indices continues to rise and India has been ranked 40th among the innovative economies as per Global Innovation Index, 2022.

About Department of Biotechnology (DBT):

- The Department of Biotechnology (DBT) creates and nurtures strong foundation in biotechnology

innovation, research and development across segments such as bio-pharma, bio-services, agri-biotech, industrial biotech, and bioinformatics.

About US-NSF:

- The U.S. National Science Foundation (US-NSF) is an independent federal agency that supports science and engineering in the United States.
- It was established to promote the progress of science, advance the national health, prosperity and welfare, and secure national defence, through administering grants.

INDORE BEST CITY, M.P. TOP STATE IN SMART CITIES CONTEST



Why in news?

- The ISAC awards for 2022, organised under the Smart Cities Mission were announced by the Ministry of Housing and Urban Affairs recently.

About India Smart Cities Award Contest (ISAC):

- This is the fourth edition of the India Smart Cities Award Contest (ISAC) awards. In the past, the ISAC witnessed three editions in 2018, 2019 and 2020. The 2022 edition was launched in April 2022 during the 'Smart Cities-Smart Urbanisation' event in Surat.
- There were no awards in 2021 because of the COVID-19 pandemic.
- The ISAC recognises and rewards cities, projects and innovative ideas that are promoting sustainable development across the 100 smart cities, as well as stimulating inclusive, equitable, safe, healthy and collaborative cities leading to a better quality of life for all.
- The ISAC 2022 award had a two-stage submission process consisting of 'Qualifying Stage', which involved overall assessment of the city's performance, and the 'Proposal Stage' which required the smart cities to submit their nominations for six award categories.

Key Highlights:

- Indore was adjudged the best smart city in India in the fourth edition of the Smart Cities Mission. This is the second consecutive time the city, often considered India's 'cleanest city', won the 'National Smart City Award'.

- ⇒ Surat and Agra followed Indore on the list of India's 100 smart cities.
- ⇒ Madhya Pradesh won the best state award followed by Tamil Nadu, while Rajasthan and Uttar Pradesh shared the third position.
- ⇒ Chandigarh was adjudged the best Union Territory.

Categories of award:

- ⇒ The awards were given in six categories in 2023–
 - a) Project Awards (10 different themes),
 - b) Innovation Awards (two themes),
 - c) National/Zonal City Awards,
 - d) State Awards,
 - e) UT Award, and
 - f) Partners Awards (three themes).
- ⇒ Under the project category, the theme include 'mobility', 'built environment', 'governance', 'integrated command and control centre (ICCC) business model', and 'Covid innovation'.

Top performers in various categories:

- ⇒ The category "built-environment" refers to initiatives to make a city more "people friendly" including restoring and rejuvenating lakes, developing roads and making public spaces more accessible.
- ⇒ Coimbatore topped the cities in this category for its initiative for restoration and rejuvenation of lakes and development of model roads.
- ⇒ Chandigarh, meanwhile, did well for its public bike-sharing in the 'mobility' category and e-governance initiatives in the governance category.
- ⇒ Ahmedabad scored the award for 'Integrated Command and Control Centre (ICCC) Business Model' category for successfully implementing the traffic management system through ICCC.
- ⇒ 2023 also saw a new category, the 'Covid Innovation Award', a recognition that Surat bagged for Surat Municipal Corporation's initiatives taken during the pandemic. These included launching a web portal and mobile application to track Covid cases.

About Smart City Mission:

- ⇒ Originally conceived for a period of six years, the Smart City Mission got its second extension until June 2024 in May 2023.
- ⇒ Of the total proposed projects under it, 6,041 (76 percent) projects worth Rs 1.1 lakh crore have been completed and the remaining 1,894 projects worth Rs 60,095 crore will be completed by June 2024.

SECURITY

LAUNCH OF Y - 3024 (VINDHYAGIRI)

Why in news?

- ⇒ Vindhyagiri, the sixth Stealth Frigate of Project 17A being built at GRSE, was launched recently by the President of India at the Garden Reach Shipbuilders and Engineers Ltd's (GRSE) facility Kolkata.



Key Highlights:

- ⇒ Named after the mountain range in Karnataka, Vindhyagiri is the sixth ship of the Project 17A Frigates.
- ⇒ The five other ships; INS Nilgiri, Udaygiri, Himgiri, Taragiri, and Dunagiri were launched between 2019 and 2022.
- ⇒ P17A ships are guided missile frigates, each 149 metres long, with a displacement of approximately 6,670 tonnes and a speed of 28 knots.
- ⇒ 'Vindhyagiri', a technologically advanced Frigate, pays a befitting tribute to the distinguished service of its predecessor, the erstwhile INS Vindhyagiri, the Leander Class ASW Frigate.

Project 17A Frigates:

- ⇒ Project 17A Frigates are the follow-on class of the Project 17 (Shivalik Class) Frigates, with improved stealth features, advanced weapons & sensors and platform management systems.
- ⇒ Seven Project 17A Frigates are under various stages of construction at MDL and GRSE.
- ⇒ The design of Advanced Stealth Frigates also showcases the prowess of the Warship Design Bureau, in designing technologically advanced warships for the Indian Navy.
- ⇒ Over 75% of the orders of Project 17A, have been placed on indigenous firms including MSMEs, keeping in line with the Government's vision of 'Aatma Nirbhar Bharat'.

Way Forward:

- ⇒ It will be fitted with the latest gadgets and undergo extensive trials before being handed over to the Indian Navy for commissioning into service.

INAUGURATION OF 'AMOGH' DAMAGE CONTROL SIMULATOR

Why in news?

- ⇒ Recently, the Damage Control Simulator (DCS) "Amogh" constructed at Goa Shipyard Limited was unveiled, at the Andaman & Nicobar Command, Port Blair.



Details:

- These simulators have been instrumental in providing comprehensive training to Indian Navy personnel, effectively preparing them for ship damage control and repair scenarios while at sea.
- Previous installations of such simulators were successfully set up at Naval Training establishments in Visakhapatnam, Lonavala, and Kochi.

Future prospects:

- The DCS “Amogh” is set to play a vital role in providing high-quality training to Naval personnel stationed at the Andaman & Nicobar Command, further enhancing their readiness and capabilities.

INDIA'S FIRST LONG-RANGE SIDE SWING REVOLVER LAUNCHED



Why in news?

- India's first long-range side swing revolver 'Prabal' with twice the range of other revolvers was launched recently for civilians and arms dealers.
- It is manufactured by the state-owned enterprise Advanced Weapons and Equipment India (AWEIL) based in Kanpur.

Key features:

- The single and double action 'Prabal' revolver weighs 675 grams (excluding cartridges).
- It has a chrome plated barrel length of 76 mm, and an overall length of 187.7 mm.
- The Prabal revolver boasts of a firing range of up to 50 metres.

Target:

- The .32 bore revolver is capable of accurately hitting targets up to 50 metres away.
- This range is more than double that of other revolvers currently in production, establishing Prabal as a frontrunner in the field of long-range handguns.

Side swing:

- The feature that sets Prabal apart from its counterparts is the incorporation of a side swing out cylinder. This innovative design element eliminates the need to fold the firearm for cartridge insertion, simplifying the reloading process and enhancing user convenience.

EXERCISE MALABAR CONCLUDES



Why in news?

- Recently, the 27th edition of Exercise Malabar concluded on the east coast of Australia, off Sydney.
- The four-nation exercise witnessed the participation of ships, submarines, and aircraft from the Indian Navy, Royal Australian Navy (RAN), Japan Maritime Self Defence Force (JMSDF), and the US Navy (USN).

Two phases:

- The exercise was conducted in two phases – a harbour (or planning) phase from August 11 to 15, and a sea phase from August 16 to 21, which saw the four navies actually implementing the plans that they had made.

Key Highlights:

- The Indian Navy was represented by the indigenously built guided missile destroyer, INS Kolkata, the multi-role stealth frigate INS Sahyadri, and P-8I Poseidon maritime patrol aircraft.
- The sea phase of Exercise Malabar witnessed complex and high intensity exercises in air, surface and undersea domains, weapon firings and cross deck helicopter operations.
- Exercise Malabar reaffirmed the ability of the four navies to operate together as an integrated force, while also highlighting their shared commitment to maritime security and regional stability through collaborative training and mutual understanding.

China factor:

- China has made it clear to the four participating countries that it sees Malabar as an inimical military grouping.

⇒ After Malabar 2007, China conveyed its displeasure in writing, seeking to know whom the exercise was directed against. Since then, the number of participating navies has doubled from two to four.

RUSSIA ANTI-TANK JUMPING MINES



Why in news?

- ⇒ Russia has introduced a new kind of anti-tank mine known as the "jumping mine" that targets armoured vehicles, a system that the US is also eyeing and has ordered for.
- ⇒ Initially spotted in Ukraine in late April, the advanced munition has been used there since 2022.

PTKM-1R:

- ⇒ The PTKM-1R is a smart munition designed to damage or destroy tanks and armoured fighting vehicles. It is produced and used only by Russia.
- ⇒ The PTKM-1R is different from other conventional anti-tank mines used by Russia in the Ukraine conflict as it has the capability to attack the top of an armoured vehicle.
- ⇒ This is so because the front and sides of a tank or an armoured personnel carrier generally have thicker armour than on the top, making the upper portion the most vulnerable part.

Key features:

- ⇒ The PTKM-1R is a high-explosive, top-attack, shaped-charge, anti-vehicle landmine. Its transporter-launcher is designed to detect the passage of target vehicles using acoustic and seismic sensors that detect a target by the sound it makes and the ground vibrations it induces.
- ⇒ Capable of selecting what armoured vehicle to hit, it chooses only those equipment that meet the specified parameters of noise and ground vibration.
- ⇒ Four acoustic sensors help PTKM-1R to locate an incoming target 360 degrees, which allows detection of a target arriving from any direction, and calculate its travel direction.
- ⇒ The PTKM-1R is equipped with a self-destroying mechanism with a one- to ten-day programming range that allows it to destroy targets moving at a maximum speed of 50 km per hour.

⇒ The mine has an engagement range of 5 m to 50 m, and a detection range of 100 m. When a target is found, the PTKM-1R determines a flight path and tilts the launch unit by 30 degrees in the direction of the target to form a parabolic ballistic trajectory over it.

Innovation by the US:

- ⇒ The US Army has begun production of new anti-tank landmines that are launched from the air.
- ⇒ In August 2022, the US Army awarded a five-year, low-rate initial production contract to Textron Systems for manufacturing its brand-new XM204 top-attack munition, a landmine intended to disable combat vehicles.
- ⇒ The US Army is looking for a more lethal anti-tank mine system as part of a bigger effort to prepare for a future conflict that may feature armoured engagements with adversaries like Russia and China.

PARTICIPATION OF INDIAN AIR FORCE IN EXERCISE BRIGHT STAR-23



Why in news?

- ⇒ An Indian Air Force (IAF) contingent is participating in Exercise BRIGHT STAR-23.
- ⇒ It is a biennial multilateral tri-service exercise scheduled to be held at Cairo (West) Air Base, Egypt from 27 August to 16 September 2023.

Details:

- ⇒ This is for the first time that IAF is participating in Ex BRIGHT STAR-23 which will also see participation of contingents from the United States of America, Saudi Arabia, Greece and Qatar.
- ⇒ The Indian Air Force contingent will consist of five MiG-29, two IL-78, two C-130 and two C-17 aircraft. Personnel from the IAF's Garud Special Forces, as well as those from the Numbers 28, 77, 78 and 81 Squadrons will be participating in the exercise.
- ⇒ The IAF transport aircraft will also provide airlift to approximately 150 personnel from the Indian Army.

Significance:

- ⇒ The objective of the exercise is to practice planning and execution of joint operations.
- ⇒ Besides leading to the formation of bonding across borders, such interactions also provide a means to

further strategic relations between participating nations.

India-Egypt relations:

- India and Egypt have had exceptional relationship and deep cooperation wherein the two jointly undertook development of aero-engine and aircraft in 1960s and training of Egyptian pilots was done by Indian counterparts.
- The relationship was further strengthened with the recent visits by Chief of Air Forces of the two countries and Indian Defence Minister and Prime Minister to Egypt.
- The two countries have also enhanced their joint training with regular exercises between their Armed Forces.

CHINA RELEASES NEW MAP SHOWING TERRITORIAL CLAIMS



Why in news?

- The Chinese government released the “2023 edition of the standard map of China”, which continues to show the entire State of Arunachal Pradesh and the Aksai Chin region within China’s borders.
- The 2023 map was released by the Ministry of Natural Resources.

Addition in latest map:

- The territorial claims on China’s western borders, as also the so-called nine-dash line covering the entire South China Sea, are shown on the map as in previous editions.
- Also as in previous maps, a “tenth dash” is placed east of Taiwan, underlining China’s claims over the island.
- The latest map follows China’s announcement in April that it would “standardise” the names of 11 places in Arunachal Pradesh, including a town close to the Arunachal Pradesh capital of Itanagar.
- This was the third such list “renaming” places in Arunachal Pradesh, and was seen by observers as a response to India holding events in the lead-up to the G-20 summit in the State, which China had opposed.

National Mapping Awareness Publicity Week:

- The 2023 map was released during what is being called the “National Mapping Awareness Publicity Week” in China.

- Following the release of the standard map for public use, the Ministry of Natural Resources will also release “digital maps and navigation and positioning” for use in various fields including “location-based services, precision agriculture, platform economy and intelligent connected vehicles”.
- This year marks the 30-year anniversary of the Law of Surveying and Mapping of the People’s Republic of China which was passed “to strengthen the administration of the surveying and mapping undertaking, promote its development and ensure that it renders service to development of the national economy, the building up of national defence, and progress of the society”.

Background:

- Under Mr. Xi, China has tightened management of border areas, passing in 2022 a border law that lists responsibilities for civilian and military authorities to take steps to “safeguard national sovereignty”.
- The issuing of new names is related to Article 7 of the law, which calls for promoting border education at all levels of government. Article 22 calls for the Chinese military to carry out border drills and to “resolutely prevent, stop and combat” what it calls “invasions, encroachments and provocations”.

ENVIRONMENT

IIT GOA GETS SOLAR-POWERED WEATHER MONITORING STATION UNDER US-INDIA COLLAB



Why in news?

- As part of the collaboration between the USA and India, the City University of New York (CUNY) has installed a solar-powered weather monitoring station at the Indian Institute of Technology (IIT) Goa.

Details:

- The weather station at IIT Goa, located at Farmagudi village in South Goa, was installed.
- This project is related to weather and climate monitoring.
- It will give details of regular weather information, temperature, humidity, solar radiation, UV radiation, moisture, air quality and other things.

Way Forward:

- The CUNY will install more such stations in Western India including that at DY Patil University in Navi Mumbai, then to Gujarat to two installations including Ahmedabad University.

ENDANGERED HIMALAYAN VULTURE, BRED IN CAPTIVITY FOR THE FIRST TIME IN INDIA**Why in news?**

- Researchers have recorded the first instance of captive breeding of the Himalayan vulture (*Gyps himalayensis*) in India at the Assam State Zoo, Guwahati.

Himalayan vulture:

- It is categorised as 'near threatened' on the International Union for Conservation of Nature (IUCN) Red List of threatened species.
- The Himalayan vulture is a common winter migrant to the Indian plains, and a resident of the high Himalayas.

Challenges:

- Breeding the species in Guwahati was a daunting task as, in nature, this species breeds in snow-clad mountains.
- But as these birds were kept in zoo for a long time, they acclimatised to the tropical environment.

Vulture Conservation Breeding Centre:

- Four VCBCs established by Bombay Natural History Society (BNHS) at Pinjore in Haryana, Bhopal in Madhya Pradesh, Rani in Assam, and Rajabhatkhawa in West Bengal are involved in conservation breeding of the white-rumped vulture (*Gyps bengalensis*), slender-billed vulture (*Gyps tenuirostris*), and the Indian vulture (*Gyps indicus*).
- The unprecedented scale and speed of declines in vulture populations has left all the three resident Gyps vulture species categorised 'Critically Endangered'.

Conservation breeding in France:

- The conservation breeding of the Himalayan vulture at the Guwahati Zoo is the second such instance in the world, after France, where the species has been bred in captivity.

CLOUDED LEOPARDS PLAY HIDE-AND-SEEK IN WOODS**Why in news?**

- Recently, two scientists from the Wildlife Institute of India (WII) have found that the clouded leopard in western Assam's Manas National Park and Tiger Reserve seems to play a mysterious game of hide-and-peek in the tropical canopy forests.

Characteristic features:

- The mainland clouded leopard (*Neofelis nebulosa*) is often likened to the Ice Age sabretooth because it has the largest canines in proportion to its skull size among all cat species.
- It also has rotating rear ankles that enable it to climb down head first from trees, unlike the other felines.
- The cat with cloud-like spots on its hide does not follow any specific pattern of operating in a certain space, unlike other carnivores.
- They seemed to go wherever they pleased without worrying about other predators, primarily because of their ability to climb trees, even hang upside down from large branches.

Species:

- The clouded leopard is categorised into two species: the mainland clouded leopard distributed from central Nepal to peninsular Malaysia, and the Sunda clouded leopard (*Neofelis diardi*) native to Borneo and Sumatra.

IUCN Status:

- The mainland clouded leopard is tagged vulnerable on the International Union for Conservation of Nature (IUCN) Red List and is considered at high risk of extinction in the wild due to deforestation and poaching.

5% OF BIRDS IN INDIA ARE ENDEMIC, SAYS ZOOLOGICAL SURVEY OF INDIA**Why in news?**

- A recent publication by the Zoological Survey of India (ZSI) points out that about 5% of the birds found in India are endemic and not reported in other parts of the world.

- The publication, '75 Endemic Birds of India', was recently released on the 108th foundation day of the ZSI.



Key Highlights:

- India is home to 1,353 bird species, which represents approximately 12.4% of the global bird diversity. Of these, 78 (5%) are endemic to the country.
- Three of the 78 species have not been recorded in the past few decades. They are
 - a) the Manipur bush quail (*Perdicula manipurensis*), listed as "endangered" by the International Union for Conservation of Nature (IUCN) Red List of Threatened Species with its last recorded sighting in 1907;
 - b) the Himalayan quail (*Ophrysia superciliosa*), listed as "critically endangered" with its last recorded sighting in 1876; and
 - c) the Jerdon's courser (*Rhinoptilus bitorquatus*), listed as "critically endangered" with its last confirmed sighting in 2009.

Endemic species in Western Ghats:

- The highest number of endemic species have been recorded in the Western Ghats, with 28 bird species.
- Some of the species recorded in the country's biogeographic hotspot are the
 - a) Malabar grey hornbill (*Ocyrceros griseus*);
 - b) Malabar parakeet (*Psittacula columboides*);
 - c) Ashambu laughingthrush (*Montecincla meridionalis*); and
 - d) the white-bellied sholakili (*Sholicola albiventris*).

Way Forward:

- Since endemic species are restrictive in nature, it is important that their habitats are conserved so that they don't dwindle out.

LOW HUMAN ACTIVITY HELPS CORALS DESPITE WARM OCEAN

Why in news?

- As per a recent study, simultaneously mitigating human impacts on land and sea reduced coral loss during an unprecedented marine heatwave in Hawaii and supported coral reef persistence after the heatwave.

- The findings demonstrate the potential of combined management strategies to protect coral reefs.



Impact on coral reefs:

- Coral reef ecosystems are frequently impacted by human activity on land and in the sea; land-based disturbances include wastewater pollution, and sea-based disturbances include overfishing.
- Corals are especially impacted by prolonged periods of warm ocean temperatures, known as marine heatwaves, which can cause coral bleaching and death.
- The human impacts analysed included urban runoff, wastewater pollution and fishing restrictions.

Key Observations:

- Throughout the study period coral reef cover increased in some areas, decreased or remained stable.
- Reefs with mitigated land and sea-based human impacts showed increased coral cover before the heatwave and reduced coral loss during the heatwave.
- Additionally, reefs with more herbivorous fishes and exposure to fewer land-based human impacts had increased reef-builder cover four years after the disturbance compared with reefs with reduced fish populations and exposure to more land-based human impacts.
- They modelled scenarios that suggested reducing land- and sea-based human impacts results in a three - to six fold greater probability of a reef having high reef-builder cover four years after a disturbance.

Way Forward:

- The results reveal that integrated land-sea management could help achieve coastal ocean conservation goals and provide coral reefs with the best opportunity to persist in our changing climate.

275 BIRD SPECIES COUNTED DURING SURVEY AT CORBETT TIGER RESERVE

Why in news?

- About 275 bird species, including two critically endangered, four vulnerable ones and two endangered species, were counted during a survey at Corbett Tiger Reserve.



Background:

- The survey, conducted in June by World Wide Fund (WWF) India, Tiger Conservation Foundation and Village Volunteer Protection Force, covering overall 540 km of 135 forest trails provided insights into the diverse bird species inhabiting at Corbett Tiger Reserve.

Key Findings:

- As per the report, two species, namely white-rumped vulture and red-headed vulture, considered critically endangered by the International Union for Conservation of Nature (IUCN) list, have been documented in the survey, which covered the vast range of landscape in the reserve, including grassland, dense forest, rivers and hilly terrains.
- Two endangered species; Pallas's fish-eagle, Egyptian vulture were also counted.
- Four vulnerable bird species; great hornbill, great slaty woodpecker, grey-crowned prinia and river tern have also been counted in the survey.

Near-threatened species:

- About 10 near-threatened bird species; river lapwing, red-breasted parakeet, oriental darter, lesser fish-eagle, Himalayan griffon, great thick-knee, gray-headed fish-eagle, black-necked stork, Asian woolly-necked stork and Alexandrine parakeet have also been found at the reserve.

Least concern:

- About 256 species documented in the survey are considered to be of least concern by the IUCN.

RAPTORS MAKE POWER TOWERS THEIR HOME



Why in news?

- White-bellied sea eagles in India are beginning to emulate their counterparts in Australia and Thailand by making their homes on power towers holding high-tension wires.
- The use of man-made structures as nesting sites can be both risky and beneficial to these coastal raptors and humans in the vicinity but the development points to a lack of trees and other natural nesting alternatives.

Nesting site:

- The nests of the white-bellied sea eagles were found on powerline towers about 2 km away from the sea in Ramanathapuram of Tamil Nadu.
- The nesting sites were strategic for the birds to conveniently scan the marine area for food.

About white-bellied sea eagle:

- The white-bellied sea eagle (*Haliaeetus leucogaster*) is a resident raptor belonging to the family Accipitridae.
- It has a wide distribution range on the sea coast of India from Mumbai to the eastern coast of Bangladesh, and Sri Lanka in southern Asia, through all coastal south-eastern Asia, southern China to Australia.
- The raptor, a diurnal monogamous bird of prey, is categorised as being of 'least concern' on the Red List of the International Union for Conservation of Nature.
- Feeding mainly on sea snakes and fish, the bird is occasionally seen in inland waters along tidal rivers and in freshwater lakes.
- It occupies the same localities for years and generally builds nests in tall trees near the seacoast, tidal creeks, and estuaries.

Nesting habit:

- Each nest, about 1.4 metres, was at a height of about 18 metres from the ground.
- The nests were large deep bowls constructed of thick sticks, twigs, and branches and lined with grass, seaweed, or green leaves.

Way Forward:

- Careful management and monitoring of such unnatural nesting sites are critical to the safety of both eagles and humans.

SC PROPOSES EXPERT PANEL FOR COMPREHENSIVE STUDY OF INDIAN HIMALAYAN REGION

Why in news?

- The Supreme Court recently mooted constituting an expert committee for conducting a 'complete and comprehensive' study on the carrying capacity of the Himalayan region in the country.
- The unplanned development in the Himalayan region has caused devastation in recent times.
- The carrying capacity is the maximum population size that an ecosystem can sustain without getting degraded.



Plea before SC:

- A bench headed by Chief Justice was hearing a plea seeking an assessment of the carrying capacity and master plans for the Indian Himalayan Region spanning 13 states and union territories.
- The petitioner told the bench there was a need for a comprehensive study by expert institutions as devastation was noticed almost every single day in the Himalayan region.
- The bench asked the petitioner to give it a small note proposing which those expert institutions should be and what should be the broad terms of reference for such a panel.

Why expert committee matters?

- Due to non-existent carrying/bearing capacity studies, grave geological hazards in the form of landslides, land subsidence, land cracking and sinking issues such as that in Joshimath are being witnessed and serious ecological and environmental depredation are taking place in the hills.
- Almost all hill stations, pilgrimage places and other tourism destinations spread over the Dhauladhar Circuit, Satluj Circuit, Beas Circuit and Tribal Circuit in Himachal Pradesh also remain hugely burdened and are almost on the brink of collapse with no carrying capacities assessed for any of the places in the state.

7TH GEF ASSEMBLY, GLOBAL BIODIVERSITY FRAMEWORK FUND RATIFIED



Why in news?

- The Global Biodiversity Framework Fund (GBFF) was recently ratified and launched at the Seventh

Assembly of the Global Environment Facility (GEF) in Vancouver, Canada.

Details:

- Governments, non-profits and the private sector can now contribute their funds here to ensure that the world meets the goals and targets of the Kunming-Montreal Global Biodiversity Framework (GBF) formulated by the Convention on Biological Diversity (CBD) by 2030.
- Canada and the United Kingdom have already donated 200 million Canadian dollars and 10 million pounds respectively to the GBFF.

Key Highlights:

- The contributions will support action towards halting and reversing biodiversity loss by 2030 and putting nature on a recovery path by 2050. As much as 20 per cent of the funds would support Indigenous-led initiatives to protect and conserve biodiversity.
- It will also prioritise support for Small Island Developing States and Least Developed Countries, which will receive more than a third of the fund's resources. This is the first time there would be funds channeled to non-state actors like the indigenous communities.

Funding:

- Under Target 19 of GBF, at least \$200 billion per year will need to be raised by 2030 for GBFF.
- The early donations are in line with the GEF Council Decision adopted in June that initial contributions for BGFF should reach \$200 million from at least three donors by December 2023.

Way Forward:

- The first GBFF Council meeting will be held in January 2024, with a view to approving the first work programme at the June 2024 Council meeting.
- The first tranche of the fund is likely to be disbursed after the council meeting to ensure that first projects under the new Fund can be launched ahead of CBD's CoP16.

CATERING TO DIET OF ELEPHANTS TO PREVENT CONFLICTS WITH HUMANS IN ASSAM



Why in news?

- Restoring degraded areas with tree species preferred by the elephants would help secure its habitat and facilitate elephant movement for long-term mitigation of human-elephant confrontation.

Plantation of native species:

- Amla (*Phyllanthus emblica*) and bel (*Aegle marmelos*) are among several native species of trees that are being planted in Assam in a bid to secure a major elephant habitat and mitigate conflicts between humans and tuskers.
- Among the 25,000 saplings of native species of trees planted between June and August, to improve the 100-hectare elephant habitat, are some 2,000 sprouts of *Alpinia allughus*, a ginger-like rhizome locally called 'tora'. It is an important source of fodder for elephants in the region.
- The habitat is in the Rowta Reserve Forest under the Dhansiri Forest Division in the Udalguri district of Assam, bordering Bhutan.
- Other species of trees planted include gamhari (*Gmelina arborea*), jamun (*Syzygium cumini*), bhumura (*Terminalia bellirica*), arjun (*Terminalia arjuna*), outenga or elephant apple (*Dillenia indica*), and khair (*Acacia catechu*).

Plantation drive:

- The area chosen for the replenishment of the green cover in the Rowta area is a mosaic of grasslands and woodlands, with different soil substrata ranging from sandy coarse to rocky and swampy swathes of land.
- The 61st Battalion of the Sashastra Seema Bal, personnel of the Dhansiri Forest Division, and members of the Dhansiri-Sikaridanga Joint Forest Management Committee at Rowta collaborated with Aaranyak for the plantation drive.

Alternative livelihoods:

- Earlier, Aaranyak and the British Asian Trust provided training in poultry farming to people across 58 villages in the Garo Hills region, who have been affected by conflicts with elephants. About 60% of the trainees were women.
- Availability of alternative livelihood options is a powerful tool to facilitate human-elephant coexistence in a conflict zone.

INDIA'S ICONIC RAPTORS ARE DECLINING FAST, WARNS NEW REPORT

Why in news?

- India's raptors (birds of prey) are declining fast and the reasons for the decline are poorly understood, according to the 'State of India's Birds 2023: Range, trends, and conservation status' released recently.
- There is an immediate need for research to diagnose specific threats and measure their impact so that policies can be developed for raptors as a group.

**Key Findings:**

- The analysis found that all woodland species, and White-eyed Buzzard and Common Kestrel among generalists, continue to decline, but possibly at a lower rate than earlier.
- Raptors are in decline globally due to loss of habitat, pesticide accumulation as well as targeted killing. For instance, harriers have declined in their breeding range in Europe due to pesticide use. Harriers winter in India and some, like the Pallid Harrier have shown a 70 per cent decline.
- Some raptors in India are on the decline as they need large tracts of high-quality habitat to serve their dietary needs which the country no longer has.
- An example of this is the Tawny Eagle. It is becoming increasingly difficult to see today and is of High Conservation Concern like many other large raptors.

Vultures:

- The most concerning decline among raptors is that of vultures.
- The diclofenac ban may have slowed vulture declines in some places, but the analyses shows that countrywide, vultures continue to decline: Indian Vulture by over 8% every year, and Red-headed and White-rumped Vultures by over 5% and 4% respectively.
- Several Non-Steroidal Anti Inflammatory Drugs (NSAIDs), including diclofenac and aceclofenac, continue to be produced for human use and can thus be used for livestock as well.
- Besides drugs, vultures are now facing challenges in that carcasses are being buried. Moreover, feral dogs compete with the birds at carcass dumps. Carcasses poisoned to kill feral dogs often cause vulture deaths as collateral damage.

Positive trends:

- Generalist species like Shikra, Booted Eagle, Greater Spotted Eagle, and Brahminy Kite (which occupy a range of habitats, including human habitats) and woodland species appear to have suffered the least declines in the long term.

Way Forward:

- The report urged that investigation about the levels of toxic chemicals in the environment and in raptors'

- prey species as well as how they accumulated in raptors' tissues.
- Tackling this will require innovative and interdisciplinary programmes involving a number of stakeholders.
- For vultures, it suggested "a combination of bans, education and alternatives" to stop the veterinary use of toxic NSAIDs.

CYCLONE FREQUENCY MAY RISE OVER INDIAN COAST FROM THE WARMING OF PACIFIC, STUDY



Why in news?

- As per a recent study; Pacific Decadal Oscillation (PDO) could make tropical cyclones more frequent in the coming years.

Details:

- Tropical cyclones that originate near the Equator, while being devastating, have been unusually subdued in recent decades.
- The last major cyclone of this kind in India was Cyclone Okchi, which devastated parts of Kerala, Tamil Nadu and Sri Lanka in 2017.
- However, a combination of global warming and a cyclical event called the Pacific Decadal Oscillation (PDO) that repeats every 20 to 30 years, could make such cyclones more frequent in the coming years.
- The number of such equatorial-origin cyclones was 43% less in the period from 1981 to 2010 compared with 1951 to 1980, and this was because the PDO was in a 'warmer' or positive phase.

ENSO phenomenon:

- A warming of the Central Equatorial Pacific, called an El Nino, often corresponds to reduced rainfall over India whereas cooler-than-normal temperatures, or a La Nina, is linked to excessive rainfall.
- This pattern, collectively called the El Nino Southern Oscillation (ENSO) phenomenon, repeats in the Pacific over two to seven years.

Impact of PDO:

- However, the PDO is not an annual occurrence and, on an average, corresponds to a warmer than average Western Pacific Ocean and relatively cooler Eastern

Pacific, though this plays out over much longer time scales.

- However, unlike an ENSO, a 'positive' or 'warmer phase' of a PDO can be known only after several years of measuring ocean temperatures and their interaction with the atmosphere.
- In 2019, the PDO entered a cooler, negative phase and if it remains so, could mean more tropical cyclones in the post-monsoon months that originate near the equator.

Current scenario:

- An El Nino is developing in the Pacific, the effects of which are manifested in central and southern India, which have recorded rainfall deficits of 7% and 17%, respectively.

SCIENCE & TECHNOLOGY

AKIRA RANSOMWARE



Why in news?

- Recently, the Computer Emergency Response Team of India issued an alert for the ransomware dubbed "Akira."
- The ransomware, found to target both Windows and Linux devices, steals and encrypts data, forcing victims to pay double ransom for decryption and recovery.

What is the Akira ransomware?

- The Akira ransomware is designed to encrypt data, create a ransomware note and delete Windows Shadow Volume copies on affected devices. The ransomware gets its name due to its ability to modify filenames of all encrypted files by appending them with the ".akira" extension.
- The ransomware is designed to close processes or shut down Windows services that may keep it from encrypting files on the affected system.
- It uses VPN services, especially when users have not enabled two-factor authentication, to trick users into downloading malicious files.
- Once the ransomware infects a device and steals/encrypts sensitive data, the group behind the attack extorts the victims into paying a ransom, threatening

to release the data on their dark web blog if their demands are not met.

How does Akira ransomware work?

- The ransomware also terminates active Windows services using the Windows Restart Manager API, preventing any interference with the encryption process.
- It is designed to not encrypt Program Data, Recycle Bin, Boot, System Volume information, and other folders instrumental in system stability.
- It also avoids modifying Windows system files with extensions like .syn, .msl and .exe. Once sensitive data is stolen and encrypted, the ransomware leaves behind a note named akira_readme.txt which includes information about the attack and the link to Akira's leak and negotiation site. Each victim is given a unique negotiation password to be entered into the threat actor's Tor site.
- Unlike other ransomware operations, this negotiation site just includes a chat system that the victim can use to communicate with the ransomware gang.

How does ransomware infect devices?

- Ransomware is typically spread through spear phishing emails that contain malicious attachments in the form of archived content (zip/rar) files.
- Other methods used to infect devices include drive-by-download, a cyber-attack that unintentionally downloads malicious code onto a device, and specially crafted web links in emails, clicking on which downloads malicious code.
- The ransomware reportedly also spreads through insecure Remote Desktop connections.
- The threat actors also steal sensitive corporate data for leverage in their extortion attempts.

What can users do to protect against ransomware?

- CERT-In has advised users to follow basic internet hygiene and protection protocols to ensure their security against ransomware. These include maintaining up to date offline backups of critical data, to prevent data loss in the event of an attack.
- Additionally, users are advised to ensure all operating systems and networks are updated regularly, with virtual patching for legacy systems and networks.
- Companies must also establish Domain-based Message Authentication, Reporting, and Conformance, Domain Keys Identified Mail (DKIM), and Sender policy for organisational email validation, which prevents spam by detecting email spoofing. Strong password policies and multi-factor authentication (MFA) must be enforced.
- There should also be a strict external device usage policy in place and data-at-rest and data-in-transit encryption along with blocking attachment file types like .exe, .pif, or .url to avoid downloading malicious code.

SAMUDRAYAAN, INDIA TO SEND THREE PEOPLE TO DEPTH OF 6000 METERS IN SUBMERSIBLE



Why in news?

- India's ambitious Samudrayaan project, aimed at exploring the deep ocean and its resources, is set to send three personnel to a depth of 6000 meters in a submersible vehicle.

Samudrayaan project:

- The Samudrayaan project, India's first manned ocean mission, is designed to study deep-sea resources and conduct biodiversity assessments. The mission will not disturb the ecosystem as the submersible is used solely for exploration purposes.
- The project is part of the larger Deep Ocean Mission, which supports the centre's Blue Economy policy.
- This policy aims to utilise ocean resources sustainably for the country's economic growth, improved livelihoods, job creation, and maintain ocean ecosystem health.

Details:

- The Samudrayaan project is expected to be realized by 2026 and is being designed and developed by the National Institute of Ocean Technology (NIOT) in Chennai.
- The submersible vehicle, named 'MATSYA 6000', has an endurance of 12 hours under normal operation and 96 hours in case of emergency for human safety.
- The cost of the Deep Ocean Mission, which includes the Samudrayaan project, has been estimated at Rs. 4,077 crores over a five-year period and will be implemented in phases.

Significance:

- The mission is significant as it will allow scientific personnel to observe and understand unexplored deep-sea areas through direct intervention.
- It also aligns with the Central government's vision of 'New India', highlighting the Blue Economy as one of the ten core dimensions of growth.

Way Forward:

- With this mission, India could join the elite group of countries with specialist technology and vehicles to

conduct subsea missions, including the United States, Russia, France, Japan, and China.

ISRO TRANSFERS BIG SATELLITE TECHNOLOGY TO PRIVATE SECTOR



Why in news?

- The Indian Space Research Organisation (ISRO) has transferred its cutting-edge IMS-1 Satellite Bus Technology to Alpha Design Technologies Pvt. Ltd.
- This transfer was facilitated by NewSpace India Limited (NSIL), ISRO's commercial arm, in a bid to further enable the private space sector into pushing development.

What is IMS-1 satellite bus?

- The IMS-1 satellite bus, a product of the U R Rao Satellite Centre, is a versatile and efficient small satellite platform designed to provide low-cost access to space.
- The bus serves as a dedicated vehicle for various payloads, enabling Earth imaging, ocean and atmospheric studies, microwave remote sensing, and space science missions while ensuring a quick turnaround time for satellite launches.
- Weighing about 100 kg, the IMS-1 bus accommodates a 30 kg payload. Its solar arrays generate 330 W power with a raw bus voltage of 30-42 V.
- It offers a 3-axis stabilised system with four reaction wheels and a 1 N thruster that provides pointing accuracy. This technology has been utilised in previous ISRO missions like IMS-1, Youthsat, and Microsat-2D and is a precursor to the more advanced IMS-2 bus technology.

Significance:

- The development of this technology marks the beginning of ISRO-developed satellite-bus technologies being transferred to private industries.
- ADTL boasts expertise in engineering, manufacturing, and system integration. With this technology transfer, ADTL is poised to make a substantial contribution to India's space research and exploration, furthering technological self-reliance and India's vision of becoming a major player in the global space market.

Way Forward:

- This transfer of technology is a significant step towards enhancing private industry participation in the Indian Space sector.

MINISTER UNVEILS LOTUS VARIETY 'NAMOH 108'



Why in news?

- Recently, the Union Minister of State for Science and Technology unveiled a lotus variety, 'Namoh 108', at a function in the CSIR-National Botanical Research Institute, Lucknow.

About Namoh 108:

- The lotus has 108 petals and was discovered several years ago in Manipur and kept at the institute as part of its collection of flowers and plants, on which the institute conducts research.
- Other than the possession of 108 petals, the flower on initial inspection was ordinary compared with several other kinds of lotus available in India.
- In fact, its "fibre quality" was less and it bloomed only in one season.

Genome sequencing:

- This is the only lotus variety in India to have had its genome sequenced.
- It was only after the number of petals was discovered that the NBRI cloned and worked on improving its germplasm and modifying its characteristics in a way that it could be cultivated relatively easily outside Manipur.

Lotus Mission:

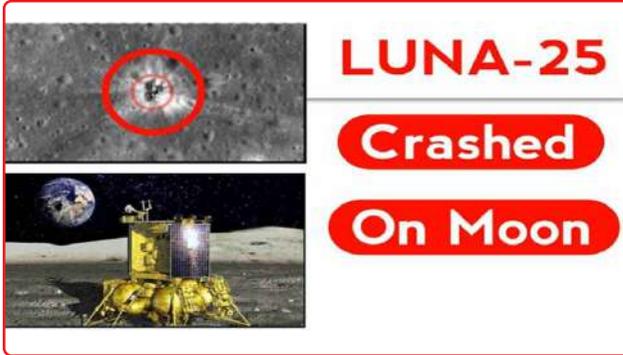
- CSIR-NBRI would be initiating a 'Lotus Mission' as part of a larger ongoing horticultural mission to have more of the 108 Namo flowers grow in other parts of India.

LUNA 25 CRASHES INTO THE MOON

Why in news?

- Recently, the Russia's Luna 25 spacecraft crashed into the moon after it spun into an uncontrolled orbit.
- The pilotless spacecraft was aiming to land in the South Pole area of the moon, an area where scientists

believe there could be important reserves of frozen water and precious elements.



Details:

- Luna-25, that took off on 11 August was aiming to be the first mission to reach the moon's south polar region, ahead of ISRO's Chandrayaan-3.
- Preliminary findings have revealed that "the apparatus moved into an unpredictable orbit and ceased to exist as a result of a collision with the surface of the Moon."
- Russia had opted for a more ambitious landing, rather than the route chosen by the US, China and even India.

The implications for Russia:

- Russia's Luna-25 mission, its first since 1976, was to have made a soft landing on the lunar south pole, the first in history.
- Roughly the size of a small car, it was expected to operate for a year on the south pole, where scientists at NASA and other space agencies in recent years have detected traces of frozen water in the craters.
- Apart from hunting water ice, Luna-25's main goal was to examine the regolith and rocks around it, looking at the wispy lunar atmosphere and testing out technology for future landings on the moon, reported Space.com.
- The failure of the mission is a setback for Russia that during the Cold War became the first nation, as the Soviet Union, to put a satellite, a man and then a woman in orbit.

Future space plans:

- The loss of Luna-25 may dent Russia's future space plans; Roscosmos has the Luna-26 mission, and even the Luna-27 which will see a drilling rig being sent to the moon.
- Also, it has the Luna-28, a sample-collection mission that aims to return material from the moon's polar regions to Earth.
- However, these will likely be delayed due to Luna-25's failure, as Roscosmos investigates to find the root cause of the probe's crash into the moon.
- It also pile pressure on Russia's \$2 trillion economy, and particularly its hi-tech sector, as it grapples with Western sanctions aimed at punishing Moscow for the war in Ukraine.

Other moon landings:

- With the crash of Luna-25, all eyes turn to ISRO's Chandrayaan-3 which is on course to become the first spacecraft to land near the lunar South Pole.
- China is also planning to send a crewed mission to the Moon by 2030 and build a base there. It has invested billions of dollars in its military-run space programme in a push to catch up with the United States and Russia.
- The US also has the Artemis mission lined up for late 2025 in which they plan to put two astronauts on the surface near the lunar South Pole. However, time needed to build and test the SpaceX lunar lander threatens to push the flight into the 2026-27 timeframe.

ISRO'S NEXT MOON MISSION IN COLLABORATION WITH JAPANESE SPACE AGENCY GATHERS STEAM



Why in news?

- ISRO's next likely Moon mission is in partnership with its Japanese counterpart.
- Lunar Polar Exploration Mission (LUPEX) is a collaborative venture between Japan Aerospace Exploration Agency (JAXA) and the Indian Space Research Organisation (ISRO).

Details:

- JAXA and ISRO are developing the rover and lander, respectively.
- The rover will carry not only the instruments of ISRO and JAXA but also those of US space agency NASA and European Space Agency (ESA).

Aim:

- The LUPEX mission is aimed at
 - a) exploring lunar polar region suitability for establishing a base on the Moon for sustainable activities;
 - b) obtaining knowledge regarding the availability of lunar water-ice resources, and
 - c) demonstrating lunar and planetary surface exploration technologies such as vehicular transport and overnight survival.

Instruments onboard:

- Ahmedabad-based Physical Research Laboratory (PRL), an autonomous unit of the Department of Space, has proposed multiple instruments in the LUPEX mission mainly to carry out measurements on the surface and subsurface near the permanently shadowed polar region of the Moon.
- The objective of one of the proposed instruments; Permittivity and Thermo-physical investigation for Moon's Aquatic Scout (PRATHIMA) is in-situ detection and quantification of water-ice mixed with lunar surface and sub-surface soil using a rover/lander platform.
- The aim of another proposed instrument; Lunar Electrostatic Dust EXperiment (LEDEX) is to detect the presence of charged dust particles and to confirm the dust levitation process in the volatile-rich polar region, and to estimate approximate dust size and flux of charged, levitated dust particles.

Way Forward:

- The LUPEX mission is slated to be launched in the year 2025.

GOVT TO REVAMP DRDO, SETS UP COMMITTEE



Why in news?

- The Ministry of Defence has decided to revamp Defence Research and Development Organisation (DRDO).
- It is known more for its delayed projects, cost overruns than the advances made in actual technology other than the missile programme.

Committee:

- The Ministry has set up a nine-member committee under the chairmanship of K. Vijay Raghavan, the former principal scientific advisor to the government.
- The committee, which was given three months to come out with recommendations on revamping DRDO, has members with links to the three Services, industry and the ministry itself.

Mandate:

- The committee's primary task is to come up with
- recommendations of restructuring and redefining the role of the DRDO,

- a way to rope in and retain high quality manpower,
- ability to collaborate with foreign experts and entities besides
- rationalising the number of laboratories within the organisation.

Issues with DRDO:

- Starting with only 10 laboratories in 1958, DRDO has grown into a giant organisation with a network of over 50 laboratories and establishments spread across the country.
- It, however, has not been able to produce a single technologically contemporary or futuristic platform or capability for the Indian armed forces on its own.
- From tanks to fighter aircraft to even basic assault rifles to specialised battery systems for the Navy or communication systems and unmanned aerial vehicles, the DRDO projects have seen huge delays.
- In 2022, the forces had also given several inputs on the need to revamp the DRDO, including by a parliamentary panel as early as 2019.
- A number of groups, including Kelkar, Kargil and Rama Rao committees, had been appointed to suggest recommendations, but very few were implemented.

Way Forward:

- The DRDO revamp will be a big step after what the government did with the erstwhile Ordinance Factory Board (OFB), which was divided into seven separate entities focussed on specific verticals of manufacturing.

INDIA LIGHTS UP THE DARK SIDE OF THE MOON



Why in news?

- India has become the fourth country to successfully land on the moon as the Chandrayaan-3's lander module, with the rover, successfully made a soft landing on the lunar surface.
- Precisely at 6.03 p.m., the lander touched the lunar surface.

Landmarks:

- India joined an elite list of countries; the U.S., Russia and China to achieve this feat.

- ⇒ India has also become the first nation to touch down on the polar region of the moon.
- ⇒ With the success of Chandrayaan-3, India now has become a space power with a proven track record. India's space economy is expected to grow to \$12.8 billion by 2025.
- ⇒ Overall, countries have made 47 attempts at soft landing on the moon of which only 21, including Chandrayaan-3, have been successful.

Series of event:

- ⇒ The moon lander was launched on July 14, perched on a LVM 3 heavy-lift launch vehicle. It was placed in the lunar orbit on August 5.
- ⇒ The tricky soft landing was preceded by subtle maneuvers, what the scientists called '20 minutes of terror'.
- ⇒ The lander, which was powered by four engines, cut off two to lose speed over the last 30 km.
- ⇒ It then performed the challenging change from a horizontal to vertical position for touchdown and controlled its speed, a process that had gone wrong in Chandrayaan-2 in 2019.

Descent of the lander:

- ⇒ Around 5.44 p.m., the powered descent of the lander module was initiated. The powered descent is divided into four phases:
 - a) rough braking phase
 - b) altitude hold phase
 - c) fine braking phase and
 - d) terminal descent phase.
- ⇒ Vikram completed each of these phases seamlessly and 19 minutes later, at 6.03 p.m., the lander made a safe and soft landing on the moon.

Link with MOX:

- ⇒ A communication link was established between the lander and the Mission Operations Complex (MOX) at ISRO Telemetry, Tracking, and Command Network (ISTRAC), Bengaluru.
- ⇒ It also shared images taken by the lander's horizontal velocity camera during the descent.

How it will work?

- ⇒ The lander will deploy the rover which will carry out in-situ chemical analysis of the lunar surface during the course of its mobility.
- ⇒ The lander and the rover with a mission life of one Lunar day (14 Earth days) have scientific payloads to carry out experiments on the lunar surface.
- ⇒ For the next 14 days, the rover Pragyan will send images and data from the surface of the moon. After 14 days, its activity is likely to slow down, given that it is powered by solar cells.
- ⇒ The moon rover will be in touch with the Lander Vikram and the orbiter of Chandrayaan-2. The lander will relay data to ISRO, which has no direct link with the Rover.

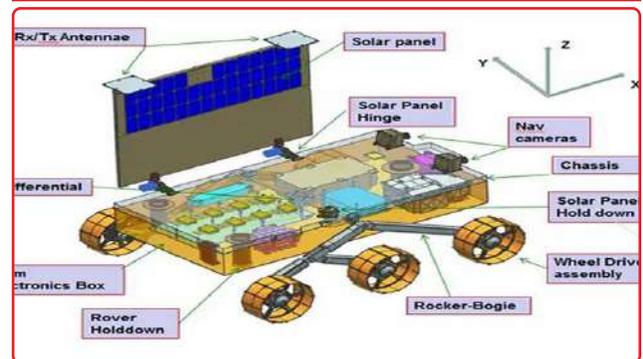
About Chandrayaan-3 mission:

- ⇒ The Chandrayaan-3 mission was launched on July 14 from the Satish Dhawan Space Centre in Sriharikota.
- ⇒ Chandrayaan-3 consists of an indigenous lander module, propulsion module and a rover with an objective of developing and demonstrating new technologies required for inter-planetary missions.
- ⇒ The objectives of the mission are to demonstrate safe and soft landing on lunar surface, to demonstrate rover roving on the moon and conduct in-situ scientific experiments.

What's next?

- ⇒ ISRO has a number of projects lined up; one of them a mission to study the Sun, and a human space flight programme, Gaganyaan.
- ⇒ Aditya-L1, the first space-based Indian observatory to study the Sun, is also getting ready for launch.

'FLY ME TO THE MOON' SEEMS TO BE GLOBAL AMBITION IN 2023



Why in news?

- ⇒ The year 2023 seems to be the year of the moon as a number of lunar missions are scheduled to take place this year.
- ⇒ As of July, there are six active lunar orbiters and currently, the only operating rover is China's Yutu-2 rover released by Chang'e 4, which operates on the far side.

Recent missions:

- ⇒ Recently, two missions were launched; India's Chandrayaan-3 on July 14 and Russia's Luna-25 on August 11.
- ⇒ Chandrayaan-3 met with success when its lander module safely touched down on the lunar surface and was followed by the rover's roll-out.
- ⇒ Luna 25 suffered a glitch and crashed on the moon's surface on August 19.

Four upcoming missions:

Mission by USA:

- ⇒ They include the Commercial Lunar Payload Services (CLPS) and Lunar Trailblazer from the U.S..
- ⇒ The CLPS initiative of the National Aeronautics and Space Administration allows rapid acquisition of

lunar delivery services from American companies for payloads that advance capabilities for science, exploration or commercial development of the moon.

- The Lunar Trailblazer on the other hand is an orbiter.

China & Japan's mission:

- The moon missions include China's lunar communication and navigation satellite constellation and Japan's Smart Lander for Investigating Moon (SLIM), which is an orbiter/lander mission.

Hakuto-R mission:

- The 2023 also saw another failure as Japan's Hakuto-R lander failed to make a moon landing in April.
- Had the Hakuto-R mission completed its task, it would have been the world's first commercial soft landing on the lunar surface.

Missions in 2024:

- In 2024, Beresheet 2 from Israel, U.S.'s Volatiles Investigating Polar Exploration Rover (VIPER), China's Lunar Exploration Programme (CLEP) Chang'e 6 and Hakuto-II are expected to be launched.

MOON LANDING SPOT IS NOW 'SHIV SHAKTI'



Why in news?

- Prime Minister recently announced that the point where the Vikram lander of Chandrayaan-3 landed will be called 'Shiv Shakti', and the point where Chandrayaan-2 left its footprint on the lunar surface will be called 'Tiranga'.

Shiv Shakti:

- In Shiv, there is resolution for the welfare of humanity and Shakti gives us strength to fulfil those resolutions.
- This Shiv Shakti point of the moon also gives a sense of connection with Himalaya to Kanyakumari.

Tiranga:

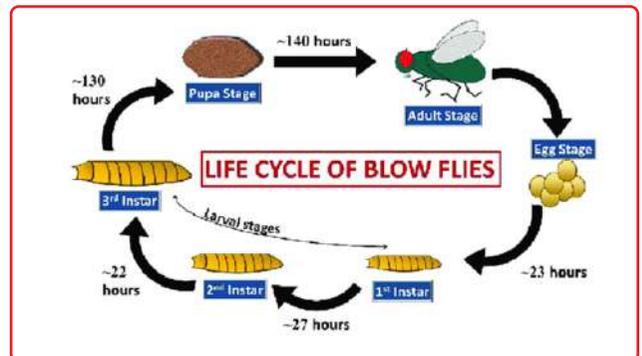
- The point where Chandrayaan-2 left its footprints will now be called Tiranga and that it will serve as an inspiration for every effort that India makes and remind that failure is not the end.

National Space Day:

- He also announced that August 23, the day the Chandrayaan-3's lander made a historic soft-landing

on the Moon will be commemorated as National Space Day.

STUDY ON LIFE CYCLE OF DIFFERENT BLOW FLIES



Why in news?

- The flies belonging to the Calliphoridae family in the order Diptera are the first visitors to inhabit and colonise a dead body.

Details:

- Commonly known as blow flies, these flies have significant importance in the accurate assessment of post-mortem interval (PMI), the time that has elapsed since one's death.
- However, studies reveal significant differences in the developmental rate of these flies according to seasonal changes.
- These changes may be due to changes in humidity, rainfall, temperature in the area, and genetic variations of blow flies.

Recent study:

- A study has recorded 17 blow fly species belonging to four subfamilies and eight genera from central Kerala.
- The study covers four forensically significant blow flies, *Chrysomya megacephala*, *Chrysomya rufifacies*, *Chrysomya chani*, and *Hemipyrellia ligurriens*, that have been identified based on their morphological and molecular characteristics.

Regression equation method:

- Effect of temperature and humidity on the life cycle of blow flies was investigated and it showed that the pre-oviposition period was significantly higher in winter in all the four species. Length and weight larval instars were significantly higher in monsoon for *C. megacephala* and *C. rufifacies*.
- The regression equation method developed in this study emerged as the best suitable method for the estimation of PMI using life history of blow flies.
- The regression equation was found to give an accurate estimate of developmental duration to the level of specific hour (of death) corresponding to the length of any particular instar/larval state.

SCIENTISTS FIND A BACTERIA THAT CAN 'EAT' METHANE



Why in news?

- A recent study has discovered a bacteria that "eats" methane, keeping the gas from entering the atmosphere in large amounts.
- Methane is a potent greenhouse gas that is released from various human activities, including energy production (natural gas and petroleum systems), business, agriculture, land usage, and waste management.

Methanotrophs:

- Using a class of bacteria called methanotrophs to naturally convert methane to carbon dioxide and biomass, a team of researchers from California University Long Beach has proposed a method for eliminating methane.
- All of the bacteria in this group "eat" methane, removing it from the air and converting part of it to cells as a source of sustainable protein.
- *Methylobacterium burtonense* 5GB1C is a strain of bacteria discovered by them that is capable of efficiently removing methane even in low concentrations. If adopted widely, the technique could aid in reducing global warming.

Why it matters?

- Using this bacteria extensively could save 240 million tonnes of methane from entering the atmosphere by 2050.
- This particular bacterial group typically flourishes in conditions with high methane concentrations (between 5,000 and 10,000 parts per million (ppm)).
- Methane concentrations in our atmosphere are typically significantly lower, at only 1.9 ppm. However, some places, like oil wells, landfills, and rice fields, produce higher amounts of roughly 500 ppm.

Challenges:

- There will be a need for thousands of well-functioning reactors if methane-eating bacteria are to be used on a large scale.
- Temperature regulation is challenging. Since bacterial development is inhibited by temperatures outside of

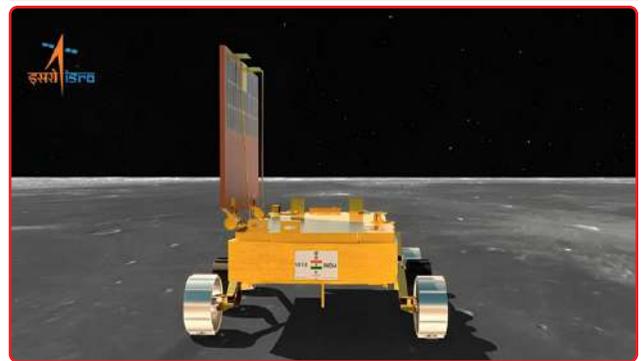
the recommended range of 25 to 30 degrees Celsius, the researchers pointed out that both extremes of temperature can be harmful.

- To make sure the technology is economically viable and benefits the environment, it is necessary to analyse the environmental life cycle and techno-economics of the technology.

Sources of methane emission

- Due to livestock manure and gastroenteric releases, the agriculture industry is the main source of methane emissions in the atmosphere.
- Methane is a particularly problematic greenhouse gas because it has more than 85 times the warming potential of carbon dioxide over the first 20 years after it enters the atmosphere.
- In the last 15 years, atmospheric methane has risen rapidly, reaching record levels, and now contributes at least 30 per cent of all global warming.
- At CoP26 in 2021, a number of the top economies in the world decided to cooperate to lower methane emissions immediately. They do, however, keep going up.

PRAGYAN CONFIRMS SULPHUR NEAR SOUTH POLE OF MOON



Why in news?

- Pragyan, the rover of the Chandrayaan-3 mission, has confirmed the presence of sulphur on the moon's surface, near its south pole, and is still searching for hydrogen.

LIBS instrument:

- The Laser-Induced Breakdown Spectroscopy (LIBS) instrument aboard the rover has made the first-ever in-situ measurements on the elemental composition of the lunar surface near the South Pole.

How it works?

- The LIBS is a scientific technique that analyses the composition of materials by exposing them to intense laser pulses.
- A high-energy laser pulse is focused onto the surface of a material, such as a rock or soil, and generates localised plasma.

⇒ The collected plasma light is spectrally resolved and detected by charge coupled devices. Since each element emits a characteristic set of wavelengths of light when in a plasma state, the elemental composition of the material can be determined.

New Findings:

- ⇒ Preliminary analyses have unveiled the presence of Aluminum (Al), Sulphur (S), Calcium (Ca), Iron (Fe), Chromium (Cr), and Titanium (Ti) on the lunar surface.
- ⇒ Further measurements have revealed the presence of manganese (Mn), silicon (Si), and oxygen (O). Thorough investigation regarding the presence of Hydrogen is under way.

National Space Day:

- ⇒ The Union Cabinet adopted a resolution hailing the Chandrayaan-3 mission, saying it is a victory not just for the ISRO but also a symbol of India's progress and ascent on the global stage.
- ⇒ It welcomed that August 23 would be celebrated as National Space Day.

WORLD'S FIRST PROTOTYPE OF THE BS 6 STAGE II 'ELECTRIFIED FLEX FUEL VEHICLE' LAUNCHED



Why in news?

⇒ Recently, the Union Minister for Petroleum & Natural Gas unveiled the Prototype of World's 1st BS-6 Stage-II, Electrified Flex fuel vehicle, developed by Toyota Kirloskar Motor.

Key Highlights:

- ⇒ This initiative by Toyota is particularly important as it introduces the world's first BS 6 (Stage II) Electrified Flex Fuel vehicle prototype, which has both the flex fuel engine as well as an electric powertrain, thereby offering higher use of ethanol combined with better fuel efficiencies.
- ⇒ It is based on the Innova Hycross and is engineered to adhere to India's stricter emission standards, marking it as the first-ever BS 6 (Stage II) Electrified Flex Fuel Vehicle prototype globally.
- ⇒ The forthcoming stages for this prototype

encompasses meticulous refinement, homologation, and certification processes.

Electrified Flex Fuel Vehicle:

- ⇒ India has huge Ethanol potential, much beyond E20 mix. This excess potential can be utilised by the country by promoting Flex Fuel vehicle (FFVs) and Flex Fuel Strong Hybrid Electric Vehicle (FFV-SHEV) / Electrified Flex Fuel Vehicle.
- ⇒ An Electrified Flex Fuel Vehicle has both a Flexi Fuel engine and an electric powertrain. This gives it ability to provide dual benefit of higher ethanol use and much higher fuel efficiency as is in case of a Strong Hybrid Electric Vehicle (SHEV), which can provide 30-50% higher Fuel Efficiency as it can run 40-60% in EV mode with engine shut off.
- ⇒ As Electrified Flex Fuel Vehicle uses minimal advanced chemistry batteries, it also guards against possible Geo-political risks of battery raw material supplies.

NEWS MEDIA VERSUS OPENAI'S CHATGPT



Why in news?

- ⇒ A group of news media organisations, including The New York Times, Reuters, CNN and the Australian Broadcasting Corporation, recently shut off OpenAI's ability to access their content.
- ⇒ The development comes in the wake of reports that The New York Times is planning on suing the artificial intelligence (AI) research company over copyright violations, which would represent a considerable escalation in tensions between media companies and the leading creator of generative artificial intelligence solutions.

What does OpenAI do?

- ⇒ The company is best known for creating 'ChatGPT', which is an AI conversational chatbot. Users can ask questions on just about anything, and ChatGPT will respond pretty accurately with answers, stories and essays. It can even help programmers write software code.
- ⇒ The hype around ChatGPT has propelled OpenAI into becoming a \$30 billion company.

What started the face-off between news outlets and OpenAI?

- Software products like ChatGPT are based on 'large language models' (LLMs). These models require enormous amounts of information to train their systems. If chat bots or digital assistants need to be able to understand the questions that humans throw at them, they need to study human language patterns.
- Tech companies that work on LLMs like Google, Meta or Open AI are secretive about what kind of training data they use. But it's clear that online content found across the Internet, such as social media posts, news articles, Wikipedia, e-books, form a significant part of the dataset used to train ChatGPT and other similar products.
- This data is put together by scraping it off the Internet. Tech companies use software called 'crawlers' to scan web pages, hoover up content and put it together in a dataset that can be used to train their LLMs.

Why are media companies upset?

- Search engines like Google or Bing also use web crawlers to index websites and present relevant results when users search for topics.
- The only difference is that search engines represent a mutually beneficial relationship. Google, for instance, takes a snippet of a news article (a headline, a blurb and perhaps a couple of sentences) and reproduces them to make its search results useful. And while Google profits off of that content, it also directs a significant amount of user traffic to news websites.
- OpenAI provides no benefit, monetary or otherwise, to news companies. It simply collects publicly available data and uses it for the company's own purposes.

What is the way forward?

- Tech gurus like to argue that the value of online content only exists in the aggregate. Or in other words, ChatGPT could still exist as a high-quality product without CNN's reporting.
- But if all media publications across the world refused to provide access to OpenAI, it's likely that the final product would be of lower quality. And, of course, if every single creator of online content turned down OpenAI, then ChatGPT would almost certainly not exist.
- However, it's clear that OpenAI does believe some data is worth paying for.
- The legal battles ahead will have interesting implications for journalism, intellectual property and the future of artificial intelligence.

SOCIAL ISSUES

UNFPA PROJECT IN RAJASTHAN FOR GENDER SENSITIVITY

Why in news?

- A project of the United Nations Population Fund (UNFPA) for gender sensitivity in Rajasthan has received support from experts working for the elimination of customs promoting patriarchy.



Key Highlights:

- The four-month-long project aims at promoting gender equality and shaping public opinion to end gender-based discrimination.
- The UNFPA has signed an agreement with Haridev Joshi University of Journalism (HJUJ), Jaipur, for capacity building of its students on issues related to gender norms, sexual violence, and human rights.

Workshops:

- A two-day workshop on gender sensitivity attended by 40 journalism students in Jaipur over the weekend highlighted the subject, with an emphasis on creating a more equal and just society.
- Gender experts called upon the students to play an active role in bringing about a change in attitude in society.
- The speakers also made a reference to the social norms and customs prevalent in Rajasthan that push women to the margins.

Future prospects:

- The introduction of gender sensitivity and equality in the university curriculum would make the youngsters aware of the significance of gender issues.
- The project will enable the youth to challenge the social norms promoting discrimination and gender disparity, and play a meaningful role in women's empowerment.

HEALTH

GOVERNMENT INTRODUCES A NEW CATEGORY OF AYUSH VISA FOR FOREIGN NATIONALS SEEKING TREATMENT UNDER INDIAN SYSTEMS OF MEDICINE

Why in news?

- Ministry of Home Affairs, has notified the creation of a new category of Ayush (AY) visa for foreign

nationals for treatment under Ayush systems/Indian systems of medicine.



Details:

- The introduction of Ayush Visa fulfills the proposal for introduction of a special visa scheme for foreigners visiting India for treatment under Ayush systems/ Indian systems of medicine like therapeutic care, wellness and Yoga.
- A new chapter i.e. chapter 11A – Ayush Visa has been incorporated after Chapter 11 - Medical visa of the Visa Manual, which deals with treatment under the Indian systems of medicine and accordingly necessary amendments has been made in various chapters of the Visa Manual, 2019.

Background:

- The Prime Minister had announced a creation of a special Ayush Visa category for facilitating foreign nationals travel to India seeking Ayush therapy, at Global Ayush Investment and Innovation Summit (GAIIS) in Gandhinagar, Gujarat in April 2022.

Heal in India initiative:

- Introduction of Ayush Visa category is part of India's roadmap for the Heal in India initiative of the government, which is intended at promoting India as a medical value travel destination.
- Ministry of Ayush and the ministry of Health & Family Welfare are working together to develop a one stop Heal in India portal to promote India as a Medical tourism destination of the world.

Economic aspect:

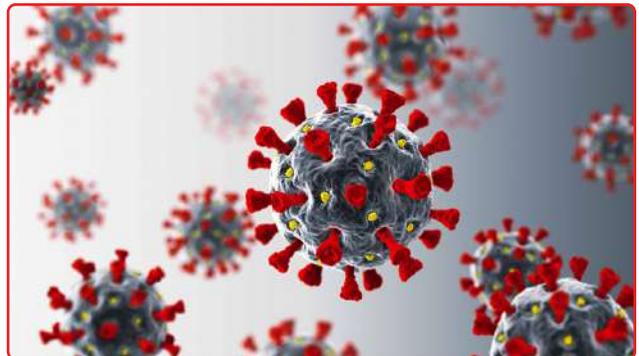
- According to the report 'The Global Wellness Economy: Looking beyond COVID' by the Global Wellness Institute (GWI), the Global Wellness economy will grow at 9.9% annually.
- Ayush based healthcare & Wellness economy is estimated to grow to \$70 billion by 2025.

Way Forward:

- Ministry of Ayush has been working on many fronts to promote Ayush system of treatment national and globally.
- Recently, a MoU with India Tourism Development Corporation (ITDC), Ministry of Tourism, GoI was signed to work together for the promotion of Medical

Value Travel in Ayurveda and other traditional systems of medicine.

WHO DECLARES ERIS A COVID 'VARIANT OF INTEREST'



Why in news?

- The World Health Organisation (WHO) recently classified the EG.5 coronavirus strain, which is currently circulating in the United States, UK and China, as a 'variant of interest'.
- Despite its rapid spread and prevalence, accounting for over 17 per cent of cases in the US, the WHO has stated that it does not appear to pose a greater threat to public health than other existing variants.

EG.5 coronavirus strain:

- Eris is a descendant of Omicron and shares some of its symptoms, including runny nose, headache, fatigue (ranging from mild to severe), sneezing and a sore throat.
- This strain has also been detected in several other countries including South Korea, Japan, and Canada.
- The WHO's risk evaluation indicated that the EG.5 variant, a descendant of the Omicron strain, does not present additional public health risks compared to other circulating lineages of the same parent strain.
- However, the organisation has called for a more comprehensive evaluation of the potential risks posed by this variant.

Covid-19 pandemic:

- Since the outbreak of Covid-19, the virus has claimed the lives of over 6.9 million people worldwide, with more than 768 million confirmed cases reported.
- The pandemic status of the outbreak was declared by the WHO in March 2020, but the global emergency status was lifted in May 2023.

Lack of data:

- The WHO expressed concern over the lack of Covid-19 data reporting from many countries, revealing that only 11 per cent had reported hospitalisations and ICU (intensive care unit) admissions related to the virus.
- In response, the WHO issued a set of recommendations urging countries to continue reporting Covid data, particularly mortality and morbidity data, and to persist in offering vaccinations.

CENTRE RELEASES ADDITIONAL GUIDELINES FOR HEALTH AND WELLNESS CELEBRITIES, INFLUENCERS AND VIRTUAL INFLUENCERS



Why in news?

- The Department of Consumer Affairs, under the Ministry of Consumer Affairs, Food and Public Distribution, has released Additional Guidelines for celebrities, influencers and virtual influencers in the field of health and wellness.

Details:

- These guidelines are an important extension to the Guidelines for Prevention of Misleading Advertisements and Endorsements for Misleading Advertisements, 2022, and in lieu of the "Endorsement Know-hows!" guide booklet released on in January 2023.
- They have been developed after detailed discussions with all stakeholders including Ministry of Health, Ministry of Ayush, Food Safety and Standards Authority of India (FSSAI) and Advertising Standards Council of India (ASCI).
- They aim to deal with misleading advertisements, unsubstantiated claims and ensure transparency in health and wellness endorsements.

Key Highlights:

- Under the guidelines, certified medical practitioners and health & fitness experts holding certifications from recognized institutions when sharing information, promoting products or services or making any health-related claims, must disclose that they are certified health/fitness experts and medical practitioners.
- Celebrities, influencers and virtual influencers presenting themselves as health experts or medical practitioners, when sharing information, promoting products or services or making any health-related claims, must provide clear disclaimers, ensuring the audience understands that their endorsements should not be seen as a substitute for professional medical advice, diagnosis or treatment.
- This disclosure or disclaimer is necessary when talking or making claims on topics such as health

advantages including those derived from food items & nutraceuticals, disease prevention, treatment or cure, medical conditions, recovery methodologies or immunity boosting, etc.

- This disclosure or disclaimer should be displayed during endorsements, promotions, or at any instance of making health-related assertions.

Way Forward:

- DoCA will actively monitor and enforce these guidelines. Violations may lead to penalties under the Consumer Protection Act 2019 and other relevant provisions of the law.
- The department is committed to safeguarding consumer interests and promoting a fair and transparent marketplace, especially in the increasingly influential digital space. This guideline will further strengthen the industry and protect consumer interests.

WHO-MANAGED GRID TO PROMOTE EQUITABLE ACCESS TO DIGITAL HEALTH



Why in news?

- Recently, the Health Minister launched the Global Initiative on Digital Health (GIDH), a network managed by the World Health Organization, in the presence of Tedros Adhanom Ghebreyesus, Director-General of the WHO.
- The GIDH is one of the key deliverables of India's G-20 Presidency.

Key Highlights:

- It will consolidate the evidence and "amplify recent and past gains in global digital health" while strengthening mutual accountability to enhance the impact of future investments.
- The GIDH will be a WHO-managed network that will promote equitable access to digital health by addressing challenges such as duplication of efforts and "products-focused" digital health transformation.

Key components:

- The key components of the GIDH will leverage existing evidence, tools and learnings and will be co-created through a transparent and inclusive process.

- ⇒ Through this evidence-based and comprehensive co-creation process, GIDH will ultimately aim to:
 - a) ALIGN efforts to support the Global Strategy on Digital Health 2020–2025;
 - b) SUPPORT quality assured technical assistance to develop and strengthen standards-based and interoperable systems aligned to global best practices, norms and standards;
 - c) FACILITATE the deliberate use of quality assured digital transformation tools that enable governments to manage their digital health transformation journey.

Way Forward:

- ⇒ The GIDH is an integrative step that fosters equity in healthcare by converging efforts and best practices.

**INDIA TO GET \$25 MN FROM
G20 PANDEMIC FUND**



Why in news?

- ⇒ India will receive USD 25 million from the G20 Pandemic Fund for strengthening animal health system of the country.
- ⇒ The fund that was established under Indonesia's G20 Presidency is targeted at low-to middle-income countries to finance efforts like surveillance, research, and better access to vaccines, among others measures.

Interventions:

- ⇒ The major interventions to be taken under the proposal include:
 - strengthening and integrating disease surveillance and early warning system;
 - upgrading and expanding the laboratory network;
 - improving the inter-operable data systems and
 - building capacity for data analytics for risk analysis and risk communication.
- ⇒ The other interventions include strengthening health security for transboundary animal diseases and India's role in regional cooperation through cross-border collaboration.

Key Highlights:

- ⇒ The Pandemic Fund's Governing Board has approved "19 grants" under its first round of funding allocations

aimed to boost resilience to future pandemics in 37 countries across six regions.

- ⇒ It will bring additional, dedicated resources for pandemic prevention, preparedness, and response.
- ⇒ It will incentivise increased investments, enhance coordination among partners, and serve as a platform for advocacy.
- ⇒ The impact of the project would be to reduce the risk that a pathogen will emerge from animals (domesticated and wildlife) to be transmitted into the human population endangering the health, nutritional security, and livelihoods of vulnerable populations.

Implementation:

- ⇒ The project will be implemented in collaboration with the Asian Development Bank (ADB) as the lead implementing entity with the World Bank and the Food and Agriculture Organization (FAO).

Significance:

- ⇒ The devastating human, economic, and social cost of COVID-19 has highlighted the urgent need for coordinated action to build stronger one-health systems and mobilize additional resources for pandemic prevention, preparedness, and response.
- ⇒ In the past few decades, five out of the six WHO declared public health emergencies of international concern were of animal origin. Consequently, it has become evident that any pandemic preparedness and response (PPR) needs a 'One Health' approach with a focus on animal health security.

**NO NUTRITIONAL INFO ON LABEL EXCEPT
ENERGY, FSSAI AMENDS ALCOHOL NORMS**



Why in news?

- ⇒ Alcoholic beverages must not contain any nutritional information on the label except the voluntary declaration of energy content in kcal, according to a new regulation by food regulator FSSAI.

Details:

- ⇒ Food Safety and Standards Authority of India (FSSAI) has come out with 'Food Safety and Standards (Alcoholic Beverages) First Amendment Regulations, 2023', which will come into force on March 1, 2024.

- In the amendment, the FSSAI has also defined single malt whiskey and single grain whiskey.
- Single grain whisky is a distillate obtained from a fermented mash that uses malted or unmalted grain, and produced in a single distillery.
- It shall not include single malt whisky and blended malt whisky or blended grain whisky.
- Whisky is an alcoholic beverage made by distilling the fermented extract of malted cereal grains such as corn, rye, barley, or using neutral grain spirit or rectified grain spirit, or neutral spirit of agricultural origin, or their mixture.

Background:

- In Food Safety and Standards (Alcoholic Beverages) Regulations, 2018, it was stated that alcoholic beverages should not contain any nutritional information on the label.
- In the 2018 regulation, single malt or single grain whisky was defined as a distillate obtained from fermented mash that uses one particular malted barley or malted grain, respectively, distilled in pot still only, and produced in a single distillery.

CULTURE

YELAGIRI HUT SHELTERS 200 YEARS OF HILL TRIBE HISTORY



Context:

- More than two centuries ago, over 200 Malaiyali tribes people built traditional clay huts on the flat peak of the picturesque Yelagiri hill in northern Tamil Nadu, establishing an all-encompassing system for shelter, storage, farming, and cattle rearing.
- All that remains of that settlement today is a single antiquated hut, juxtaposed with new concrete houses.
- Having been in the hamlet for about 200 years, this last old-fashioned hut of the tribe is owned and maintained by a tribesman.

About Malaiyali tribe:

- The Malaiyali tribe, malai meaning "hill" and yali meaning "people" is spread across Tamil Nadu's hilly regions.
- The tribespeople were foragers who settled in

the upper Nillavur region of Yelagiri and began cultivating its tabletop peak for food.

- Initially living in makeshift huts, they found a permanent solution in the red loam clay abundant in the hills and constructed simple one-room structures that measured 16 by 22 feet.

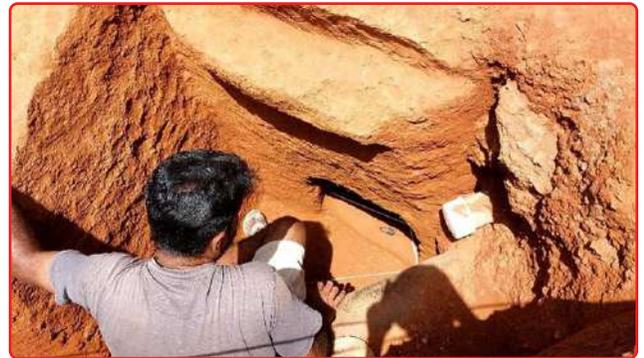
Key features:

- These huts were built of red clay.
- Made of dry bamboo leaves, the thatched roof is waxed with cow dung to prevent it from leaking during rain. This covering tends to make the house appear deceptively small from the outside, but it has enough space to house eight people and a paran (attic) to store pots and other household items.
- A unique feature of the munn veedu (mud house) or andara kotai (storage facility) is that it stands on a stilt-like structure made of teakwood.
- This holds the house two feet above the ground to keep rodents at bay and to prevent the house from flooding during torrential rain.

Conclusion:

- It is a standing testament to the tribe's evolution from foraging to a more modern lifestyle.

PIPELINE WORK LEADS TO VAST MEGALITHIC SITE IN KERALA



Why in news?

- A large number of megalithic hat stones were found from a single site during a recent salvage excavation conducted by the Kerala State Archaeology Department at Nagaparamba in Kuttippuram village, near Tirunavaya, in Malappuram district.

What are Hat stones?

- Hat stones, popularly called Thoppikkallu in Malayalam, are hemispherical laterite stones used as lids on burial urns during the megalithic period.
- Archaeologists say the discovery at Nagaparamba could arguably be the largest number of hat stones in an unprotected site in the State.

Recent excavation:

- A unique rock cut laterite burial chamber was found during the laying of water supply pipelines.

- ⇒ A large number of megalithic burial sites and relics were found during the excavation.
- ⇒ The team salvaged numerous earthen urns and iron implements with unique features, which could throw light on the life and culture of people who lived in those parts over 2,000 years ago.

Way Forward:

- ⇒ A detailed survey will be conducted for the finds as well as the site.

ARTISTS BREATHE NEW LIFE INTO SEETHAKALI FOLK ART, ALL SET TO PERFORM OUTSIDE KERALA



Why in news?

- ⇒ The Perinad Seethakali Sangham member group is all set to perform outside Kerala for the first time.

What is Seethakali?

- ⇒ Seethakali is said to have originated from Perinad of Kollam district.
- ⇒ It is a Dravidian dance form portraying the portions from vanayatra (exile to the forest) to Sita's andardhanam (descend into the earth).
- ⇒ It's a blend of songs, story telling and fast movements while ganjira, manikatta, chiratta and kaimani are among the accompaniments.
- ⇒ The songs of Seethakali were not written down but were passed on orally.
- ⇒ Seethakali was performed during Onam from Atham till Erupathettam Onam.

Performers:

- ⇒ A dance drama primarily performed by Dalit artists belonging to the Veda and Pulaya communities, it presents minuscule episodes of the Ramayana at every homestead.
- ⇒ The costume, colours and props were made by the local people using materials that were available in plenty in the villages. Including bows and arrows made of bamboo.

Revival efforts:

- ⇒ Over the years, the staging became sporadic and around three decades ago, the folk art started fading away from public domain.
- ⇒ The efforts to revive it by the Perinad Grama Panchayat proved fruitful when it came back to the stage in August 2017 with a performance at the panchayat hall. In October 2018, the group affiliated with the Kerala Folklore Akademi.



PRACTICE QUESTION FOR UPSC PRELIMS EXAM

1. Consider the following statement regarding TransLunar Injection (TLI):
 1. It enabling spacecraft to escape Earth's gravitational pull and travel to the Moon.
 2. During a TLI, the spacecraft's propulsion system fires its engines to accelerate the spacecraft.
 3. It is performed when the spacecraft is at a specific point in its orbit known as the 'apogee'.
 Choose the correct option from the codes given below:

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

2. Consider the following statement regarding Great Barrier Reef:
 1. It is second largest coral reef system in the world.
 2. It lies in the Pacific Ocean off the northeastern coast Australia.
 3. Corals are marine invertebrate animals that belong to the phylum Cnidaria.
 Choose the correct option from the codes given below:

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

3. Consider the following statement regarding Sathyamangalam Tiger Reserve:
 1. It is located at the junction of the Eastern and the Western Ghats in the Nilgiri Biosphere Reserve.
 2. Its area is contiguous with the Mudumalai Tiger Reserve, Bandipur Tiger Reserve (Karnataka) and BR Tiger Reserve.
 Choose the correct option from the codes given below:

a) 1 Only	b) 2 Only
c) 1 and 2	d) None of the above

4. Consider the following statement regarding Metaverse:
 1. It refers to a virtual or digital universe where people can interact with each other and digital objects in a shared online space.
 2. The term "metaverse" first appeared in author Neal Stephenson's 1992 science-fiction novel Snowcrash.
 3. The metaverse is essentially an interconnected network of virtual worlds.
 Choose the correct option from the codes given below:

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

5. Consider the following:
 1. Kesari and Maratha
 2. Gita Rahasya
 3. National Indian Association
 Which among the above following is associated with Tilak?

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

6. Consider the following statement regarding Offshore Areas Mineral (Development and Regulation) Act:
 1. The new bill regulates mining in maritime zones of India.
 2. The Bill also allows the administering authority to grant a composite licence or production lease to the government or a government company.
 3. It does not seeks to provide for the grant of production lease to the private sector.
 Choose the correct option from the codes given below:

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

7. Consider the following statement regarding Yudh Ahyas:
 1. Exercise Ajeya Warrior is a joint exercise between India and USA.
 2. Yudh Abhyas is a joint military exercise conducted annually between the armies of India and USA.
 3. Cope India and Red Flag exercise is conducted between India and USA.
 Choose the correct option from the codes given below:

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

8. Consider the following statement regarding Infrastructure investment trust:
 1. Infrastructure investment trust is Collective Investment Scheme similar to a mutual fund.
 2. NHAI InvIT is the infrastructure investment by the National Highways Authority of India (NHAI) to support the government's National Monetisation Pipeline (NMP).

- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
18. Consider the following statement regarding Study in India (SII) programme:
1. It is a flagship project launched by the education ministry.
 2. It aims to endorse India as a prime education hub for international students.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
19. Consider the following statement regarding Mahanadi River:
1. It is one of the major east-flowing peninsular rivers in India.
 2. The river originates from the Sihawa range in Chhattisgarh.
 3. It passes through several major cities and towns, including Raipur, Sambalpur, and Cuttack.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
20. Consider the following statement regarding UNESCO heritage danger list:
1. These are threatened due to factors like armed conflict and war, earthquakes and other natural disasters.
 2. The UNESCO also sets certain guidelines and criteria under the 1972 World Heritage Convention.
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
21. Consider the following statement:
1. UNMESH is Asia's largest literature festival in terms of the number of languages represented.
 2. UTKARSH festival showcases the folk and tribal Performing Arts.
 3. These festivals is organised by Sahitya Akademi only.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
22. Consider the following statement regarding Trachoma:
1. It is a rain disease.
 2. Blindness from trachoma is irreversible.
 3. It is a tropical disease.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
23. Consider the following statement regarding Neerakshi:
1. It is an autonomous underwater vehicle (AUV) designed to detect mines.
 2. Named "Neerakshi" meaning "Eyes in the Water".
- Choose the correct option from the codes given below:
- a) 1 Only b) 2 Only
c) 1 and 2 d) None of the above
24. Consider the following statement regarding Raynaud's Phenomenon:
1. It is a condition that causes the blood vessels in the extremities to narrow, restricting blood flow.
 2. An attack usually happens from exposure to cold or emotional stress.
 3. During attack, the arterioles and capillaries in your fingers and toes tighten more than they should.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
25. Consider the following statement regarding Samudrayaan Project:
1. It is India's first manned mission to explore the deep ocean.
 2. The project is part of the larger Deep Ocean Mission
 3. It is designed to study the deep ocean resources only.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
26. Consider the following statement regarding Manas National Park:
1. It is a national park, UNESCO Natural World Heritage site, a Project Tiger reserve, an elephant reserve and a biosphere reserve.
 2. It contains some of the largest remaining grassland habitats in the sub-Himalayan grassland ecosystems.
 3. The Park is known for its rare and vulnerable wildlife such as the Assam roofed turtle and hispid hare.
- Choose the correct option from the codes given below:
- a) 1 and 2 b) 2 and 3
c) 1 and 3 d) 1, 2 and 3
27. Consider the following statement regarding Clouded leopard:
1. It is listed as critically endangered animal by IUCN.
 2. The mainland clouded leopard distributed from central Nepal to peninsular Malaysia.

PRACTICE QUESTION FOR UPSC MAINS EXAM

1. With rising fuel prices and increasing supply pressures, India needs a clean, sustainable and affordable e-cooking solution, one that also reduces its dependence on imports and increases energy security. Discuss and comment.
2. The South Asia's new economic openness, India's vigorous neighbourhood policies, and Western support for an India-centred regionalism in South Asia could transform the Subcontinent's economic landscape. Comment.
3. Highlight with the help of valid arguments, how the deep tech startups are the main route through which India is taking technology risks, a crucial element of any country's process to build new capabilities.
4. With respect to India's recent push to integrate 'AYUSH' medicinal systems into mainstream health care to achieve universal health coverage, discuss why India's path to universal health care must be grounded in evidence-based and ethics-driven medicine.
5. In order for India to expand its energy basket to meet its growing energy and environmental needs, it must utilize nuclear energy. Discuss why?
6. How is the Digital Personal Data Protection Bill, 2023 different from its previous iteration? What are the domains where it has made advances and the ones where it is lacking?
7. How are sugarcane farmers impacted by the excess sugar production? What measures can be taken to prevent India's agricultural sector from collapsing due to the sugar surplus? How have excessive sugarcane subsidies affected India's competitiveness in the global sugar market? What are the implications of sugarcane over-cultivation?
8. Is India import-dependent for critical and deep-seated minerals? Why is it essential to get the private sector to explore these minerals? Has India's existing mining policy attracted private-sector investment? How does the Mines and Minerals Bill 2023 plan to do that?
9. Discuss why the current health system needs to give way to a comprehensive health system approach, keeping in mind the vulnerability of urban households to climate change-led events in India?
10. What are small nuclear modular reactors? What differentiates them from conventional nuclear power plants? How can they contribute to decarbonisation? How will they affect India's demand for and use of uranium? What legal and regulatory changes do they entail?
11. The Indian government has immense potential to guide the lithium industry down a path that is both sustainable and economically beneficial. Comment.
12. Recent studies predict that the widespread impacts of climate change will intensify further, highlighting the urgent need for mitigation and adaptation. A move towards universal business sustainability will need a multi-stakeholder approach, legal enforcement, and government policies. Comment.
13. What are the issues involved in the legal challenge to the removal of Kashmir's special status? Could it have been unilaterally removed?
14. Discuss how a combination of institutional frameworks and policy changes has ensured a profound transformation in India's defence policy?
15. Examine the issues, particularly on methodology relating to the multidimensional poverty index, and discuss why consumption-based poverty estimates are still very relevant?
16. Highlight the urgency of addressing gender-specific repercussions within agricultural adaptation efforts, by investigating challenges from changing weather patterns and extreme events, exploring economic implications, discussing cultural impacts on gender roles and examining adaptive strategies.
17. Highlight the significance of the Registration of Births and Deaths (RBD) Act and its recent amendment via the Registration of Births and Deaths (Amendment) Bill, 2023. What are the challenges in obtaining accurate cause of death certificates and suggest remedies.
18. Elaborate how the India-Japan partnership is poised to play a pivotal role in shaping the global semiconductor landscape?
19. Will India and China have the opportunity to have bilateral talks on the Line of Actual Control dispute? How will fruitful discussions have a bearing on the G20 summit in Delhi next month? Will Russian President Vladimir Putin attend the meeting?
20. The issue of social isolation among senior citizens is a pressing concern which demands a comprehensive and adaptable strategy. Comment and discuss.
21. Climate change is the single biggest health threat facing humanity, and developing nations of the Global South are expected to be the most vulnerable to climate-induced health risks. Discuss the impact of extreme heat and its consequences for health. What should be the adaptive policies and responses to overcome the situation?

22. Give a brief note on the provisions of Section 8(4) of the Representation of People Act (RP Act) and impacts of its striking down in the Lily Thomas vs Union of India (2013) on the careers of India's legislators?
23. Approximately 91% of India's workforce working in the informal sector, highlight the issues related to social security coverage and implementation in the country.
24. What is the significance of the Arctic region for India's interests? Why is India involved in Murmansk's Cargo Traffic? How long has India been engaged with the Arctic region? What is the NSR? How does the Chennai-Vladivostok Maritime Corridor impact NSR?
25. Elaborate how by focusing on cleantech solutions to bolster livelihoods, especially in rural areas, India can achieve an inclusive green transformation.
26. Give a brief outline of major upcoming projects of the Indian Space Research Organisation after the success of Chandrayaan-3. What are some of the other things it is working on now besides producing rockets and developing satellite systems?
27. India's Himalayan region is being destroyed by greed outstripping the need along with manipulative political, bureaucratic and real estate lobbies. Discuss the above statement in context of recent disasters unfolding in Uttarakhand.
28. Understanding sexual consent is important not only to learn about violation and abuse, but also to maintain healthy relationships. Discuss the above statement while highlighting the need for comprehensive sexuality education to address the issue of child abuse.
29. Give a brief outline of the Rajasthan Platform-Based Gig Workers (Registration and Welfare) Bill, 2023. What are the major issues that could potentially limit the scope and impact of the bill and how it need to be aligned with global best practices?

PRACTICE QUESTION FOR UPSC PRELIMS EXAM

ANSWER KEY

- | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1. (a) | 2. (b) | 3. (c) | 4. (d) | 5. (a) | 6. (a) | 7. (b) | 8. (c) | 9. (d) | 10. (a) |
| 11. (a) | 12. (b) | 13. (c) | 14. (d) | 15. (a) | 16. (a) | 17. (b) | 18. (c) | 19. (d) | 20. (c) |
| 21. (a) | 22. (b) | 23. (c) | 24. (d) | 25. (a) | 26. (a) | 27. (b) | 28. (c) | 29. (d) | 30. (a) |
| 31. (a) | 32. (b) | 33. (c) | 34. (d) | 35. (a) | 36. (a) | 37. (b) | 38. (c) | 39. (d) | 40. (a) |
| 41. (a) | 42. (b) | 43. (c) | 44. (d) | 45. (a) | 46. (a) | 47. (b) | 48. (c) | 49. (d) | 50. (a) |
| 51. (a) | 52. (b) | 53. (c) | 54. (d) | 55. (a) | 56. (a) | 57. (b) | 58. (c) | 59. (d) | 60. (a) |
| 61. (a) | 62. (b) | 63. (c) | 64. (d) | 65. (a) | 66. (a) | 67. (b) | 68. (c) | 69. (d) | 70. (a) |
| 71. (a) | 72. (b) | 73. (c) | 74. (d) | 75. (a) | 76. (a) | 77. (b) | 78. (c) | 79. (d) | 80. (a) |
| 81. (a) | 82. (b) | 83. (c) | 84. (d) | 85. (a) | 86. (a) | 87. (b) | 88. (c) | 89. (d) | 90. (a) |
| 91. (a) | 92. (b) | 93. (c) | 94. (d) | 95. (a) | 96. (a) | 97. (b) | 98. (c) | 99. (d) | 100. (a) |
| 101. (a) | 102. (b) | 103. (c) | 104. (d) | 105. (a) | 106. (a) | 107. (b) | 108. (c) | 109. (d) | 110. (a) |
| 111. (a) | 112. (b) | 113. (c) | 114. (d) | 115. (a) | 116. (a) | 117. (b) | 118. (c) | 119. (d) | 120. (a) |
| 121. (a) | 122. (b) | 123. (c) | 124. (d) | 125. (a) | 126. (a) | 127. (b) | 128. (c) | 129. (d) | 130. (a) |
| 131. (a) | 132. (b) | 133. (c) | 134. (d) | 135. (a) | 136. (a) | 137. (b) | 138. (c) | 139. (d) | 140. (a) |



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