



DIKSHANT TODAY

AUGUST 2023



What's special

- Legal row between farmers and PepsiCo
- Rajasthan minimum income Bill
- Iran's induction in the Shanghai Cooperation Organisation
- The Global South
- Dark patterns
- Startup Scheme for Women
- Anaemia and maternal health
- Chandrayaan 3 launch
- Data Protection Bill
- Press and Registration of Periodicals Bill
- Practice Question For UPSC Pre. & Mains Exam



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POLITY & GOVERNANCE

WHAT IS THE LEGAL ROW BETWEEN FARMERS AND PEPSICO?



Why in news?

- Recently, the Delhi High Court held that there was “no merit” in the appeal filed by PepsiCo over the patent rights for its ‘unique potato’ variety.
- The appeal was against an order passed by the Protection of Plant Varieties and Farmers Rights’ Authority (PPV&FRA), revoking PepsiCo’s registration vis-a-vis the unique potato variety developed by it.

What was the case about?

- The PPV&FRA revoked PepsiCo’s registration with respect to its potato plant variety, ‘FL 2027’ (used in Lay’s chips), on the grounds provided under Section 34 (grounds for revocation of registration) of the Protection of Plant Varieties and Farmers Rights Act, 2001 (PPV&FR).
- FL 2027 is a ‘chipping potato’ variety with low external defects, high dry matter/high solids content and stable sugars, all of which make it highly suitable for the manufacture of chips.
- It was developed in the U.S. by Robert W. Hoopes, a plant breeder and a former employee of Frito-Lay Agricultural Research, a division of PepsiCo Inc.
- A certificate of registration for FL 2027 was granted to PepsiCo India on February 1, 2016, conferring it an exclusionary right to market, sell, import, export or distribute FL 2027 for a period of six years.
- However, in an application filed by Kavitha Kurungati, a farmers’ rights activist, the PPV&FRA revoked the company’s registered potato variety on December 3, 2021.

What is the PPV&FR Act?

- The Act provides an effective framework to conserve and encourage the development of various plant varieties.
- It established an effective system to safeguard and recognise the rights of breeders, researchers and farmers to promote agricultural development in the country.
- Additionally, it also facilitates the mushrooming of the Indian seed industry to ensure the availability of high-quality seeds and planting materials to farmers.

What are grounds for revocation?

- According to Section 34 of the PPV&FR Act, the protection granted to a breeder may be revoked by the authority on the following grounds –
 - that the grant of a registration certificate is based on incorrect information furnished by the applicant;
 - that the registration certificate was granted to an ineligible person;
 - when the breeder does not provide the registrar with the required documents;
 - a failure to provide an alternative denomination for variety registration in case the earlier variety provided is not permissible for registration;
 - a failure of the breeder to provide the required seeds for compulsory licence;
 - failure to comply with the acts, rules, regulations and directions issued by the Authority;
 - and if the grant of the registration certificate is against public interest.

Why did the court reject the appeal?

- In relation to Section 34(a) (incorrect information furnished), it was discovered that PepsiCo had sought the registration of FL 2027 variety as a “new variant” instead of an “extant variant” in its application dated February 16, 2012, despite furnishing the date of its commercialisation in India to be December 17, 2009.
- However, to be registered as a “new variant” an additional requirement of ‘novelty’ in addition to ‘distinctiveness’, ‘uniformity’ and ‘stability’ must be satisfied one year before the date of filing of the application for registration.
- The court held that FL 2027 could not fulfil the criteria of novelty and was only eligible for registration under “extant variety”.

What next?

- India is an agri-based economy with the agriculture sector having the highest workforce, nearly 152 million as of FY2021 as per Statista.
- Multinational food processing companies and investors must prioritise the well-being of farmers and their rights by developing a comprehensive understanding of India's local laws, particularly the PPV&FR Act 2001, and recognise the safeguards and protections it provides to farmers.

IS IT POSSIBLE TO HAVE PARTIAL APP BANS?



Why in news?

- Recently, the Telecom Regulatory Authority of India (TRAI) sought inputs on whether it would be possible to have "selective" app bans instead of internet shutdowns, in order to reduce the impact that a wholesale communications lockdown can entail.

Does India have a history of Internet shutdowns?

- Internet shutdowns are imposed in States and districts across India from time to time in order to prevent the rapid spread of provocative content during communally charged periods. The Indian government considers Internet shutdowns a legitimate tool of maintaining law and order.
- In Jammu and Kashmir as well as in Manipur, authorities and courts have gradually loosened long-term restrictions by allowing wired internet connections and limited wireless internet access.

How would the TRAI move work?

- The approach suggested by TRAI would require telecom operators and messaging app firms like WhatsApp to cooperate with each other and stop access to services during a shutdown.
- The telecom regulator has sought inputs on licensing messaging apps in India, which may require firms to be subjected to surveillance and blocking requirements.

Has the TRAI considered app regulation before?

- In 2015 and 2018, the TRAI had held consultations on regulating messaging apps, a process that led to wide-ranging protections for net neutrality – the concept that all internet traffic should be treated equally.

- Telecom operators had then called for regulation because they argued that messaging apps provide the same service without going through the stringent security and surveillance regulations that telecom operators go through.
- Telcos were also wary of their revenues being undercut by online calls and messages, which were cheaper than calling and SMS rates then.
- However, from 2016 onwards, the Department of Telecommunication (DoT) and the TRAI have rejected this argument, holding that telcos cannot discriminate between categories of data used by consumers.
- Since then, regulating messaging apps has become more a matter of security and policing. Seeking a deterrent against communal misinformation and provocative content spreading online, the Ministry of Electronics and Information Technology added a requirement of 'traceability' to the IT Rules, 2021, wherein one can find the original sender of a forwarded message.

What about VPNs?

- It is possible to block websites and certain apps by ordering telecom operators to do so. However, Virtual Private Networks (VPNs) make these blocks trivial to bypass.
- VPNs tunnel a user's internet traffic through another server. While these tools are mostly used for completely innocuous purposes, the government has been showing a growing distrust of VPNs. This is because VPNs are often encrypted, leaving the government with little visibility into what goes on in users' connections.
- VPN firms usually route data through servers located in another country, and frequently cycle the IP addresses these servers use to evade detection and blocking.
- When the Indian Computer Emergency Response Team (CERT-in) published directions in 2022 requiring VPN firms to retain records of users from India, most large VPN providers stopped offering servers physically located in India.
- However, these firms continued serving users in India, allowing people to connect to foreign servers through an encrypted connection and access blocked sites.

Can VPNs be blocked?

- Blocking VPNs is not straightforward, as companies operating them tend to frequently change the IP addresses associated with their servers. While VPN services' websites may be blocked, the installation files can be found elsewhere online.
- The Manipur High Court was informed as much by telecom operators, who said that blocking VPNs was technically unfeasible.

COMING, WOMEN-ONLY COURTS FOR ALTERNATIVE DISPUTE RESOLUTION



Why in news?

- The Union government is set to launch an initiative under which women-only courts will be set up at the village-level as an alternative dispute resolution forum for issues such as domestic violence and property rights, and to counter the patriarchal system.
- The scheme will be launched on a pilot basis in 50 villages each in Assam and Jammu and Kashmir in August and extended to the rest of the country over the next six months.

Composition:

- The Nari Adalat (women's court) of each village will have seven to nine members – half of which would be the elected members of the gram panchayat while the other half will include teachers, doctors and social workers, who would be nominated by the villagers.
- Members known as Nyaya Sakhis (legal friends) will be nominated or selected by the gram panchayat, while the head of Nari Adalat called the Mukhya Nyaya Sakhi (chief legal friend) will be chosen among the Nyaya Sakhis.
- The tenure of the head will be generally six months after which a new one will be selected.

Role:

- This platform will leverage their potential as advisers and leaders within their communities, functioning as a pressure group.
- The court will not only address individual cases of women and girls within the local community who require assistance or have grievances, but also raise awareness of government schemes and the legal rights and entitlements of women. The Nari Adalat will, however, not hold any legal status.
- The services provided will include alternative dispute resolution and grievance redressal, counselling, evidence-based decision making, pressure group tactics, negotiation, mediation and reconciliation with mutual consent for accessible and affordable justice.
- Additionally, the platform will engage with citizens, promoting awareness about women's rights, legal

opinions, various schemes and collecting public feedback.

Implementation:

- The scheme would be run by the Ministry of Women and Child Development under the Sambal sub-scheme of Mission Shakti, which is dedicated to strengthening women's safety, security and empowerment.
- The implementation process will be done in collaboration with the Ministry of Panchayati Raj, the Ministry of Rural Development and Common Service Centres operated by the Ministry of Electronics and Information technology.

ARTICLE 370, WHAT IS IT, WHY WAS IT ABROGATED AND WHO IS CHALLENGING IT NOW?



Why in news?

- Nearly four years after the abrogation of Article 370, the Supreme Court (SC) has issued a notice that it will hear a batch of petitions challenging the decision made by the government in 2019 on a day-to-day basis starting August 2.
- Chief Justice of India (CJI) D Y Chandrachud will head the Constitution bench.
- The cause is titled: Shah Faesal and Others vs Union of India and Another.

What is Article 370?

- Article 370 was a key provision in the Indian Constitution that granted special status to the former state of Jammu and Kashmir. In March 1948, the then Maharaja of Kashmir, Hari Singh had, appointed an interim government in the state, with Sheikh Abdullah as prime minister.
- In July 1949, Sheikh Abdullah and three other colleagues joined the Indian Constituent Assembly and subsequently negotiated the special status of Jammu and Kashmir. This led to the adoption of Article 370, which was enacted in the same year.
- It provided some autonomy to Jammu and Kashmir, such as allowing the state to have its own constitution, a separate flag, and limited jurisdiction for the Indian government.

- There was a provision in the article under Article 370(1) (c) stating that Article 1 of the Indian Constitution applies to Kashmir through Article 370. Article 1 lists the states of the Union. This means that it is Article 370 that binds the state of Jammu & Kashmir to the Indian Union.
- Although Article 370 can be removed through a Presidential Order, it would render the state independent of India unless new overriding laws were made.

Abrogation of Article 370:

- On August 5, 2019, the government of India, decided to abrogate Article 370, Jammu and Kashmir's special status, through a presidential order.
- This move was accompanied by a proposal to bifurcate the state of Jammu and Kashmir into two separate Union Territories: Jammu and Kashmir and Ladakh.
- The Union Territory of Jammu and Kashmir would have a legislature, while Ladakh would be without one. The abrogation of Article 370 and the reorganisation of Jammu and Kashmir into Union Territories took effect on October 31, 2019.
- Since then, the region has witnessed significant changes in governance, administration, and socio-political dynamics. The full implications and consequences of the abrogation are still evolving, and its impact on the region continues to be a subject of debate and discussion.

Why did the government decide to abrogate Article 370?

- The decision to abrogate Article 370 was based on the government's belief that it hindered the integration of Jammu and Kashmir with the rest of India and limited the region's development.
- Supporters of the abrogation argued that it would help bring socio-economic development, promote equal rights and opportunities, and ensure better governance in the region.
- They also contended that it would facilitate the application of national laws and programs, which were previously not fully applicable in Jammu and Kashmir.
- Critics of the abrogation raised concerns about the decision's impact on the special status and identity of Jammu and Kashmir, as well as its potential implications for the region's autonomy and demographic composition.
- There were debates about the constitutional validity of the move, with legal challenges brought before the SC.

What's next?

- A five-judge Constitution bench headed by Chief Justice of India (CJI) is scheduled to hear the case. It will take care of the preliminaries issuing directions over document and written submission filing.

RAJASTHAN MINIMUM INCOME BILL, PROVISIONS, WHAT MAKES IT UNIQUE



Why in news?

- Recently, the Rajasthan State government tabled the Rajasthan Minimum Guaranteed Income Bill, 2023, which effectively seeks to cover the entire adult population of the state with guaranteed wages or pension.

What is the Bill?

- Under the Bill, all families of the state get guaranteed employment of 125 days every year, while the aged, disabled, widows, and single women get a minimum pension of Rs 1,000 per month. Importantly, the pension will be increased at the rate of 15 per cent each year.
- The Bill has three broad categories:
 - a) right to minimum guaranteed income,
 - b) right to guaranteed employment, and
 - c) right to guaranteed social security pension.
- The government anticipates an additional expenditure of Rs 2,500 crore per year for this scheme, which may increase with time.

What are its major provisions?

Minimum guaranteed income:

- Each adult citizen of the state has been guaranteed a minimum income for 125 days a year through the Rajasthan government's flagship Indira Gandhi Shahri Rozgar Guarantee Yojana for urban areas, and through Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in rural areas.
- In his budget speech 2023, Chief Minister had increased the employment guarantee per family from 100 days to 125 days for his urban employment scheme. The state will supplement the MGNREGA's 100 days by providing jobs for an additional 25 days in rural areas.
- Next, the government will provide eligible categories with a minimum pension of Rs 1,000.

Guaranteed employment:

- The right to employment states that post the work in urban or rural employment schemes, the minimum

wages should be paid “weekly or in any case not later than a fortnight.”

- The state will designate a program officer, not below the rank of Block Development Officer in rural areas and an Executive Officer of the local body in urban areas to implement the Act.
- Among other things, the Program Officer shall ensure that the work site is within a radius of five kilometres of where the job card is registered in both rural and urban areas.
- If the Program Officer fails to provide employment within 15 days from the receipt of the application, the applicant shall be entitled to an unemployment allowance on a weekly basis “and in any case not later than a fortnight.”

Guaranteed social security pension:

- Every person falling in the category of old age/ specially abled/widow/single woman with prescribed eligibility shall be entitled to a pension.
- It will increase over the base rate in two instalments – 5 per cent in July and 10 per cent in January of each financial year 24 starting 2024-2025.

How have social activists reacted?

- Social activist said the Bill contains many firsts in the country.
- The Bill’s approach, guaranteeing minimum employment and pensions by law, distinguishes it from the cash transfer schemes that various other states have.

INTERNATIONAL RELATIONS

WHY HAS THE IMF’S VIEW ON THE CRYPTO MARKET IN LATIN AMERICA CHANGED?



Why in news?

- Recently, the International Monetary Fund (IMF) issued a statement on the use of cryptocurrency in the Latin American and Caribbean market, and about the rising interest in blockchain-based Central Bank Digital Currencies (CBDCs).
- It ended its statement noting that a ban on crypto “may not be effective in the long run” in the region. IMF’s change in stance on crypto in the LatAm market has raised eyebrows everywhere.

Why is Latin America’s crypto economy so significant?

- Countries like Argentina, Chile, and Columbia have experienced devaluation of their currency against the U.S. dollar.
- To preserve the value of their savings, some residents have explored converting their funds to U.S. dollars. However, there are legal restrictions controlling this.
- Others have chosen to convert their assets to stablecoins, cryptocurrencies designed to reflect the value of fiat currencies such as the U.S. dollar. Brazil, Argentina, Colombia, and Ecuador are among the top 20 in Chainalysis’ 2022 Global Crypto Adoption Index.
- Separately, a number of central banks in the Latin American market are considering CBDCs, meaning that more people could soon be exposed to blockchain-based infrastructure.

Why does El Salvador stand out among crypto economies?

- El Salvador is the first country in the world to adopt Bitcoin as its legal tender. The country with a population of 6.5 million adopted Bitcoin on September 7, 2021.
- It uses a digital wallet known as Chivo to regulate users’ crypto transactions. However, there have been complaints about the wallet causing funds to disappear and enabling identity fraud.
- Bitcoin reached an all-time high of over \$67,000 in November 2021. During this time, El Salvador’s President made ambitious plans to issue Bitcoin bonds, build a ‘Bitcoin City’ and start the volcanic mining of Bitcoin.
- However, these plans were largely put on hold as Bitcoin suffered multiple crashes through 2022.
- As of now, the country’s Bitcoin investment value is down 26.3% in total. El Salvador’s president also predicted that Bitcoin would reach a value of \$1,00,000 by the end of 2022. But the asset has not even come close to its previous high.

How did the IMF react to El Salvador’s Bitcoin adoption?

- The IMF said it was against El Salvador’s move, citing fiscal risks and consumer protection issues. El Salvador was also told that its adoption of Bitcoin might affect its application for a loan of \$1.3 billion.
- This is why the IMF’s latest blog post on crypto and CBDC use in Latin America and the Caribbean came as a surprise to many.
- The post also called for regulation of cryptocurrency and recording crypto transactions for transparency.

What is the difference between cryptocurrency and CBDCs?

- Cryptocurrencies and CBDCs are both blockchain-based digital currencies. However, while cryptocurrencies are generally run by private

- companies or individuals, a CBDC is controlled and tracked by a country's central bank and corresponds to that country's fiat currency.
- Bitcoin's price may vary by hundreds or even thousands of dollars in a short period of time, and its founder is a mystery.
 - On the other hand, a CBDC such as the eNaira, issued by the Central Bank of Nigeria, would (ideally) be worth as much as its physical counterpart.
 - While investors often buy large quantities of Bitcoin or other cryptocurrencies and hold them in the hope of making a profit, this doesn't make sense in the case of CBDCs as they are not meant to be investment vehicles.
 - The Bahamas in the Caribbean was one of the first countries to officially introduce its Sand Dollar CBDC.

CBDC by China:

- China's government, meanwhile, has energetically promoted its digital renminbi (e-RMB). Transactions with its CBDC crossed \$13.9 billion last year.
- China has however banned crypto mining and unregulated virtual assets in the country, prompting a large section of the mining population to flee to other countries.

THE NETHERLANDS' APOLOGY ON SLAVERY



Why in news?

- Recently, the king of the Netherlands, Willem-Alexander, apologised for his country's role in the slavery of colonised people, beginning in the 16th Century.
- He was speaking at a speech marking the 150th anniversary of the abolishment of slavery in Suriname (in South America) and in Dutch colonies in the Caribbean in 1873.

Background:

- Earlier in December 2022, Dutch Prime Minister had also offered a full apology, coming after the results of a government-commissioned study were made public.
- It found that between 1945 and 1949, the Dutch used "excessive violence" in Indonesia after World War 2. While the Dutch had established their presence in the 1600s, it was in the 19th and 20th centuries that they began ruling the country.

- Japan then took control during World War 2, at the end of which the Dutch tried to regain control amid the independence movement taking shape.

What was the Dutch role in the slave trade?

- Like other European maritime nations, the Dutch were quick to involve themselves in the transatlantic slave trade. Between 1596 and 1829, the Dutch transported about half a million Africans across the Atlantic.
- Large numbers were taken to the small islands of Curaçao and St. Eustatius, in the Caribbean. The Dutch also shipped about a half million Africans to their settlements in Dutch Guiana, notably Suriname, where they worked primarily on sugar plantations.
- The Dutch put slaves to work in their coffee, sugar and tobacco plantations, apart from household labour in colonies. The centuries of slave trade funded what is known as the Netherlands' 'golden age', the period roughly between 1585-1670, when trade, arts, sciences and the military flourished in the country.
- When slavery was formally abolished in 1863, it was not the slaves who received compensation from the Dutch state, but the slave owners.

What else is the government doing?

- The government will make €200 million available in a fund for measures aimed at raising awareness, fostering engagement and addressing the present-day effects of slavery.
- July 2023 is being marked as the 150th anniversary of the abolition of slavery, as, while it was formally abolished in 1863, another 10 years were required to put it into practice.
- A criticism frequently levelled at 'The Netherlands' is that its school education system does not adequately engage with its colonial and slave trading past. The government said it will "give the Netherlands' role in the history of slavery a substantial place in education, as this is where young people come into contact with history."
- Apart from this, the country is also looking at returning artworks looted during the colonial period.

DEEP SEA MINING



Why in news?

- The International Seabed Authority (ISA) which regulates the world's ocean floor, is planning to resume negotiations to open the seabed for mining.
- It is currently accepting mining permit applications, raising concerns about the potential impact of this decision on the marine world, particularly the ecosystems and habitats of the deep sea.

What is Deep Sea Mining?

- Deep sea mining is an emerging industry that aims to extract minerals from the ocean's surface, including manganese nodules, seafloor massive sulfides, and cobalt crusts.
- These minerals are of interest for their potential economic value and their use in various industries, including technology, manufacturing, and energy production.
- There are three types of deep-sea mining: extracting deposit-rich polymetallic nodules from the ocean floor, mining massive seafloor sulfide deposits, and stripping cobalt crusts from rock. These nodules, deposits, and crusts contain materials such as nickel, rare earths, cobalt, and more, which are essential for batteries and other applications.

What are the concerns about Deep Sea Mining?

- Growing concerns revolve around the environmental impact of deep-sea mining, including damage caused by noise, vibration, and light pollution. Only a small portion of the deep seabed has been explored, leading conservationists to worry about potential damage to ecosystems.
- The physical disturbance resulting from mining activities can lead to habitat loss and a decline in biodiversity, potentially affecting the entire food chain within these ecosystems. The extraction of minerals involves removing layers of sediment and disrupting the natural structure of the ocean floor.
- Sediment plumes generated by certain mining processes are a major concern. Once valuable materials are extracted, slurry sediment plumes are sometimes pumped back into the sea, which can harm filter-feeding species like corals and sponges.
- Deep-sea mining operations can also release harmful chemicals and heavy metals into the surrounding water, with long-lasting effects on marine life.

Way Forward:

- The ISA's Legal and Technical Commission, responsible for developing deep-sea mining regulations is scheduled to meet in early July to discuss the draft mining code.

**WHO RELEASES POLICY RECOMMENDATIONS
TO PROTECT CHILDREN FROM HARMFUL
EFFECTS OF FOOD MARKETING**

Why in news?

- The World Health Organization (WHO) recently released new guidelines on shaping policies to protect children from the harmful impacts of food marketing that promote unhealthy dietary choices.

**Details:**

- The guideline recommends implementation of comprehensive mandatory policies to protect children of all ages from the marketing of foods and non-alcoholic beverages that are high in saturated fatty acids, trans-fatty acids, free sugars and / or salt (HFSS).
- The most frequently marketed food categories were fast food, sugar-sweetened beverages, chocolate and confectionery, salty and savoury snacks, sweet bakery items and snacks, breakfast cereals and desserts, according to WHO.
- Evidence showed that food marketing mainly promoted HFSS foods.

Concerns:

- The guidelines build on the 2010 WHO 'Set of recommendations on the marketing of foods and non-alcoholic beverages to children' and take into consideration more recent evidence specific to children and to the context of food marketing.
- Since then, the evidence on the harmful impact of food marketing has grown. However, there has been limited national action and children continue to be exposed to marketing for HFSS foods.
- New marketing media have also evolved, most notably digital marketing, which poses a growing concern.

Key Guidelines:

- WHO recommended mandatory regulation of marketing of HFSS foods and non-alcoholic beverages, having previously made more allowances for a range of policy approaches.
- The guideline used the definition of a child from the Convention on the Rights of the Child to be unequivocal that policies should protect all children.
- The guideline called for countries to use a nutrient profile model and adopt policies comprehensive enough to minimise intra- and inter-medium

migration to avoid restrictions on marketing in regulated channels or settings.

Nutritional criteria:

- In March 2023, WHO published a set of nutritional criteria which aimed to protect children from marketing that promoted unhealthy food and non-alcoholic beverages.
- The WHO Europe nutrient profile model helped in the classification of food products to determine whether they are healthy enough to be advertised to children.

IRAN'S INDUCTION IN THE SHANGHAI COOPERATION ORGANISATION



Why in news?

- As Iran joins the Shanghai Cooperation Organisation (SCO) as its ninth member, leaders of the SCO at a virtual summit chaired by Indian Prime Minister stressed that the formation of a “more representative” and multipolar world order is in the global interest.

What is the SCO?

- The SCO was built on the ‘Shanghai Five’ grouping of Russia, China, Kazakhstan, Kyrgyzstan and Tajikistan, which had come together in the post-Soviet era in 1996, in order to work on regional security, reduction of border troops, and terrorism.
- In 2001, the Shanghai Five inducted Uzbekistan into the group and named it the SCO.
- The organisation has two permanent bodies; the SCO Secretariat based in Beijing and the Executive Committee of the Regional Anti-Terrorist Structure in Tashkent.

What are the main goals of the SCO?

- The SCO describes its main goals as
 - a) strengthening mutual trust and neighbourliness among the member states;
 - b) promoting their effective cooperation in politics, trade, economy, research and technology and culture, making joint efforts to maintain and ensure peace, security and stability in the region; and
 - c) moving towards the establishment of a democratic, fair and rational new international political and economic order.

- The latter part of the statement which calls to build a “new international political and economic order” did not sit well with the U.S. and Europe, and has led to the SCO being dubbed as “anti-NATO” for proposing military cooperation.
- This concern was further heightened when heavy sanctions were placed on Russia for its actions in Crimea and China came to its aid, signing a \$400 billion gas pipeline agreement.

Has SCO dealt with bilateral issues?

- India and Pakistan joined the SCO as observers in 2005, and were admitted as full members in 2017. Since 2014, India and Pakistan have cut all ties, talks and trade with each other.
- However, both countries have consistently attended all meetings of the SCO’s three councils; the Heads of State, Heads of Government, Council of Foreign Ministers.
- Despite the fact that India accuses Pakistan of perpetrating cross-border terrorism at every other forum, at the SCO, Indian and Pakistani armed forces take part in military and anti-terrorism exercises together, as part of the SCO-Regional Anti-Terrorist Structure.
- Not only Pakistan, the SCO has also facilitated talks between India and China on the Line of Actual Control (LAC) border issue.

Why is Iran's induction significant for India?

- While the SCO’s original goals focused more on stability and security, recent declarations have put the focus squarely on connectivity in the region.
- For India, that has built its connectivity strategy through Iran’s Chabahar port, where it operates a terminal and through the International North South Transport Corridor that goes through Iran and Central Asia to Russia, the entrance of Iran in the SCO is an important milestone.
- To begin with, Iran’s presence ensures support for India’s moves to circumvent land-based trade through Pakistan, which has blocked transit trade for India.
- The Central Asian states that are double land-locked will seek to build a multimodal trade route via Afghanistan to ports in both Pakistan and Iran. It also allows India to conduct trade with the region while staying out of China’s Belt and Road Initiative.
- In addition, the induction of Iran, a historically close partner of India that has also suffered from terrorism emanating from Pakistan and Afghanistan will bolster India’s push for an end to terror safe havens.

Challenges & Way Forward:

- Where the government may find some unease in a more vocal support for Iran is in the fact that the SCO is increasingly seen as an “anti-West” forum, and Iran, like Russia is under severe sanctions.

- In addition, the U.S. has accused Iran of supplying weapons to Russia, and the expected induction of Belarus in 2023 will only strengthen this image of the SCO, even as India strengthens ties with the Quad, making the Indian balancing act more difficult.

INDIA BEST PERFORMING IN SOUTH ASIA IN TERMS OF TRADE FACILITATION, UNESCAP

Why in news?

- Recently, the United Nations Economic and Social Commission for Asia Pacific's (UNESCAP) Global Survey on Digital and Sustainable Trade Facilitation was released.
- The 2023 survey, covered more than 140 economies evaluating 60 trade facilitation measures.



Key Highlights:

- It has positioned India at the forefront of global trade facilitation efforts, with an impressive score of 93.55% in 2023 vis a vis 90.32% in 2021.
- It recognized India's exceptional progress across various sub indicators, with the country achieving a perfect score of 100% in four key areas: Transparency, Formalities, Institutional Arrangement and Cooperation, and Paperless Trade.
- It is testament to India's relentless efforts in streamlining trade processes, enhancing transparency, and promoting cooperation among stakeholders through initiative such as Turant Customs, Single Window Interface for Facilitation of Trade (SWIFT), Pre-Arrival data processing, e-Sanchit, Coordinated Border Management etc.
- India has witnessed a substantial improvement in the score for "Women in Trade Facilitation" component from 66.7% in 2021 to 77.8% in 2023 thereby indicating commitment to gender inclusivity and the empowerment of women in the trade sector.
- India is now the best performing country amongst all the countries of South Asia region. The overall score of India has been greater than many developed countries including Canada, France, UK, Germany etc.

About Global Survey on Digital and Sustainable Trade Facilitation:

- The Global Survey on Digital and Sustainable Trade Facilitation conducted by UNESCAP covers WTO

Trade Facilitation Agreement (TFA) along with set of nearly 60 trade facilitation measures categorized into eleven sub-groups, namely: Transparency; Formalities; Institutional arrangement and cooperation; Transit facilitation; Paperless trade; Cross-border paperless trade; Trade facilitation for SMEs; Agricultural trade facilitation; Women in trade facilitation; Trade finance for trade facilitation; and Trade facilitation in times of crisis.

- The survey is fact-based rather than perception-based. A three-step approach to data collection and validation is generally followed, implemented over 6-month period every 2 years.
- The Survey reflects the efficacy of Trade facilitation measures taken by Indian Customs such as Turant Customs comprising of Faceless Customs, Paperless Customs and Contact less Customs, in enhancing India's ease of doing Business and promote trade facilitative environment in the country.

WHAT ARE THE PROVISIONS OF THE HIGH SEAS TREATY?



Why in news?

- Recently, the UN adopted the Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ) or the High Seas Treaty.
- It became the third agreement to be approved under UNCLOS, after the 1994 and 1995 treaties, which established the International Seabed Authority and the Fish Stocks agreement.

When did the process start?

- The idea of protecting the marine environment emerged in 2002. By 2008, the need for implementing an agreement was recognised, which led to the UNGA resolution in 2015 to form a Preparatory Committee to create the treaty.
- The Committee recommended the holding of intergovernmental conferences (IGC) and after five prolonged IGC negotiations, the treaty was adopted in 2023.
- The treaty's objective is to implement international regulations to protect life in oceans beyond national jurisdiction through international cooperation.

What does the treaty entail?

- It aims to address critical issues such as the increasing sea surface temperatures, overexploitation of marine biodiversity, overfishing, coastal pollution, and unsustainable practices beyond national jurisdiction.
- The first step is establishing marine protected areas to protect oceans from human activities through a “three-quarterly majority vote,” which prevents the decision from getting blocked by one or two parties.
- On the fair sharing of benefits from marine genetic resources, the treaty mandates sharing of scientific information and monetary benefits through installing a “clear house mechanism.”
- Through the mechanism, information on marine protected areas, marine genetic resources, and “area-based management tools” will be open to access for all parties. This is to bring transparency and boost cooperation.
- The last pillar of the treaty is capacity building and marine technology.
- The Scientific and Technical Body will also play a significant role in environmental impact assessment. The body will be creating standards and guidelines for assessment procedures, and helping countries with less capacity in carrying out assessments.

Why did it take so long to sign?

- The marine genetic resources issue was the treaty's most contended element. The parties to the treaty must share and exchange information on marine protected areas and technical, scientific and area-based management tools to ensure open access of knowledge.
- The negotiations on the subject were prolonged due to the absence of a provision to monitor information sharing.
- In IGC-2, small island states supported the idea of having a licensing scheme for monitoring, but was opposed by the likes of the U.S., and Russia, stating its notification system would hinder “bioprospecting research.”
- Another debate was over definition. The use of the phrases “promote” or “ensure” in different parts of the treaty, especially with respect to the sharing of benefits from marine genetic resources, was heavily debated over.
- And finally, there was the prolonged negotiation over the adjacency issue. This was specifically applicable to coastal states whose national jurisdictions over the seas may vary.
- This meant it required special provisions where it can exercise sovereign rights over seabed and subsoil in the jurisdiction beyond. It prolonged the decision-making as it affects the interests of landlocked and distant states.

Who opposed the treaty?

- Many developed countries opposed the treaty as they stand by private entities which are at the forefront of advanced research and development in marine technology (patents relating to marine genetic resources are held by a small group of private companies).
- Russia and China also are not in favour of the treaty. Russia withdrew from the last stage of reaching a consensus in IGC-5, arguing that the treaty does not balance conservation and sustainability.

THE U.S. SC BAN ON RACE-BASED ADMISSIONS



Why in news?

- The U.S. Supreme Court recently struck down race-conscious student admissions at the University of North Carolina (UNC) and Harvard College, calling such affirmative action policies unlawful.
- The justices voted 6-3 and 6-2 in favour of Students for Fair Admissions, an organisation against race-based admissions in colleges.
- The case argued whether admissions systems used by Harvard College and UNC are lawful under the Equal Protection Clause of the Fourteenth Amendment.

What is affirmative action?

- Affirmative action is a policy that aims to ensure equal opportunities for historically underrepresented demographics or minorities in educational or professional sectors.
- In 1961, President John F. Kennedy became the first leader to link the term with racial equality. He signed an executive order, instructing the government contractors to take “affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, colour, or national origin”.
- In 1969, President Richard Nixon signed yet another executive order, directing the U.S. government “to provide equal opportunity in federal employment for all persons, to prohibit discrimination in employment because of race, colour, religion, sex, national origin, handicap, or age, and to promote the full realisation of equal employment opportunity through a continuing

affirmative program in each executive department and agency”.

- A landmark ruling in the matter came in 1978, in the Regents of the University of California versus Bakke case when the Supreme Court ruled that schools could not use affirmative action to rectify historical racial discrimination, but that they could weigh race as one of the many factors in admissions.

What does the judgment say?

- The recent judgment of the U.S. Supreme Court says that admission programmes of both Harvard College as well as the UNC lack measurable objectives that would validate the use of race as a criterion.
- It also added that both these admission programmes “unavoidably” use race in a negative manner, and hence do not serve the guarantees of the Equal Protection Clause of the Fourteenth Amendment of the U.S. Constitution.

What is the Equal Protection Clause?

- The Fourteenth Amendment of the U.S. Constitution addresses citizenship issues and the rights of citizens.
- The Equal Protection Clause, under the Fourteenth Amendment, requires the government to accord equality to all citizens and avoid denial of protection enjoyed by other people or demographics. The Equal Protection clause is considered crucial to the protection of citizens’ civil rights.

Was race a factor for college admissions?

- According to Harvard, around 40% of U.S. colleges and universities consider race in some fashion. The current judgment states that admissions applications at Harvard College are assigned a numerical score in six categories; academic, extracurricular, athletic, school support, personal and overall, during its initial screening.
- “Overall” is composite of five other ratings and can include the applicant’s race as a factor. UNC also has a similar process, the admissions office assigns a numerical rating to the applicant based on several categories, and race is considered a factor in the review.

What will be the impact of the decision?

- This is not the first time that affirmative action has been declared unlawful for U.S. colleges. The State of California, for example, banned affirmative action in 1996 in public universities.
- Acting as amicus curiae in the recent case, the President and Chancellors of the University of California (UC) informed the Supreme Court that despite their extensive efforts, they have struggled to enrol a racially diverse student body into its programmes.
- The amicus curiae also said that since 1996, “freshmen enrollees from underrepresented minority groups dropped precipitously at UC, and dropped by 50% or more at UC’s most selective campuses”.

EUROPEAN SKY SHIELD INITIATIVE THAT ‘NEUTRAL’ AUSTRIA & SWITZERLAND JUST JOINED



Why in news?

- Recently, Europe, Austria and Switzerland known for their strong traditions of foreign policy neutrality have joined a regional grouping that seeks to develop a common air defence shield in the wake of Russia’s attack on Ukraine.
- The grouping is known as the ‘European Sky Shield Initiative’ (ESSI) for air defence, and both countries signed for it in Bern, Switzerland.

Background:

- The initiative was spearheaded by Germany after Russia invaded Ukraine, pushing other European countries to worry about their own security.
- In October 2022, defence ministers from 14 North Atlantic Treaty Organisation (NATO) members; Belgium, Bulgaria, Czech Republic, Estonia, Germany, Hungary, Latvia, Lithuania, the Netherlands, Norway, Slovakia, Slovenia, Romania and the UK came together with the Nordic country of Finland to form such a project.
- Today, the number of ESSI members has gone up to 19.

What is the purpose of initiative?

- The initiative aims to create a European air and missile defence system through the common acquisition of air defence equipment and missiles by European nations to strengthen NATO’s Integrated Air and Missile Defence (IAMD).
- The ESSI encourages the member countries to jointly develop an air and missile defence system using interoperable, off-the-shelf solutions.
- If faced with air and missile threats in the wake of Russia’s invasion of Ukraine, the initiative aims to leverage the already existing NATO cooperation framework and defend member states against missile threats.
- NATO, terming it a “multinational and multifaceted approach”, said it offers a flexible and scalable way for nations to strengthen their deterrence and defence in an “efficient and cost-effective way”.

➤ Multinational acquisition for the ESSI will be conducted through a Rapid Acquisition Track within NATO's Modular Ground-Based Air Defence High Visibility Project, as decided by 10 allied defence ministers in February.

Response of France:

- NATO member France is not part of the initiative and has actually spoken against it.
- The French government reportedly believes that since the new system relies largely on US and Israeli defence industry, the project doesn't adequately preserve European sovereignty.

What about neutrality?

Switzerland:

- Switzerland, a landlocked mountainous country located at the confluence of western, central and southern Europe, is bordered by Austria, France, Germany, Italy and Liechtenstein.
- One of the stark features of Switzerland's foreign policy was the 'Neutral' status the country endowed upon itself in the Treaty of Paris in 1815.
- It adheres to the principle of not involving itself in any armed conflict between other states. Under the policy of neutrality, the country cannot allow other states to use its territory for war purposes.
- With the Russia-Ukraine war, which is happening too close for comfort for Switzerland, it is believed that the country has started moving into the NATO fold in order to preserve its security.
- Switzerland, however, is not a member of the NATO alliance, which requires mutual action and assistance in times of war.
- It is argued that Switzerland stopped being on the path of "traditional neutrality" when it joined the United Nations in 2002. Switzerland, in fact, even joined hands with the European Union for the imposition of sanctions against Russia post its invasion of Ukraine.
- Moreover, Swisscoy, a unit of Swiss armed forces, was also deployed in Kosovo as part of the NATO-led Kosovo Force for peacekeeping.

Nordic countries:

- Austria also considers itself a neutral state, a feature of its foreign policy currently undergoing a test.
- Sweden and Finland also upheld neutrality until May 2022, when they simultaneously handed their official letters of application to join NATO.
- NATO heads of state and government extended an invitation to Finland and Sweden to join the alliance at the Madrid Summit on 29 June, 2022.

THE GLOBAL SOUTH, ORIGINS AND SIGNIFICANCE

Why in news?

- The unwillingness of many leading countries in Africa, Asia and Latin America to stand with NATO

over the war in Ukraine has brought to the fore once again the term "Global South."



What is Global South?

- The Global South refers to various countries around the world that are sometimes described as 'developing', 'less developed' or 'underdeveloped'.
- Many of these countries are in the Southern Hemisphere, largely in Africa, Asia and Latin America.
- In general, they are poorer, have higher levels of income inequality and suffer lower life expectancy and harsher living conditions than countries in the "Global North", that is, richer nations that are located mostly in North America and Europe, with some additions in Oceania and elsewhere.
- The term Global South appears to have been first used in 1969 by political activist Carl Oglesby. Writing in the liberal Catholic magazine Commonweal, he argued that the war in Vietnam was the culmination of a history of northern "dominance over the global south."

The term during Cold War era:

- But it was only after the 1991 breakup of the Soviet Union that the term gained momentum. Until then, the more common term for developing nations was 'Third World'.
- That term was coined by Alfred Sauvy in 1952, in an analogy with France's historical three estates: the nobility, the clergy and the bourgeoisie.
- The term 'First World' referred to the advanced capitalist nations; the 'Second World', to the socialist nations led by the Soviet Union; and the 'Third World', to developing nations, many at the time still under the colonial yoke.
- Sociologist Peter Worsley's 1964 book, 'The Third World: A Vital New Force' in International Affairs, further popularised the term.
- 'Third World' became a synonym for banana republics ruled by tinpot dictators, a caricature spread by Western media.
- The fall of the Soviet Union gave a convenient pretext for the term 'Third World' to disappear, too. Usage of the term fell rapidly in the 1990s.

Geopolitical term:

- The term 'Global South' is not geographical. In fact, the Global South's two largest countries, China and

- India lie entirely in the Northern Hemisphere. Rather, its usage denotes a mix of political, geopolitical and economic commonalities between nations.
- Countries in the Global South were mostly at the receiving end of imperialism and colonial rule, with African countries as perhaps the most visible example of this.
 - Since the turn of the 21st century, a “shift in wealth,” as the World Bank has referred to it, from the North Atlantic to Asia Pacific has upended much of the conventional wisdom on where the world’s riches are being generated.
 - By 2030 it is projected that three of the four largest economies will be from the Global South – with the order being China, India, the U.S. and Indonesia. Already the GDP in terms of purchasing power of the the Global South-dominated BRICS nations – Brazil, Russia, India, China and South Africa surpasses that of the Global North’s G-7 club.

WHAT IS NATO’S STAND ON UKRAINE’S ENTRY?



Why in news?

- Recently, the North Atlantic Treaty Organization (NATO) Summit was held in Vilnius, Lithuania, at a time when it’s deeply involved in the Russia-Ukraine war.

Details:

- Turkey, the second largest military force of NATO after the U.S., lifted its opposition to the accession of Sweden to the alliance.
- The summit also approved new spending goals for member countries and offered to provide long-term support to Ukraine.
- Yet, the one issue that overshadowed the Vilnius summit was Ukraine’s promised membership in the alliance on which there was no clarity or time frame.

What did Ukraine achieve from the summit?

- In the Bucharest summit of 2008, NATO had offered eventual membership to Ukraine and Georgia, two Black Sea basin countries that share land borders with Russia.
- But in 2008 when the membership was offered, several countries, including France and Germany,

were opposed to Ukraine joining the alliance out of fears that such a move would poke the Russian bear.

- But now, in the midst of Russia’s ongoing invasion of Ukraine, more member countries agree to the idea of Ukraine joining NATO, which is a marked change.

Military supplies:

- Ukraine would continue its cooperation with NATO through the Ukraine-NATO Council.
- The Group of Seven (G-7) advanced industrialised economies have pledged to support Ukraine’s defence base, which has been battered by the war, by providing military training and institutional support for attaining NATO membership.
- Ahead of the summit, France agreed to send its SCALP long-range missiles to Ukraine; Germany announced a new military aid package and other NATO members would be providing combat aircraft training.
- Ukraine may not have got a time frame on membership, but it has got assurances on military supplies from NATO members.

Why is Ukraine still not a part of NATO?

- Admitting Ukraine now “would have meant NATO is at war with Russia”. The reason is NATO’s “collective security” formula, rooted in its Article 5.
- The Article states that, “The Parties agree that an armed attack against one or more of them in Europe or North America shall be considered an attack against them all and consequently they agree that, if such an armed attack occurs, each of them... will assist the Party or Parties so attacked by taking... such action as it deems necessary, including the use of armed force...”
- As collective security is at the heart of NATO, if Ukraine is admitted now, the Ukraine war by default becomes NATO’s war, in other words, the third World War.
- NATO, and particularly the U.S., does not want to take that risk. The position they have taken is to keep arming Ukraine, which suffered huge losses in the past 16 months of the war, and letting them continue to fight the Russians inside Ukrainian territories.
- NATO wants to defeat or weaken Russia in Ukraine without directly committing itself to the war.

How NATO has expanded over the years?

- When the alliance was formed in 1949, it had 12 members from Europe and North America. Since then 19 more countries have joined the alliance through nine rounds of expansions. In the Soviet Union’s dying years, the U.S. and the U.K. had promised Russia that the alliance would not expand east (towards Russia’s borders) “by an inch”.
- But in 1999, the Czech Republic, Hungary and Poland, all former Soviet allies, joined NATO.
- In 2004, seven more East European countries joined the alliance, including the Baltic republics of Estonia, Latvia and Lithuania, all sharing borders with Russia.

⇒ NATO expanded further in 2009, 2017, 2020 and 2023, taking in countries including Croatia, Montenegro and Finland. Sweden is set to be its 32nd member.

What is Russia's response?

- ⇒ In 2008, when Ukraine and Georgia were offered membership in the Bucharest summit, Vladimir Putin was there as an invitee. He called it a "direct threat" to Russia..
- ⇒ The Russian state has taken a consistent position over the years that NATO expansions pose a security threat. Four months after the Bucharest summit, Russia sent troops to Georgia to support two breakaway regions – South Ossetia and Abkhazia.
- ⇒ Six years later, when a pro-Russian elected government of Ukraine was toppled by West-backed protesters, Russia moved swiftly to annex Crimea, the peninsula which hosted Russia's Black Sea fleet from the time of Catherine the Great.
- ⇒ Russia also supported the Russian-speaking rebels in Ukraine's Donbas region, which escalated into a full-scale war in 2022.
- ⇒ NATO wants to take Ukraine into the alliance, but won't do so now. The flip side is that the Russians might continue fighting the war to prevent Ukraine being accessed into NATO, as Ukraine's NATO membership remains a red line for Russia.

CHINA EVENT RAISES CONCERN OVER INDIA'S ONLY APE



Why in news?

- ⇒ The conservation status of India's only ape was a cause for concern at a global event on gibbons held recently in China.
- ⇒ The Global Gibbon Network (GGN) held its first meeting at Haikou in China's Hainan province.

Hoolock gibbon:

- ⇒ Gibbons, the smallest and fastest of all apes, live in tropical and subtropical forests in the southeastern part of Asia.
- ⇒ The hoolock gibbon, unique to India's Northeast, is one of 20 species of gibbons on Earth.
- ⇒ The estimated population of hoolock gibbons is 12,000.

⇒ Like all apes, they are extremely intelligent, with distinct personalities and strong family bonds. Unfortunately, the current conservation status of gibbon species is alarming, all 20 species are at a high risk of extinction.

⇒ Since 1900, gibbon distribution and populations have declined dramatically, with only small populations in tropical rainforests.

Threat:

⇒ The hoolock gibbon faces threat primarily from the felling of trees for infrastructure projects.

Only species of ape in India:

- ⇒ American naturalist R. Harlan was the first to describe the hoolock gibbon, characterised by their vigorous vocal displays, from Assam in 1834.
- ⇒ Over the decades, zoologists thought the Northeast housed two species of the ape – the eastern hoolock gibbon (*Hoolock leuconedys*) found in a specific region of Arunachal Pradesh and the western hoolock gibbon (*Hoolock hoolock*) distributed elsewhere in the northeast.
- ⇒ A study led by Hyderabad-based Centre for Cellular and Molecular Biology (CCMB) in 2021 proved through genetic analysis that there is only one species of ape in India.
- ⇒ It debunked earlier research that the eastern hoolock gibbon was a separate species based on the colour of its coat.

About GGN:

- ⇒ The GGN was first initiated in 2020 (during the pandemic) and was organized by two institutions in China through Ecofoundation Global and the Hainan Institute of National Park.
- ⇒ GGN was founded with a vision to safeguard and conserve a key element of Asia's unique natural heritage – the singing gibbon and their habitats, by promoting participatory conservation policies, legislations, and actions.
- ⇒ Aaranyak, an Assam-based non-profit conservation organisation is one of the 15 founding organisations of the GGN from seven countries.

THE INDIA UAE DEAL TO TRADE WITH RUPEES



Why in news?

- During Indian Prime Minister's recent visit to the UAE, the Reserve Bank of India (RBI) and its Abu Dhabi-headquartered counterpart the Central Bank of the UAE signed two memoranda of understanding (MoUs).
- While the first established a framework to promote the use of local currencies for cross-border transactions, the other was for interlinking payment systems.

How will local currencies be promoted?

- The first of the two MoUs aims to establish a Local Currency Settlement System (LCSS) to promote the use of rupee and the dirham bilaterally.
- It will cover all current and permitted capital account transactions. This would enable exporters and importers to send invoices and pay in their respective domestic currencies, which in turn would help the development of the INR-AED foreign exchange market.
- It would also help promote investments and remittances between the two countries. Broadly, the arrangement would help optimise transaction costs and settlement time for transactions, including for remittances from Indians residing in UAE.

Why is it significant for exporters?

- The focus on denominating export contracts and invoices in the local currency helps avert exchange-rate risks (such as when a third currency is being used as a standard), which further facilitates the scope to discover competitive pricing.
- Moreover, it could also lead to enhanced avenues for cooperation among the banking systems of the two countries, thereby contributing to the expansion of trade and economic activity for both.
- The major items of export from India to the UAE include mineral fuels, mineral oils and products, bituminous substances, mineral waxes, followed by pearls, precious stones and metals, electrical machineries and equipment, among other things.
- The major items imported by India are petroleum crude and petroleum related products. India-UAE trade rose to \$85 billion in 2022.
- Furthermore, the UAE was India's third largest trading partner and second-largest export destination in FY2022-23. Conversely, India was the UAE's second largest trading partner.

What about the interlinking of payment systems?

- The second of the two MoUs links India's Unified Payments Interface (UPI) with its UAE-counterpart Instant Payment Platform (IPP). This is alongside the linking of card switches, that is, RuPay switch and UAESWITCH.
- Card switches entail facilitating communications and transactions between different payment service providers. The agreement would also explore linking of payment messaging systems of the two countries.

- The UPI-IPP linkage would enable users in either country to "make fast, convenient, safe, and cost-effective cross-border fund transfers".
- As for card switches, the regulator stated, it will "facilitate mutual acceptance of domestic cards and processing of card transactions."

How will this help?

- One of the several issues with sending remittances back home, especially for low wage earners, is the high costs of transactions. This may entail fees and exchange rate margins, among other potential costs.
- In March, the National Payments Corporation of India (NPCI) finalised a collaboration with Singapore's PayNow for facilitating cross-border real time money transfers.
- Furthermore, the NPCI had in January permitted non-resident accounts with international numbers to be onboarded into the UPI ecosystem. At the onset, it included users from 10 countries – Singapore, Australia, Canada, Oman, Qatar, the U.S., Saudi Arabia, the UAE, the U.K and Hong Kong.

Remittances in India:

- The World Bank noted in the 2023 Migration and Development Brief that India experienced a 24.4% increase in remittances to \$111 billion in 2022 on a year-over-year basis. This represented 3.3% of the GDP.
- It further stated that at present, remittance inflows from GCC (Gulf Cooperation Council) countries, which accounts for about 28% of the country's total remittance inflows, also soared in 2022.
- About 36% of the remittances were attributed to high-skilled and largely high-tech Indian migrants in the U.S., the U.K., and Singapore.

NATO'S VILNIUS SUMMIT



Why in news?

- Recently, the 2023 NATO Summit took place in Vilnius, the capital of Lithuania.

How was this summit different?

- A standout of the Vilnius Summit was the attendance of Ukrainian President Volodymyr Zelenskyy and the anticipation around the possibility of extending NATO membership to Ukraine.

- In this regard, the launch of the NATO-Ukraine Council as a forum for crisis consultations and decision-making indicated that NATO tried to assuage the feelings of Ukraine for not being included in the alliance by creating a mechanism for its wider engagement, support and future inclusion as a full member.
- All three priorities outlined by Ukraine; new weapons packages, security guarantees and an invitation to join NATO went unfulfilled. However, the U.K. did pledge ammunition support to Ukraine.
- Additionally, garbed in the urgency to help Ukraine, NATO has levelled up its own defences.
- NATO's new plans involve maintaining a force of 300,000 troops, with air and naval capabilities, while emphasising the importance of a strong industrial base, leading to the endorsement of a Defence Production Action Plan.

What is the significance of the entry of new members?

- The inclusion of Finland and approval of Sweden as NATO members indicates a few things.
- It signals that the Alliance continues to practise Article 10 of the Washington Treaty signed in April 1949 which states that member countries can invite other European countries to become members of NATO. It rests Ukraine's potential membership on fertile grounds and conceptually deters Russia from taking steps against members of NATO.
- Turkey's scaling back of its long-standing opposition to Sweden's inclusion in NATO is a significant shift.

Who are other threat actors to NATO?

- The Vilnius summit minced no words on the challenges and threats emerging from China's stated ambitions and coercive policies.
- It stated that NATO faces threats from China's malicious hybrid cyber operations, as well as confrontational rhetoric and disinformation, which specifically aim at NATO allies and pose a threat to the security of the Alliance.
- The NATO summit emphasised that the developments in the Indo-Pacific have become increasingly consequential for Euro-Atlantic security with expanding space for Quad countries, along with other regional countries like New Zealand and South Korea.
- But even as the summit was on, Russia launched a drone attack on Kyiv, depicting an undeterred approach to NATO's potential expansion. It is this contestation that is likely to define the future of Eurasian security.

ECONOMY

SIX YEARS OF GST



Why in news?

- Recently, India's Goods and Services Tax (GST) completed six years.
- GST came into effect on 1 July, 2017, overhauling the previous indirect tax regime and subsuming multiple central and state-level taxes within itself.

Details:

- The government also announced the GST collections for June 2023, which came in at Rs 1.61 lakh crore, the third highest since the indirect tax was implemented.
- The taxation experts say that while revenue from the indirect tax system has been growing robustly, there is a need for a few urgent reforms.
- These include easing the process by which people can appeal against orders by tax authorities, and bringing in at least some petroleum products within the ambit of GST.

Robust growth in revenue:

- Analysis of the government's GST collections show that the average amount earned every month has been increasing, even during the pandemic year of 2020-21.
- For example, the government collected an average of Rs 89,885 crore every month in 2017-18 (starting from July 2017, when GST started). This rose to Rs 1 lakh crore of average monthly collections in the pre-pandemic year of 2019-20.
- While the COVID-19 pandemic certainly dented GST collections in the first few months of the lockdown, revenue bounced back quickly as the economy opened up. Average monthly collections in 2020-21 were Rs 1.08 lakh crore, higher than the pre-pandemic period.
- For 2022-23, average monthly GST collections stood at a healthy Rs 1.5 lakh crore, government data shows.
- The current financial year of 2023-24, set off to a great start, with the highest ever collections of Rs 1.87 lakh crore coming in the first month itself.

Impact in states:

- However, while the overall collections look to have grown robustly, it's not entirely clear whether the states have fared better under GST as compared to the previous regime.

- Tax experts attribute this to the nature of the previous regime, under which each state had a different rate of Value Added Tax (VAT) for different items. Further, since fuel is not included in GST, revenue from its sale further complicates the comparison.
- Prior to the implementation of GST, the Modi government had promised states compensation for any losses of revenue on account of the implementation of GST.
- This compensation was to be for five years, and the assumption was that states would have seen their revenue grow by 14 percent every year. If their revenue growth was less than this, the central government had promised to reimburse the difference.
- Data from the Reserve Bank of India, shows that the latter's revenues from GST (both state GST as well as their share of central GST) has grown at a compounded annual rate of just 7.8 percent, nearly half of the predicted rate.

Urgent reforms needed:

Setting up Tribunals:

- The GST law has a provision for the setting up of tribunals, so that taxpayers have a place to appeal an order by the tax authorities.
- At the moment, six years after GST has been in effect, there are no tribunals and so taxpayers have to approach high courts, which is a lengthy and resource-intensive process.

Dispute redressal:

- This is also the right time for the GST Council to engage with all stakeholders and undertake a comprehensive legislative and administrative review of GST to reduce disputes and further simplify the laws.
- Sectoral committees can be formed to discuss and address the sector specific concerns specifically the new age segments such as e-commerce, crypto currencies, etc.

Bringing in at least some petroleum products within the ambit of GST:

- The other major issue that needs urgent attention is the treatment of fuels under GST.
- The Central Goods and Services Tax Act, 2017 says that central tax on the supply of petroleum crude, high-speed diesel, motor spirit (commonly known as petrol), natural gas and aviation turbine fuel shall be levied with effect from such date as may be notified by the government on the recommendations of the Council.
- The taxation of petrol and diesel are controversial topics because they are the few items left under states' control to tax and have been a sore point ever since the implementation of GST.

INDIA RECEIVED 3RD HIGHEST FDI IN THE WORLD IN 2022



Why in news?

- Recently, the 2023 edition of the World Investment Report was released by United Nations Conference on Trade and Development (UNCTAD).

Highlights about India:

- India was the third largest recipient of foreign direct investment (FDI) in greenfield projects in the world in 2022.
- The FDI flows into India rose 10 per cent from \$44.7 billion in 2021 to \$49.3 billion in 2022. This is lower only than the FDI flows into the US and the UK.
- Apart from a sharp increase in foreign investment in greenfield projects in India, India was the second-largest recipient of international project finance in the world in 2022.
- International project finance is when international lenders provide debt or equity to infrastructure projects in various countries.
- The inflows into India in 2022 were, however, significantly lower than what was seen in 2020 during the Covid-19 pandemic, during which \$64 billion of FDI entered the country.

Global scenario:

- The United States remained the largest host for announced greenfield projects and international project finance deals, followed by the United Kingdom, India, the United Arab Emirates and Germany for greenfield projects, and by India, the United Kingdom, Spain and Brazil for project finance deals.
- India and ASEAN were the most buoyant recipients, with increases of 10 and 5 per cent, respectively, and strong growth in project announcements.
- China, the second largest FDI host country in the world, saw a 5 per cent increase.

Largest FDI deals in India:

- The report highlighted a few recent FDI deals in India, with several of the largest deals associated with the Adani Group.
- Among the largest greenfield projects were the plans by Foxconn and Vedanta Resources to build one of

the first chip factories in India for \$19 billion and a \$5 billion project to produce urea from green hydrogen by a joint venture of TotalEnergies (France) and Adani Group.

- In project finance deals POSCO (Republic of Korea) and the Adani Group sponsored the construction of a steel mill for \$5 billion in Gujarat.

Investment by Indian Companies:

- While India saw a surge in inward FDI, it also saw growth in the flow of investments made by Indian companies in other countries.
- The greenfield project announcements by Indian multinational enterprises more than tripled to \$42 billion.
- Two of the largest greenfield projects were in renewables, with Acme Group announcing a \$13 billion plant in Egypt to produce 2.2 billion tonnes of green hydrogen annually and ReNew Power announcing that it will set up a \$8 billion green hydrogen plant in the Suez Canal Economic Zone.

UNDERSTANDING DARK PATTERNS



Why in news?

- The Department of Consumer Affairs and the Advertising Standards Council of India (ASCI) recently held a joint consultation with stakeholders on the menace of 'dark patterns'.
- The ASCI has come up with guidelines for the same, with the central government also working towards norms against 'dark patterns'.

What are dark patterns?

- Harry Brignull, a user experience researcher in the U.K., introduced the phrase 'dark pattern' in 2010 to characterise deceptive strategies used to trick clients.
- A dark pattern refers to a design or user interface technique that is intentionally crafted to manipulate or deceive users into making certain choices or taking specific actions that may not be in their best interest. It is a deceptive practice employed to influence user behaviour in a way that benefits the company implementing it.
- For example, a common dark pattern is the "sneak into basket" technique used on e-commerce websites.

When a user adds an item to their shopping cart, a dark pattern may be employed by automatically adding additional items to the cart without the user's explicit consent or clear notification.

- This can mislead the user into purchasing more items than they intended, potentially increasing the company's sales but compromising the user's autonomy and decision-making.
- By using such dark patterns, digital platforms infringe on the consumer's right to full transparency of the services they use and control over their browsing experience.

What are the different types?

- Businesses are using various techniques and deceptive patterns to downgrade the user experience to their own advantage.
- Some of the common practices are
 - creating a sense of urgency or scarcity while online shopping;
 - confirm shaming wherein a consumer is criticised for not conforming to a particular belief;
 - the forced action of signing up for a service to access content;
 - advertising one product or service but delivering another, often of lower quality, known as the bait and switch technique;
 - hidden costs where the bill is revised or costs are added when the consumer is almost certain to purchase the product;
 - disguised advertisements of a particular product by way of depicting it as news and many more.
- Such deceptive patterns that manipulate consumer choice and impede their right to be well-informed constitute unfair practices that are prohibited under the Consumer Protection Act 2019.

Are dark patterns illegal?

- Many believe that the use of dark patterns is a business strategy. The legality of dark patterns is a complex matter as distinguishing between manipulation and fraudulent intent can be challenging.
- As of now, there are no specific regulations in place in most nations against dark patterns.
- In 2022, Google and Facebook faced repercussions due to their cookie banners.
- These companies violated EU and French regulations by making it more difficult for users to reject cookies as compared to accepting them.

What are global regulators saying?

- Major international authorities are acting and formulating rules to address the issue.
- The Competition and Markets Authority (CMA) of the U.K. lists different pressure-selling techniques that the CMA believes would likely violate consumer protection laws and for which actions will be taken.

- Guidelines from the European Data Protection Board were released in 2022 and offered designers and users of social media platforms practical guidance on how to spot and avoid so-called “dark patterns” in social media interfaces that are in violation of General Data Protection Regulation (GDPR) laws.

How India addresses dark patterns?

- The Department of Consumer Affairs and the ASCI have identified the issue and recently taken certain steps to handle the same.
- As of now, companies are being asked to desist from using such tactics in the e-market and on June 30, 2023, major Indian online marketplaces received a letter from the Department of Consumer Affairs warning them against engaging in “unfair trade practices” by implementing “dark patterns” in their user interfaces to influence consumer choice and infringe on “consumer rights” as stated in Section 2(9) of the Consumer Protection Act, 2019.
- However, with the growing use of e- platforms, a robust legal mechanism is a demand.
- The Indian government should also amend existing laws to specifically address dark patterns. To do this, new rules aimed against deceptive design practices may need to be introduced along with updated consumer protection laws and data protection legislation.

WHY ARE INDIA-RUSSIA TRADE PAYMENTS IN CRISIS?



Why in news?

- As India continues to import oil from Russia, it is getting tougher for the country to pay for it. On the one hand, it faces repercussions of breaching the oil price cap of \$60 a barrel put in place by the U.S. and European nations as Russia offers lower discounts on its crude.
- On the other hand, using currencies like the Chinese yuan for payments, which India has already started doing, has its own geopolitical ramifications amid strained ties with China.

Where do oil imports from Russia stand?

- In February 2023, Russia surpassed Saudi Arabia to become the second biggest exporter of crude oil to

India in FY23.

- Since the start of Russian President Vladimir Putin's “special military operation” in Ukraine on February 24, 2022, Russia has been hit by Western banking and economic sanctions.
- Against this backdrop, it found a ready market for its goods, especially crude oil, in India and offered steep discounts. India, meanwhile, unlike the West, chose to not join the list of countries formally imposing sanctions on Russia.
- As a result, India's imports of crude oil from Russia increased nearly 13 times in 2022-23 to over \$31 billion from less than \$2.5 billion in 2021-22. Russia is now the largest supplier of oil to India, displacing traditional players such as Iraq, Saudi Arabia, and UAE.
- In the four-month period between November 2022 and February 2023, Russia took over the top spot from Iraq. India accounted for more than 70% of the seaborne supplies of Russian-grade oil under \$60 dollars a barrel in May.

Which currency is being used for payments?

- As part of war-induced sanctions on Russia, the U.S., the EU, and the U.K. have blocked multiple Russian banks from accessing the Society for Worldwide Interbank Financial Telecommunication (SWIFT), a global secure interbank system. An estimated \$500 million is pending for goods already shipped by Indian exporters to Russia and it is now not possible to get the payments through the SWIFT channel.
- Besides an oil ban jointly agreed between multiple countries last year, it was also decided to cap the price to a maximum of \$60 per barrel of Russian oil transported through waterways.
- While India is not a formal signatory, it has tacitly agreed to maintain the price cap as much as possible. Besides, banks and traders may not want to get involved in transactions that breach the oil cap over fears of repercussions for their funds.
- Until recently, the blends of oil India was importing from Russia were largely below the price cap fixed by G-7 countries and India was able to pay for the oil using dollars. However, Russia has lowered its discounts due to high demand from China and lower grade oil is now in short supply.

What about the rupee-rouble mechanism?

- India was in negotiations with Russia to reactivate the rupee-rouble trade arrangement, which is an alternative payment mechanism to settle dues in rupees instead of dollars or euros.
- However, the rupee-rouble payment mechanism could not take off. On the flip side, Russia has also pointed out that it finds the rupee to be “volatile”.
- The unforeseen surge in oil trade between India and Russia in one year alone has led to a massively ballooning trade deficit.

⇒ India's trade deficit with Russia touched \$43 billion in 2022-23 as it imported goods worth \$49.35 billion while its exports were at \$3.14 billion. This has led to staggering amounts of Indian rupees in Russian banks that cannot be used by Russia in its war efforts.

Is de-dollarisation being attempted?

- ⇒ Since the dollar is largely considered the global reserve currency, many countries have seen the U.S. sanctions as a way for America to weaponise the dollar. This has given rise to countries looking at de-dollarisation, which means the replacement of the U.S. dollar with other currencies as the global reserve currency.
- ⇒ India too, has recently released a roadmap for the internationalisation of the Indian rupee to create broader acceptance.
- ⇒ The value and the acceptability of any currency depend mainly on its purchasing power, that is, the number of goods and services that can be bought using it and right now, the daily average share for the rupee in the global foreign exchange market is ~1.6%, while India's share of global goods trade is ~2%.
- ⇒ Indian refiners have also settled some non-dollar payments for Russian oil in the Chinese yuan and the UAE dirham.

What next?

- ⇒ Experts have pointed out that while India could use the yuan for payments, there are concerns about how that would appear geopolitically as it continues to have strained ties with Beijing since the border standoff.
- ⇒ Besides, another solution could be to counter the deficit with Russia by getting it to make investments in energy projects in India or to invest in government bonds.

RECOMMENDATIONS OF 50TH MEETING OF GST COUNCIL



Why in news?

⇒ The 50th meeting of the Goods and Services Tax (GST) Council was recently under the chairpersonship of the Union Finance & Corporate Affairs Minister.

⇒ In the 50th Meeting of the GST Council, recommendations relating to changes in GST tax rates, measures for facilitation of trade and measures for streamlining compliances in GST were made.

Changes in GST Tax Rates:

⇒ Recommendations relating to GST rates on Goods

A. Changes in GST rates of goods

⇒ It has been decided to reduce the rate on uncooked/unfried snack pellets, by whatever name called, to 5% and to regularise payment of GST on uncooked / unfried snack pellets during the past period on "as is basis".

B. Other changes relating to goods

- ⇒ It has been decided to exempt IGST on Dinutuximab (Quarziba) medicine when imported for personal use.
 - It has been decided to exempt IGST on medicines and Food for Special Medical Purposes (FSMP) used in the treatment of rare diseases enlisted under the National Policy for Rare Diseases, 2021 when imported for personal use subject to existing conditions.
 - It has been decided to clarify that supply of raw cotton, including kala cotton, by agriculturists to cooperatives is taxable under reverse charge mechanism and to regularise issues relating for the past period on "as is basis".
 - It has been decided to reduce GST on imitation zari thread or yarn known by any name in trade parlance from 12% to 5% and to regularize payment of GST related to this matter during the past period on "as is basis".
 - It has been decided to amend the entry 52B in compensation cess notification to include all utility vehicles by whatever name called provided they meet the parameters of Length exceeding 4000 mm, Engine capacity exceeding 1500 cc and having Ground Clearance of 170 mm & above and to clarify by way of explanation that 'Ground clearance' means Ground Clearance in un-laden condition.
 - It has been decided to reduce GST rate on LD slag from 18% to 5% to encourage better utilisation of this product and for protection of environment.
 - It has been decided to regularise the matters relating to trauma, spine and arthroplasty implants for the period prior to 18.07.2022 on "as is basis" in view of genuine interpretational issues.
 - It has been decided to reduce the GST rate on fish soluble paste from 18% to 5% and to regularise payment of GST on fish soluble paste during the past period on "as is basis".
 - It has been decided to regularise the matters relating to dessicated coconut for the period 1.7.2017 to 27.7.2017 on "as is basis" in view of genuine interpretational issues.

- It has been decided that on pan masala, tobacco products etc, where it is not legally required to declare the retail sale price, the earlier ad valorem rate as was applicable on 31st March 2023 may be notified in order for levy of Compensation Cess.
- It has been decided to include RBL Bank and ICBC bank in the list of specified banks for which IGST exemption is available on imports of gold, silver or platinum and update the list of banks /entities eligible for such IGST exemption as per Annexure 4B (HBP) of Foreign Trade Policy 2023.
- Consequential changes in notifications may be carried out in view of new Foreign Trade Policy 2023.
- It has been decided to regularise the issues relating to GST on plates and cups made of areca leaves prior to 01.10.2019.
- It has been decided to regularise the issues relating to GST on biomass briquettes for the period 01.7.2017 to 12.10.2017.

Recommendations relating to GST rates on Services

A. Changes in GST rates of services

- It has been decided that GST exemption on satellite launch services supplied by ISRO, Antrix Corporation Limited and New Space India Limited (NSIL) may be extended to such services supplied by organisations in private sector also to encourage start ups.

B. Other changes relating to Services

- **Services**
- As a trade friendly measure, it has been decided that GTAs will not be required to file declaration for paying GST under forward charge every year. If they have exercised this option for a particular financial year, they shall be deemed to have exercised it for the next and future financial years unless they file a declaration that they want to revert to reverse charge mechanism (RCM).
- It has also been decided that the last date of exercising the option by GTAs to pay GST under forward charge shall be 31st March of preceding Financial Year instead of 15th March. 1st January of preceding Financial Year shall be the start date for exercise of option.
- It has been decided to clarify that services supplied by a director of a company to the company in his private or personal capacity such as supplying services by way of renting of immovable property to the company or body corporate are not taxable under RCM.
- It has been decided to clarify that supply of food and beverages in cinema halls is taxable as restaurant service as long as (a) they are supplied by way of or as part of a service and (b) supplied independently of the cinema exhibition service.

Second Report of Group of Ministers (GoM) on Casinos, Race Courses and Online Gaming

- A Group of Ministers (GoM) was constituted to look into the issues related to taxation on casinos, horse racing and online gaming. The GoM submitted its report and it was placed before the 50th GST Council meeting.
- The GoM has recommended that since no consensus could be reached on whether the activities of online gaming, horse racing and casinos should be taxed at 28% on the full-face value of bets placed or on the GGR, the GST Council may decide. The GST Council has deliberated on the issues and has recommended the following:
 - Suitable amendments to be made to law to include online gaming and horse racing in schedule III as taxable actionable claims.
 - All three namely Casino, Horse Racing and Online gaming to be taxed at the uniform rate of 28%.
 - Tax will be applicable on the face value of the chips purchased in the case of casinos, on the full value of the bets placed with bookmaker/totalisator in the case of Horse Racing and on the full value of the bets placed in case of the Online Gaming.

WILL 28% GST ON ONLINE GAMING AFFECT ITS GROWTH?

28% GST ON ONLINE GAMING: HIGHLIGHTS

- Decision sparks dissatisfaction among experts & tax professionals
- India's gaming industry is growing at a CAGR of 28-30%
- In Austria, the calculation depends on the type of gaming offered
- In UK, remote gaming duty (RGD) is charged at a rate of 21%
- In Estonia, the tax rate varies based on the nature of the game



Why in news?

- At the recently concluded 50th GST Council meeting, it was decided that online gaming would be taxed at 28% on the full-face value of the placed bets.

How will the taxation work?

- Gaming platforms charge an entry fee from the user to allow them to participate in a particular game. Say, the amount is ₹100. The platform operator deducts a certain amount of this entry fee to run the game and the overall platform, known as the gross gaming revenue (GGR). The rest is transferred to the prize pool.
- For example, let's suppose the GGR at ₹20. Till now, GGR was liable to be taxed at 18%, this implied the operator would have to pay ₹3.6 as taxes. However, the

latest provision means that tax will be levied on the entry bet at 28%, taking the taxation amount to ₹28.

- This will translate to lesser money to charge the necessary platform fee from, and also, lowered available resources for the prize pool. A further disincentive is the existing 30% taxation that is levied on the user on their final winnings.

What are the other concerns?

- It will not only make the online gaming industry unviable but also boost black-market operators at the expense of legitimate tax-paying players, further undermining the industry's image and capacity to survive.
- The move also raises concerns about its growth trajectory. For perspective, a combined report by consulting firm Deloitte and the Federation of Indian Fantasy Sports had noted that the industry grew 31% to ₹6,800 crore in FY2022. It is estimated to touch ₹25,240 crore by FY2027.
- With respect to its contribution to the Indian economy, it noted that the industry attracted ₹15,000 crore in foreign direct investments (FDI) till FY2022 and is expected to invite ₹25,000 crore in FDI by FY2027.
- The steep rise in GST will discourage both domestic and foreign investors from considering the domestic ecosystem as a viable investment destination.

Games of skill versus games of chance again:

- The government has stated that it would be making suitable amendments to include online gaming and horse racing in Schedule-III of the Central Goods and Services Tax Act (2017), deeming them as taxable actionable claims. This will bunch online gaming together with gambling.
- For perspective, the legislation deals with "activities or transactions which shall be treated neither as a supply of goods nor a supply of services". It excludes lottery, gambling and betting.
- The debate about game of skills versus chance deals with an evaluation of the attributes of the game in question. One of the key attributes of a skill-based game is the reliance on psychological or physical abilities than luck for a favourable outcome.
- While an element of chance is involved in games of skill, each player's unique set of skills determine their success rate. This is unlike a game of chance where the outcome is totally dependent on luck. The user cannot influence the outcome.

Current status:

- At present, such classification of games rely on state legislation and court judgments, lacking quantifiable methods for evaluation.
- The industry at large maintains that online gaming is different from gambling, pointing to the various Supreme Court and High Court judgments that have "reaffirmed the states of online skill-based games as

legitimate business activity protected as fundamental right under the Constitution."

GOVT. SETS UP NEW PANEL TO REVIEW ALL NSO DATA



Why in news?

- The Union government has constituted a new internal oversight mechanism for official data, revamping a Standing Committee on Economic Statistics (SCES) set up in late 2019.
- The findings from the last round of household surveys on consumption expenditure and employment were junked over "data quality issues".

Standing Committee on Statistics (SCoS):

- The SCES, which was tasked with examining economic indicators only, will now be replaced by a Standing Committee on Statistics (SCoS) which has a broader mandate to review the framework and results of all surveys conducted under the aegis of the National Statistical Office (NSO).

Composition:

- Pronab Sen, former Chairman of the National Statistical Commission (NSC), has been named the chair of the new panel.
- The SCoS with "enhanced terms of reference" vis-à-vis the SCES, "to ensure more coverage" has 10 official members, and four non-official members who are eminent academics.
- It can have up to 16 members, as per the order issued by the Ministry of Statistics and Programme Implementation.

Terms of reference:

- Apart from addressing issues raised from time to time on the subject, results and methodology for all surveys, the terms of reference of the SCoS include identification of data gaps that need to be filled by official statistics, along with a strategy to plug those gaps.
- It has been mandated to explore the use of administrative statistics to improve data outcomes. While the panel will help finalise survey results, the NSC will have the ultimate authority to approve the publication of those results.

NEW GUIDELINES FOR DESIGNATION OF SENIOR ADVOCATES IN THE SC



Why in news?

- Recently, the Supreme Court has published new guidelines for the designation of senior advocates practicing mainly in the Apex Court.

Background:

- These guidelines come after the May 12 ruling delivered by a three-judge bench led by Justice SK Kaul in a case seeking modification in the conferment of 'senior advocate' designation guidelines rendered in a 2017 SC ruling.
- In doing so, the Bench, replaced the guidelines issued by the top court in 2018, in the aftermath of its 2017 ruling in Indira Jaising v. Union of India.

What do the new guidelines say?

Age limit:

- The new guidelines prescribe the minimum age as 45 years to apply for the 'senior advocate' designation. This age limit may, however, be relaxed by the Committee, the Chief Justice of India, or a Supreme Court judge if they have recommended an advocate's name.
- However, no minimum age was prescribed under the 2017 guidelines or even the May 12 SC ruling, which said that "although designations in the Supreme Court in comparison to High Courts have usually taken place at the age of 45 plus, younger advocates have also been designated," while leaving the final decision in the hands of the Permanent Committee and the Full Court.

Recommendation by:

- Although the 2017 guidelines say that the CJI along with "any judge" can recommend an advocate's name for designation, the 2023 guidelines specify that the CJI along with "any Judge of the Supreme Court" may recommend in writing the name of an advocate for designation.

Weightage:

- Previously, the guidelines stated that 15 marks were set aside for publications. However, the new

guidelines state that only 5 marks will be given for "publication of academic articles, experience of teaching assignments in the field of law," and "guest lectures delivered in law schools and professional institutions connected with law" combined.

- Besides this, the weightage given to reported and unreported judgements (excluding orders that do not lay down any principle of law) has increased from 40 to 50 points in the new guidelines.

What are the 2018 guidelines?

- In October 2018, the Apex Court released a list of "Guidelines to Regulate the Conferment of Designation of Senior Advocates" while acting on a plea filed by India's first woman Senior Advocate, Indira Jaising, for greater transparency in the designation process. The guidelines discouraged the system of 'voting by secret ballot', except in cases where it was "unavoidable."

Committee:

- According to the 2018 guidelines, a "Committee for Designation of Senior Advocates," or "permanent committee," was created and empowered with powers of conferment.
- The CJI-chaired committee was to consist of two senior-most SC judges, the Attorney General of India, and a "member of the Bar" nominated by the chair and other members. The Committee was to meet twice a year, at least.
- The CJI or any other judge could recommend the name of an advocate for designation.

Alternative criteria:

- Alternatively, advocates could submit their applications to the "Permanent Secretariat", which would evaluate them on criteria like 10–20 years of legal practice, be it as an advocate, district judge, or judicial member of an Indian tribunal where the qualification for eligibility is not less than that prescribed for a district judge.

What did the court decide in the Indira Jaising case?

- On October 12, 2017, a three-judge bench of the Apex Court headed by then-Justice Ranjan Gogoi laid down guidelines for itself and all High Courts on the process of designating senior advocates. Jaising had challenged the existing process as "opaque", "arbitrary," and "fraught with nepotism."

Section 16 of the Advocates Act, 1961:

- Prior to this, Section 16 of the Advocates Act, 1961, governed the appointment of senior advocates.
- Section 16 (1) stated, "There shall be two classes of advocates, namely, senior advocates and other advocates."
- Besides this, Section 16 (2) allowed an advocate to be designated as a senior advocate if he consented to it

and "if the Supreme Court or a High Court" was of the opinion that by "virtue of his ability, standing at the Bar, or special knowledge or experience in law, "he is deserving of such distinction."

- Further, it was the Chief Justice and the judges who designated an advocate as a 'senior' advocate.

Guidelines in 2017:

- It was this ruling that decided the setting up of a "permanent committee" and a "permanent secretariat", a body tasked with receiving and compiling all applications for designation with relevant data, information, and the number of reported and unreported judgments.
- After this, the proposal for designation is to be published by it on the official website of the concerned court, inviting suggestions and views, which shall then be forwarded to the permanent committee for scrutiny.
- The committee then interviewed the candidate and made an overall evaluation based on a point system that gave marks for years of practice, pro-bono work undertaken, judgements, publications, and a personality test. Once a candidate's name was approved, it was forwarded to the Full Court to decide on the basis of the majority. The Full Court could also recall the designation of a senior advocate.

135 MILLION INDIANS MOVED OUT OF MULTIDIMENSIONAL POVERTY IN LAST 5 YEARS, NITI AAYOG REPORT



Why in news?

- Recently, the NITI Aayog released, 'National Multidimensional Poverty Index: A Progress Review 2023'.

Key Highlights:

- Over 135 million people moved out of multidimensional poverty between 2015-16 and 2019-21.
- Uttar Pradesh has seen the most reduction in poverty, followed by Bihar, Madhya Pradesh, Odisha and Rajasthan. In UP, 3.45 million people were freed from multidimensional poverty.
- In India, 14.96 per cent of people were multidimensionally poor in 2019-2021, down from

24.85 per cent in 2015-16, a significant decline of 9.89 percentage points.

- Poverty in urban areas declined to 5.27 per cent from 8.65 per cent during this period, while poverty in rural areas declined at the fastest rate, to 19.28 per cent from 32.59 per cent.
- These include nutrition, child and adolescent mortality, maternal health, years of schooling, school attendance, cooking gas, sanitation, drinking water, electricity, housing, assets and bank accounts, all of which have seen significant improvements.

Basis of report:

- The report was prepared on the basis of the baseline report of India's national Multidimensional Poverty Index (MPI) launched in November 2021.
- The second national MPI used the latest household microdata of the all-India National Family Health Survey (NFHS) by the International Institute for Population Sciences in coordination with the Union Ministry of Health and Family Welfare.
- The report is based on data from both the fourth and fifth rounds of NFHS surveys: NFHS-4 (2015-16) and NFHS-5 (2019-2021).

Parameters:

- India's national MPI captures multiple and simultaneous deprivations faced by households across the three macro-dimensions of health, education and living standards.
- It has 12 parameters and is aligned with the United Nations-mandated Sustainable Development Goals (SDG).
- The MPI value halved to 0.066 from 0.117 and poverty intensity come down to 44 per cent from 47 per cent between 2015-16 and 2019-21.
- India is on track to meet SDG target 1.2 (the goal of reducing multidimensional poverty by at least half) much ahead of the 2030 deadline.
- The government's dedicated focus on improving access to sanitation, nutrition, cooking gas, financial inclusion, drinking water and electricity has led to significant progress in these areas, the report said, adding there has been significant improvement in all 12 MPI parameters.

Role of Flagship programmes:

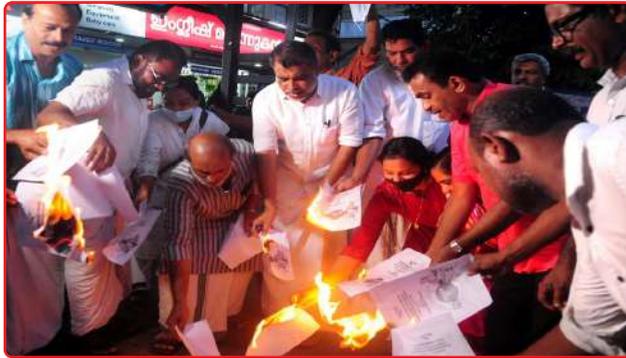
- Flagship programmes such as Poshan Abhiyaan and Anaemia Mukta Bharat have contributed to the reduction of health disparities, while initiatives such as Swachh Bharat Mission and Jal Jeevan Mission have improved sanitation across the country.
- The impact of these sanitation efforts has resulted in a rapid and significant improvement of 21.8 percentage points.
- LPG shortage has improved by 14.6 percentage points due to subsidised cooking gas through the Pradhan Mantri Ujjwala Yojana. Initiatives like Saubhagya,

Pradhan Mantri Awas Yojana, Pradhan Mantri Jan Dhan Yojana and Samagra Shiksha have also played a major role in reducing multidimensional poverty.

Way Forward:

- Consistent implementation of a variety of highly interlinked programmes and initiatives has resulted in significant reduction of gaps in multiple indicators.

TRACKING THE NEW RAILWAY PROPOSAL FOR KERALA



Why in news?

- In Kerala, a new semi-high-speed railway, expected to cruise at an average speed of 125 kmph has been proposed.
- Set to travel the 420-km Thiruvanthapuram-Kannur north-south corridor, the trains are slated to cover the distance in three and a half hours. The alignment for the trains will be largely that of the alignment suggested in 2015 for the high-speed rail corridor.

What is the new rail project?

- The approximately ₹1 lakh crore semi-high speed train project on standard gauge track was mooted recently by technocrat E. Sreedharan.
- The new proposal is being projected as an alternative to the ₹64,000 crore Thiruvananthapuram-Kasaragod SilverLine project, which was to cover the 530-km distance at an average speed of about 135 kmph, as per the Kerala Rail Development Corporation Ltd. (KRDCL).
- The KRDCL had mooted 10 stations, each located approximately 55 km away, in the SilverLine alignment, while Mr. Sreedharan has cited the need for 15 stations located every 30 kms, to benefit more number of people.
- The proposed corridor would have a design speed of 200 kmph and can be linked with high-speed or semi-high speed rail projects on standard gauge that could touch Mangaluru and Coimbatore a few years down the lane.
- The Centre and State could pool in with ₹30,000 crore each, while ₹40,000 crore could be raised as loan.

Why are high speed trains a priority?

- Trains in Kerala are operating at rock-bottom speed. Even express trains in the State operate at an

average speed of less than 50 kmph due to frequent stops, huge number of sharp curves and the 69-km Ambalapuzha-Thuravur stretch where track doubling work is pending.

- The average speed plummets further to approximately 35 kmph for short-distance passenger trains.

What happened to the high-speed rail corridor and the SilverLine project?

- In 2014, the State government entrusted the Delhi Metro Rail Corporation (DMRC) with the task of readying a Detailed Project Report (DPR) for a high-speed rail corridor linking Thiruvananthapuram with the northern-most district Kasaragod.
- The DPR which was handed over to the government in 2015 was considered too ambitious and costly and failed to take off.
- The SilverLine project, proposed by the KRDCL in 2021 met with massive resistance, as it was to be built over a tall embankment constructed over the ground, and would have led to massive displacement of people.
- Environmental activists and others expressed fears that this would worsen flooding in many areas, since the embankment would block natural flow of water even if drains and canals were built at intervals.

WHY ARE TOMATO PRICES STILL HIGH?



Why in news?

- As prices of tomatoes hover between ₹100 and ₹200 in various parts of the country, the Reserve Bank of India's latest monthly bulletin has highlighted that the volatility of tomato prices has historically contributed to overall inflation levels in the country.

How is tomato produced in India?

- Tomato production in the country is concentrated regionally in the States of Andhra Pradesh, Madhya Pradesh, Karnataka, Odisha, and Gujarat, which account for close to 50% of total production.
- There are two major crops of tomato annually; kharif and rabi. The rabi crop hits the market between March and August annually while the kharif crop comes to markets from September.
- Some regions in Maharashtra and Himachal Pradesh's Solan are able to grow tomatoes during

the monsoon months, while in the summer, Andhra Pradesh's Madanapalle region alone accounts for tomato cultivation in the entire country.

- As for tomato production, it peaked in 2019-20 at 21.187 million tonnes (MT) and has been declining since. In 2021-22, it dropped to 20.69MT and 20.62MT in 2022-23.

What is fuelling the price rise?

- There are multiple factors for the dip in overall tomato production, with the two key reasons being extreme weather conditions and low commercial realisation of the crop for farmers in the months before June as well as last year.
- The heatwaves and high temperatures in April and May along with delayed monsoon showers in southern India and Maharashtra led to pest attacks in tomato crops.
- A lot of farmers resorted to selling whatever crop they had at these prices while some abandoned their crops. This led to a crunch in supply. Later, incessant rains in tomato-growing regions further affected the new crop.
- The fact that July-August is a lean production period for tomato, as it falls between yields, compounded the problem.
- Reports show that many farmers in the Kolar district of Karnataka, which is usually responsible for sizeable tomato supplies, shifted to beans owing to the higher prices it fetched last year.

How can volatility be controlled?

- Policy experts say high volatility can be tamed by making some improvements.
- Since tomato is highly perishable, improved value and supply chains can help with the problem. An organised value chain involves a market-focussed collaboration of a set of entities working in tandem to produce, process and market products and services in an effective and efficient manner.
- An ICRIER study suggests increasing the processing capacity for tomatoes. Building more processing units and linking tomato value chains to processing of at least 10% of tomato production into tomato paste and puree during peak seasons, and using them in the lean season when fresh tomato prices spike can be a solution.
- The development of integrated cold chains has also been suggested.

FIRST EVER "CREDIT GUARANTEE SCHEME" FOR LIVESTOCK SECTOR LAUNCHED

Why in news?

- The Department of Animal Husbandry & Dairying, Ministry of Fisheries, Animal Husbandry and Dairying is implementing the Credit Guarantee Scheme under Animal Husbandry Infrastructure Development Fund (AHIDF).



Credit Guarantee Scheme:

- It aims to strengthen credit delivery system and facilitate smooth flow of credit to the Micro, Small & Medium Enterprise (MSMEs) engaged in Livestock sector without hassles of collateral security.
- The credit guarantee scheme facilitates access to finance for un-served and under-served livestock sector, making availability of financial assistance from lenders to mainly first-generation entrepreneurs and under privileged section of society, who lack collateral security for supporting their ventures.
- The main objective of the Credit Guarantee Scheme is that the lender should give importance to project viability and secure the credit facility purely on the basis primary security of the assets financed.

Credit Guarantee fund Trust:

- For operationalizing the scheme, DAHD has established a Credit Guarantee fund Trust of Rs. 750.00 crores, which will provide credit guarantee coverage up to 25% of the credit facilities extended to the MSMEs by the eligible lending institutions.
- The establishment of credit guarantee fund trust was approved under the Prime Minister's AtmaNirbhar Bharat Abhiyan stimulus package of Rs.15000 crores "Animal Husbandry Infrastructure Development Fund" (AHIDF) for incentivizing investments by individual entrepreneurs, private companies, MSMEs, Farmers Producers Organizations (FPOs) and Section 8 companies to establish
 - a) the dairy processing and value addition infrastructure,
 - b) meat processing and value addition infrastructure,
 - c) Animal Feed Plant,
 - d) Breed Improvement technology and Breed Multiplication Farm
 - e) Animal Waste to Wealth Management (Agri Waste Management) and
 - f) Setting up of Veterinary Vaccine and Drugs Manufacturing facilities.
- DAHD has formed a trust with NABSanrakshan Trustee Company Private Limited, a wholly owned subsidiary of NABARD for the establishment of a Credit Guarantee Fund Trust for extending the credit guarantee to Micro, Small & Medium Enterprises under AHIDF scheme.

- This fund trust established in March 2021 is the India's first ever fund trust under Credit guarantee scheme of AHIDF in the agriculture and Animal Husbandry sector and is a path-breaking initiative taken by DAHD which would exponentially increase the number of MSME units getting benefits of AHIDF scheme and strengthen the ecosystem for the collateral-free credit from the banks.
- The credit guarantee portal has been developed as a rule based B2B portal and implemented the enrollment of eligible lending institutions under Credit Guarantee Scheme, issuance/renewal of Credit Guarantee Cover and Settlement of Claims.

Key Features of AHIDF scheme:

- Interest Subvention of 3%
- loan up to 90% of the total project cost from any Scheduled Bank, National Cooperative Development Corporation (NCDC).

Way Forward:

- The initiative of credit guarantee scheme taken by DAHD is expected to greatly increase the participation of MSMEs engaged in livestock sector leading to increased flow of credit to the sector and strengthen the MSMEs to boost the overall rural economy through strengthening the Livestock sector which is of one of the most potential sector seeking development.

INDIA'S SHARE IN WORLD FOOD GRAINS MARKET BASED ON EXPORT VALUES STANDS AT 7.79% IN 2022



Why in news?

- Recently, the Union Minister of State for Commerce and Industry, in a written reply in the Rajya Sabha gave information about India's share in the world food grains market.

India's exports of foodgrains:

- India's share in the world food grains market, based on the exported values in 2022, was 7.79% (Source: ITC Trade Map calculations based on UN COMTRADE and ITC statistics).
- India's exports of foodgrains have registered a steady growth in last few years which is reflected in the increase in India's share in world foodgrain

exports from 3.38% in 2010 to 7.79% in 2022 as per UN COMTRADE statistics.

Export promotion:

- The Government has taken several steps at State/ District levels to promote exports of agriculture products, including foodgrains.
- State-specific Action Plans have been prepared and State Level Monitoring Committees (SLMCs), Nodal Agencies for agricultural exports and Cluster Level Committees have been formed in a number of States. Country and product-specific action plans have also been formulated to promote exports.
- The Agricultural & Processed Food Products Export Development Authority (APEDA), a statutory body under the administrative control of Department of Commerce, has been providing financial assistance to the exporters of agricultural and processed food products, including foodgrains, under components such as Development of Export Infrastructure, Quality Development and Market Development under its scheme namely "Agriculture & Processed Food Export Promotion Scheme of APEDA".
- APEDA assists exporters in promoting exports by organising buyer-seller meets (BSMs); participation in international trade fairs and exhibitions; taking up the Sanitary and Phytosanitary (SPS), Technical Barriers to Trade (TBT) and Market Access issues with the importing countries; and regular interactions with the Indian Missions to tap export opportunities in various countries.

EPFs:

- Further, Export Promotion Forums (EPFs) for Rice and Nutri-Cereals have been set up under the aegis of APEDA.
- The EPFs strive to identify and anticipate developments pertaining to production and exports of these products, reach out to stakeholders across the entire production/ supply chain of exports and make recommendations for necessary policy interventions and other measures to promote exports.

FPO:

- Farmer Producer Organizations (FPO) have been established for the purpose of leveraging collective economies of scale in the production and marketing of agriculture and related products. This helps lower the average cost of production, hence increasing competitiveness in foreign markets.

INTELLECTUAL PROPERTY RIGHTS POLICY MANAGEMENT FRAMEWORK COVERS 8 TYPES OF INTELLECTUAL PROPERTY RIGHTS

Why in news?

- Recently, the Union Minister of State for Commerce and Industry in a written reply in the Rajya Sabha

gave information about types of intellectual property rights covered under IPRPM Framework.



Types of IPRs covered:

- There are following types of intellectual property rights covered under Intellectual Property Rights Policy Management (IPRPM) framework:
 - a) Patents,
 - b) Trade mark,
 - c) Industrial Designs,
 - d) Copyrights,
 - e) Geographical Indications,
 - f) Semiconductor Integrated Circuit Layout Design,
 - g) Trade Secret, and
 - h) Plant Varieties.

About Intellectual Property Rights Policy Management (IPRPM) framework:

- The framework was launched in the form of National IPR Policy 2016 encompassing all IPRs into a single vision document setting in place an institutional mechanism for implementation, monitoring and review of IP laws.
- The policy has seven objectives designed for creating an environment that encourages innovation and creativity by providing stronger protection and incentives for inventors, artists, and creators. There are several measures undertaken to achieve the given objectives.
- Among measures taken are compliance and timeline reduction in IP filing and disposal, fee rebate for Startups, MSMES, Educational Institutions and expedited examination for certain categories of applicants.

Objectives and activities undertaken under the National IPR Policy:

- Appropriate amendment in IPR Laws and Rules improving procedural requirements in processing of applications to speed up grant and disposal.
- Modernisation & Digitisation of IP offices improvement in functioning and performance of IP Offices as well as streamlining workflow processes.
- Scheme for Facilitating Start-Ups Intellectual Property Protection (SIPP) to encourage filling of Patent applications by Startups.

- Expedited Examination for certain category of applicants, such as Start-ups, small entities, women inventors for expeditious grant of Patents.
- Awareness initiatives and Programs for stakeholders with an intent to inculcate importance of protecting their IPR at an early stage in the business development cycle.
- National Intellectual Property Awareness Mission (NIPAM), a flagship program to impart IP awareness and basic training in educational institutes.
- National Intellectual Property (IP) Awards are conferred every year to recognize and reward the top achievers comprising individuals, institutions, organizations and enterprises, for their IP creations and commercialization.
- Patent Facilitation Programme has been revamped to scout patentable inventions and provide full financial, technical and legal support in filing and obtaining patents.
- Expand Knowledge Capacity & Skill Building: To promote the study, research, and development of IPR in higher educational institutions, IPR chairs have been set up across the country under the Scheme for Pedagogy & Research in IPRs for Holistic Education and Academia (SPRIHA). Currently, 37 IPR Chairs are incorporated.
- Commercialization of IP: Technology Innovation Support Centres (TIS) have been set up in various Central and State Universities and State Council for Science & Technology across the country for supporting IPR education, boosting IP filings and enhancing IP commercialization.

STARTUP SCHEME FOR WOMEN



Why in news?

- Recently, the Union Minister for Women & Child Development, gave a written reply in the Lok Sabha about Startup Scheme for Women.

Startup India initiative:

- The Government launched 'Startup India initiative' on 16th January 2016 with an aim to build a stronger ecosystem for nurturing India's startup culture that would further drive our economic growth, support entrepreneurship, and enable large-scale employment opportunities.

- ⇒ It assists in strengthening women entrepreneurship, through policies and initiatives, and creation of enabling networks.
- ⇒ Under this initiative, entities are recognized by the Department for Promotion of Industry and Internal Trade (DPIIT) as startups.
- ⇒ As on 31st December 2022, a total of 86,713 startups have been recognized by DPIIT in over 660 districts with at least one startup from every State and UT of the country. Out of these, over 46% of them have at least one-woman director.

Measures taken to promote women entrepreneurship in the country:

- ⇒ To promote flow of both equity and debt to women led startups, 10% of the fund (Rs 1000 crore) in the Fund of Funds for Startups Scheme operated by SIDBI is reserved for women led startups.
- ⇒ Virtual Incubation Program for Women Entrepreneurs were conducted to support 20 women-led tech startups with pro-bono acceleration support for 3 months.
- ⇒ A webpage dedicated to women entrepreneurs has been designed on the Startup India portal. The page includes various policy measures for women entrepreneurs by both Central and State Governments.
- ⇒ Awareness and Capacity Building Workshops for women: The department conducts various workshops with a specific focus on women entrepreneurs. The workshops include deliberation on various topics and successful entrepreneurs share their entrepreneurial journeys.

Various programs undertaken under Startup India initiative, which are gender neutral, are as under:

- ⇒ Startup India Action Plan:
- ⇒ An Action Plan for Startup India was unveiled on 16th January 2016.
- ⇒ The Action Plan comprises of 19 action items spanning across areas such as "Simplification and handholding", "Funding support and incentives" and "Industry-academia partnership and incubation".
- ⇒ The Action Plan laid the foundation of Government support, schemes and incentives envisaged to create a vibrant startup ecosystem in the country.

Fund of Funds for Startups (FFS) Scheme:

- ⇒ The Government has established FFS with corpus of Rs. 10,000 crore, to meet the funding needs of startups. DPIIT is the monitoring agency and Small Industries Development Bank of India (SIDBI) is the operating agency for FFS.
- ⇒ The total corpus of Rs. 10,000 crore is envisaged to be provided over the 14th and 15th Finance Commission cycles based on progress of the scheme and availability of funds.
- ⇒ It has not only made capital available for startups at early stage, seed stage and growth stage but also

played a catalytic role in terms of facilitating raising of domestic capital, reducing dependence on foreign capital and encouraging home grown and new venture capital funds.

Credit Guarantee Scheme for Startups (CGSS):

- ⇒ The Government has established the Credit Guarantee Scheme for Startups for providing credit guarantees to loans extended to DPIIT recognized startups by Scheduled Commercial Banks, Non-Banking Financial Companies (NBFCs) and Venture Debt Funds (VDFs) under SEBI registered Alternative Investment Funds.
- ⇒ CGSS is aimed at providing credit guarantee up to a specified limit against loans extended by Member Institutions (MIs) to finance eligible borrowers viz. DPIIT recognised startups.

Regulatory Reforms:

- ⇒ Over 50 regulatory reforms have been undertaken by the Government since 2016 to enhance ease of doing business, ease of raising capital and reduce compliance burden for the startup ecosystem.

Ease of Procurement:

- ⇒ To enable ease of procurement, Central Ministries/ Departments are directed to relax conditions of prior turnover and prior experience in public procurement for all DPIIT recognised startups subject to meeting quality and technical specifications.
- ⇒ Further, Government e-Marketplace (GeM) Startup Runway has been developed which is a dedicated corner for startups to sell products and services directly to the Government.

Support for Intellectual Property Protection:

- ⇒ Startups are eligible for fast-tracked patent application examination and disposal.
- ⇒ The Government launched Start-ups Intellectual Property Protection (SIPP) which facilitates the startups to file applications for patents, designs and trademarks through registered facilitators in appropriate IP offices by paying only the statutory fees.
- ⇒ Facilitators under this Scheme are responsible for providing general advisory on different IPRs, and information on protecting and promoting IPRs in other countries.
- ⇒ The Government bears the entire fees of the facilitators for any number of patents, trademark or designs, and startups only bear the cost of the statutory fees payable. Startups are provided with an 80% rebate in filing of patents and 50% rebate in filling of trademark vis-a-vis other companies.

Self-Certification under Labour and Environmental laws:

- ⇒ Startups are allowed to self-certify their compliance under 9 Labour and 3 Environment laws for a period of 3 to 5 years from the date of incorporation.

Income Tax Exemption for 3 years:

- Startups incorporated on or after 1st April 2016 can apply for income tax exemption.
- The recognized startups that are granted an Inter-Ministerial Board Certificate are exempted from income-tax for a period of 3 consecutive years out of 10 years since incorporation.

International Market Access to Indian Startups:

- One of the key objectives under the Startup India initiative is to help connect Indian startup ecosystem to global startup ecosystems through various engagement models.
- This has been done through international Government to Government partnerships, participation in international forums and hosting of global events.
- Startup India has launched bridges with over 15 countries (Brazil, Sweden, Russia, Portugal, UK, Finland, Netherlands, Singapore, Israel, Japan, South Korea, Canada, Croatia, Qatar and UAE) that provides a soft-landing platform for startups from the partner nations and aid in promoting cross collaboration.

Faster Exit for Startups:

- The Government has notified Startups as 'fast track firms' enabling them to wind up operations within 90 days vis-a-vis 180 days for other companies.

Startup India Hub:

- The Government launched a Startup India Online Hub on 19th June 2017 which is one of its kind online platform for all stakeholders of the entrepreneurial ecosystem in India to discover, connect and engage with each other.
- The Online Hub hosts Startups, Investors, Funds, Mentors, Academic Institutions, Incubators, Accelerators, Corporates, Government Bodies and more.

National Startup Advisory Council:

- The Government in January 2020 notified constitution of the National Startup Advisory Council to advise the Government on measures needed to build a strong ecosystem for nurturing innovation and startups in the country to drive sustainable economic growth and generate large scale employment opportunities.
- Besides the ex-officio members, the council has a number of non-official members, representing various stakeholders from the startup ecosystem.

Startup India Seed Fund Scheme (SISFS):

- Easy availability of capital is essential for entrepreneurs at the early stages of growth of an enterprise. The capital required at this stage often presents a make-or-break situation for startups with good business ideas.
- The Scheme aims to provide financial assistance to startups for proof of concept, prototype development, product trials, market entry and commercialization. Rs. 945 crore has been sanctioned under the SISFS Scheme for period of 4 years starting from 2021-22.

National Startup Awards (NSA):

- National Startup Awards is an initiative to recognize and reward outstanding startups and ecosystem enablers that are building innovative products or solutions and scalable enterprises, with high potential of employment generation or wealth creation, demonstrating measurable social impact.
- Handholding support is provided to all the finalists across various tracks viz. Investor Connect, Mentorship, Corporate Connect, Govt. Connect, International Market Access, Regulatory Support, Startup Champions on Doordarshan and Startup India Showcase, etc.

States' Startup Ranking Framework (SRF):

- States' Startup Ranking Framework is a unique initiative to harness strength of competitive federalism and create a flourishing startup ecosystem in the country.
- The major objectives of the ranking exercise are facilitating states to identify, learn and replace good practices, highlighting the policy intervention by states for promoting startup ecosystem and fostering competitiveness among states.

Startup India Innovation Week:

- The Government organises Startup India Innovation week around the National Startup Day i.e. 16th January.
- The goal was to bring together the country's key startups, entrepreneurs, investors, incubators, funding entities, banks, policymakers, and other national/international stakeholders to celebrate entrepreneurship and promote innovation.

CAN NEW DATA PANEL IMPROVE INDIA'S STATISTICS?

**Why in news?**

- The Ministry of Statistics and Programme Implementation has formed a new Standing Committee on Statistics (SCoS) to advise on official data generated by the National Statistical Office (NSO).
- This panel, chaired by former National Statistical Commission chief and India's first Chief Statistician

Pronab Sen, will replace another committee headed by him that was formed in 2019 to advise on economic data.

What is different about the new committee?

- The Standing Committee on Economic Statistics was mandated to review the framework for economic indicators such as those pertaining to the industrial and services sectors, along with labour force statistics.
- This meant its focus was limited to reviewing high-frequency data like the Index of Industrial Production (IIP) and the Consumer Price Index (CPI), apart from surveys and enumerations like the Economic Census, Annual Survey of Industries and the Periodic Labour Force Survey.
- The SCoS, has “enhanced terms of reference” that enable it to advise the Ministry not just on all existing surveys and data sets, but also identify areas where data gaps exist, suggest ways to fill them and carry out pilot surveys and studies to finetune new approaches for capturing better data.
- The new committee is also half the size of the 28-member panel that was reviewing economic data.

Why does it matter?

- In recent years, the credibility of some of NSO's data, especially the results of various household surveys traditionally carried out by the National Sample Survey Office (NSSO) have come under a cloud, with even top government officials questioning their approach and outcomes.
- In 2019, the government had decided to junk the results of two major NSSO household surveys carried out in 2017-18, to assess the employment and consumption expenditure levels in Indian households by claiming they suffered from “data quality issues”.
- The actual rationale for withholding the outcome of the last surveys, carried out soon after demonetisation and the implementation of the Goods and Services Tax (GST), is believed to be that they revealed distress in households.

How can the SCoS bridge the trust deficit surrounding official data?

- While it can advise the Statistics Ministry on individual surveys and data sets, the new panel is also expected to help address issues raised “from time to time” on the results and methodology of surveys.
- With survey design and features evolving, the panel can seek to sensitise data users about the nuances involved to ensure better interpretation of the numbers.
- The SCoS, which will help the NSO finalise survey results and, the independent National Statistical Commission that is empowered to assess whether any official data is fit for release, must seek to rebuild the credibility of India's statistics.

WHAT HAS TO BE DONE TO GET TO ZERO HUNGER?



Why in news?

- The Global Report on the Food Crises (GRFC) 2023 released recently estimated that between 691 million and 783 million people in the world suffered from hunger in 2022.

Details:

- While the two pandemic years did not record a growth in food insecurity, the data for 2022 shows levels far higher than pre-pandemic 2019.
- The 2023 report records the historic moments that had an impact on the assessment – a pandemic and ensuing economic crisis, a war (in Ukraine), soaring prices of food, and agricultural inputs.

About GRFC:

- The GRFC is produced by the Food Security Information Network in support of the Global Network against Food Crises, and involves 16 partners to achieve a joint consensus-based assessment of acute food insecurity in countries.

What is food security?

- Food security is defined (from the World Food Summit of 1996) thus: “When all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active, and healthy life”.
- The prevalence of moderate or severe food insecurity in the population is based on the Food Insecurity Experience Scale (FIES).

What are the key findings?

- The Global Report starts with a qualified assertion that hunger is no longer on an alarming path upwards at the global level, but still far above pre-COVID pandemic levels, and that the world is far off track towards achieving Sustainable Development Goal 2 – Zero Hunger.
- It sets the global contexts preceding and during the year under assessment, particularly paying attention to the increasing phenomenon of urbanisation, and its effects on food security.

- In 2022, an estimated 2.4 billion people did not have access to adequate food. This is still 391 million more people than in 2019.

Undernourishment, stunting & child wasting:

- Global hunger, measured by yet another metric, the prevalence of undernourishment remained relatively unchanged from 2021 to 2022 but is, again, far above pre-COVID-19-pandemic levels, affecting around 9.2% of the world population in 2022 compared with 7.9% in 2019, according to the report.
- Stunting defined as the condition of being too short for one's age, among children under five years of age has declined steadily, from 204.2 million in 2000 to 148.1 million in 2022.
- Simultaneously, child wasting, caused by insufficient nutrient intake or absorption, declined from 54.1 million in 2000 to 45 million in 2022. In terms of children who are overweight or obese, the study indicated a non-significant increase from 5.3% (33 million) in 2000 to 5.6% (37 million) in 2022.
- The revised analysis presented in 2023 report shows that almost 3.2 billion people worldwide could not afford a healthy diet in 2020, with a slight improvement in 2021.
- The cost of a healthy diet increased globally by 6.7% between 2019 and 2021. It also projects that almost 600 million people will be chronically undernourished in 2030.

What are the solutions ahead?

- The sound nutrition is fundamental to the achievement of the Sustainable Development Goals and must be central in government policy and supported by civil society and the private sector.
- Some of its recommendations include supporting healthier food outlets as key for enabling access to healthy diets. Policy incentives are necessary to encourage shops to sell greater amounts of fresh and minimally processed foods.
- Another key input is on street foods, which an estimated 2.5 billion people worldwide consume every day, due to the convenience and cost factor. The report calls for addressing multiple infrastructure and regulatory gaps to improve nutritional safety and quality of street food.
- The GRFC also suggests building rural infrastructure, including quality rural and feeder roads to connect remote farms and enterprises to main road networks.
- Other public investments to support linkages between (mainly small) farms and small and medium enterprises could include warehousing, cold storage, dependable electrification, access to digital tools and water supply.
- It underlines several times the role of local governments as fundamental actors in leveraging multilevel and multi-stakeholder mechanisms that have proved effective in implementing essential

policies for making healthy diets available and affordable for all.

SECURITY

TEJAS FIGHTER COMPLETES SEVEN YEARS OF SERVICE IN INDIAN AIR FORCE



Why in news?

- India's indigenous Light Combat Aircraft (LCA) completed seven years of service in the Indian Air Force (IAF).
- Christened Tejas in 2003 by former prime minister Atal Behari Vajpayee, the fighter aircraft is a multi-role platform that is steadily making a name as one of the world's premier light fighters.

Key Features:

- Designed by the Defence Research & Development Organisation (DRDO), the multi-role Tejas fighter can perform the roles of air defence, maritime reconnaissance and strike, switching between roles with the press of a button.
- Tejas is built to be an inherently unstable fighter, with a sophisticated and quadruplex flight control system. This allows the pilot carefree handling and enhanced manoeuvrability.
- This multi-role capability is further enhanced by the Tejas' multi-mode airborne radar, helmet-mounted display system, a self-protection suite and a laser designation pod.

Timeline:

- The first 20 Tejas Mark 1 fighters formed the IAF's service into Number 45 Squadron, the "Flying Daggers." Over the years, 45 Squadron has flown Vampires, Gnats and then the MiG-21 BIS, before being equipped with the Tejas Mark 1.
- All the aircraft flown by the Flying Daggers have been manufactured in India, first under licenced production, and then, like the Tejas, designed and developed in India as well.
- In May 2020, No 18 Squadron became the second IAF unit to operate the Tejas – still in its Mark 1 variant.

New LCA Variant:

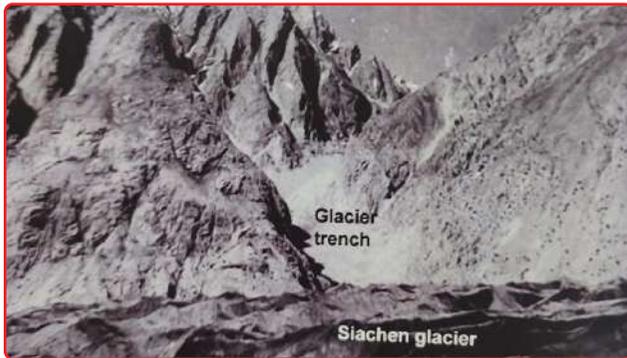
- The IAF's confidence in the Tejas is underlined by the latest order for 83 Mark-1A fighters. These will have

- updated avionics, an active electronically-steered radar, an updated electronic warfare suite and a beyond visual range missile capability.
- The new LCA variant will be capable of firing a range of weapons, missiles and cannon-fire from increased stand-off ranges. The Tejas LCA will see a substantial increase in the overall indigenous content of the aircraft.
 - Contracted deliveries of the aircraft are expected to commence in February 2024. In the years to come, the LCA and its future variants will form an important mainstay of the IAF.
 - After participating in numerous exercises in the Indian skies with foreign air forces, Tejas made its debut abroad in March 2023 in Exercise Desert Flag in the United Arab Emirates (UAE).

JF-17:

- Meanwhile, China/Pakistan's JF-17 Thunder was being developed as a cheap and lightweight fighter that could take down the FC-1 Xiaolong. The service has inducted more than 100 Thunder jets since 2007.

THE FIRST GSI SURVEY OF THE SIACHEN



Context:

- June-August 2023 marks the sapphire jubilee of a very important event in the history of the exploration of the Siachen glacier.
- The grid reference point NJ 9842, the last mutually demarcated point between India and Pakistan as per the Karachi ceasefire agreement of 1949 and also the point 5Q 131 05 084 where the Line of Control of the Simla Agreement ends, is the number assigned to the Siachen glacier by the Geological Survey of India (GSI).

The first Siachen survey:

- In June 1958, V. K. Raina, a top Indian geologist, who at that time was an Assistant Geologist with the GSI led the first GSI Survey of the Siachen glacier.
- In 1956, he had been a part of the Saser Kangri expedition conducted by the Himalayan Mountaineering Institute of Darjeeling. During this time, he studied the geology and geomorphology of the Nubra Valley upto Panamik. Thereafter, in

1957, he was involved in the geological survey of the alignment of the proposed Leh-Manali Highway which was only a mule track at that time.

International Geophysical Year 1958:

- 1958 was an important year for geologists all over the world as it was celebrated as the International Geophysical Year.
- The GSI proposed to conduct a study of the Himalayan glacier systems which included snout monitoring of the glaciers in the Sikkim Himalayas, Kumaon Himalayas as well as the Kashmir Himalayas.
- The responsibility of snout surveying five glaciers in the Ladakh region was given to him. These were the Siachen, Mamostong, Chong Kumdan, Kichik Kumdan and Aktash glaciers.

First Glimpse:

- In August/October 1958 the Siachen glacier exhibited two ice caves which were about 100 metres apart. While the southern cave was visible from the level plateau downstream of the snout, the northern one could only be seen after going high up the eastern wall upstream of the snout.
- The Nubra River could be seen flowing out from the northern ice cave before it disappeared under the glacier ice and emerged out of the southern ice cave.

Pakistan's nonchalance:

- If during this period Pakistan did entertain any idea of this region falling on its side of the ceasefire line, then it would surely have lodged a protest against it. However, there were no such protests and there is no contemporaneous document to this effect from Pakistan.
- There could be two possible reasons for Pakistan's general lack of interest in the continued Indian presence on the glacier at that time.
 - a) Firstly, both India and Pakistan were abiding by the terms of the Karachi ceasefire agreement of 1949 under which they had clearly delimited the entire cease fire line right up to the glaciers and agreed to mutually demarcate it.
 - Even though the region beyond NJ 9842 was pending mutual demarcation and delineation, it was evident that if the line were to proceed north right till the glaciers as envisaged under the agreement, then this region would still fall on the Indian side.
 - b) Since explorations and scientific visits did not pose any threat or give either side any reason to believe that the other may physically occupy the region contrary to the explicit agreement, not much importance was given to them.

Operation Meghdoot:

- It is only 25 years later that Pakistan for the first time formally staked its claim to this region (contrary to the Karachi ceasefire agreement) by unilaterally

extending the Line of Control from NJ 9842 till the Karakoram Pass in its protest notes of August 1983 (contrary to the Simla Agreement).

- This set the alarm bells ringing in India and put into motion a chain of events which resulted in India preempting Pakistan and occupying the strategic Saltoro Heights on April 13, 1984.

RAFALE M FIGHTER AIRCRAFT INDIA IS SET TO BUY FROM FRANCE



Why in news?

- India is planning to buy 26 Rafale Marine fighter aircraft from France to arm its indigenous aircraft carrier INS Vikrant, with the deal being approved by the Defence ministry during Indian Prime Minister's visit to France.

Rafale Marine:

- The Rafale Marine, also known as Rafale M, was selected following competition with American fighter F/A 18 Super Hornets. Both were flight tested at the shore-based test facility in Goa.
- One big advantage the Rafale M had was that the aircraft is already in service with the Indian Air Force (IAF), which means there will be commonality of spares and maintenance, resulting in cost savings.
- The Rafale aircraft operated by the IAF and the Rafale M share nearly 80 per cent of their components.
- The Rafale M is the only non-US type of fighter cleared to operate from the decks of US carriers, using their catapults and their arresting gear.

What is Rafale M?

- Rafale M is a single-seat aircraft capable of undertaking 'quick reaction alert', air defence and air policing missions, nuclear deterrence duties, power projection and deployments for external missions, deep strike missions, air support for ground forces, reconnaissance missions, and pilot training sorties.

Wing span:

- The Rafale M has a wing span of 10.90 metres. In aircraft, the wing span of an aircraft is the distance between its two wingtips situated on both sides.
- The wingspan generally determines how big the aircraft is. Rafale M has a length of 15.30 metres and a height of 5.30 metres.

Take-off weight:

- Dassault Aviation places Rafale in the 10-tonne class, with a maximum take-off weight of 24.5 tonnes and an external load of 9.5 tonnes.
- The take-off weight refers to the maximum mass at which the aircraft can take off, this component is certified due to the structural limits of the aircraft.

Speed:

- The "service ceiling" of Rafale M, the altitude at which an aircraft can no longer rise faster than 100 feet per minute under standard air conditions stands at 50,000 feet.
- While the approach speed of the aircraft is less than 120 knots (222.24 km per hour), the maximum speed of the aircraft is 750 knots (1,389 kmph).

Attacking capability:

- The Rafale M can carry out air-to-ground strikes as well as air-to-air attacks and interceptions during the same sortie.
- The mission system of the Rafale has the potential to integrate different armaments such as the long-range air-to-air missile Meteor, the air-to-air 'Beyond Visual Range' MICA, the HAMMER, long-range stand-off missile SCALP, anti-ship missile AM39 EXOCET, laser-guided bombs with different warheads and seekers, non-guided classic bombs, as well as the 2,500 rounds per minute NEXTER internal cannon.
- The fighter's design makes it relevant against both "traditional and asymmetrical threats".

Rafale fighter with French forces:

- The first variant of the Rafale aircraft (Standard F1) inducted into the French navy featured only air-to-air capabilities. The variant became operational in 2004, launching from the Charles de Gaulle nuclear aircraft carrier during operation "Enduring Freedom" in Afghanistan.
- The second version inducted in 2006 brought capabilities to carry out air-to-air and air-to-ground missions.
- Standard F3, the current version, was qualified by the French ministry of defence in 2008.

Standard F4 Rafale fighters:

- In early 2023, the first Standard F4 Rafale fighters were delivered to both the French air and space force and the French navy.
- Seven French air force and three French navy units are equipped with the Rafale.
- After the Russian aggression in Ukraine, the French air and space force Rafale fighters, supported by their French navy counterparts, conducted combat air patrol and were kept at short-notice readiness during the winter of 2022-2023 in the Baltic states.

ENVIRONMENT

WATER MISSION MAY MISS 2024 TARGET



Why in news?

- The government's ambitious 'Har Ghar Jal' initiative to provide all rural households in India with potable water connections by 2024 under its flagship Jal Jeevan Mission is likely to fall short of its target.
- Only 75% of village homes are likely to have taps delivering drinking water by April 2024.

Challenges:

- The scheme was announced by Prime Minister in 2019, a time only 16% of rural households had tap water.
- It faced a slew of challenges such as the pandemic, a dearth of qualified manpower in States, the scale of the exercise, State-specific issues and even the ongoing Russia-Ukraine war meant that the project only picked up speed in several States in 2022.
- While the pandemic led to delays, the Ukraine war resulted in major shortages of steel and cement, which are critical to the manufacture and connection of metal pipes. This led to major price revisions and considerable time was lost in renegotiating contracts and improving supply.
- There are States, for instance Rajasthan, where actual availability of water is a challenge. In West Bengal and Kerala, there are problems with water contamination. So ensuring adequate water quality is an issue.
- The Jal Jeevan Mission has a financial outlay of ₹3.60 lakh crore, with the Centre funding 50% of the cost.

'Functional' tap:

- The mission's stated objective is to provide 'functional' tap connections that give at least 55 litres per person per day, of potable or drinking water.
- According to data by the Jal Shakti Ministry, about 63% of rural households have tap connections, meaning that about 9.1 crore households have benefited from the programme since 2019.

Few certified villages:

- There is a system of 'certification' wherein the gram panchayats in a village which district and block level

authorities report as fully connected call a quorum, and upload a video attesting the veracity of the claim.

- Of the nearly 1,68,000 villages that are reported as 'Har Ghar Jal' where all houses have tap water, only 58,357 villages have been so 'certified', suggesting that the gap between reported and verified connections is wide.

Case of Uttar Pradesh:

- In Uttar Pradesh, for instance, only 5.1 lakh or 1% of households reported tap connections when the scheme was launched. This grew to 32 lakh by August 2021 and then grew slower to 42 lakh by August 2022. In the last 10 months, however, the number of homes with connections has dramatically jumped to 1.3 crore, or about half the total rural households.
- However, of U.P.'s 98,455 villages, only 13,085 have reported being fully connected and only 2,837 of them have certified themselves. Thus, about 3% of U.P. villages can be said to be 100% certified as Har Ghar Jal villages.

States covered:

- Only eight States and Union Territories so far have reported all their villages as 100% connected, but nearly all of them were well connected in 2019 itself.
- Haryana, Gujarat and Punjab, the largest of these States, already had over 50% coverage in 2019.

INDIA ADDS 664 ANIMAL SPECIES TO ITS FAUNA DATABASE, 339 TAXA TO ITS FLORA

Why in news?

- Recently, the details of new discoveries and new records were released by Union Minister for Environment, Forest and Climate Change in Kolkata.
- The faunal discoveries have been compiled in a publication by Zoological Survey of India (ZSI) titled 'Animal Discoveries - New Species and New Records 2023', whereas floral discoveries are contained in 'Plant Discoveries 2022' published by the Botanical Survey of India (BSI).



Details:

- India added 664 animal species to its faunal database in the year 2022. These comprise 467 new species and 197 new records (species found in India for the first time).

⇒ The country also added 339 new plant taxa, 186 taxa that are new to science and 153 taxa as new distributional records from the country in 2022.

Fauna Species:

- ⇒ Among the major fauna species discovered are three new species and one new record of mammals; two new records of birds; 30 new species and two new records of reptiles; six new species and one new record of amphibia; and 28 new species and eight new records of fish.
- ⇒ The mammal species discovered include two species of bats; *Miniopterus phillipsi*, a long-fingered bat, and *Glischropus meghalayanus*, a bamboo-dwelling bat both from Meghalaya.
- ⇒ *Sela macaque* (*Macaca selai*), a new macaque species was discovered in the western and central Arunachal Pradesh and named after the Sela Pass.
- ⇒ The new records include *Macaca leucogenys*, a white-cheeked macaque earlier found in Modog, southeastern Tibet, and sighted in India for the first time in 2022 in West Siang, Arunachal Pradesh.
- ⇒ The list also includes *Ficedula zanthopygia*, the yellow-rumped flycatcher, earlier known from Mongolia, Transbaikal, southern China, Korea, western Japan, and found last year in Narcondam Island of the Andaman archipelago.
- ⇒ The maximum number of new faunal discoveries has been of invertebrates with 583 species, while vertebrates constitute 81 species.
- ⇒ Insects dominate among invertebrates with 384 species, whereas fish dominated among vertebrates, followed by reptiles, amphibia, mammals and aves.

State-wise distribution:

- ⇒ In 2022, the maximum new discoveries were recorded from Kerala. As many as 82 animal species new to science and 15 new records were from Kerala, which contributes to 14.6% of the new species and new records.
- ⇒ Karnataka followed with 64 new species and 24 new records accounting for 13.2%. Tamil Nadu saw 71 new discoveries and 13 new records, contributing to 12.6% of all the new discoveries and new records in the country.
- ⇒ The Andaman and Nicobar Islands contributed to about 8.4% of the discoveries, whereas 7.6 % discoveries were from West Bengal and 5.7% from Arunachal Pradesh. With the new discoveries and new records, the fauna diversity of the country increased to 1,03,922.

Flora:

- ⇒ 'Plant Discoveries 2022' contains an enumeration of 339 taxa, which have been added to the Indian flora during 2022.
- ⇒ These comprise 319 species, and 20 infraspecific taxa as new to the Indian flora. Of these, 186 taxa are new

to science and 153 taxa are new distributional records from India.

INDIA PROPOSES 5% ZERO CARBON MARINE FUEL MIX BY 2030, TO SET REALISTIC AIM



Why in news?

- ⇒ The Marine Environment Protection Committee (MEPC) 80th session is ongoing at IMO Headquarters in London.

Agenda:

- ⇒ Amongst key agenda items, the MEPC 80 session is expected to adopt an upgraded IMO greenhouse gas strategy.
- ⇒ The revised IMO GHG Strategy will contain concrete greenhouse gas reduction targets for the sector and is expected to outline a basket of technical and economic measures to be developed to set global shipping on an ambitious path towards phasing out greenhouse gas emissions.

Highlights of India's address:

- ⇒ India asked the International Maritime Organisation (IMO) to focus on a realistic target to ensure that net zero carbon fuels occupy 5 per cent of the Marine fuel mix by 2030, without any additional checkpoints during this explorative and take-off period.
- ⇒ Any unrealistic target will place undue pressure on the governments to resort to flawed policies, industry to make haste and unsustainable investments, and the research to push through half-cooked and immature technological solutions, all of them will have long term, irreparable repercussions on this industry.
- ⇒ That is why India, which falls under the extremely risky category in the climate change vulnerability index, had submitted a MEPC document, proposing a way forward for the reduction strategy to be phased in progressively while ensuring the transition is smooth, achievable and inclusive, without leaving anyone behind.
- ⇒ While taking a positive stand on the proposal for a financial levy on Greenhouse gas emissions, India said that the motive behind such measures should not be one with an aim to penalise the industry but to encourage the transition to green energy.

Revenue generation proposals:

- India also cautioned the fellow delegates that any economic measure alone or as part of a basket of measures may not achieve the Paris Agreement goals without a severe impact on trade unless the availability of affordable future fuels, cost-effective future fuelled engines and trained manpower to operate them is ensured.
- It also called for revenue generation proposals and strategic distribution of revenues so generated to deserving sectors.

Way Forward:

- India, thus demanded the deliberation to take all such financial proposals on board and subject them to intense deliberations in the coming sessions, to come up with a more meaningful and inclusive proposal prior to its adoption on a future date.

About MEPC:

- The Marine Environment Protection Committee (MEPC) addresses environmental issues under IMO's remit.
- This includes the control and prevention of ship-source pollution covered by the MARPOL treaty, including oil, chemicals carried in bulk, sewage, garbage and emissions from ships, including air pollutants and greenhouse gas emissions.
- Other matters covered include ballast water management, anti-fouling systems, ship recycling, pollution preparedness and response, and identification of special areas and particularly sensitive sea areas.

UNITED NATIONS IMO AGREES TO REACH NET ZERO "BY OR AROUND" 2050

**Why in news?**

- Recently, the 2023 IMO Greenhouse Gas Strategy was adopted at the conclusion of the summit of the United Nations International Maritime Organization (IMO) in London.
- The Maritime countries upgraded their Greenhouse House Gas (GHG) emissions strategy to reach net zero "by or around" 2050 without specifying a definite year and taking into account different national circumstances.

Key Highlights:

- The draft document says to peak GHG emissions from international shipping "as soon as possible." This is to limit the global temperature increase to well below 2 degrees Celsius as outlined in the 2015 Paris Agreement, the international treaty on climate change.
- It calls for the international shipping industry "to reduce the total annual GHG emissions from international shipping by at least 20%, striving for 30%, by 2030, compared to 2008."
- It also urged the industry "to reduce the total annual GHG emissions from international shipping by at least 70%, striving for 80%, by 2040, compared to 2008."
- It said near-zero emission technologies, fuels, and energy sources should "represent at least 5%, striving for 10%, of the energy used by international shipping by 2030."

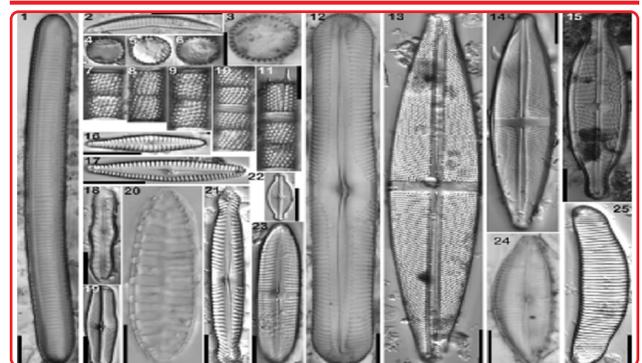
Biofuels:

- The IMO adopted an interim guidance which said that internationally certified biofuel and bio-blends can be used in the shipping industry. This resolution was backed aggressively by India at the conference.
- The revised strategy also says that the carbon intensity of international shipping should decline to reduce CO2 emissions "per transport work", on average by at least 40 per cent by 2030, compared to 2008 baseline levels.

Emissions by maritime shipping:

- According to the Intergovernmental Panel on Climate Change 2022 report, maritime shipping is responsible for three per cent of global anthropogenic GHG emissions and these emissions are continuing to grow rapidly.
- The IMO's own estimates in 2020 say that a business-as-usual scenario would see shipping emissions increase more than five-fold by 2050 if the shipping industry fails to act now.

SEDIMENTS DECODE CLIMATE AND ENVIRONMENTAL CHANGES ON KAAS PLATEAU AROUND 8664 YEARS BP



Why in news?

- Recently, a new study of the sediments from a seasonal lake in the Kaas Plateau in the Satara district of Maharashtra has indicated a major shift in the Indian Summer Monsoons towards dry and stressed conditions with low rainfall during the Early-Mid-Holocene, around 8664 years BP.
- Sediment profile dating back to 8000 years indicated a relatively reduced rainfall and weak southwest monsoon during the late Holocene (around 2827 years BP).

About Kaas Plateau:

- Kaas Plateau, nestled in the Western Ghats, was included in the UNESCO World Natural Heritage Site in 2012.
- Known as Kaas Pathar in Marathi, its name is derived from the Kaasa tree, botanically known as *Elaeocarpus glandulosus* (rudraksha family).
- Designated as a biodiversity hotspot, the Kaas Plateau comes to life with various seasonal flowers forming a floral carpet over the entire lateritic crust during August and September.

Basis of the study:

- Agharkar Research Institute (ARI), Pune, along with the National Centre for Earth Sciences, Thiruvananthapuram studied the sediments of a seasonal lake to understand and decipher the past climate of the Kaas Plateau.
- Sediment profile dating back to 8000 years which was analysed (by available carbon dates-AMS) to decode the climatic signatures, indicated that the seasonal lake favoured freshwater accumulation almost for 8000 years before the present (BP) and probably dried sometimes after 2000 years BP.

Key observations:

- The observations from the study revealed that the seasonal lake is probably a product of an erosional localized shallow depression on a pediment (rock debris) developed over the crust.
- It is located on a lake that dates back to the Early-Mid-Holocene period, which means it is an ancient lake that has been preserved over a long time.
- The signatures of diatoms, mites, thecamoebians, and sediment characteristics provided better resolutions regarding the hydrological processes and modification of the seasonal lake.
- During the early to mid-Holocene, at around 8664 years ago, pollen, as well as diatom data, indicated a change in the climate from freshwater to drier conditions with low rainfall.
- Surprisingly, there was a significant rise in the number of diatoms in between. This suggests a major shift in the Indian summer Monsoon activity during that time, possibly resulting in intermittent humid periods amidst the dry spells.

- The observations of the scientists showed a decrease in rainfall and a weakened southwest Monsoon during the late Holocene (around 2827 years BP).
- However, during the recent past (around last 1000 years), pollen, as well as the presence of a high number of planktonic and pollution-tolerant diatom taxa indicated lake eutrophication, possibly due to human impact and cattle/livestock farming in the catchment.
- It is very likely that the 'Flower Wonder' might have existed for a longer duration, up to March-April, during the early-mid-Holocene (8000-5000 years), when the monsoon rainfall (more than 100 rainy days) was undoubtedly better than today.

Way Forward:

- The findings emphasized the need for conservation measures to protect the site's invaluable natural and cultural heritage.

ROADMAP FOR PROMOTING SOLAR ENERGY FOR UNIVERSAL ENERGY ACCESS

**Why in news?**

- At a side-event of the 4th Energy Transition Working Group in Goa, the Ministry of New and Renewable Energy (MNRE), in association with the International Solar Alliance, released a Roadmap of Solar Energy for Universal Energy Access.
- A workshop and panel discussion were also held, where energy access issues and solutions were deliberated upon.

Universal Energy Access:

- Based on the analysis done by the International Solar Alliance in the Roadmap of Solar Energy for Universal Energy Access released,
 - around 59% (396 million people) of the unelectrified population can be best suited for electrification through solar-based mini-grids,
 - about 30% (203 million people) through grid extensions and
 - the remaining 11% (77 million people) through Decentralized Renewable Energy solutions.
- To achieve this, a total investment of around USD 192 billion will be required, comprising: USD 97

billion in Solar-based mini-grids for approximately 25,738 MW of capacity; USD 18 billion in Solar-based decentralised renewable energy (DRE) solutions for about 1,224 MW of capacity; and USD 78 billion in Grid Extensions for the required infrastructure.

- Considering viability gap funding of 50% of project costs, financial support of around USD 48.5 billion will be needed to achieve the required mini-grid deployment.
- Through increased investments, ecosystem development initiatives, focused interventions, optimal use of resources, and solar PV-based cooking solutions integration with electrification initiatives, the world can accelerate into a fast-paced development scenario to achieve universal energy access by 2030.

Challenges & Solutions:

- The Roadmap further states that while the technology solutions necessary for achieving energy access are available, several challenges must be addressed to sustainably scale up the deployment of these solutions. While countries widely recognize the necessity for policies and regulations, progress in this area still needs to be made.
- As a result, private sector participants and local entrepreneurs are hesitant to engage in energy access projects.
- Intergovernmental organisations can play an instrumental role here by assisting access-deficit countries in developing policy and regulatory frameworks that create an enabling environment for interventions.
- Most of the population facing energy access deficit resides in underdeveloped regions where consumers struggle to afford electricity.
- High financial risks in these regions increase project costs for developers, widening the gap between consumer affordability and supplier viability. Risk mitigation measures and concessional financing can attract private-sector investment to energy access projects, facilitating scalability and sustainability.

Skill development:

- Another aspect predominant in energy access-deficit countries is often the need for more technical and financial expertise to drive electrification initiatives.
- They require skill development activities, access to global best practices, and programmes to support sectoral entrepreneurs. Training and capacity building, entrepreneurial support, and awareness creation in energy access-deficit countries are vital for long-term progress.
- By increasing investments, fostering ecosystem development initiatives, implementing focused interventions, making optimal use of resources, and integrating solar PV-based cooking solutions with electrification initiatives, the world can accelerate

into a fast-paced development scenario, ultimately achieving universal energy access by 2030.

About International Solar Alliance:

- The International Solar Alliance is an international organisation with 116 Member and Signatory countries. It works with governments to ease solar deployment and promote solar power as a sustainable transition to a carbon-neutral future.
- ISA's mission is to unlock US\$ 1 trillion of investments in solar by 2030 while reducing technology and its financing costs. It promotes the use of solar energy in the agriculture, health, transport, and power generation sectors.
- ISA Member Countries are driving change by enacting policies and regulations, sharing best practices, agreeing on common standards, and mobilising investments.
- Through this work,
 - a) ISA has identified and designed and tested new business models for solar projects;
 - b) supported governments to make their energy legislation and policies solar-friendly through Ease of Doing Solar analytics and advisory;
 - c) pooled demand for solar technology from different countries; and drove down costs;
 - d) improved access to finance by reducing the risks and making the sector more attractive to private investment;
 - e) increased access to solar training, data and insights for solar engineers and energy policymakers.
- ISA is one of the first international intergovernmental organisations headquartered in India.
- It is partnering with multilateral development banks (MDBs), development financial institutions (DFIs), private and public sector organisations, civil society, and other international institutions to deploy cost-effective and transformational solutions through solar energy, especially in the Least Developed Countries (LDCs) and the Small Island Developing States (SIDS).

SCIENCE & TECHNOLOGY

IIT MADRAS LAUNCHES TREND SETTER PROGRAM TO PROPEL DECARBONISATION RESEARCH

Why in news?

- Recently, the Indian Institute of Technology (IIT) Madras Energy Consortium hosted the 'Industry Day 2023' to discuss pathways towards decarbonising Indian Economy.

Trend Setter Program:

- During the event, the Energy Consortium launched a 'TREND Setter' program to boost decarbonisation research and extended support to two major and five exploratory research projects.



- ⇒ These span various topics from green ammonia, carbon capture, battery materials, and sustainable aviation fuels.
- ⇒ The Consortium aims to deliver significant outcomes in 12 to 18 months through these projects.

Key outcomes of the event included;

- ⇒ Extending opportunities for Indian Ministry of Micro, Small and Medium Enterprises (MSME)s to decarbonise through Energy.
- ⇒ Efficiency Services Limited (EESL)'s energy efficiency initiative and the Kotak-IITM Save Energy Mission (KISEM) network of assessment centres.
- ⇒ Building awareness in carbon trading and the emerging approaches.

India's commitment:

- ⇒ India has committed to cutting the emissions intensity by 45 per cent (of 2005 levels) by 2030.
- ⇒ It has been doing this, partly, via the Perform, Achieve, and Trade (PAT) scheme, where around 1,000 industries have been involved in procuring and trading energy-saving certificates (ESCerts).

INDIA'S FIRST DOMESTICALLY BUILT 700 MW NUKE REACTOR STARTS OPS IN GUJARAT



Why in news?

- ⇒ India's first indigenously developed 700 MW nuclear power reactor at the Kakrapar Atomic Power Project (KAPP) in Gujarat started commercial operations recently.

Details:

- ⇒ The Nuclear Power Corporation of India Limited (NPCIL) is building two 700 MW pressurised heavy

water reactors (PHWRs) at Kakrapar, which is also home to two 220 MW power plants.

- ⇒ Various commissioning activities were underway at KAPP 4, which had achieved 96.92 per cent progress by May end.

Upcoming projects:

- ⇒ The NPCIL plans to build sixteen 700 MW PHWRs across the country and has granted financial and administrative sanction for the same.
- ⇒ Construction of 700 MW nuclear power plants is underway at Rawatbhata in Rajasthan (RAPS 7 and 8) and at Gorakhpur in Haryana (GHAVP 1 and 2).

New sanctions:

- ⇒ The government has sanctioned building of 10 indigenously developed PHWRs in fleet mode at four locations -- Gorakhpur in Haryana, Chutka in Madhya Pradesh, Mahi Banswara in Rajasthan and Kaiga in Karnataka.

WILL SIGNING ARTEMIS ACCORDS BENEFIT INDIA?



Why in news?

- ⇒ Recently, India became the 27th signatory to the Artemis Accords, a set of non-binding guidelines that underpin the Artemis programme, a U.S.-led project to return humans to the moon permanently.

Why do the Accords matter?

- ⇒ The Artemis programme includes plans for a base on the lunar surface, multiple spacecraft to ferry humans and cargo, an orbiting space station, and a constellation of satellites to help with navigation and communication.
- ⇒ The first Artemis crewed mission to the moon's surface is likely in 2026. The programme resembles a Chinese-Russian plan for an 'International Lunar Research Station'.
- ⇒ With Russia reeling under sanctions, China has taken the lead on the project, outlining similar plans for a permanent base and a lunar satellite constellation.

Where do the Accords fit in space law?

- ⇒ Modern space law is erected on four international agreements that cover issues like the peaceful use of space, registration, and liability. They were struck

between 1967 and 1976, at the time of the first Space Race and Cold War detente.

- A fifth treaty, the Moon Agreement, was introduced in 1979 but neither the U.S. nor the Soviet Union signed it. India signed it but didn't ratify it.
- One provision in the Artemis Accords allows actors to extract and utilise space resources. This could be at odds with the Moon Agreement, which asks for gains from commercial exploitation of lunar resources to be distributed.
- This has not stopped countries like Australia and France which previously signed the Moon Agreement, from becoming Artemis signatories. In reality, the provisions of the Accords and the Moon Agreement are vague enough for lawyers to play according to the rules of both.
- Also, even if the Artemis programme succeeds and private enterprises set up settlements on the Moon, resource extraction will likely be restricted to using the lunar soil to build habitats and lunar ice for sustaining life.

Why didn't India sign the Accords earlier?

- The Artemis Accords were drafted in 2020, just as India was opening up its own space sector to private players.
- While being a signatory to the Moon Agreement may have initially given India pause, the cases of Australia and France are reassuring. India's own attitude has also evolved, with its new space policy allowing private players to mine any "space resource".
- The dramatic developments of the last three years have made it clear that divisions between the U.S. and China are too deep for them to agree on a complex new international law on the Moon until their ties improve.
- Finally, ties between India and the U.S. have been on an upswing, and there is less hesitation in India about joining an America-inspired international effort.

Way Forward:

- Signing the Artemis Accords alone has no financial implications for India but if the country wants to be a major player in the Artemis programme, ISRO will need a significant hike in its annual budget, which stands at about ₹12,500 crore this year.
- At present, ISRO's lunar exploration programme is impressive but modest. Its Chandrayaan-3 mission is scheduled to make India's first soft landing on the moon in the next few weeks.
- It may also take three years or more before India independently sends humans into space as part of its Gaganyaan project.
- India must overcome domestic resistance to collaboration with other space agencies, enable its private sector to work with other Artemis members, and develop legislation that encourages space activities.

CHANDRAYAAN 3 LAUNCH, WHY LANDING ON THE MOON IS A NIGHTMARE



Why in news?

- The Indian Space Research Organisation (ISRO) will launch the ambitious Chandrayaan-3 mission to the Moon on July 13 from the Satish Dhawan Space Centre in Sriharikota.
- The spacecraft will embark on a nearly two-month-long journey to the Moon at the end of which it will attempt a 'soft landing' on the lunar surface.

Soft landing:

- Earlier in 2023, Japan's ispace encountered a problem in this crucial phase of its attempt to land on the Moon. Its Hakuto-R lunar lander failed to slow down in time due to an altitude miscalculation, leading to mission failure.
- India's Chandrayaan-2 had experienced a similar fault caused by a software glitch.
- The scientist explains that once a Moon-bound lander separates from the propulsion module and begins its descent towards the lunar surface, it must carefully control both the speed at which it drops to the surface as well as the rate at which it swings sideways.
- The lander's speed needs to be reduced autonomously to three meters per second to ensure a soft landing. Thrusters (engines) will be fired to achieve this reduction in speed and control the lander's orientation during descent.

Why is the Moon so challenging?

- While the Moon lacks an atmosphere, it does possess gravity, approximately one-sixth (1/6th) of Earth's. Understanding the peculiarities of lunar gravity is crucial for planning and executing successful lunar missions.
- The reduced gravitational force necessitates even more precise control of the descent rate, as there is less natural deceleration. This puts the burden of landing on the lander's thrusters which must fire for the right amount of time and with the right force. Failure to manage the spacecraft's descent speed appropriately can lead to rapid and potentially dangerous descent.
- The Moon's surface, bombarded for millions of years with foreign objects, poses the greatest challenge

for landing due to its vast craters and loosely held regolith (soil and rocks). Different landing options are therefore chosen beforehand, including primary, alternate, and secondary contingency landing sites.

- ⇒ The terrain within the landing radius plays a crucial role in achieving a successful touchdown.

Case of Chandrayaan-3:

- ⇒ Chandrayaan-3 is equipped with two lander hazard detection and avoidance cameras, inputs from which will be used to make the final decision on where to land.
- ⇒ Crucially, while the decision-making data will be sent to mission control, the actual decision will be taken by the lander itself because of the time delay in sending inputs to the craft from Earth.

SOIL MICROBIOMES SHOULD BE INCLUDED IN ONE HEALTH GOALS, STUDY



Why in news?

- ⇒ A group of soil experts and researchers have called for including soil microbiomes under the One Health goals that function at the nexus of human, wildlife and the shared environment health.
- ⇒ One Health approach recommends global strategies to identify and manage the spread of infectious diseases and antimicrobial resistance (AMR).

Role of Soil microbiomes:

- ⇒ Soil microbiomes play a crucial role in maintaining healthy water and environmental stability. Moreover, they underpin global food security that eventually affects the overall sustainability of terrestrial life in multiple ways.
- ⇒ These microbiomes provide a habitat for microorganisms that benefit the environment by delivering important ecosystem and host functions. But they also work as a reservoir of human pathogens that induce antibiotic resistance genes (ARGs) and are sources of organic and inorganic pollutants.

Impact on immune human immune system:

- ⇒ Soil microbiomes impact human and animal immune systems by interacting with them through food chains. They also directly influence the quality of the environment through air and water.

- ⇒ Grazing herbivores are exposed to soil microbiomes via direct ingestion or the consumption of plant microbiomes, which provides a microbial source for the gut microbiome that can impact overall health and immune-system priming.
- ⇒ Organic waste like plant litter and debris such as gravel, sand and others deliver microorganisms back to the soil, thereby closing the microbial loop. However, any disruption in this can lead to diseases in the host.

Microbial hazards:

- ⇒ Soil microbiomes also hold reservoirs for crucial microbial hazards of human, plant and animal pathogens. Soil-borne pathogens such as Yersinia pestis, Clostridium botulinum and Bacillus anthracis are present in soil across the globe. They cause hundreds of millions of infections each year via direct or indirect interactions with human, animal and plant food cycles.
- ⇒ The researchers fear such disruption can lead to an endemic or pandemic, depending on varying microbial virulence and ecological, social as well as environmental conditions.

Five-step approach:

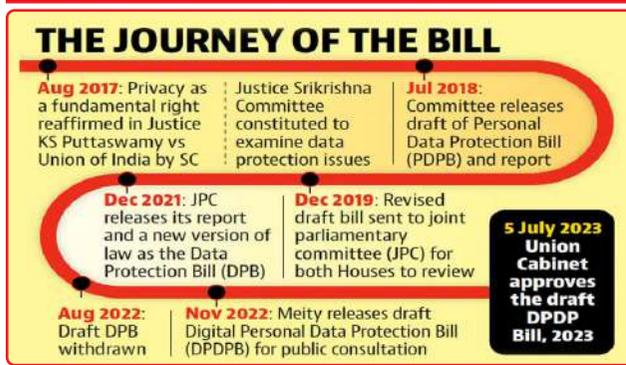
- ⇒ The scientists recommend an integrated and interdisciplinary five-step approach among global bodies to fill the gaps and overcome the challenges.
- ⇒ They suggested the establishment of a knowledge-hub network by integrating the United Nations Global Soil Partnership (UNGSP) and organisations such as the World Health Organization, Food and Agriculture Organization, UNEP, World Organisation for Animal Health, Consultative Group on International Agricultural Research, International Network of Soil Biodiversity and International Network of Soil Pollution among others for data collection, knowledge sharing and making policy recommendations.
- ⇒ It further recommended integrating, storing and sharing soil microbiome data to fill gaps in understanding the distribution of soil-borne pathogens and ARGs worldwide. Such efforts could prove useful in devising an automated system to detect and flag human pathogens. The information could benefit policymakers to chalk policies and provide crucial insights on the potential microbial threats in soil systems.
- ⇒ International agencies such as UNGSP, Consultative Group on International Agricultural Research and One Health High-Level Expert Panel (OHHLEP) can coordinate with global expertise to initiate periodic soil assessments relevant to One Health.
- ⇒ The also includes developing a coordinated mechanism that periodically and systematically engages concerned stakeholders, including the public, to highlight the critical role soil microbiomes play in One Health.

⇒ The final step addresses the barriers or challenges faced in coordinating with the agencies and the effective collection, facilitation, storage and sharing of data. It appeals to different political and global economic situations to join hands to achieve the same.

Way Forward:

⇒ The One Health High-Level Expert Panel (OHHLEP) must be expanded to include soil health and microbiome experts, and resource distribution must be improved as a critical means to support the efficient and effective implementation of activities and principles of the One Health approach.

CABINET GIVES NOD TO DATA PROTECTION BILL



Why in news?

⇒ The Union Cabinet recently cleared the Digital Personal Data Protection (DPDP) Bill.

⇒ The clearance paves the way for the Bill to be introduced in Parliament in the Monsoon Session, scheduled to begin on July 20.

⇒ The Bill, once it becomes law, will play a crucial role in India's trade negotiations with other nations, and especially regions like the European Union, whose General Data Protection Rules (GDPR) are among the world's most exhaustive privacy laws.

What is the significance of a privacy law?

⇒ The Digital Personal Data Protection Bill, 2022, is a crucial pillar of the overarching framework of technology regulations the Centre is building, which also includes the Digital India Bill, the proposed successor to the Information Technology Act, 2000, the draft Indian Telecommunication Bill, 2022, and a policy for non-personal data governance.

⇒ In 2022 August, the government withdrew from Parliament an earlier version of the data protection Bill that had been almost four years in the making, after it had gone through multiple iterations and a review by a Joint Committee of Parliament, and faced pushback from a range of stakeholders including tech companies and privacy activists.

⇒ The proposed law will apply to processing of digital personal data within India; and to data processing

outside the country if it is done for offering goods or services, or for profiling individuals in India.

- ⇒ It requires entities that collect personal data called data fiduciaries to maintain the accuracy of data, keep data secure, and delete data once their purpose has been met.
- ⇒ The Bill is expected to allow "voluntary undertaking" meaning that entities violating its provisions can bring it up with the data protection board, which can decide to bar proceedings against the entity by accepting settlement fees.
- ⇒ Repeat offences of the same nature could attract higher financial penalties.

What are the concerns around the draft Bill?

- ⇒ The Bill is understood to have largely retained the contents of the original version that was proposed in November 2022.
- ⇒ Wide-ranging exemptions for the central government and its agencies, which were among the most criticised provisions of the previous draft, are understood to have been retained unchanged.
- ⇒ The Bill is learnt to have prescribed that the central government can exempt "any instrumentality of the state" from adhering to the provisions on account of national security, relations with foreign governments, and maintenance of public order among other things.
- ⇒ The control of the central government in appointing members of the data protection board is learnt to have been retained as well. The chief executive of the board will be appointed by the central government, which will also determine the terms and conditions of their service.
- ⇒ There is also concern that the law could dilute the Right to Information (RTI) Act, as personal data of government functionaries is likely to be protected under it, making it difficult to be shared with an RTI applicant.

How does India's proposal compare with other countries?

- ⇒ An estimated 137 out of 194 countries have put in place legislation to secure the protection of data and privacy, according to the United Nations Conference on Trade and Development (UNCTAD).
- ⇒ Africa and Asia show 61% (33 countries out of 54) and 57% (34 countries out of 60) adoption respectively. Only 48% of Least Developed Countries (22 out of 46) have data protection and privacy laws.
- ⇒ EU model: The GDPR focuses on a comprehensive data protection law for processing of personal data. It has been criticised for being excessively stringent, and imposing many obligations on organisations processing data, but it is still the template for most of the legislation drafted around the world.
- ⇒ US model: Privacy protection is largely defined as "liberty protection" focused on the protection of the individual's personal space from the government. It is

viewed as being somewhat narrow in focus, because it enables collection of personal information as long as the individual is informed of such collection and use.

- China model: New Chinese laws on data privacy and security issued over the last 12 months include the Personal Information Protection Law (PIPL), which came into effect in November 2021. It gives Chinese data principals new rights as it seeks to prevent the misuse of personal data.
- The Data Security Law (DSL), which came into force in September 2021, requires business data to be categorised by levels of importance, and puts new restrictions on cross-border transfers.

THE RISKS OF THE ZAPORIZHZHIA NPP



Why in news?

- Recently, a Lithuania-based NGO named the Bellona Foundation published a report analysing the risks associated with the hostilities around the Zaporizhzhia NPP based on the facility's design, safety measures, and the local geography.
- Nuclear power plants (NPPs) are complex and sophisticated facilities with several layers of safety measures, but no NPP in the world is built to withstand war.
- It was taken over by Russian forces in May 2022 and has since had to operate in conditions that threaten safety.

What is the reactor design?

- The Zaporizhzhia NPP is located southwest of Zaporizhzhia city, along the Dnieper river. It has six VVER-1000 reactors for a total power generation capacity of 6 GW.
- The reactor complex consists of the reactor vessel, in which uranium-dioxide fuel rods are immersed in water and control rods are inserted at the top. The water is both coolant and moderator.
- A pressuriser holds the water at a high but constant pressure to prevent it from boiling. This is the primary cooling circuit. As the water heats up, the heat is moved to a secondary cooling circuit, where it converts a separate volume of water into steam. This steam is fed to turbines to generate electricity.

- In this design, the water in the primary circuit does not leave the reactor vessel at any time. In RBMK reactors like at Chernobyl, the coolant and the moderator are different (light water and nuclear graphite respectively) and the coolant, which is radioactive for having been exposed to the nuclear fuel, flows out of the reactor vessel.
- One reason why Chernobyl became a disaster was because when the reactor was breached, the superhot graphite caught fire when it came in contact with air.
- Unlike Chernobyl, the VVER-1000 reactor and its power-generation units at Zaporizhzhia are placed inside a large airtight chamber called a containment.

What is the risk at Zaporizhzhia?

- In the worst case scenario, the containment is completely damaged and a projectile strikes a reactor while it is generating power.
- The principal danger here is that the primary circuit water could depressurise as steam and escape into the air, along with radioactive material and other volatile substances.
- This mixture will contain the isotope iodine-131, which is easily dispersed by winds and accumulates in and damages the thyroid gland in humans. It has a half-life of around eight days and so, per the report, "would only pose a threat for several weeks".
- A breach and depressurisation would also release caesium-137, which has a half-life of 30 years and was responsible for contaminating much of Chernobyl's surroundings after the accident.
- Due to design differences, what was released in sustained fashion at Chernobyl for around a week is likely to be released in a single, short burst at Zaporizhzhia. This could keep the fallout to within 100 km.

Shutting down the reactors:

- If the reactors are shut for a few months, the iodine-131 will almost completely decay, removing an important threat. If a reactor has been in cold-shutdown (a shutdown where the primary circuit is almost at atmospheric pressure), then the chances of an explosive leak also drop.
- Since September 10, 2022, the six reactors at Zaporizhzhia have been shut. In late 2022, two were placed in a state of semi-hot shutdown, meaning the primary circuit was held at 200 degrees Celsius with heat from the decaying nuclear fuel. This was required to provide heat at the facility and for the nearby town of Enerгодar.
- As of May 2023, all reactors but the sixth were in cold-shutdown.

What are the other concerns?

- The Bellona report discussed several possibilities based on combinations of conditions. One was the 'Fukushima scenario' when the NPP becomes disconnected from the external power grid.

- This is dangerous because, when nuclear reactions are not happening in the reactor, the nuclear fuel has to be cooled, which means the coolant pumps need to operate. If they don't, the fuel could become hot enough to melt through the reactor's bottom, where it will contaminate soil, air, and water.
- A final concern is the working conditions of the 3,000 or so people at the plant, most of whom have refused to sign new employment contracts with their new Russian employers, amid, among other things, uncertainties over the management, violations of protocol, and "suspicions of disloyalty".

ISRO CHANDRAYAAN 3 MISSION AND ITS POTENTIAL TO BOOST INDIAN ECONOMY



Why in news?

- The Indian Space Research Organisation (ISRO) is gearing up for the launch of its ambitious Chandrayaan-3 mission on July 14. This upcoming lunar exploration mission holds significant promise for the Indian economy.

India's space tech rush:

- India's latest space mission is a testament to the country's remarkable progress in space exploration and technology.
- Just a couple of years ago, India's space economy was valued at over \$9.6 billion in 2020. By 2025, this could go up to \$13 billion, according to EY India.
- At present, the country has over 140 registered space-tech startups, including Skyroot, SatSure, Dhruva Space, and Bellatrix, who are working towards creating technologies that have real-world utilities – from satellite-based phone signals, broadband, OTT, and 5G to the operation of solar farms and much more.
- Venture capitalists are increasingly seeing India's space-tech sector as a lucrative opportunity, given the scale of the market and the sector's historic achievements in 2022. The year was marked by many firsts, including a private rocket launch and multiple other satellite launches.
- Greater private participation in India's space industry with the approval of the Indian Space Policy 2023 is likely to provide a bigger boost to the Indian space-tech ecosystem in 2023.

- Initiatives like the Indian National Space Promotion and Authorization Centre (IN-SPACe) have already promoted private participation in space activities.

Chandrayaan-3's success and its economic impact:

Investment boost:

- The successful launch of Chandrayaan-3 could bolster investor confidence and attract more private investment in space technology.
- It will make India the fourth country to achieve the feat, adding that it will significantly boost investments.
- It promotes the cost-efficient and highly reliable space-grade hardware that the Indian space industry has supplied for this mission, increasing revenue flow and investments into the industry. It also validates our industry to become suppliers to lunar programs by other countries.
- Moreover, increased private sector involvement can lead to the emergence of new startups, businesses, and job opportunities, further driving economic growth and innovation.

Impact on space start-ups and jobs:

- The rapid growth in India's space-tech ecosystem has created thousands of jobs over the past few years since the pandemic but has historically struggled due to a lack of focus on the space economy. But today, the sector has the potential to create lakhs of jobs, both blue-collar and white-collar.
- In addition to jobs, the Chandrayaan-3 mission will also open up commercial opportunities for Indian companies and startups in the space sector.
- The success of the mission will add to India's goodwill in the space league and serve as a technology demonstrator for future moon missions.

Global positioning:

- The success of the mission would position India among the top four technologically-advanced space nations and pave the way for important international collaborations, similar to the recent Artemis Accord signing between ISRO and the American space agency NASA.
- The success of the ambitious lunar mission could also position India as a potential counterweight to China in the global space race.
- Along with Russia, China offered low-cost options for launches. But with Russia reeling under economic pressure due to its conflict with Ukraine, India has a perfect opportunity to compete and strengthen its position.

GRANITE FOUND ON THE MOON REVEALS CLUES OF ANCIENT LUNAR VOLCANOES

Why in news?

- Scientists have discovered evidence of past volcanic activity on the Moon, despite the surface being damaged by intense impacts from outer space.



Details:

- A colossal granite formation, located beneath the lunar surface, is believed to have resulted from the cooling of molten magma that once fueled a volcano.
- This active volcano is estimated to have erupted over 3.5 billion years ago, during the Moon's early history. Given that the Moon is approximately 4.5 billion years old, this discovery provides valuable insights into its volcanic past.

Basis of study:

- The study used microwave frequency data gathered by two Chinese lunar orbiters, Chang'E-1 in 2010 and Chang'E-2 in 2012, to measure the heat below the surface of a suspected volcanic feature on the Moon.
- The study concluded that the heat source originates from a concentration of radioactive elements unique to the Moon, indicating the presence of granite in the feature known as Compton-Belkovich.

Granite:

- Granites are igneous rocks that form remnants of the underground plumbing systems of extinct volcanoes. They are created when lava cools and solidifies within the Earth's crust.
- The presence of the granite body on the Moon could provide valuable insights into the formation of the lunar crust during its early stages.
- Located in a region previously identified as a volcanic complex, this batholith surprised researchers with its size, estimated to have a diameter of approximately 50 kilometers.

Batholiths:

- Batholiths are the cooled portion of magma chambers.
- Batholiths, which are much larger than the surface volcanoes they fed, can be found worldwide. For example, the Sierra Nevada mountains are a batholith, remnants of an ancient volcanic chain in the western United States.

Water presence:

- In the past, scientists have already discovered evidence of water on the Moon, due to missions such as India's Chandrayaan, conducted by ISRO.

WHAT IS THE NATIONAL RESEARCH FOUNDATION?



Why in news?

- The Union Cabinet has approved the introduction of the National Research Foundation (NRF) Bill in Parliament, placing once again the debate on science and technology funding in the spotlight.

What is the NRF?

- Setting up the NRF was one of the key recommendations of the National Education Policy 2020.
- The NRF intends to act as a coordinating agency between researchers, various government bodies and industry, thus bringing industry into the mainstream of research.
- NRF plans to seed, grow and facilitate research in India's universities, especially State universities, by funding research infrastructure and researchers.

How will it be funded?

- The NRF will operate with a budget of ₹50,000 crore for five years, of which 28% (₹14,000 crore) will be the government's share, and the remaining 72% (₹36,000 crore) will come from the private sector.
- The NRF draft proposes the government's share to increase eventually to ₹20,000 crore per year.
- Out of the government's share, ₹4,000 crore will be used from the existing Science and Engineering Research Board's budget, which will be subsumed under the NRF. Therefore, the government has earmarked an additional 10,000 crore over the next five years for the NRF.
- However, this increase in the nation's gross domestic expenditure on research and development (GERD) seems too meagre, (less than 2% of GERD) especially if one compares the GDP and the comparative spending in other big economies, such as the U.S. and China.
- As per the last available statistics (2017-18), India's GERD was ₹1,13,825 crore. While India's GDP was 7.6 and 5.1 times smaller than that of the U.S and China respectively, India's GERD was nearly 24 times less than both these countries during the same period. And in the last five years, that gap has further widened.

How can the NRF facilitate the "ease of doing science"?

- The time between applying for a research grant and receiving the money must be minimal, preferably within six months. Although the NRF draft mentions that the peer-review process will be completed within six months, releasing funds may take time, pending financial clearance.
- All the paperwork must be digitally processed without sending stacks of papers in hard copies to the NRF.
- All finance-related queries, paperwork, approval, and acceptance need to be between the NRF and the finance department of the university/research institution keeping the scientist free to focus on research.
- The NRF needs explicit spending guidelines away from the General Financial Rules (GFR) and the government's e-Marketplace (GeM) usage. Scientific research needs independent guidelines for spending money, which provides flexibility while making scientists accountable.
- Finally, the release of money needs to be timely. Although the NRF draft mentions timely disbursement of funds, a mechanism needs to be in place to facilitate and implement this.

What next?

- The proposed NRF is largely modelled after the National Science Foundation of the U.S. It borrows some of the best practices from the German, U.K., Swiss, Norwegian, South Korean, and Singapore science agencies.
- Even if the NRF draft discusses critical thinking, creativity, and bringing innovation to the forefront, it is unclear how the NRF will transparently seed, fund and coordinate research across institutions.
- The success of NRF will lie in how the government sets rules and implements the same, different from what already exists.

CHANDRAYAAN 3 LAUNCH, HOW LVM-3 WILL PUT INDIA ON A JOURNEY TO THE MOON



Why in news?

- The Indian Space Research Organisation (ISRO) is set to launch the Chandrayaan-3 mission to the Moon

from the Spaceport at the Satish Dhawan Space Centre in Sriharikota.

- The most importance is the powerful LVM-3 rocket that will power the Indian spacecraft on a trajectory to the Moon pushing it beyond Earth's orbit.

What is LVM-3?

- The LVM3, a three-stage launch vehicle, has been instrumental in launching various satellites and lunar missions in the past.
- Known as the 'Bahubali' of Indian rockets, it consists of two solid-fuel boosters and a liquid-fuel core stage powering it. The solid-fuel boosters provide the initial thrust, while the liquid-fuel core stage provides the sustained thrust to propel the rocket into orbit.
- LVM-3 has been used to launch a number of different satellites in the past, including the GSAT-19 communication satellite, the Astrosat astronomy satellite, and the Chandrayaan-2 lunar mission.
- It is also scheduled to be used to launch the Gaganyaan crewed mission, which will be India's first human spaceflight.

How it works?

First Stage:

- The LVM3's journey begins with the simultaneous ignition of two solid boosters, known as S200 carrying 207 tonnes of propellant in three segments.
- These boosters burn for 127 seconds, producing an average thrust of 3,578.2 kilonewtons and a peak thrust of 5,150 kilonewtons each. This initial thrust propels the rocket into the sky, marking the first stage of the launch.

Second Stage:

- After the solid boosters separate from the launch vehicle, the second stage commences. This stage is powered by the L110 liquid stage, a liquid-fueled engine that contains 110 metric tons of fuel.
- It is powered by two Vikas engines, each generating 766 kilonewtons thrust, giving a total thrust of 1,532 kilonewtons. The L110 core stage ignites 108 seconds after liftoff and burns for 203 seconds, further accelerating the vehicle.

Third Stage:

- Following the separation of the liquid stage, the third and final stage takes over. This stage is marked by the activation of the CE25 cryogenic stage.
- The cryogenic upper stage, designated C25, is 4 meters in diameter and 13.5 meters long and contains 28 metric tons of propellant LOX and LH2, pressurized by helium stored in submerged bottles.
- It is powered by a single CE-20 engine, producing 200 kN of thrust.

Payload fairing:

- The LVM3 also includes an equipment bay and an encapsulated assembly, which houses the spacecraft, known as the Payload fairing.

⇒ The encapsulated assembly is crucial as it contains the Chandrayaan-3 spacecraft, which will be ferried into an Earth parking orbit.

Way Forward:

⇒ The LVM3's design and functionality have been meticulously planned to ensure the successful launch and deployment of the Chandrayaan-3 mission.

INDIA'S SKYROOT SIGNS AGREEMENT WITH FRENCH FIRM TO LAUNCH SATELLITE CONSTELLATION



Why in news?

⇒ India's private space company Skyroot Aerospace has signed an agreement with the French new-space operator Promethee to launch its satellite constellation into space.

⇒ The agreement came on the sidelines of Prime Minister Narendra Modi visiting France.

Vikram-I launch vehicle:

⇒ The launch is expected to happen as soon as December 2023 as Skyroot continues to develop its Vikram-I launch vehicle.

⇒ The two Indian and French companies have agreed to study the integration of Skyroot's Vikram launcher into the deployment process of the JAPETUS earth observation constellation.

⇒ Skyroot has been developing three variants of the Vikram rocket.

⇒ While Vikram-I can carry 480 kilograms of payload to Low Earth Orbit, Vikram-II is designed to lift off with 595 kilograms of cargo. Meanwhile, Vikram-III can launch with 815 kg to 500 km Low Inclination Orbit.

About Promethee:

⇒ Promethee is a French new-space operator of nanosatellite constellations for earth observation.

⇒ Founded in January 2020 by Piepsz and Giao-Minh Nguyen, Promethee brings together recognised experts in the fields of space, digital, and services.

Developments by Skyroot:

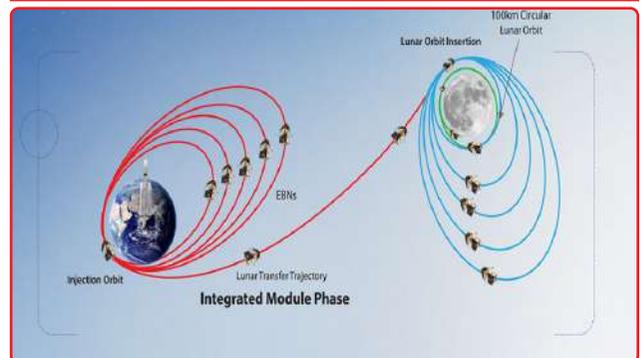
⇒ Skyroot made national headlines after it launched India's first privately developed rocket Vikram-S into space from Sriharikota.

⇒ Aided by ISRO, Skyroot is developing the Vikram-I and Vikram-II launch vehicles to cater to the global satellite launch demands.

⇒ The company recently conducted the flight qualification test of the Raman-I engine, which will be used for roll attitude control in the company's under-development Vikram-I rocket.

⇒ The engine underwent a test fire at the Liquid Propulsion Systems Centre of the Indian Space Research Organisation, making Skyroot the first private company to utilise this facility.

CHANDRAYAAN 3 SUCCESSFULLY LAUNCHED, SOFT LANDING ON MOON EXPECTED BY LATE AUGUST



Why in news?

⇒ Indian Space Research Organisation (ISRO) successfully launched Chandrayaan-3 to the Moon on July 14, 2023, from the Satish Dhawan Space Centre (SDSC), Sriharikota.

⇒ Chandrayaan-3, a follow-on mission to Chandrayaan-2, will attempt to make a soft landing on the lunar body in the fourth week of August after its predecessor failed to do so in 2019.

Objective:

⇒ In addition to a successful soft landing on the Moon, ISRO also aims to demonstrate the ability of the rover to move on the Moon and conduct a few scientific experiments, including studying the seismicity and thermal properties of the lunar surface.

Instruments onboard:

⇒ The mission consists of a propulsion module, a lander module and a rover. The propulsion module will carry the lander and rover from the injection orbit to the lunar orbit. The propulsion module will drive earth-bound manoeuvres, trans-lunar injection and moon-bound orbits.

⇒ SHAPE: It also carries an instrument called Spectropolarimetry of Habitable Planetary Earth (SHAPE) to enable discoveries of smaller planets. The reflected light from the smaller planets can help scientists probe into a variety of potentially habitable exoplanets.

The rover Pragyaa is armed with two instruments:

- LIBS: LASER Induced Breakdown Spectroscope (LIBS) will provide data on the chemical and mineralogical composition of the lunar surface to help experts learn more about the lunar surface.
- APXS: Alpha Particle X-ray Spectrometer (APXS) will look for elements on the lunar soil and rocks around the landing site. These include Magnesium, aluminium, silica, potassium, calcium and the like.

Lander:

- Lunar lander Vikram will click photos of the rover Pragyaa as it studies the seismic activity on the moon by dropping some instruments.
- Using laser beams, it would try to melt a piece of the lunar surface, the regolith to study the gases emitted during the process.

The lander carries four instruments.

- RAMBHA: Radio Anatomy of Moon Bound Hypersensitive Ionosphere and Atmosphere (RAMBHA) will study the near-surface plasma (ions and electrons) density and how it changes with time.
- ChaSTE: Chandra's Surface Thermophysical Experiment (ChaSTE) will study how the lunar surface conducts heat.
- ILSA: Instrument for Lunar Seismic Activity (ILSA) will look at seismicity around the landing site as well understanding the structure of the lunar crust and mantle.
- LRA: LASER Retroreflector Array (LRA) will use lasers to study the dynamics of the Moon.

Soft landing:

- The timing of the landing on the lunar surface is crucial as it will decide the duration the payloads get to conduct experiments.
- Chandrayaan-3 will send its lunar lander near the south pole of the moon at 70 degrees latitude where it is expected to stay for 14 earth days which is equivalent to one lunar day, before the night sets in. The night-time temperatures on the moon plunge to as low as minus 232 degrees Celsius. The temperature drops drastically and the possibility of systems surviving those 15 days of nighttime has to be seen. If it survives those 15 days and the batteries charge up as a new day dawns, it can possibly extend the life of the spacecraft.

Upgrades in Chandrayaan-3:**Strengthened legs**

- A Lander does not have wheels; it has stilts, or legs, which are supposed to touch down on the lunar surface, and then stabilise. Chandrayaan-2 lost control over its descent around 7.2 km from the surface of the Moon. Its communications system relayed data of the loss of control up to around 400 m above the surface. The Lander had slowed down to about 580 km/hr when it crashed.

- The legs of Chandrayaan-3 have been strengthened to ensure that it would be able to land, and stabilise, even at a speed of 3 m/sec, or 10.8 km/hour.
- Of course, this would be of little use if Chandrayaan-3 is struck by a problem similar to the one that crashed Chandrayaan-2, but this can certainly avert many other kinds of troubles in case of a rough landing.

Bigger fuel tank:

- The Chandrayaan-3 Lander is carrying more fuel than Chandrayaan-2. This has been done to ensure that the Lander is able to make a last-minute change in its landing site, if it needs to.
- The Chandrayaan-2 Lander too had the ability to change its course if the onboard cameras detected a boulder, a crater, or any other lunar surface feature that would make the landing unstable. The extra fuel is meant to enhance this capability.

Solar panel on all its faces:

- The Chandrayaan-3 Lander has solar panels on four sides, instead of only two in Chandrayaan-2.
- This is to ensure that the Lander continues to draw solar power, even if it lands in a wrong direction, or tumbles over.
- At least one or two of its sides would always be facing the Sun, and remain active.

Monitoring Lander's speed:

- Additional navigational and guidance instruments are on board Chandrayaan-3 to continuously monitor the Lander's speed, and make the necessary corrections.
- This includes an instrument called Laser Doppler Velocimeter, which will fire laser beams to the lunar surface to calculate the Lander's speed. New sensors and cameras have also been added.

Way Forward:

- The soft landing on the lunar surface has been planned for 5.47 pm on August 23.
- A successful mission would mean India becomes the fourth nation to accomplish the challenge after the United States, China and the erstwhile Soviet Union.

**HOW GAPS IN CLOUD SYSTEM
CONFIGURATION COULD EXPOSE
SENSITIVE USER DATA**

Why in news?

- According to a 2023 survey by Thales Cloud Security, which included responses from nearly 3,000 IT and security professionals across 18 countries, 35% of organisations in India note that their data was breached in a cloud environment in 2022.
- Moreover, 68% of businesses in India, and 75% globally, say that more than 40% of data stored in the cloud is classified as sensitive.



Cloud storage & its applications:

- Cloud storage is a method through which digital data, including files, business data, videos, or images, are stored on servers in off-site locations. These servers may be maintained by the companies themselves or by third-party providers responsible for hosting, managing, and securing stored data.
- These servers can be accessed either by the public or through private internet connections, depending on the nature of the data. Companies use cloud storage to store, access and maintain data so that they do not need to invest in operating and maintaining data centres.
- An added advantage of cloud storage is its scalability, organizations can expand or reduce their data footprint depending on its needs.
- Most cloud providers offer security features like physical security at data centres, in addition to zero-trust architecture, identity and access management, and encryption to ensure the security of data on their servers.

What are the risks associated with cloud storage?

- The risks arise from the deployment of incompatible legacy IT systems and third-party data storage architecture. Additionally, the use of weak authentication practices and easily guessable passwords can allow unauthorised individuals to access sensitive data.
- Data stored in the cloud also faces the risk of exposure due to insecure APIs, poorly designed or inadequate security controls, internal threats due to human error and inadequate encryption during transfer or storage.

How do legacy systems weaken cloud storage setup?

- Though cloud security may appear similar to legacy IT security, the difference in their architecture necessitates different strategies.
- Due to the lack of support or upgrades, legacy IT security may have known vulnerabilities that are yet to be fixed. Such vulnerabilities make them an appealing target for hackers who may use the gaps to gain unauthorised access to cloud resources connected with these legacy systems.

- Additionally, legacy systems may not be capable of supporting more advanced encryption techniques such as secure boot methods or hardware-based encryption, which increases the risks to cloud infrastructure. Therefore, updating and auditing legacy systems when used in tandem with cloud infrastructure is important.

What are system misconfigurations?

- Cloud storage involves multiple systems, servers, and software working in tandem. The overall system is designed to ensure individuals within a company can access data stored on the cloud as and when required.
- A system misconfiguration arises when there is a lack of thorough security configurations on the devices accessing the cloud data and the servers, or a weakness in the software used.
- Misconfigurations can expose user data, making it accessible to unauthorised individuals, and compromising security.

Who is liable for data protection in the cloud?

- The onus of ensuring data security lies with the companies even though they grant access to data to vendors and partners. If the data is sensitive in nature, it is the company's responsibility to make sure that a selected vendor has all the right checks in place and has conducted due diligence.
- This includes checking cloud compliances like ensuring passwords have two-factor authentication, monitoring access to the database, ensuring it is encrypted, and ensuring all firewall rules are set so that only access through certain places and certain departments is allowed.
- Data encryption is seen as one of the most effective approaches for securing sensitive information in the cloud.
- However, it comes with its own set of challenges which include encryption before data is stored, ensuring the security of encryption keys, and changing the encryption keys periodically to ensure continued safety.

What are the risks of data migration in the cloud?

- There is risk involved when switching between vendors for cloud storage or when systems are upgraded. Without a proper migration plan and process based on thorough assessment of the cloud provider, data could get exposed.
- Additionally, ensuring that data is encrypted whenever in transit, and making relevant backups are also key aspects of ensuring data security.

How can users keep their data safe?

- When users get to know of possible data breaches, they are recommended to change passwords and the two-factor authentication setup, push security question answers, and monitor accounts for unauthorised transactions and SMSs for suspicious activity.

- ⇒ The lifespan of financial data exposed in a breach is short. It is used by threat actors within weeks. However, for personally identifiable data, the lifespan can be longer, with data sold on the dark web to target users for phishing scams and other illicit activities.

CHANDRAYAAN 3 AND BEYOND



Why in news?

- ⇒ With the successful deployment of the Chandrayaan-3 mission by the Launch Vehicle Mark-III, achieving a flawless track record, ISRO is now focused on the development of advanced high-thrust rocket engines.
- ⇒ ISRO's Indigenous Semi-Cryogenic Engine Project (SCE-200) is set to enhance the lifting capacity of existing launch vehicles and pave the way for the evolution of next-generation Indian rockets with super heavy-lift capability.

Emergence of High-Thrust Rocket Engines:

- ⇒ Semi-cryogenic engines hold the key to achieving full-fledged super heavy-lift capabilities.
- ⇒ Unlike traditional cryogenic boosters, which use liquid oxygen and liquid hydrogen, semi-cryogenic engines burn a combination of liquid oxygen and kerosene, providing greater thrust in the vacuum of space.
- ⇒ These boosters significantly enhance a rocket's range, velocity, and payload capacity, enabling the launch of heavier payloads into higher orbits.
- ⇒ Over the years, India has made significant progress in developing indigenous cryogenic engines, including the CE-7.5 and CE-20 engines.

CE-7.5 Cryogenic Engine:

- ⇒ The CE-7.5 engine, widely used as the upper stage booster of the medium-lift GSLV Mark-2 rocket, is a regeneratively-cooled, variable-thrust, staged combustion cycle-based rocket engine.
- ⇒ With a burn duration of up to 718 seconds (CUS-12 version) or 846 seconds (CUS-15 version), the CE-7.5 engine carries approximately 12,800 kg of fuel, using liquid hydrogen as fuel and liquid oxygen as the oxidizer.
- ⇒ The cryogenic upper-stage booster has been widely used in seven successful GSLV Mark-2 flights since January 2014 and has totally replaced the KVD-1 (RD-

56) engines which were earlier imported from Russia as completely built units (CBUs).

CE-20 Cryogenic Engine:

- ⇒ Developed indigenously, the CE-20 engine is a high-thrust cryogenic engine based on a gas-generator cycle. It is considered one of the most powerful engines in its class worldwide and serves as the upper stage of the medium heavy-lift capable LVM-3 rocket.
- ⇒ Burning a combination of liquid oxygen and liquid hydrogen, the CE-20 engine has a burn duration of up to 800 seconds.
- ⇒ It has been successfully used in six LVM-3 missions since June 2017, including the launch of the Chandrayaan-2 mission in 2019 and Chandrayaan-3 this year.

SCE-200 Semi-Cryogenic Engine:

- ⇒ It is a liquid-fueled rocket motor burning a combination of liquid oxygen and kerosene, delivering a thrust of up to 2030 kilonewtons in a vacuum. The engine's dry weight (without fuel) is approximately 2700 kg.
- ⇒ Proposals are underway to replace the LVM-3's second stage L-110 engine, currently powered by two liquid-fueled Vikas engines, with an SCE-200 engine.

Dawn of a New Era:

- ⇒ ISRO is working on futuristic super heavy-lift launch vehicles, including the Unified Launch Vehicle (ULV), which employs a modular architecture with clustered stages comprising multiple cryogenic and semi-cryogenic propulsion units.
- ⇒ The ULV is slated to replace all operational launch vehicle platforms, including PSLV, GSLV Mark-2, and LVM-3.
- ⇒ A heavy-lift variant of the ULV may incorporate a cluster of five SCE-200 boosters in the second stage, enabling India to launch space station modules and cargo spacecraft weighing up to 20,000 kg to Low Earth Orbit (LEO).
- ⇒ With further advancements in high-thrust semi-cryogenic powerplants, a larger version of the ULV (SHLV) may be developed by the end of the decade, further enhancing lifting capacity to 41,300 kg to LEO.

Way Forward:

- ⇒ This capability could facilitate manned lunar missions similar to NASA's Apollo program and open doors for interplanetary manned missions.
- ⇒ The launch of Chandrayaan-3 is a significant leap in the right direction.

RULE 176 VS RULE 267, WHAT GOVT AGREES TO, WHAT OPP DEMANDS

Why in news?

- ⇒ The opening day of the Monsoon Session of Parliament was disrupted after the government and

the Opposition differed on the format of the discussion on the Manipur situation.



- ⇒ While the government agreed for a short-duration discussion, the Opposition insisted that the Prime Minister make a suo motu statement followed by a discussion, suspending all business under Rule 267.

What is Rule 267 and Rule 176?

- ⇒ According to the Rules of Procedure and Conduct of Business in the Council of States, Rule 267 relates to suspension of rules.
- ⇒ It says, "Any member, may, with the consent of the Chairman, move that any rule may be suspended in its application to a motion related to the business listed before the Council of that day and if the motion is carried, the rule in question shall be suspended for the time being: Provided further that this rule shall not apply where specific provision already exists for suspension of a rule under a particular chapter of the Rules."

Rule 176:

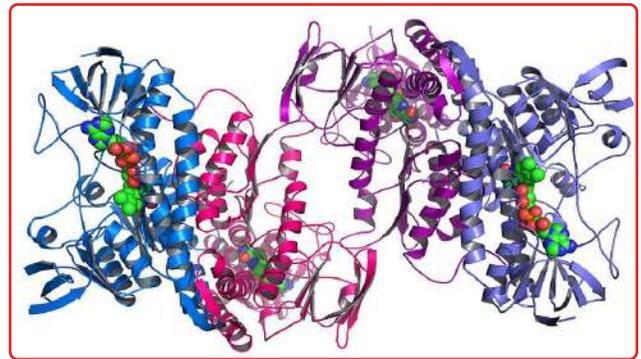
- ⇒ Short-duration discussion, is a brief discussion not exceeding two-and-a-half hours under Rule 176.
- ⇒ It says that "any member desirous of raising discussion on a matter of urgent public importance may give notice in writing to the Secretary-General specifying clearly and precisely the matter to be raised: Provided that the notice shall be accompanied by an explanatory note stating reasons for raising discussion on the matter in question: Provided further that the notice shall be supported by the signatures of at least two other members."
- ⇒ Once the Chairman admits the notice, the rules say he, in consultation with the Leader of the Council, will fix the date on which such matter may be taken up for discussion and allow such time for discussion, not exceeding two and a half hours.
- ⇒ It means that a short-duration discussion under Rule 176 can be taken up immediately, a few hours later, the next day or can be fixed for a later date and time. But the rule says there shall be no formal motion or voting under a short duration discussion.

What experts say?

- ⇒ Experts say opposition parties had been mistakenly using Rule 267 as an equivalent to the adjournment motion in Lok Sabha.

- ⇒ In case of adjournment motion, governed by Rules 56-63 of the Rules of Procedure and Conduct of Business in Lok Sabha, the discussion is based on a motion.
- ⇒ The rule defines adjournment motion as "a motion for an adjournment of the business of the House for the purpose of discussing a definite matter of urgent public importance may be made with the consent of the Speaker".

IN AI UNLIMITED POTENTIAL, THE BENEFITS AND THE RISKS



Why in news?

- ⇒ Recently, Google's DeepMind released the structure of 200 million proteins, literally everything that exists. This is said to be the most important achievement of AI ever, namely a 'solution' to the protein-folding problem.

Why it matters?

- ⇒ Proteins are composed of a linear chain of amino acids and their 3D structures determine their functions. Structure determination is laborious.
- ⇒ One way to know the optimal folded structure of the protein computationally is to sample all its possible configurations, composed of specific angles between peptide bonds.
- ⇒ However, this is an impossible task as a typical protein may have about 10,300 configurations and even if a million of them were examined per second, the overall time needed will be unimaginable. That helped save about 1,000 million man-years.
- ⇒ DeepMind's AlphaFold made an important breakthrough in 2020. It accurately predicted the structures of about 100 proteins to atomic resolution, and no other solution came close to this feat. Many believe that the protein-folding problem is over.

Drug discovery:

- ⇒ Already, this has assisted the Drugs for Neglected Diseases initiative (DNDi) in addressing deadly Chagas disease and Leishmaniasis.
- ⇒ Since drug discovery has become faster due to AlphaFold, new drugs for rare diseases, which are of little commercial interest to pharma companies, have become possible.

Other benefits:

- In 2020, a robotic synthesiser read a research paper and made the compound described in it. With giant advances in computational science and 3D protein structures, discovery labs will shrink to 'AI synthesizers'.
- Thousands of molecules or processes may be screened for specific functions rapidly. Robots will characterise them to 'discover' an optimised strategy, directed by non-human 'agents'. This could change chemistry.
- The UNEP's World Environment Situation Room (WESR) collects and analyses, using AI, real-time sensor data from thousands of sensors spread over 140 countries to predict carbon dioxide concentration, glacier mass, sea level rise, biodiversity loss, etc.

New risks:

- Scientists warn that AI products must be used with caution. Tools such as ChatGPT can assist in literature search but cannot provide deep analysis and may miss profound insights central to articles.
- Intrinsic biases of scientific enterprise can under-represent minority views and could lose original thoughts, due to poor citations. Some journals have suggested authors to declare the use of AI tools in publications and have discouraged ChatGPT from being an author, with exceptions.
- However, AI can be an excellent aid in helping authors in better visualisation, effective communication and compiling known facts, if used judiciously.

Way Forward:

- Governments at all levels must urgently assess the impact of AI on societies. They must form advisory groups and come up with AI and data-governance policy guidelines to direct institutions, industry, and society.

SOCIAL ISSUE**OVER HALF OF WORLD'S CHILD TRAFFICKING VICTIMS TRAFFICKED WITHIN OWN COUNTRY, REPORT****Why in news?**

- Over half of child trafficking victims across the world are trafficked within their own country, according to a new report.
- The report titled, 'From Evidence to Action: Twenty Years of IOM Child Trafficking Data to Inform Policy and Programming', was prepared by International Organization for Migration (IOM) and François-Xavier Bagnoud Center for Health and Human Rights at Harvard University.

VoTD:

- It is based on the analysis of extensive, globally sourced data, using the IOM Victims of Trafficking Database (VoTD).
- The VoTD is the largest available international database of individual victims of trafficking. It contains primary data collected from approximately 69,000 victims of human trafficking.
- These victims belong to 156 nationalities and were trafficked in 186 countries. They registered with IOM in 113 countries where the Organization works.

Key Findings:

- Child trafficking victims come from all backgrounds and genders. Some 57.4 per cent of child victims were female and 42.6 per cent were male.
- No age range is immune to child trafficking. Child victims ranged from 0 to 17 years old.
- Children aged 13-17 formed the largest group of child victims (46.6 per cent).
- Close to half of the child victims of trafficking (43.4 per cent) were being trafficked for forced labour (mainly boys), in a wide range of industries, such as domestic work, begging and agriculture.
- Sexual exploitation, including through prostitution, pornography, and sexual servitude, is also prominent, affecting 20 per cent of trafficked children, predominantly girls.
- The victims trafficked for sexual exploitation were commonly trafficked internationally, while those trafficked for forced labour were more likely to be trafficked domestically.
- In cases of international trafficking, children are mostly trafficked to neighbouring, wealthier countries.

Exploitation:

- Child victims reported being exploited in domestic work (14.5 per cent), begging (10.2 per cent), hospitality (3.4 per cent) and agriculture (3.3 per cent). Female child victims are more likely to report sexual exploitation (30.3 per cent) than male child victims (7.3 per cent).
- About 37.3 per cent of child victims originating from Europe and Central Asia were trafficked for sexual exploitation. Over 56.9 per cent of identified child victims had been trafficked within their country of origin.

Recruiters:

- More than half of the child victims reported the involvement of friends and family in their recruitment into trafficking (37.4 per cent and 14.7 per cent, respectively; 51.1 per cent, taken together).
- Family and friends play an important role in the recruitment of children in countries where either widespread or localised extreme poverty is common.
- False promises were the most common means of control reported by children (58.9 per cent), followed by psychological and physical abuse (56.3 per cent and 50.6 per cent, respectively).
- Use of threats against the victims (39.5 per cent), as well as the use of excessive working hours to control them (36.5 per cent), were also reported by a sizeable share of child victims.

Recommendations:

- The report recommended engagement in special cooperative measures on counter-trafficking and climate change, as well as on crisis preparedness and response.
- It suggested integrating counter-trafficking into climate change, environmental and disaster risk reduction policies and programmes, including during preparedness and response to disasters, with tailored programmes to address the vulnerability of children to trafficking.
- It also suggested empowering communities affected by climate change, environmental degradation and disasters to develop community-based mitigation strategies aimed at reducing human trafficking.

INDIA REGISTERS POVERTY REDUCTION WITH 415 MN COMING OUT IN 15 YEARS, UN

**Why in news?**

- Recently, the latest update of the global Multidimensional Poverty Index (MPI) was released by the United Nations Development Programme (UNDP) and the Oxford Poverty and Human Development Initiative (OPHI) at the University of Oxford.

Key Highlights:

- It said that 25 countries, including India, successfully

halved their global MPI values within 15 years, showing that rapid progress is attainable.

- These countries include Cambodia, China, Congo, Honduras, India, Indonesia, Morocco, Serbia, and Vietnam.
- In April, India surpassed China to become the world's most populous nation with 142.86 crore people. Notably, India saw a remarkable reduction in poverty, with 415 million people exiting poverty within a span of just 15 years from 2005/2006 to 2019/2021.

Findings about India:

- In India, 415 million poor people moved out of poverty from 2005/2006 to 2019/2021, with incidence falling from 55.1 per cent in 2005/2006 to 16.4 per cent in 2019/2021.
- In 2005/2006, about 645 million people were in multidimensional poverty in India, with this number declining to about 370 million in 2015/2016 and 230 million in 2019/2021.
- The deprivation in all indicators declined in India, and the poorest states and groups, including children and people in disadvantaged caste groups, had the fastest absolute progress.
- The people who are multidimensionally poor and deprived under the nutrition indicator in India declined from 44.3 per cent in 2005/2006 to 11.8 per cent in 2019/2021, and child mortality fell from 4.5 per cent to 1.5 per cent.
- Those who are poor and deprived of cooking fuel fell from 52.9 per cent to 13.9 per cent, and those deprived of sanitation fell from 50.4 per cent in 2005/2006 to 11.3 per cent in 2019/2021, according to the report.
- In the drinking water indicator, the percentage of people who are multidimensionally poor and deprived fell from 16.4 to 2.7 during the period, electricity (from 29 per cent to 2.1 per cent) and housing from 44.9 per cent to 13.6 per cent.

Global scenario:

- The countries with different incidences of poverty also halved their global MPI value. While 17 countries that did so had an incidence under 25 per cent in the first period, India and Congo had a starting incidence above 50 per cent.
- India was among the 19 countries that halved their global Multidimensional Poverty Index (MPI) value during one period - for India it was 2005/2006-2015/2016.
- According to the 2023 release, 1.1 billion out of 6.1 billion people (just over 18 per cent) live in acute multidimensional poverty across 110 countries.
- Sub-Saharan Africa (534 million) and South Asia (389 million) are home to approximately five out of every six poor people.
- Nearly two-thirds of all poor people (730 million people) live in middle-income countries, making action in these countries vital for reducing global

- poverty. Although low-income countries constitute only 10 per cent of the population included in the MPI, these are where 35 per cent of all poor people reside.
- ⇒ Children under the age of 18 account for half of MPI-poor people (566 million). The poverty rate among children is 27.7 per cent, while among adults, it is 13.4 per cent.
 - ⇒ Poverty predominantly affects rural areas, with 84 per cent of all poor people living in rural areas. Rural areas are poorer than urban areas across all regions of the world.

About global MPI Index:

- ⇒ The index is a key international resource that measures acute multidimensional poverty across more than 100 developing countries.
- ⇒ It was first launched in 2010 by the OPHI and the Human Development Report Office of the UNDP.
- ⇒ The MPI monitors deprivations in 10 indicators spanning health, education and standard of living and includes both incidence as well as intensity of poverty.

ONLY 1% WOMEN LIVE IN COUNTRIES WITH HIGH GENDER PARITY, FEMALE EMPOWERMENT, UN REPORT



Why in news?

- ⇒ Only an abysmal 1 per cent of women across the world live in countries that have managed to achieve both high women empowerment and gender parity, according to a new report by the United Nations.
- ⇒ Leadership roles and decision-making still mostly lie with men and are unavailable to women.

What is the report about?

- ⇒ The first-of-its-kind report that presents a comprehensive analysis of the progress made in human development of women and girls was jointly created by two UN agencies – UN Women and UN Development Programme.
- ⇒ They collated data from 114 countries and analysed them based on the twin indices of Women's Empowerment Index (WEI) and the Global Gender Parity Index (GGPI).

- ⇒ These complementary indices together, the authors proposed, are the best tool to develop the most accurate understanding of the progress made towards women's empowerment and gender parity in a country.
- ⇒ They also factored in new data on the progress made by these countries towards achieving UN-mandated Sustainable Development Goals that deal with closing gender gaps.

Key findings:

- ⇒ WEI showed that, on an average, women are empowered to achieve only 60 per cent of their full potential. They also were found to achieve 28 per cent less than men across key human development dimensions, as measured by the GGPI.
- ⇒ None of the 114 countries analysed achieved full women's empowerment or complete gender parity, they found.
- ⇒ More than 90 per cent of the global population of women live in countries with low or middle women's empowerment and low or middle performance in achieving gender parity.
- ⇒ No country with a large gender gap has achieved high women's empowerment.

Areas where comprehensive policy action is needed:

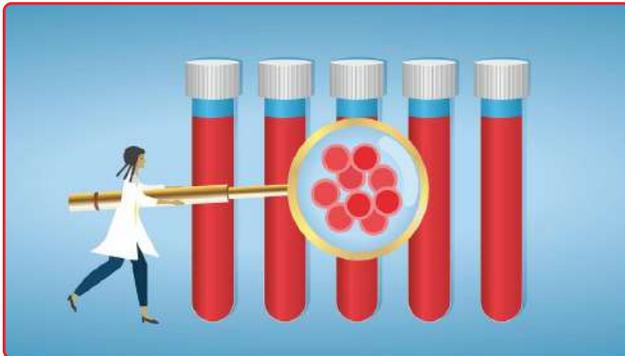
- a) Health policies: Support and promote long and healthy lives for all, with a focus on universal access to sexual and reproductive health
- b) Equality in education: Address gaps in skills and quality of education, especially in fields such as STEM, to empower women and girls in the digital age
- c) Work-life balance and support for families: Invest in policies and services that address work-life balance, including affordable quality childcare services, parental leave schemes, and flexible working arrangements
- d) Women's equal participation: Set targets and action plans for achieving gender parity in all spheres of public life and eliminate discriminatory laws and regulations that hold women back
- e) Violence against women: Implement comprehensive measures focused on prevention, changing social norms, and eliminating discriminatory laws and policies.

Way Forward:

- ⇒ They stressed that the twin indices should be used for tracking and assessment of progress and gaps across countries.
- ⇒ They called for policymakers, stakeholders and communities to harness these tools "to take informed action and accelerate the journey towards a more equitable and inclusive world".

HEALTH

THE IRREVOCABLE CONNECTION BETWEEN ANAEMIA AND MATERNAL HEALTH



Why in news?

- Anaemia has been in the news with the government proposing to remove a question on it from the National Family Health Survey (NFHS) and instead do a more elaborate test to determine haemoglobin levels in the blood as part of the Diet and Biomarker (DAB) survey.

Anaemia and pregnancy:

- Anaemia has a very strong link with postpartum haemorrhage (excessive vaginal bleeding after delivery), and the risk of death or near miss is very high.
- As per the study, by the WOMAN (World Maternal Antifibrinolytic)-2 trial collaborators, worldwide, more than half a billion women of reproductive age are anaemic.
- Each year, about 70,000 women who give birth die from postpartum haemorrhage, almost all of them in low-and middle-income countries.

Research & outcome:

- While a known risk of anaemia or low haemoglobin levels is postpartum death, researchers decided to examine in detail the association between anaemia and the risk of postpartum haemorrhage.
- This trial enrolled over 10,000 women with moderate or severe anaemia giving birth vaginally in hospitals in Pakistan, Nigeria, Tanzania, and Zambia, countries where anaemia in pregnancy was common and established by other trials.

The outcome was defined as an occurrence of postpartum haemorrhage, defined in three ways:

- clinical postpartum haemorrhage (estimated blood loss ≥ 500 mL or any blood loss sufficient to compromise haemodynamic stability);
- WHO-defined postpartum haemorrhage (estimated blood loss of at least 500 mL); and
- calculated postpartum haemorrhage (blood loss of $\geq 1,000$ mL).

Blood loss & shock:

- The mean age of the women from Pakistan, Nigeria, Tanzania and Zambia was just over 27 years. There was clear evidence from the study that lower haemoglobin values had a direct relationship with volume blood loss, and clinical postpartum haemorrhage.
- Anaemia reportedly reduces the oxygen-carrying capacity of blood, and therefore, women with anaemia cannot tolerate the same volume of bleeding as healthy women, and become shocked after a smaller volume blood loss.
- The authors recommended that attention should be given to the prevention and treatment of anaemia in women once they hit reproductive age.

Initiatives by Indian government:

- The Indian government has a well-structured project to provide weekly iron and folic acid supplements to adolescent girls (and boys), in order to tackle the looming crisis of anaemia.
- The climb to a barely-acceptable haemoglobin content of 12 for women seems very steep, given the nutrition status of these children, primarily in rural areas, where quality and quantity of what they eat is less than ideal, and is only exacerbated by malabsorption, public health.
- The task has already been cut out for the Indian public health programme. Health managers are aware of the risks of anaemia and know what to do to handle it.
- However, the rising levels of anaemia in the country is a source of concern and mandates that any project to bring down anaemia in the country must be on mission mode. The solution is not to bring down the gold standard laboratory readings literally.

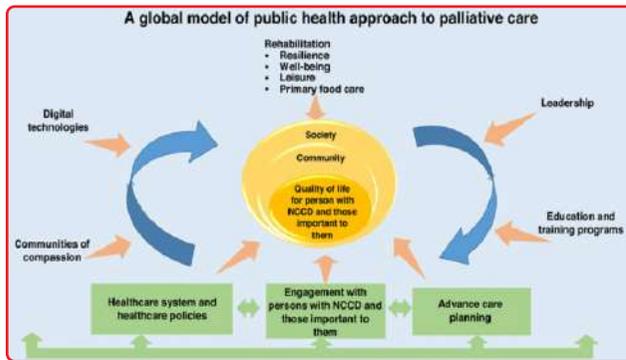
Way Forward:

- While the argument to detach anaemia from the NFHS is that the DAB would be undertaking a more elaborate blood draw to measure haemoglobin levels accurately, the argument against it is also that such a measure may not be feasible for a large group of people, who may say okay to a capillary blood draw (finger prick) but balk at a venous blood drawal.
- Any public outreach programme must be mindful of the cultural, social realities and have a sense of the attitudes of the people they are targeting.

THE NEED FOR STRENGTHENING PALLIATIVE CARE IN THE FACE OF NON COMMUNICABLE DISEASES

Context:

- India is home to nearly 20% of the world's population, two-thirds of which reside in rural areas. Apart from a rising population, India has experienced a steep rise in the burden of lifestyle-related non-communicable diseases.



➤ Nearly 1.4 million people are diagnosed with cancer in India every year while diabetes, hypertension, and respiratory diseases are also on the rise. All these diseases need palliative care sooner or later in the disease trajectory.

What is palliative care?

- Palliative care is the branch of medicine focusing on improving the quality of life and preventing suffering among those with life-limiting illnesses. It aims to identify patients at risk of over-medicalisation at the expense of quality of life and financial burden on the family.
- It is often misinterpreted as end-of-life care. However, palliative care aims to improve the quality of life by addressing the physical, psychological, spiritual, and social domains of the health of people suffering from life-limiting diseases like heart failure, kidney failure, certain neurological diseases, cancer, etc.

How many need palliative care?

- Palliative care in India has largely been available at tertiary healthcare facilities in urban areas. Due to skewed availability of services, it is accessible to only 1-2% of the estimated 7-10 million people who require it in the country.
- A three-tier health system, multiple national health programmes and schemes, and the Ayushman Bharat Health Insurance Scheme are all positive steps taken towards universal health coverage.
- However, despite these efforts, 55 million people in India are pushed below the poverty line every year due to health-related expenditures. Over-medicalisation plays a significant role in this financial burden.

Is there a palliative care programme?

- The National Programme for Prevention & Control of Cancer, Diabetes, Cardiovascular Diseases & Stroke (NPCDCS), now the National Programme for Prevention & Control of Non-Communicable Diseases (NP-NCD), includes chronic diseases whose treatment contributes the most to health-related expenses. These diseases progress to a stage where, in an ideal scenario, palliative care should take over curative care.
- Launched in 2010 to counter the rising burden of non-communicable diseases in the country, the

programme envisaged the provision of promotive, preventive, and curative care from primary to tertiary institutes, thus providing health services delivery across the continuum of care.

- The revised operational guidelines of NP-NCD were expected to strengthen the programme. However, it has not succeeded in addressing certain gaps in palliative care in India.

What are the gaps in the guidelines?

- As per the Global Atlas of Palliative Care, in 2020, the need for palliative care was higher for non-cancer illnesses. However, the revised NP-NCD operational guidelines, released in May 2023, mention palliative care in synonymy with just cancer. This is a step back from the previous operational guideline, in which chronic and debilitating conditions also fell under the ambit of palliative care.
- Since most patients who need palliative care are suffering from debilitating diseases, home-based care forms the ideal mode of healthcare delivery.
- Previously, the programme guidelines mentioned support being provided to facilitate home-based palliative care services. However, palliative care service delivery starts only from the district hospital in the revised guidelines, with no mention of home-based care.
- The guidelines mention the linking of 11 programmes to promote the convergence of services focusing on the care of non-communicable diseases.
- One of these is the National Programme for Palliative Care (NPPC). NPPC was announced in 2012; however, the lack of a dedicated budget has prevented the implementation of the programme since its inception. Experiences from the field suggest that many medical officers at primary health centres are not aware of the existence of such a programme.

How is such access measured?

- The guidelines' narrow focus is also evident from the indicator chosen to assess the programme's impact. Access to palliative care will be assessed by estimating morphine-equivalent consumption of strong opioid analgesics (excluding methadone) per death from cancer.
- The World Health Organization recommends the use of morphine consumption per capita to assess morphine access for palliative care services. Using this indicator would also have allowed us to compare the progress of palliative care services in India with other countries.
- The 67th World Health Assembly in 2014 called for palliative care to be integrated into health systems at all levels.

SURGING BIRD FLU CASES MAY INCREASE HUMAN INFECTION RISK, WARN UN AGENCIES & WOAH



Why in news?

- The recent surge in bird flu outbreaks among mammals could help the virus spread more easily among humans, United Nations agencies Food and Agriculture Organization (FAO), the World Health Organization (WHO) and World Organisation for Animal Health (WOAH) warned.
- They urged countries to strengthen disease surveillance and improve hygiene at poultry farms.

New H5N1 strain:

- A new H5N1 strain of bird flu explosively spread to new geographical regions earlier in 2023. The strain, which was highly contagious to wild birds, infected and killed a variety of mammal species and raised fears of a pandemic among humans.
- Avian influenza viruses normally spread among birds, but the increasing number of H5N1 avian influenza detections among mammals which are biologically closer to humans than birds are raises concern that the virus might adapt to infect humans more easily.

Transmission:

- Human bird flu cases are usually the result of direct or indirect exposure to infected live or dead poultry or contaminated environments.
- About 10 countries have reported cases of avian flu outbreaks in both land and sea mammals since 2022, including in farmed mink in Spain, seals in the United States, and sea lions in Peru and Chile. Outbreaks have been reported in 26 species and H5N1 was recently detected in cats in Poland.
- Some of these infected mammals may act as mixing vessels for influenza viruses, leading to the emergence of new viruses that could be more harmful to animals and humans.
- However, only about half a dozen cases in people who had close contact with infected birds have been reported to the WHO and most of those have been mild.

Measures to curb the spread of the virus:

- a) Enhancing biosecurity measures in farms and in poultry value chains and apply good hygiene practices
- b) Rapid detection, reporting and response to animal outbreaks
- c) Strengthening influenza surveillance in animals and humans
- d) Conducting epidemiological and virological investigations around animal outbreaks and human infections
- e) Encouraging collaboration between animal and human health sectors, among others

Infected mammals:

- A host of mammal species are known to be infected to date, like ferret, mink, several otter species, European badger, skunk and Virginia opossum.
- Felines like Amur leopard, Amur tiger, mountain lion, European polecat, lynx, bobcat, and domestic cats have been reportedly infected as well, along with red fox, coyote, racoon, racoon dog, South American bush dog, American black bear, brown Bear and grizzly bear.

UNETHICAL TO CONTINUE USING POLIO-CAUSING ORAL VACCINES



Context:

- Developing countries using oral polio vaccine reported many vaccine-derived or vaccine-associated polio cases annually.

Background:

- In 1988, the World Health Assembly declared WHO's commitment to global eradication of polio by 2000. But in 1993, the goal was to eradicate only wild poliovirus globally by 2000.
- That meant eradicating vaccine-derived poliovirus (VDPV) and vaccine-associated paralytic poliomyelitis (VAPP) was no longer the objective.
- Meanwhile, the developed countries switched to inactivated polio vaccine thus eradicating polio decades ago.

Vaccine dilemma:

- Though the last case of type 2 wild poliovirus was reported in October 1999 from India (and declared

- eradicated globally in 2015), more than 90% of vaccine-derived poliovirus outbreaks are due to type 2 virus present in oral polio vaccines.
- Also, 40% of VAPP are caused by type 2 oral polio vaccine. Similarly, the last case of type 3 wild poliovirus was reported in November 2012 (and declared eradicated in 2019). But many cases of VAPP from type 3 virus occur in countries using the vaccine.
 - The Global Polio Eradication Initiative (GPEI) has never reported VAPP cases throughout the 34 years of polio eradication efforts.

VAPP-compatible cases in India:

- Indian government does not count VAPP as polio as such cases are sporadic and pose little or no threat to others.
- This is concerning as the number of VAPP-compatible cases showed an increasing trend in India from 1998 to 2013, so much so that they outnumbered the polio cases caused by wild poliovirus since 2004.
- According to a 2015 Perspective piece in Indian Pediatrics, VAPP cases occur at a frequency of two-four cases per million birth cohort per year in countries that use oral polio vaccine. Based on this incidence rate, an estimated 50-100 children might suffer from VAPP every year in India.

Switching from trivalent to bivalent OPV vaccine:

- With type 2 wild poliovirus being eradicated and all type 2 polio cases being vaccine-derived, there was a global switch from trivalent (containing all three variants) to bivalent (type 1 and type 3) oral polio vaccine in 2016 to prevent any more type 2 vaccine-derived poliovirus.

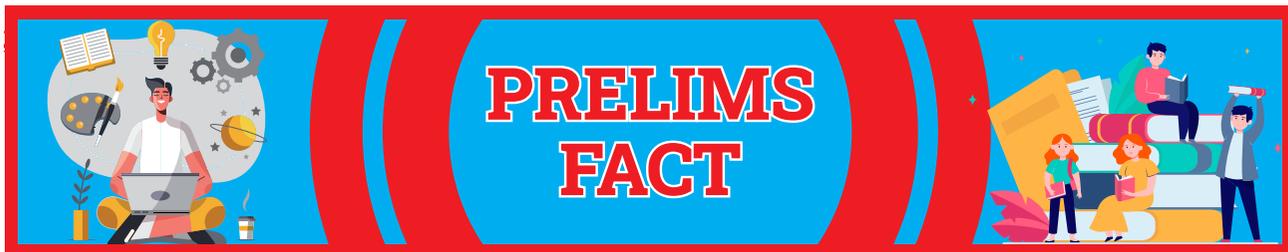
- Yet, the number of vaccine-derived type 2 poliovirus outbreaks have only increased sharply after the global switch to bivalent oral polio vaccine.
- From only two countries reporting outbreaks that caused 96 VDPV type 2 cases in 2017, the number of outbreaks increased to five in 2018.
- The number of VDPV type 2 cases increased further to 251 from 15 countries in 2019. In 2020, the VDPV type 2 cases peaked at 1,081 from 26 countries, many of which were previously polio-free. In 2021, 682 such cases were reported and 675 cases in 2022.

Type 2 novel OPV:

- A type 2 novel oral polio vaccine that is genetically modified such that it is less likely to revert to neurovirulence unlike the Sabin vaccine and therefore cause less type 2 vaccine-derived poliovirus cases was authorised by WHO under Emergency Use Listing in November 2020 and first used in the field in March 2021.
- But as of May 2023, the novel vaccine, which is to be used only in type 2 VDPV outbreak situations, has already caused three type 2 VDPV cases.
- However, this vaccine does not address VAPP cases arising from continued use of oral polio vaccine.

Way Forward:

- For achieving zero incidence of polio by 2000, the GPEI should have transitioned to the IPV in low- and middle-income countries and phased out the oral polio vaccine, since it causes vaccine-associated paralytic polio.
- Since the future polio-eradicated world can use only the IPV, transition to IPV is the sensible way forward.



POLITY & GOVERNANCE

SCHEME FOR EXPANSION AND MODERNIZATION OF FIRE SERVICES IN THE STATES LAUNCHED



Why in news?

- Recently, the Union Ministry of Home Affairs, has launched a "Scheme for Expansion and Modernization of Fire Services in the States".

Objective:

- Objective of the scheme is to expand and modernize Fire Services in the States with a view that activities for strengthening of fire services at the State-level through preparedness and capacity-building component of the NDRF will be ensured.

Implementation:

- It has been launched from the earmarked allocation of Preparedness and Capacity Building Funding Window under the National Disaster Response Fund (NDRF) for strengthening fire services in the States with a total outlay of Rs. 5,000 crores.
- An amount of Rs. 500 crore, out of the total outlay, has been kept for incentivizing the States on the basis of their legal and infrastructure-based reforms.
- A letter in this regard has been sent to the Chief Secretaries and Head of Fire Services of all States.
- For seeking funds for the projects/proposals under the Scheme, the concerned State Governments shall have to contribute 25% (except for the North-Eastern and Himalayan (NEH) States which shall contribute 10%) of total cost of such projects / proposals from their budgetary resources.

Background:

- The Scheme finds its origin from the recommendation of the Fifteenth Finance Commission (XV-FC)

which allows an allocation of 12.5 percent of each of the National Disaster Response Fund (NDRF) and State Disaster Response Fund (SDRF) [10% of the total corpus of the National Disaster Risk Management Fund (NDRMF) and the State Disaster Risk Management Fund (SDRMF)] for the Funding Window of Preparedness and Capacity Building.

LIGHTNING NOT A NATURAL DISASTER, SAYS CENTRE



Why in news?

- The Union government is not in favour of declaring lightning a natural disaster as deaths caused by it can be prevented by making people aware of safety steps.
- India is among only five countries in the world that has an early warning system for lightning; the forecast is available from five days to up to three hours.

Demand for including lightning as a natural disaster:

- The States such as Bihar and West Bengal have been demanding that lightning deaths be covered as a natural disaster. Once this is notified, the victims will be entitled to compensation from the State Disaster Response Fund (SDRF). The Centre makes 75% of the contribution to the SDRF.
- Cyclone, drought, earthquake, fire, flood, tsunami, hailstorm, landslip, avalanche, cloudburst, pest attack, frost and cold wave are now considered disasters under the SDRF.

Vulnerability in Bihar:

- Bihar is one of the most vulnerable States and as many as 107 had died after being struck by lightning till July 6.
- In the past few years, there has been a spurt in deaths due to lightning. It is possible that climate change is

one of the reasons. In the past five years, more than 1,500 people have lost their lives in Bihar.

- The timely alerts were sent out to people and pamphlets were distributed at the panchayat level to make people aware of the dangers associated with lightning.

States with highest frequency of lightning:

- National Crime Records Bureau (NCRB) data show that 2,880 people died in lightning strikes in 2021. The deaths made up 40% of all accidental deaths caused by "forces of nature".
- As per India Meteorological Department (IMD), the frequency of lightning was the highest in northeastern States and in West Bengal, Sikkim, Jharkhand, Odisha and Bihar, but the number of deaths is higher in the central Indian States of Madhya Pradesh, Maharashtra, Chhattisgarh and Odisha.

UNION CABINET GIVES NOD TO PRESS AND REGISTRATION OF PERIODICALS BILL



Why in news?

- The Union Cabinet approved the Press and Registration of Periodicals Bill that seeks to do away with the provision for prosecution and imprisonment of publishers and simplify the registration process for periodicals.

Key Highlights:

- It will replace the Press and Registration of Books (PRB) Act, 1867 that governs the registration of print and publishing industry in the country.
- It seeks to provide a simple online system for registration of periodicals with the Registrar of Newspapers for India.
- The Bill also seeks to do away with two provisions that required the publishers and printers to file a declaration before the district magistrate.
- It also seeks to do away with the penal provisions of the PRB Act which made improper declaration of information a punishable offence with a prison term of up to six months.
- The new Bill also provides for an appellate authority.

How it make the current system simple?

- Currently, a person wanting to start a newspaper has

to submit an application with the district collector, who sends it to the Registrar of Newspapers in India (RNI) to check for title availability.

- The registration process moves forward only after the RNI conveys the availability of the title to the collector, who then administers the oath to the person keen on starting the newspaper as per provisions of the PRB Act.
- The new Bill also seeks to move this process of checking title availability online, thereby reducing the time required for registration of newspapers and periodicals significantly.

RAJASTHAN PASSES BILLS ON MINIMUM INCOME, HIGHER PUNISHMENT FOR PAPER LEAKS



Why in news?

- Recently, Rajasthan became the first and the only State in the country to give social security guarantee to the people with the passage of the Minimum Guaranteed Income Bill in the Assembly.
- The Assembly also passed an Amendment Bill for enhancing the punishment up to life imprisonment for leaking question papers of recruitment exams.

Minimum Guaranteed Income Bill:

- The Rajasthan Minimum Guaranteed Income Bill, 2023, passed with voice vote, gives a guarantee for giving 125 days of employment in a financial year to all families residing in the rural and urban areas and a minimum pension of ₹1,000 every month to the elderly people, specially abled people and widows and single women.
- There will also be guarantee of 15% annual increase in these pensions under the legislation.
- The two main components of the Bill, devoted to employment guarantee and social security, would provide a "combined relief" to the people reeling under the impact of inflation.
- The families residing in the villages will get 25 days of additional employment under the Chief Minister's Rural Employment Guarantee Scheme after completing 100 days in the Union government's MGNREGS.

- ⇒ In the urban areas, the employment of 125 days per family will be given through the Indira Gandhi Urban Employment Guarantee Scheme.
- ⇒ If the government authorities fail to provide employment within 15 days from the receipt of application, the applicant will be entitled to get unemployment allowance on a weekly basis and in any case not later than a fortnight.

Background:

- ⇒ The path-breaking legislation would "create history" by giving a legal right to the people to get social security, as it was brought on the lines of the Nyuntam Aay Yojana proposed by the Congress in the 2019 Lok Sabha election manifesto.

Rajasthan Public Examination (Amendment) Bill, 2023:

- ⇒ The House also passed by voice vote the Rajasthan Public Examination (Measures for Prevention of Unfair Means in Recruitment) (Amendment) Bill, 2023, for enhancing the maximum sentence for the crime of paper leak from 10 years' jail to life imprisonment.

INTERNATIONAL RELATIONS

SCO CALLS FOR MULTIPOLAR WORLD ORDER AS IRAN JOINS GROUPING



Why in news?

- ⇒ Recently, Shanghai Cooperation Organisation's virtual summit was chaired by Indian Prime Minister.

Induction of Iran:

- ⇒ The grouping's decision to induct Iran as its ninth and latest member was one of a number of agreements signed at the summit.
- ⇒ The SCO grouping now comprises China, India, Iran, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Tajikistan and Uzbekistan.

India's stand:

- ⇒ India, who hosted the summit for the first time, refused to join other members on paragraphs relating to China's Belt and Road Initiative (BRI) in the joint statement, and stayed out of a joint statement on SCO

Economic Development Strategy 2030, indicating a lack of consensus in the grouping.

- ⇒ Indian PM also took sharp aim at Pakistan for cross-border terrorism, and at China for connectivity projects that do not respect sovereign boundaries.

Declarations:

- ⇒ The agreements signed include
 - a) the New Delhi Declaration, outlining areas of cooperation between SCO countries;
 - b) a joint statement on countering radicalisation; and
 - c) one on digital transformation, where India offered to share expertise on digital payment interfaces.

Sanctions on Russia & Iran:

- ⇒ In a reference to sanctions on Russia and Iran, SCO members jointly criticised non-UN sanctions as "incompatible with the principles of international law", which have a "negative impact" on other countries.
- ⇒ SCO members also agreed to explore the use of "national currencies" for payments within the grouping, which would circumvent international dollar-based payments.

China's address:

- ⇒ Chinese President marked the 10-year anniversary of the BRI and mentioned his new Global Security Initiative (GSI), calling for "encouraging political settlement of international and regional hotspots, so as to forge a solid security shield in our region".
- ⇒ He called on SCO members "to make foreign policies independently" and to be "highly vigilant against external attempts to foment a new Cold War or camp-based confrontation in our region". It has previously blamed the U.S. for "interference" and a "Cold War mentality".

Delhi Declaration:

- ⇒ The Delhi Declaration listed a number of global challenges, including new and emerging conflicts, turbulence in the markets, supply chain instability, climate change and the COVID-19 pandemic.
- ⇒ SCO member States confirm their commitment to formation of a more representative, democratic, just and multipolar world order based on the universally recognized principles of international law, multilateralism, equal, joint, indivisible, comprehensive and sustainable security, cultural and civilizational diversity, mutually beneficial and equal cooperation of states with a central coordinating role of the UN.

MOU FOR SETTING UP OF CAMPUS OF IIT MADRAS IN ZANZIBAR- TANZANIA SIGNED

Why in news?

- ⇒ The Memorandum of Understanding (MoU) for setting up of campus of IIT Madras in Zanzibar-Tanzania was recently signed.



- This is the first ever IIT campus to be set up outside India.
- It is a reminder of the focus India places on building people to people ties across Africa and the Global South.

Key Highlights:

- The academic programs, curricula, student selection aspects and pedagogical details will be by IIT Madras, whereas the capital and operating expenditure will be met by the government of Zanzibar-Tanzania.
- IIT Madras degrees will be awarded to the students enrolled in this campus.
- The state-of-the-art interdisciplinary degrees are expected to attract a diverse cohort and will include students from Tanzania and other countries as well.
- Indian students are also eligible to apply to these programs.

Way Forward:

- IIT campus in Zanzibar- Tanzania is envisioned as a world class higher education and research institution with a broader mission to develop competencies in response to emerging global requirements, deepen ties between the nations, and support research and innovation in the region.
- It will serve as an example to the world, of the aspirational qualities of Indian higher education and innovation.

CAN A THUMBS UP EMOJI SIGNAL AGREEMENT TO A LEGAL CONTRACT?



Why in news?

- A Canadian court has recently ruled that a thumbs-up emoji sent as a text message can be interpreted

as consent to a contract, in what is being seen as an unusual case, with courts deciding on the meaning of emojis that are now liberally used in daily online conversations.

What are Emojis?

- An emoji is a visual representation of an emotion, object, or symbol. Emojis were created by Japanese artist Shigetaka Kurita in 1999 and then hailed as a “new-era hieroglyphic language”.
- The word emoji is made up of two Japanese words e (“picture”) and moji (“character”).

What was the case about?

- The case here involved people from two companies, South West Terminal Ltd. (SWT) and Achter Land & Cattle Ltd., who had done business with each other in the past. SWT sued Achter, a farming company, for a breach of contract and an alleged failure on their part to deliver 87 tonnes of flax, a variety of seeds.
- The buyer from SWT, Kent Mickleborough, spoke with farmer Chris Achter on the phone and texted a picture of a contract to deliver the flax later, asking the farmer to “please confirm flax contract” in the message, The Guardian reported. Achter replied to this photo with a thumbs-up emoji. When it came time for the goods’ delivery, they never reached SWT.
- However, Achter claimed that they never agreed to the contract in the first place. The court ruled in SWT’s favour, asking Achter to pay \$61,442.

What precedent might this set for the future?

- The court added that going beyond this case, one involving the interpretation of a simple emoji to signify assent and acceptance, the exercise would “open up the flood gates to allow all sorts of cases coming forward asking for interpretations as to what various different emojis mean.”

Case in Israel:

- In a similar case of consent to contract, in 2017, a couple in Israel was charged thousands of dollars in fees after a court ruled that their use of emoji to a landlord signalled an intent to rent his apartment.
- They had sent the landlord a text with emojis of a champagne bottle, a squirrel, and a comet, but later stopped responding to the landlord’s texts. The emojis used here attested to their confirmation.

Global scenario:

- They cited a recent survey that said court cases relating to emojis in the United States have been growing exponentially, particularly in sexual predation, employment discrimination and murder cases.
- In their review of emoji-related cases across the US, China, Israel and a few other countries, it was found that the sender’s and recipient’s various perceptions of what an emoji means could be a result of different platforms (the apps or websites used as each one

- has a variation on their emojis), including devices, operating systems and software programs.
- In another case in China, a person sent a WeChat message to someone else about the exact amount of money that they owed him, who then responded with the okay emoji. At trial, it was then claimed that this emoji did not signal a recognition of the message's contents.

Conclusion:

- Given the range of emojis now available to users, and their variations across platforms, the change in their perception across cultures, age groups and contexts, disputes are likely to keep arising over time.

PM CONFERRED WITH FRANCE HIGHEST AWARD GRAND CROSS OF LEGION OF HONOUR



Why in news?

- Recently, the Prime Minister Narendra Modi has become the first Indian premier to have been conferred with the Grand Cross of the Legion of Honour, France's highest civilian and military honour, by French President.
- He received the honour at the Elysee Palace and joined the ranks of other prominent world leaders such as the former president of South Africa Nelson Mandela, King Charles, the then Prince of Wales, former Chancellor of Germany Angela Merkel, Boutros Boutros-Ghali, former Secretary General of the United Nations, among others.

Top international awards bestowed by various countries on India's Prime Minister:

- These include
 - Order of the Nile by Egypt in June 2023,
 - Companion of the Order of Logohu by Papua New Guinea in May 2023,
 - Companion of the Order of Fiji in May 2023,
 - Ebakl Award by the Republic of Palau in May 2023,
 - Order of the Druk Gyalpo by Bhutan in 2021,
 - Legion of Merit by the US Government in 2020,
 - King Hamad Order of the Renaissance by Bahrain in 2019,
 - Order of the Distinguished Rule of Nishan Izzuddin by Maldives in 2019,

- Order of St. Andrew Award from Russia in 2019,
- Order of Zayed Award from the UAE in 2019,
- Grand Collar of the State of Palestine Award in 2018,
- State Order of Ghazi Amir Amanullah Khan from Afghanistan in 2016 and
- the Order of Abdulaziz Al Saud from Saudi Arabia in 2016.

What is Grand Cross of the Legion of Honour?

- Established in 1802 by Napoleon Bonaparte, 'The Legion of Honour' is divided into five classes (lower to higher). The colour of the ribbon is red and the badge is a five-armed Maltese asterisk hung on an oak and laurel wreath.
- Although the membership to the award is restricted to French nationals, foreign nationals who serve France or uphold its ideals may also be given a distinction of the Legion.

INDIA AND UAE SET TO USE RUPEE, DIRHAM FOR TRADE



Why in news?

- India recently moved a step closer to increasing circulation of the rupee in the Gulf region with the signing of two memoranda of understanding (MoU) between the Reserve Bank of India and the Central Bank of the United Arab Emirates.

Key Highlights:

- The first agreement between the RBI and the UAE Central Bank will establish a framework to promote the use of local currencies (rupee and dirham) for cross border transactions.
- The other MoU between the two central banks is aimed at interlinking their "payment and messaging systems".

Background:

- The two agreements between the central banks came in the backdrop of Indian entities commencing payment in yuan to Russian energy majors and are likely to enhance the trend of doing business in local currencies that gained greater acceptance since the beginning of the Ukraine crisis in February 2022.

Indian PM's visit to the UAE:

- This was the fifth visit by Mr. Modi to the UAE.

- Apart from the MoUs on trade in local currencies, the two leaders also witnessed the signing of an MoU on establishing a branch of the Indian Institute of Technology-Delhi in Abu Dhabi.
- The discussion also included the agenda of the groupings such as the I2U2 (India, Israel, UAE and USA) and the UAE-France-India trilateral cooperation under which both sides are in collaboration with other powers.

Bilateral trade:

- India-UAE trade rose to \$85 billion in 2022.
- According to the External Affairs Ministry, UAE is India's third-largest trading partner for 2022-23 and India's second-largest export destination.
- Bilateral trade has increased by approximately 15% since the entry into force of the CEPA on 1 May 2022.

ECONOMY

PUBLIC SECTOR BANKS AND ELIGIBLE PRIVATE SECTOR BANKS AUTHORISED TO IMPLEMENT AND OPERATIONALISE MAHILA SAMMAN SAVINGS CERTIFICATE, 2023



Why in news?

- Recently, the Department of Economic Affairs, Ministry of Finance, permitted all Public Sector Banks and eligible Private Sector Banks to implement and operationalise the Mahila Samman Savings Certificate, 2023.
- This aims at enabling enhanced access of the scheme for girls/women.

Mahila Samman Savings Certificate:

- Mahila Samman Savings Certificate, 2023 scheme was announced in the Union Budget FY 2023-24 by the Central Government to provide financial security to every girl and woman in India.
- The scheme has been in operation since April 1, 2023 through the Department of Post.

Key Features of the Scheme.

- Provides attractive and secured investment option to all girls and women
- An account can be opened under this scheme on or before the March 31, 2025 for a tenure of two years

- The deposit made under MSSC will bear interest at the rate of 7.5% per annum which will be compounded quarterly. Therefore, the effective interest rate will be roughly 7.7 percent.
- Minimum of ₹1000 and any sum in multiple of 100 may be deposited within the maximum limit of ₹200,000.
- Maturity of the investment under this scheme is two years from the date of opening of the account under the scheme.
- It envisions flexibility not only in investment but also in partial withdrawal during the scheme tenor. The account holder is eligible to withdraw maximum up to 40% of the eligible balance in the scheme account.

Way Forward:

- With this, Mahila Samman Savings Certificate scheme will now be available for subscription in Post Offices, and eligible Scheduled Banks.

GOVERNMENT TO DEVELOP NATIONAL MARITIME HERITAGE COMPLEX IN LOTHAL, GUJARAT



Why in news?

- Under the Sagarmala programme, the Ministry of Ports, Shipping and Waterways is developing a National Maritime Heritage Complex (NMHC), a world-class facility at Lothal, Gujarat.

Key Features:

- NMHC would be developed as an international tourist destination, where the maritime heritage of India from ancient to modern times would be showcased and an edutainment approach using the latest technology would be adopted to spread awareness about India's maritime heritage.
- The maritime complex will include world's highest light house museum, world's largest open aquatic gallery, India's grandest naval museum and is envisaged to be one of the biggest international tourist destinations in the world.
- It will have several innovative and unique features such as Lothal mini recreation to recreate Harappan architecture and lifestyle; four theme parks - Memorial theme park, Maritime and Navy theme park, Climate

theme park and Adventure and Amusement theme park; fourteen galleries highlighting India's maritime heritage starting from the Harappan times till now; Coastal states pavilion displaying diverse maritime heritage of states and UTs; among others.

Way Forward:

- The complex, work which started in March 2022, is being developed at a cost of around Rs 4500 crores.
- The boost to the tourism potential through this project will also augment the economic development of the region.

About Lothal:

- Lothal was one of the southernmost sites of the Indus Valley civilization, located in the Bhal region of Gujarat. The port city is believed to have been built in 2,200 BC.
- Lothal was a thriving trade centre in ancient times, with its trade of beads, gems and ornaments reaching West Asia and Africa.
- The meaning of Lothal (a combination of Loth and (s) thal) in Gujarati is "the mound of the dead".

BIHAR GOVT ASKS GSI FOR DETAILED EXPLORATION FOR GOLD RESERVES IN JAMUI



Why in news?

- Bihar's Department of Mines and Geology has asked the Geological Survey of India to carry out a detailed exploration to trace gold reserves in Sono area of Jamui district, after the state government decided to allow auction of nine mineral blocks.
- The department has also asked the ASI to extend the exploration work to identify more coal-bearing areas in Batesarthan-Kasri-Jagarnathpur area in Bhagalpur district.

Four stages of exploration:

- There are four stages of exploration for mineral deposits - reconnaissance survey (G4), preliminary exploration (G3), general exploration (G2) and detailed exploration (G1).
- Geophysical work has to be completed before taking up drilling and exploration for the presence of gold reserves in Sono. The G4 stage exploration (preliminary survey) is required to find out the presence of any gold reserve in the area.

Coal blocks:

- Earlier, the GSI carried out G3 exploration for fireclay in Batesarthan-Kasri-Jagarnathpur area, and reported presence of carbonaceous shale with patches of coal at a depth of around 47-68 metre. Presence of coal was not reported in this part earlier.
- The area is in the north of Mandar Parvat block, where the Central Mine Planning and Design Institute (CMPDI) has established reserves of coal.
- The DMG has now asked the ASI to extend the exploration work further to identify more coal-bearing areas in the Bhagalpur region.

Auction:

- The Bihar government had recently engaged SBI Capital Markets Ltd as transaction advisor, and state-run Metal Scrap Trading Company (MSTC) for providing the platform for auction of the nine mineral blocks in different parts of the state.
- The nine mineral blocks ready for auction include 48.40 million tonne of magnetite in non-forest areas of Majos (Jamui), 88.38 MT of glauconite in 12.46 sq km non-forest areas in Pipradih-Bhurwa and Chutia-Nauhatta in Rohtas.

GREEDFLATION AND ITS COUNTER ARGUMENTS, HOW CONSUMERS ULTIMATELY DECIDE PRICES



Context:

- Progressives in the United States have accused corporate greed as a major reason for the historically high price inflation in the U.S. since the pandemic.

What is greedflation theory of inflation?

- Greedflation refers to price inflation caused by corporate greed for high profits.
- The proponents of the idea of greedflation argue that corporate profit margins have risen significantly since the pandemic even though the larger economy has struggled and that this has contributed to high inflation.
- They contend that the U.S. corporations have allegedly increased the prices of their goods by more than what was necessary to compensate for higher input costs caused by supply-chain bottlenecks.

Questioning the narrative:

- Many economists have questioned the validity of the argument that corporate thirst for higher profits is the cause behind inflation.
- They see greedflation as a political narrative built around the issue of inflation rather than as a serious economic explanation of high inflation since the pandemic.
- Economists who disagree with the greedflation narrative argue that businesses, whether they are large corporations or small companies, cannot arbitrarily set prices as many people seem to erroneously believe.
- Businesses set prices for their products based on what consumers would be willing to pay for these products.

Primacy of consumers:

- Moreover, inflation refers to a general rise in the price level (meaning a widespread rise in the prices of goods and services across the broader economy) rather than in the prices of individual goods and services.
- The only way corporations can influence the overall price level is by reducing the supply of goods and services. There is, however, no evidence to suggest that there has been a deliberate reduction in the output of U.S. corporations recently.
- Even if corporations cut down their output, the drop in output is likely to be temporary as other suppliers would rush to meet the demand.
- It is thus extremely unlikely that U.S. corporations caused prices to rise across the board in recent years by somehow adversely influencing the aggregate supply of goods.

Causes for high inflation in the US:

- The current bout of high inflation in the U.S., most economists believe, is much better explained by the U.S. Federal Reserve's expansionary monetary policy during the pandemic which put more money in the hands of U.S. consumers, who in turn have bid up the prices of goods and services in the economy.
- The U.S. money supply rose by a whopping 40% in the wake of the pandemic and this combined with supply-chain bottlenecks caused by stringent lockdowns led to high inflation.

Subset of Cost-push inflation:

- Greedflation has been compared to other theories of "cost-push" inflation which attribute inflation to a rise in input costs.
- For example, in the past, a rise in the wages demanded by workers has been blamed for the rise in the prices of goods and services. In the case of greedflation, it is the rise in the corporate thirst for profits that is seen as a cost that is driving up prices.
- A criticism of the cost-push theory of inflation has been that it ignores the fact that the cost of producing any good is itself determined indirectly, but ultimately,

by consumers. The cost of inputs, which can be used towards different alternative ends of society, is determined by competitive bidding in the market.

RECHRISTENED GIFT NIFTY**Why in new?**

- Rechristened GIFT NIFTY, the popular Singapore Exchange (SGX) NIFTY started trading from GIFT City in Gujarat, executing over 30,000 trades in a single session.
- This is the first cross-border initiative in connecting India and Singapore's capital markets.
- Though the SGX is expected to corner the bulk of the business initially, NSE International Exchange (NSE IX) expects to make inroads gradually.

What is the deal between SGX and NSE?

- According to a five-year contract between the two, business will largely be shared on a 50:50 basis. Initially, for the business generated by Singapore, SGX will get 75 per cent of the revenue, while NSE will get the remaining 25 per cent.
- For any business generated by the International Financial Service Centre (IFSC), NSE will keep 75 per cent of the business. Once a "threshold volume" is touched, sharing will be on a 50:50 basis for both the entities.
- As per this deal, NSE IX will not be able to enter into similar arrangements with any other exchange. This contract can be extended for an additional two years after the five-year period concludes.

What is GIFT NIFTY?

- This migration was first initiated by Prime Minister Narendra Modi in July 2022. However it was only in April 2023 that Singapore agreed to a full-scale switch of Nifty 3.
- On June 30, trading on SGX NIFTY ceased in Singapore and the entire trading volume and liquidity fully switched to GIFT IFSC. Therefore, it was rechristened GIFT Nifty.
- Currently, four products are being offered under the umbrella brand of GIFT Nifty – GIFT Nifty 50, GIFT Nifty Bank, GIFT Nifty Financial Services and GIFT Nifty IT derivatives contract.

RBI WANTS BANKS TO LET CUSTOMERS CHOOSE AMONG VISA, MASTERCARD, OTHER CARD NETWORKS



Why in news?

- The Reserve Bank of India (RBI) wants credit card issuers (banks and finance companies) to allow customers opt for their desired card network instead of forcing them to accept the favourite networks of banks.

What does the proposal entail?

- It has proposed that card issuers provide an option to their eligible customers to choose any one among the multiple card networks. This option may be exercised by customers either at the time of issue or at any subsequent time.
- The RBI has said card issuers should not enter into any arrangement or agreement with card networks that restrain them from availing the services of other card networks.

What do card networks do?

- Credit card networks provide the centralised communication system that card issuers like banks and non-banks use to process credit card transactions.
- The networks and issuers authorise and process credit card transactions, set the transaction terms, and move payments between customers, businesses, and their banks. Major credit card networks include Visa, Mastercard, American Express and RuPay.
- Banks usually issue credit cards to customers in association with card networks. If a customer has a credit card issued by the bank with its logo and the Visa logo on it, the bank is the credit card issuer and Visa is the credit card network.
- When a customer uses a credit card to make a purchase, the transaction request goes to the credit card issuer, who then decides whether or not to authorise it through the network system of the card networks. The bank extends credit to the cardholder, and the cardholder pays the bank back for purchases made with the credit card.

What are the practices that RBI want to put an end?

- Many banks have exclusively tied up with card networks to offer their services whether the customers prefer them or not. While one of India's leading two private banks have tied up with Visa, the other one offers only the network of MasterCard.
- The RBI had indefinitely barred Mastercard, American Express and Diners Club from issuing new debit, credit or prepaid cards to customers over noncompliance with local data storage rules two years ago but lifted the ban later.

GOVT. TO SHARE PM GATI SHAKTI DATA



Why in news?

- The government is working out a mechanism to share data with industry and potential investors about multi-modal connectivity as well as other physical and social infrastructure captured on the PM Gati Shakti platform.

Evaluation by Network Planning Group (NPG):

- The Network Planning Group (NPG) under the platform which has multiple layers of geospatial data from across the country, has so far managed to evaluate and facilitate 85 large central infrastructure projects worth nearly ₹5.4 lakh crore so far.
- It evaluated five national highway projects worth ₹15,600 crore, which included two highways in Maharashtra, a ring road around Kanpur, and a tunnel project in Mizoram to help commuters and goods bypass the capital city of Aizawl.
- A clutch of projects worth ₹719 crore, which are essentially disaster risk mitigation measures for Uttarakhand's Garhwal region, were also taken up. These include 20 road stretches prone to landslides and 11 sinking zones.

About Gati Shakti Scheme:

- PM Gati Shakti National Master Plan (NMP) is a transformative approach for integrated and holistic planning across concerned Ministries/Departments to improve multimodal connectivity, logistics efficiency and to address critical infrastructure gaps for seamless movement of people and goods, with focus on minimising disruptions and ensuring timely completion of projects.

- It aims to ensure the speed (Gati) and Power (Shakti) of infrastructure projects in the next four years, with a focus on expediting works on the ground, saving costs and creating jobs, and bringing down the logistics cost.

SKILL INDIA PROJECT SUCCESSFULLY REVIVES THE DYING NAMDA ART OF JAMMU AND KASHMIR



Why in news?

- Recently, the Union Ministry for Skill Development and Entrepreneurship flagged off the first batch of Namda Art products for export to the United Kingdom (UK).

Revival under Skill India's Pilot Project:

- The Namda craft of Kashmir is being successfully revived under a Skill India's Pilot Project as part of the Pradhan Mantri Kaushal Vikas Yojana (PMKVY), with nearly 2,200 candidates from across six districts of the state, receiving training in the dying art form.
- Namda project was introduced in 2021.
- The project sets a great example of the public-private partnership (PPP) model in the field of skill development, as it is being implemented in collaboration with local industry partners.
- Under this initiative, nearly 2,200 candidates have been trained in the art of Namda craft, representing a significant milestone in preserving this traditional craft and empowering the local weavers and artisans.
- The project has successfully trained individuals across six districts of Kashmir, namely Srinagar, Baramulla, Ganderbal, Bandipora, Budgam, and Anantnag.

About Namda craft:

- Namda craft is a rug made of sheep wool through felting technique instead of normal weaving process.
- Due to low availability of raw material, lack of skilled manpower and marketing techniques, the export of this craft has declined almost 100 percent between 1998 and 2008.
- Therefore, through this special project under PMKVY, the Ministry of Skill Development and Entrepreneurship (MSDE) has designed short-term

training curriculum to preserve this endangered craft.

Way Forward:

- The Namda project is an industry-based training program with beneficiaries involved in Namda Crafts Production.
- This will also improve the access of existing artisans of Namda crafts cluster in Kashmir and will improve their prospects of employability.

INDIA AND INDONESIA ANNOUNCE LAUNCH OF THE "INDIA - INDONESIA ECONOMIC AND FINANCIAL DIALOGUE" (EFD DIALOGUE)



Why in news?

- Recently, Indonesia and India announced the launch of the "India - Indonesia Economic and Financial Dialogue".
- The platform, unveiled during the G20 Finance Ministers and Central Bank Governors (FMCBG) meeting, seeks to strengthen cooperation between the two nations and foster a shared understanding on global issues.

Bilateral relations:

- The evolution of India's 'Look East Policy' in 1991, followed by the 'Act East Policy', has facilitated a rapid development in our bilateral relations, particularly in the commercial and cultural fields.
- Indonesia has emerged as India's largest trading partner in the ASEAN region, with our trade seeing an eightfold increase since 2005, reaching an impressive \$38 billion in FY 2022-23.

Key Highlights:

- The EFD Dialogue is poised to enhance collaboration on bilateral and international economic and financial matters by bringing together economic policymakers and financial regulators from both countries.
- Areas of cooperation inter-alia, include macroeconomic challenges and global economic prospects, bilateral investment relations, and cooperation in G20 and ASEAN matters.
- Recognising the potential of the digital economy, the two Finance Ministers also noted the potential of collaboration in the field of fintech for financial inclusion.

Way Forward:

- Given the similarities between India and Indonesia as fast-growing economies, and their active roles in multilateral organisations such as G-20, WTO, and East Asia Summit, this Dialogue promises to offer a unique opportunity for mutual learning and policy coordination.

UK SIGNS CPTPP, THE 'BIGGEST TRADE DEAL' SINCE BREXIT

**Why in news?**

- The United Kingdom formally signed a treaty to join the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) in Auckland, New Zealand.
- It was the biggest trade deal since the UK left the European Union at the beginning of 2020.
- The pact would boost UK exports by 1.7 billion pounds (€1.9 billion, \$2.23 billion), imports to the UK by 1.6 billion pounds and gross domestic product (GDP) by £1.8 billion pounds in the long term. The pact is expected to take effect in the second half of 2024.

What is CPTPP?

- The CPTPP is a landmark pact agreed upon in 2018 that cuts trade barriers among 11 countries, including Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam.
- The pact requires countries to eliminate or significantly reduce tariffs and make strong commitments to opening services and investment markets.
- It also has rules addressing competition, intellectual property rights and protections for foreign companies. CPTPP is seen as a bulwark against China's dominance in the region, although China has applied to join, along with Taiwan, Ukraine, Costa Rica, Uruguay and Ecuador.
- Politicians in several countries, including the UK and Australia, are lobbying to keep China out, while Beijing is trying to prevent Taiwan from joining.

Why is the CPTPP so important to the UK?

- The CPTPP will cut tariffs for UK exports to Asia Pacific countries and with UK membership, the

trading bloc will have a combined GDP of 12 trillion pounds and account for 15% of global trade.

- Britain is keen to deepen trade ties in the Pacific after Brexit in 2020.
- It has been pushing a "Global Britain" strategy since it gave up EU membership after nearly 50 years, leaving the bloc's single market and customs union.

Economy post Brexit:

- Critics say CPTPP and other deals will struggle to compensate for the economic damage sustained by leaving the now-27-member EU.
- The UK's long-term productivity is forecast to be reduced by 4% as a result of Brexit.
- The UK already has trade deals with 10 of the 11 other CPTPP members and the eventual economic boost is likely to increase GDP by just 0.08% annually.
- In 2022, Britain exported 340 billion pounds of goods and services to the EU, 42% of total UK exports.

NITI AAYOG RELEASES THE THIRD EDITION OF THE 'EXPORT PREPAREDNESS INDEX (EPI) 2022' FOR STATES OR UTs

**Why in news?**

- NITI Aayog released the third edition of the report titled 'Export Preparedness Index (EPI) 2022' for States/UTs of India.

Top rankers:

- Tamil Nadu is followed by Maharashtra, Karnataka, Gujarat, Andhra Pradesh, Odisha, West Bengal and Kerala in that order in the ranking of coastal states.
- Among hilly/Himalayan states, Uttarakhand has ranked at the top position. It is followed by Himachal Pradesh, Manipur, Tripura, Sikkim, Nagaland, Meghalaya, Arunachal Pradesh and Mizoram in that order.
- Haryana topped the chart among the landlocked regions. It was followed by Telangana, Uttar Pradesh, Punjab, Madhya Pradesh and Rajasthan.
- In the category of union territories/small states, Goa was ranked first. Jammu and Kashmir, Delhi, Andaman and Nicobar and Ladakh were ranked second, third, fourth and fifth, respectively.

About EPI 2022 report:

- The EPI 2022 report seeks to empower State governments with region-specific insights to assist decision-making, identify strengths, address weaknesses, and foster comprehensive growth across States and UTs of India.
- The report presents a comprehensive analysis of India's export performance in FY22, along with its sector-specific and district-level merchandise export trends.
- The EPI 2022 Report evaluates the performance of the states across four pillars – Policy, Business Ecosystem, Export Ecosystem, and Export Performance.
- The index uses 56 indicators which holistically capture the export preparedness of States and UTs in terms of exports at both the state and district-level.

The overview of the four pillars in the index is –

- a) Policy Pillar: evaluates states and UTs' performance based on its adoption of export-related policy ecosystem at a state and district level as well as the institutional framework surrounding the ecosystem.
- b) Business Ecosystem: assesses the prevailing business environment in a state/UT, along with the extent of business-supportive infrastructure, and a state/UTs' transport connectivity.
- c) Export Ecosystem: focuses on the export-related infrastructure in a state along with the trade support provided to the exporters, and the prevalence of Research and Development in the state to foster innovation.
- d) Export Performance: is an output-based indicator which gauges the growth of a state's export over the previous year and analyses its export concentration and footprint on the global markets.

Ten sub-pillars:

- These pillars are further based on ten sub-pillars – Export Promotion Policy; Institutional Framework; Business Environment; Infrastructure; Transport Connectivity; Export Infrastructure; Trade Support; R&D Infrastructure; Export Diversification; and Growth Orientation.

Way Forward:

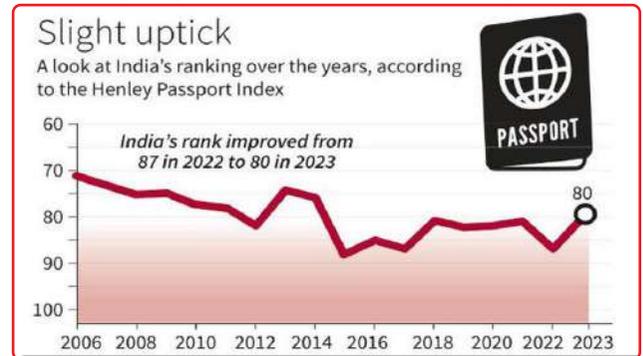
- The report encourages state governments to create solutions to their context-specific challenges to exports.
- The states can also exploit their innate diversity by promoting products unique to them and helping them reach the global market.

**INDIA CLIMBS SEVEN POINTS
TO 80 ON PASSPORT INDEX,
SINGAPORE AT TOP POSITION**

Why in news?

- India has climbed seven places on the Henley Passport Index, 2023 to the 80th rank from 87 in 2022 though

the number of countries allowed visa-free access to Indian passport holders remains unchanged.

**About Henley Passport Index:**

- The Henley Passport Index is the ranking of all the world's passports according to the number of destinations their holders can access without a prior visa.
- The index includes 199 passports and 227 travel destinations.
- The index is brought out by Henley and Partners.

India's ranking:

- In 2014, India ranked 76 with 52 countries allowing Indian passport holders visa-free access, but its performance has not been linear.
- It ranked 88 in 2015 (visa-free access to 51 countries), 85 in 2016, 87 in 2017, 81 in 2018, 82 in 2019 and 2020, and 81 in 2021.

Top rankers:

- Japan, which occupied the top position on the Henley Passport Index for five years, dropped to the third place.
- It was replaced by Singapore, which is now officially the most powerful passport in the world, with its citizens able to visit 192 travel destinations out of 227 around the world visa-free.
- Germany, Italy, and Spain occupied the second place. Alongside Japan at the third position are Austria, Finland, France, Luxembourg, South Korea, and Sweden.
- The U.K. climbed two places to occupy the fourth place, while the U.S. continued its decade-long slide down the index, dropping two places to the eighth spot.
- Both the U.K. and the U.S. jointly held the first place on the index nearly 10 years ago in 2014.

Visa-free access:

- Henley & Partners also conducted an exclusive new research resulting in the Henley Openness Index which measures how many nations does a country allow visa-free access to.
- India was ranked 94 out of a total of 97 ranks for allowing only four countries visa-free access.
- At the bottom of the Index were four countries for scoring zero for not permitting visa-free access for

any passport, namely, Afghanistan, North Korea, Papua New Guinea, and Turkmenistan.

INDIA'S NON-BASMATI RICE EXPORT BAN COULD HIT GLOBAL MARKETS HARD



Why in news?

- India recently banned the export of non-Basmati white rice, a move that could deal a significant blow to the global rice market.
- India accounts for around 40 percent of global rice exports, and is among the most competitively priced sources of Asian rice.

Key Highlights:

- The Directorate General of Foreign Trade (DGFT) issued a notification shifting the export of non-Basmati white rice from the 'free' export category to the 'prohibited' category.
- However, the notification added that some export would be allowed with the Union government's permission in order to meet the food security needs of other countries.
- The reason for the export ban, is likely the rise in the price of rice, an average of Rs 40.9 per kg as of 19 July, 11.3 percent higher than what it was a year ago.

India's rice exports:

- India accounted for 39 percent of global rice exports in 2022, which climbed to 41 percent by June 2023, according to data released by the US Department of Agriculture, which maintains a monthly database of global agricultural exports.
- According to Indian data, maintained by the government's Agricultural and Processed Food Products Export Development Authority (APEDA), India exported a total of 22.3 million metric tonnes (MT) of rice in the financial year 2022-23. Of this, 57 percent was non-Basmati rice, the category that has now been banned for export.
- Data from APEDA shows that the share of non-Basmati rice in India's overall rice exports has been rising quite steadily, even as rice exports overall have also been growing.

Background:

- India had in September 2022 banned the export of broken rice and imposed a 20 percent tax on the

export of various grains in a bid to reduce rising prices.

- In June 2023, the government passed an order halting the sale of rice to state governments under the Open Market Sale Scheme "in order to ensure that the inflationary trends are kept under control while ensuring adequate stock levels in the central pool".

Way Forward:

- The ban on rice exports will likely play havoc with the market predictions made by various foreign governments.
- India is expected to remain the most competitively priced global rice exporter in 2023.

CENTRE RELEASES GUIDELINES FOR SIGNAGES ON EXPRESSWAYS AND NATIONAL HIGHWAYS TO ENHANCE ROAD SAFETY

Right Hand Curve	Left Hand Curve	Right Hair Pin Bend	Left Hair Pin Bend	Right Reverse Bend
Left Reverse Bend	Steep Ascent	Steep Descent	Narrow Road Ahead	Road Wideness Ahead
Narrow Bridge	Slippery Road	Loose Gravel	Cycle Crossing	Pedestrian Crossing

Why in news?

- Recently, the Ministry of Road Transport & Highways (MoRTH) has issued new guidelines for the provision of signages on Expressways and National Highways.
- They focus on further improving road safety by incorporating best practices and world standards to offer improved visibility and intuitive guidance to the drivers.

Significance:

- Road signages are essential components of road infrastructure as they provide vital information and instructions to drivers.
- Accordingly, MoRTH has reviewed the provision of signages as per relevant IRC codes & guidelines, existing practices prescribed in various international codes as well as information and functionality perspective to ensure better compliance of traffic regulations.
- The guidelines are designed to offer drivers clear and concise guidance, warnings, notices, and regulatory information, facilitating a seamless and safe journey on the roads.

Salient features of the guidelines include:

- Enhanced Visibility and Legibility: Prioritise enhanced visibility of road signages through placement at appropriate height/ distance, large lettering, symbols

and short legends for quick comprehension of drivers, ensuring crucial information is readily visible and understandable, even in adverse conditions.

- Pictorial Depictions for Intuitive Communication: Pictorial representations along with text to convey essential messages effectively, thus catering to a diverse group of road users, including those with limited literacy.
- Regional Languages: Endorse a multilingual approach on road signages, encompassing both English and regional languages, ensuring effective communication with diverse road users, promoting better understanding and adherence to traffic regulations.
- Focused Lane Discipline: Special attention has been given to promoting better lane discipline, through strategic positioning with clear and intuitive guidance to drivers, encouraging adherence to designated lanes and minimizing traffic congestion.
- Phased Implementation: In the initial phase, the guidelines will be implemented on all upcoming Highways, Expressways, and greenfield corridors. Additionally, Highways experiencing high traffic volume, with more than 20,000 Passenger Car Units (PCUs), will also be prioritized for the implementation of these guidelines.

Way Forward:

- With adoption of best practices and world standards, MoRTH aims to provide a safe and efficient travel experience for all road users, further advancing towards accident-free roads.

TECHNOLOGICAL ADVANCEMENTS IN CROP INSURANCE TO EMPOWERING FARMERS AND STREAMLINING OPERATIONS IN PMFBY



Why in news?

- The Ministry of Agriculture and Farmers Welfare launched several new technological initiatives under the Pradhan Mantri Fasal Bima Yojana to empower farmers and streamlining the operations.
- He launched several new initiatives under PMFBY and RWBCIS, such as YES-Tech Manual, WINDS portal and door to door enrollment app AIDE/Sahayak,

marking a turning point in India's crop insurance landscape.

Rain watch tower:

- There should be a rain watch tower in every village, weather stations can be set up at the development block level, so that the government can get precise information about the weather.
- With the new tender cycle and ongoing enrolment, the efforts taken by the Ministry have now become visible. These significant achievements are a testament to the government's commitment to safeguarding farmers' livelihoods and promoting sustainable agricultural practices.
- The launch of YES-TECH manual and WINDS portal is a result of these steps, enabling accurate loss assessment and improved weather data management.

YES-TECH Manual:

- YES-TECH Manual is a comprehensive guide developed after extensive testing and piloting in 100 districts of India.
- It facilitates the implementation of YES-TECH, a technology-driven yield estimation system, offering methodologies, best practices, and integration insights for accurate yield assessments at the Gram Panchayat level.

WINDS portal:

- On the other hand, the Weather Information Network Data Systems (WINDS) Portal is a centralized platform that hosts, manages, and processes hyper-local weather data collected by Automatic Weather Stations and Rain Gauges at Taluk/Block and Gram Panchayat levels.
- The portal enhances risk assessment and decision-making in crop insurance, agriculture advisories, and disaster mitigation, supporting the agricultural sector and rural economy.

Delinking of subsidies:

- He also announced the delinking of subsidies, which is a groundbreaking step, ensuring that farmers receive their claim payments without waiting for State actions.
- The Centre will now release its share of subsidies independently, providing much-needed relief and financial security to farmers.

AIDE app:

- The AIDE app's introduction on Android platform aims to revolutionize the enrolment process, bringing it directly to the doorstep of farmers.
- This door-to-door enrolment ensures a seamless and transparent process, making crop insurance more accessible and convenient for farmers.

Way Forward:

- With the current launches, the relentless efforts of the Ministry of Agriculture and Farmers Welfare are now visible in the current tender cycle of 2023-25

and farmer enrolment during Kharif 2023, reflecting the commitment towards empowering farmers and safeguarding their livelihoods.

SECURITY

LARSEN AND TOUBRO AND NAVANTIA JOIN HANDS TO BID FOR INDIAN NAVY TOP SUBMARINE PROGRAMME



Why in news?

- Indian conglomerate Larsen & Toubro (L&T) and Spain's Navantia have joined hands to submit a combined bid for India's highly coveted Project 75 (I) submarine programme.
- Earlier, Defence PSU Mazagon Dock and Germany's Thyssenkrupp Marine Systems signed a MoU to bid for the project.

Indian Navy's Project 75 (I):

- The Indian Navy's Project 75 (I) is an endeavour that requires the indigenous production of six conventional submarines equipped with Air-Independent Propulsion (AIP).
- The project, expected to exceed \$5.2 billion in value, represents India's largest defence acquisition programme to date.
- It will be executed under the strategic partnership (SP) model of the Ministry of Defence, emphasising collaboration between Indian and foreign entities.

Navantia's expertise:

- Under the terms of the agreement, Navantia, drawing from its experience in submarine design, including the S80 class and Scorpène class submarines, will spearhead the design phase for the P75(I) submarines.
- Navantia's S80 class submarines, the first of which is set for delivery to the Spanish Navy at the end of 2023, have already undergone successful sea trials.
- It has previously partnered with DCNS (now Naval Group) of France in the design and construction of Scorpène class submarines, which have been exported to Chile and Malaysia.

JAPAN INDIA MARITIME EXERCISE 2023 (JIMEX 23)



Why in news?

- The seventh edition of the bilateral Japan-India Maritime Exercise 2023 (JIMEX 23) hosted by the Indian Navy, is being conducted at/off Visakhapatnam from 05-10 July 2023.
- This edition marks the 11th anniversary of JIMEX, since its inception in 2012.

Key Highlights:

- JIMEX 23 will witness the participation of INS Delhi, India's first indigenously built Guided Missile Destroyer, INS Kamorta, an indigenously designed and built Anti-Submarine Warfare Corvette, fleet tanker INS Shakti, a submarine, maritime patrol aircraft P8I and Dornier, ship-borne helicopters and fighter aircraft.
- Japan Maritime Self Defence Force (JMSDF) will be represented by the guided missile destroyer JS Samidare and its integral helicopters.
- The exercise will be conducted over six days in two phases - a Harbour Phase at Visakhapatnam comprising professional, sports and social interactions, after which, the two navies will jointly hone their warfighting skills at sea and enhance their interoperability through complex multi-discipline operations in the surface, sub-surface and air domains.

Way Forward:

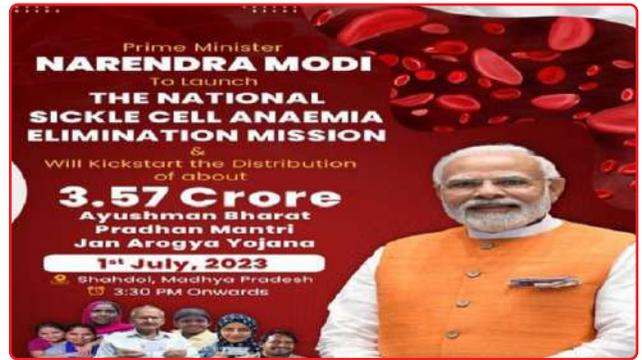
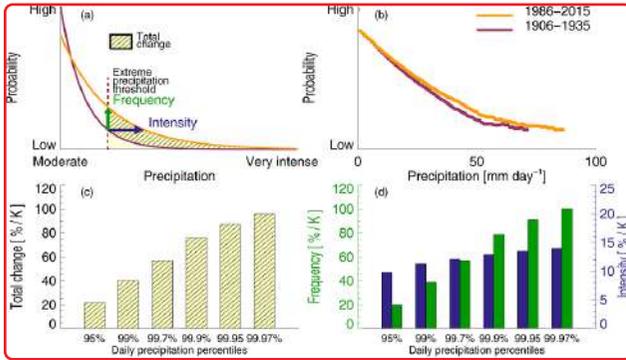
- JIMEX 23 provides an opportunity to learn from each other's best practices and facilitates operational interactions between IN and JMSDF to foster mutual cooperation and reaffirm their shared commitment towards maritime security in the region.

ENVIRONMENT

INTENSITY OF EXTREME RAINFALL ESTIMATED TO INCREASE BY 15%

Why in news?

- Climate warming is causing a decrease in snowfall and increase in rainfall at high altitudes in the Northern Hemisphere. A recent study has predicted an increase in the risk of extreme rainfall events.



Details:

- To assess how climate change might be driving a shift in precipitation patterns, researchers from Lawrence Berkeley National Laboratory, Berkeley, California combined data from climate observations from between 1950 and 2019 with future projections, up to 2100, taken from Earth system models.
- The results suggested that warming causes an increase in rainfall extremes within regions of high elevation in the Northern Hemisphere.

Key Findings:

- On average, the intensity of extreme rainfall events is estimated to increase by 15% per 1 degree C of warming.
- The estimated rate of increased rainfall in high altitudes is approximately double that of low altitudes, highlighting the increased vulnerability of mountainous regions to extreme precipitation.
- They utilised both a climate reanalysis dataset and future model projections to show that the amplified increase is due to a warming-induced shift from snow to rain.
- The findings pinpoint high-altitude regions as 'hotspots' that are vulnerable to future risk of extreme-rainfall-related hazards, thereby requiring robust climate adaptation plans to alleviate potential risk.

Way Forward:

- The implications centre around the importance of developing sound climate adaptation plans to protect the natural and built environments and the 26% of the global population living in or directly downstream of mountainous regions.
- It is also important to recognize that the amplification of rainfall extremes is likely to be associated with a decrease in snowfall extremes owing to the transition from snow to rain.

NATIONAL SICKLE CELL ANAEMIA ELIMINATION MISSION LAUNCHED

Why in news?

- Recently, the Prime Minister of India launched the National Sickle Cell Anaemia Elimination Mission (NSCEM) in Shaheed, Madhya Pradesh.

Key Highlights:

- NSCEM combines both screening and awareness strategies to ensure early detection and treatment while promoting education about the disease as people may not be aware that they suffer from this diseases, and may unintentionally transfer it to the next generation, hence the role of screening becomes even more important in this regard.
- The elimination programme reflects the government's intent and determination to eliminate the spread of Sickle Cell Diseases.
- Across 278 districts of India, screenings will be done for people between 0-40 years to stem the further spread of the disease.

About National Sickle Cell Anaemia Elimination Mission:

- The National Sickle Cell Anaemia Elimination Program, introduced in the Union Budget 2023, focuses on addressing the significant health challenges posed by sickle cell disease, particularly among tribal populations of the country.
- Sickle cell disease (SCD) is a chronic single gene disorder causing a debilitating systemic syndrome characterized by chronic anemia, acute painful episodes, organ infarction and chronic organ damage and by a significant reduction in life expectancy.

Implementation:

- Implemented in 17 high-focus states across the country, this program aims to improve the care and prospects of all sickle cell disease patients while reducing the prevalence of the disease.
- The 17 states are- Gujarat, Maharashtra, Rajasthan, Madhya Pradesh, Jharkhand, Chhattisgarh, West Bengal, Odisha, Tamil Nadu, Telangana, Andhra Pradesh, Karnataka, Assam, Uttar Pradesh, Kerala, Bihar, and Uttarakhand.
- The program is executed in a mission mode as part of the National Health Mission (NHM), aims to eliminate sickle cell genetic transmission by the year 2047, showing a long-term commitment to eradicating the disease.
- Over a period of three years, spanning from the fiscal year 2023-24 to 2025-26, the program targets screening approximately 7.0 crore people.

IN VARANASI, TURTLES HELP CLEAN THE GANGA



Why in news?

- Under the Namami Gange Programme, large-scale human efforts have been undertaken since 2014 to clean the Ganga and rejuvenate the nearly 2,600-km river network.
- In this, marine life, especially turtles, has been playing a key role as well.

Namami Gange Programme:

- In 2014, the Wildlife Institute of India (WII) and the Ministry of Forest joined hands with the National Mission for Clean Ganga (NMCG), the agency implementing the Namami Gange Programme.
- Since 2017, they have been running the turtle breeding and rehabilitation centre in Uttar Pradesh's Varanasi.

Introducing turtles:

- Set up in the late 1980s under the Ganga Action Plan (GAP), the centre has so far released over 40,000 turtles into the river.
- In 2014, the centre got renewed attention after the Central government enlisted it in the Namami Gange Programme.

Nurturing of turtles:

- At the centre, roughly a dozen species are nurtured. The Forest and Wildlife Department's team brings turtle eggs from the coastal areas of the Chambal region. The turtle eggs, which are monitored for 70 days, are kept in a room that is fully adapted for hatching.
- After filling the ground with water and placing bricks atop, the eggs are buried inside sand in wooden boxes. Only 30 eggs are kept in a box.
- Hatching is completed at temperatures ranging from 27 to 30 degrees Celsius between June and July, and after which the turtles are monitored in an artificial pond for two years before they are released in the river.

Role of turtles:

- About a dozen of the 29 turtle species in India, both herbivorous and carnivorous, help by clearing rotten or half-burnt human bodies as well as flowers dumped into the river.

- The quality of water in Ganga has improved and the turtles have a role as they feed on meat and waste products thrown in the river.
- Improvements in biochemical oxygen demand (BOD), fecal coliform (FC) and dissolved oxygen (DO) levels were seen during river water quality checks.
- During the assessment of the river's pH levels (i.e. acidic nature) at various locations, the water quality was found suitable for bathing. In 20 locations, they found improved levels of DO, BOD and FC at 16, 14 and 18 locations, respectively.

MEITY RECEIVES PROPOSALS FOR SELF-REGULATORY ORGANISATIONS IN ONLINE GAMING



Why in news?

- The Ministry of Electronics and Information Technology (MeitY) has received three proposals for the establishment of self-regulatory organisations (SROs) in the field of online gaming.
- The proposal for SROs to certify what is permitted as an 'online game' in India was first proposed by the Centre in January and after the new regulations were announced in April.

New guidelines:

- According to the new regulations, the government will approve the formation of three SROs responsible for certifying online games in India.
- The rules also prohibit games that involve betting and wagering.
- The approved SRO will also have participation from all the stakeholders including but not limited to the industry.

Online gaming industry associates:

- The Esports Players Welfare Association (EPWA), a non-profit organisation, submitted its application just before the deadline.
- The other two proposals come from a consortium supported by two gaming industry associations—the E Gaming Federation (EGF) and the Federation of Indian Fantasy Sports (FIFS), and a self-regulatory body backed by the All India Gaming Federation (AIGF).

- The EGF includes Games24x7 and Junglee Games as members, while the FIFS consists of Dream11, Fantasy Akhada, and several other fantasy sports startups.
- The AIGF comprises online gaming platforms like Zupee, GamesKraft, Paytm First Games, and MPL.

Way Forward:

- The objective of the new rules is to grow the online gaming sector and encourage innovation.

INDIA'S DECISION TO ALLOW PRIVATE PLAYERS TO MINE LITHIUM, OTHER CRITICAL MINERALS



Why in news?

- The Government of India recently amended the Mines and Minerals (Development & Regulation) Act of 1957, allowing private players to mine lithium and other five critical minerals including titanium, beryllium, zirconium, niobium and tantalum.
- These six minerals have been removed from the country's atomic minerals lists, paving way for private players to mine and empowering the government to auction their reserves going ahead.

Introducing Private players:

- Recently, the Union Ministry of Mines, has released a list of thirty critical minerals that are strategic to the country's economic development and national security.
- This is a decisive step by the central government to allow private players participating in the mining processes, enabling a much needed public-private partnership in the ecosystem.
- Private players will bring more capital and foster use of new and emerging technologies for exploration and mining processes.

Why critical minerals?

- These minerals are in high demand as countries move towards green transition and e-mobility.
- Lithium is one of the most sought-after minerals today across the world, due to its strategic use case in production of batteries needed for electric vehicles.
- India currently is heavily dependent on imports for these minerals.

- The Indian government is now in talks with some Latin American nations, including Chile and Argentina to mine and acquire lithium and some of these minerals, which have applications in the defence and space sectors.
- This will enable India to move towards more enriching public private partnerships, enabling it to be a global manufacturing hub.

Critical Mineral	Percentage	Major Import Sources
Lithium	100	Chile, Russia, China, Ireland, Belgium
Cobalt	100	China, Belgium, Netherlands, US, Japan
Nickel	100	Sweden, China, Indonesia, Japan, Philippines
Vanadium	100	Kuwait, Germany, South Africa, Brazil, Thailand
Niobium	100	Brazil, Australia, Canada, South Africa, Indonesia
Tantalum	100	Australia, Indonesia, South Africa, Malaysia, US
Graphite (Natural)	60	China, Madagascar, Mozambique, Vietnam, Tanzania
Manganese	50	South Africa, Gabon, Australia, Brazil, China
Silicon	<1	China, Malaysia, Norway, Bhutan, Netherlands

Way Forward:

- India should revise its lists of critical minerals every three to five years, while preparing a robust and reliable value chain for each mineral used in development of strategic and emerging technologies.
- The entry of private players will enable more and more exploration and also support India's ambitions to become a global player in batteries and renewable energy technologies, and move towards self-reliance.

INVASIVE WEED THREATENS ELEPHANT HABITATS IN T.N.

Why in news?

- An aquatic weed native to some countries in Central and South America, including Peru, is threatening elephant habitats and foraging areas in Valparai.

- It is a Tamil Nadu hill station close to the Kerala boundary, and reviving the risk of human-elephant conflicts in the region.



Details:

- Ludwigia peruviana, which grows fast along waterbodies, has infested the majority of the hill station's swamps, locally known as vayals, where elephants used to find lush grass even in the summer.
- However, most of these swamps are located on private estates, which are responsible for the tricky process of removing the weed; if not done correctly, trying to pull it out will help it spread even more.

Threat:

- The rapid large-scale spread of the weed, which was probably introduced as an ornamental plant for its tiny yellow flowers has shaken the balance of these perennial foraging grounds, limiting the growth of grass and native plants that are palatable to elephants and animals including gaur.

About Invasive species:

- Invasive species are also known with different other names like alien species, non-native species, non-regional species or exotic species.
- Most often they are considered harmful to the area they arrive in. These intruder organisms alternate habitats, cause loss of biodiversity and take the native species to extinction.

SCIENCE & TECHNOLOGY

TRANSPONDERS TO BE INSTALLED IN SEA VESSELS ACROSS INDIA'S COASTAL AREAS TO PROTECT MARINE LIFE

Why in news?

- The central government has approved a project for national rollout of vessel communication and support systems including transponders on approximately 100,000 fishing vessels in all coastal states and Union territories of India.
- Transponders are wireless tracking devices that use radio frequencies to operate.
- The project has been approved on the request of Odisha government and in consultation with coastal states and UTs.



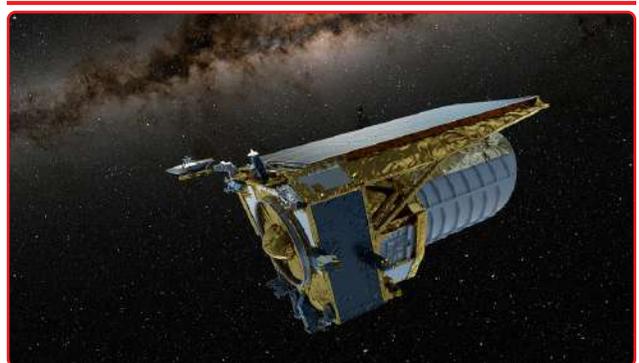
How transponder will help?

- The devices will help the vessels avoid sea creatures that suffer injuries coming in contact with boats and fishing trawlers.
- A prominent example is the case of the Olive Ridley Sea turtles, an endangered species, that visit the beaches in Odisha in the millions to nest.
- Many of them are caught in the fishing nets cast by the trawlers and die. Gahiramatha in Kendrapara district, Rushikulya river mouth in Ganjam district and Devi River mouth near Astaranga in Puri district in Odisha have been identified as the major mass nesting sites of the Olive Ridley turtles.

Implementation:

- The project will be implemented under the Pradhan Mantri Matsya Sampad Yojana scheme with 100 per cent government funding on a 60:40 cost-sharing basis between the Centre and state.
- The central government has entrusted New Space India Ltd, a central public sector undertaking under the Department of Space, as the implementing agency for the project.

EUCLID SPACE TELESCOPE



Why in news?

- Recently, Euclid Space Telescope commenced its mission to observe the dark universe.
- Launched on board a SpaceX Falcon-9 rocket, the telescope, led by the European Space Agency, embarked on a trajectory that will take it to a destination approximately 1.5 million kilometers away from Earth, known as the second Lagrange point (L2).

Details:

- It is named after the Greek mathematician who resided in Egypt's Alexandria.
- Euclid's objective is to create the most precise 3D map of the universe by observing billions of galaxies spread across more than 10 billion light-years, encompassing over a third of the sky, during its six-year-long mission.
- This comprehensive map has the potential to unveil the expansion of the universe and the evolution of its large-scale structure throughout cosmic history.

What is dark universe?

- It is composed of two main components: dark matter and dark energy. While dark matter makes up about 85% of the matter in the universe, dark energy makes up about 70% of the energy in the universe.
- It is in fact, dark matter that holds galaxies together and prevents them from flying apart.
- Without dark matter, galaxies would not be able to form. Meanwhile, dark energy causes the universe to expand at an accelerating rate.
- Euclid's precise measurements of cosmic structure could uncover the total mass of neutrinos in our Universe, and with this how much of dark matter they can make up.

What is Euclid Space Telescope?

- Euclid is designed to observe the large-scale structure of the universe and create a 3D map to reveal how the universe has expanded and how large-scale structure has evolved over cosmic history.
- The spacecraft will provide imagery, visible, spectroscopy and photometry data in the near-infrared spectrum of light that cannot be seen with the eyes.
- The nearly 2-tonne spacecraft is equipped with a 1.2-meter diameter primary mirror, a Near Infrared Spectrometer and Photometer.
- A sunshield will keep the telescopes and instruments shaded from the Sun to ensure thermal stability and highly sensitive measurements as the VISible instrument (VIS) will have to operate at -120 degrees Celsius and the Near Infrared Spectrometer and Photometer (NISIP) at -180 degrees Celsius.

Way Forward:

- Scientists hope to better understand the role of gravity and the nature of dark energy and dark matter with the new flying observatory.

DOT LAUNCHES BHARAT 6G ALLIANCE TO DRIVE INNOVATION AND COLLABORATION IN NEXT-GENERATION WIRELESS TECHNOLOGY

Why in news?

- Recently, the Ministry of Communications announced, formation of the Bharat 6G Alliance (B6GA), a

collaborative platform consisting of public and private companies, academia, research institutions, and Standards development organizations.

- B6GA will forge coalitions and synergies with other 6G Global Alliances, fostering international collaboration and knowledge exchange.

**Agreements under TTDF:**

- In addition, with a grant of 240.51 crores under the Telecom Technology Development Fund (TTDF), two agreements were signed for projects,
- 6G THz Testbed with Orbital Angular Momentum (OAM) & multiplexing through consortium of SAMEER, IIT Madras, IIT Guwahati and IIT Patna
- Advance Optical Communication Test Bed with Consortium Members as IIT Madras, IIT Delhi, Indraprastha Institute of Information Technology (IIIT) Delhi, Signalchip Innovations, Signaltron Systems Pvt Ltd, Sasmos het Technologies Ltd, SFO Technologies Pvt. Ltd, ERNET India, Quanfluence Private Ltd, Sterlite Technologies Limited, Nav tech, Tejas network.

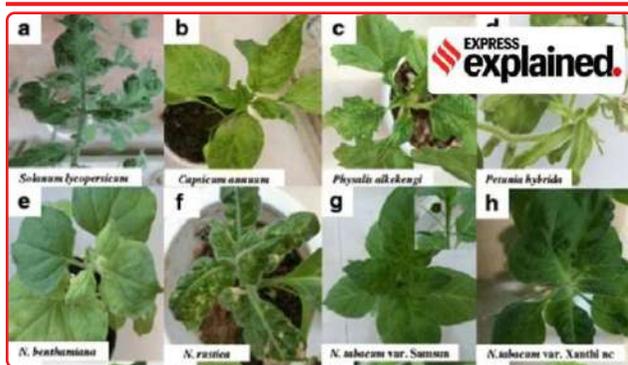
Background:**About Bharat 6G Alliance (B6GA):**

- The primary objective of B6GA is to understand the business and societal needs of 6G beyond technology requirements, foster consensus on these needs, and promote high-impact open research and development (R&D) initiatives.
- B6GA aims to bring together Indian startups, companies, and the manufacturing ecosystem to establish consortia that drive the design, development and deployment of 6G technologies in India.
- By accelerating standards-related patent creation within the country and actively contributing to international standardization organizations such as 3GPP and ITU, B6GA seeks to position India at the forefront of 6G innovation.
- One of the key goals of B6GA is to facilitate market access for Indian telecom technology products and services, enabling the country to emerge as a global leader in 6G technology.

About Telecom Technology Development Fund (TTDF):

- ⇒ Telecom Technology Development Fund (TTDF) scheme was launched by DoT/USOF on 1st October 2022. 5% of annual collections from USOF will be available for TTDF Scheme for funding research & development of technologies, products, and services.
- ⇒ The scheme is envisaged to bridge digital divide by developing and manufacturing state-of-the-art technologies and to form synergies among academia, start-ups, research institutes, and the industry to build and develop the telecom ecosystem
- ⇒ The Telecom Technology Development Fund (TTDF) scheme entails grants to Indian entities to encourage and induct indigenous technologies tailor-made to meet domestic needs.
- ⇒ Under the TTDF scheme, USOF, DoT is also targeting to develop standards to meet countrywide requirements and create the ecosystem for research, design, prototyping, use cases, pilots, and proof of concept testing, among others.

THE TWO MOSAIC VIRUSES THAT HIT TOMATO CROP IN MAHARASHTRA AND KARNATAKA



Why in news?

- ⇒ Tomato growers in Maharashtra and Karnataka have blamed two different viruses for the loss of yields earlier in 2023.
- ⇒ Farmers in Maharashtra have said their tomato crop was impacted by attacks of the cucumber mosaic virus (CMV), while growers in Karnataka and other South Indian states have blamed the tomato mosaic virus (ToMV) for crop losses.
- ⇒ Over the last three years, growers of tomato have complained of increased infestation with these two viruses, leading to partial to complete crop losses.

What are CMV and ToMV?

- ⇒ The two plant pathogens have similar names and cause similar damage to crops, but they belong to different viral families, and spread differently.
- ⇒ ToMV belongs to the Virgaviridae family and is closely related to the tobacco mosaic virus (TMV). ToMV hosts include tomato, tobacco, peppers, and certain ornamental plants.
- ⇒ CMV has a much larger host pool that includes cucumber, melon, eggplant, tomato, carrot, lettuce,

celery, cucurbits (members of the gourd family, including squash, pumpkin, zucchini, some gourds, etc.), and some ornamentals.

- ⇒ CMV was identified in cucumber in 1934, which gave the virus its name.

How do these two viruses spread?

- ⇒ ToMV spreads mainly through infected seeds, saplings, agricultural tools and often, through the hands of nursery workers who have failed to sanitise themselves properly before entering the fields. It would require only a few infected saplings for the virus to take over an entire field in a matter of days.
- ⇒ CMV is spread by aphids, which are sap-sucking insects. CMV too can spread through human touch, but the chances of that are extremely low.
- ⇒ Conditions of high temperature followed by intermittent rain, which allow aphids to multiply, are conducive to the spread of CMV.

How do the viruses affect the crop?

- ⇒ Both viruses can cause almost 100 per cent crop loss unless properly treated on time. The foliage of plants infected with ToMV shows alternating yellowish and dark green areas, which often appear as blisters on the leaves.
- ⇒ Distortion of leaves and twisting of younger leaves are also symptoms. The fruit develops necrotic spots, which leads to overripening. Younger plants are dwarfed, and fruit setting is affected.
- ⇒ CMV too causes distortion of leaves, but the pattern is different. Often leaves at the top and bottom are distorted while those in the middle remain relatively blemish-free.
- ⇒ In cucumber, the virus causes a mosaic-like pattern of alternating yellow and green spots. In tomato, fruit formation is affected, and in some cases the fruit is distorted and small.

How can the viruses be controlled?

- ⇒ Farmers who buy trays of saplings should check before planting, and discard any visible infected material.
- ⇒ They should also look out for signs of infection throughout the cropping cycle, and remove infected plants without allowing it to touch healthy ones.
- ⇒ ToMV can remain dormant in weeds and plant remains around the field, and come back later. Fields must, therefore, be cleared of weeds and plant material before fresh planting.
- ⇒ Controlling CMV is more difficult, given the large number of hosts the virus can live on. The best way is to stop the aphids, which can be done by spraying quick acting insecticides or mineral oils on the plants.

WHAT IS THREADS?

Why in news?

- ⇒ Meta's Mark Zuckerberg recently launched Instagram's Threads platform. Threads, logged five

million sign-ups in its first four hours of operation.

- It is aimed at cashing in on Twitter's self-inflicted issues.



Threads App:

- Threads App is freely available in 100 countries on the Google and Apple App Stores, although regulatory concerns mean it will not be available in the EU.

What is Threads?

- Threads is a brand new microblogging platform from Meta, the company that owns WhatsApp, Facebook and Instagram.
- The app has been designed and built by the Instagram team and is described as a platform for sharing text updates and joining public conversations.
- On Threads, there are buttons to like, repost, reply to or quote a thread, and users see the number of likes and replies that a post has received.
- Posts are limited to 500 characters, which is more than Twitter's 280-character threshold, and can include links, photos and videos up to five minutes long.
- Instagram users will be able to log in with their existing usernames and follow the same accounts on the new app. New users will have to set up an Instagram account.

Concerns:

- Meta's new offering, however, has raised data privacy concerns.
- Threads could collect a wide range of personal information, including health, financial, contacts, browsing and search history, location data, purchases and "sensitive info".

CHINA LAUNCHED 1ST METHANE POWERED ROCKET TO SPACE

Why in news?

- Recently, a private company in China has launched the world's first methane-liquid oxygen rocket.
- The move helps China beat rivals like the US, India, and Europe in developing the next-generation launch vehicle that could carry payloads into orbit around Earth.



Details:

- The Zhuque-2 carrier rocket blasted off from the Jiuquan Satellite Launch Center in northwest China.
- This was the second attempt by Beijing-based LandSpace, one of the earliest firms in China's commercial launch sector, to launch the Zhuque-2.
- The rocket successfully delivered a test payload into sun-synchronous orbit (SSO), making it the first in the world to achieve such a milestone.

Methalox:

- A methane-powered rocket, also known as Methalox, uses methane as the fuel and liquid oxygen (LOX) as the oxidizer.
- It operates based on the same principles as traditional launch vehicles but differs in terms of propellant choice and certain design considerations.
- Methane and liquid oxygen are the propellants used in a methane-liquid oxygen rocket. Methane is a hydrocarbon fuel that can be produced from various sources, including natural gas.
- It offers several advantages as a rocket fuel, such as high energy density, good combustion characteristics, and availability.

Background:

- LandSpace also became the second private Chinese company to launch a liquid-propellant rocket.
- In April, Beijing Tianbing Technology successfully launched a kerosene-oxygen rocket, taking another step towards developing rockets that can be refueled and reused.

Why methane?

- Methane is considered less polluting, safer, cheaper, and a suitable propellant for reusable rockets.
- The key differences between methane-liquid oxygen rockets and traditional launch vehicles lie in the propellant choice and performance characteristics.
- However, traditional launch vehicles using other propellant combinations have a long history of operational experience, established infrastructure, and reliability.

SAGAR SAMPARK, DIFFERENTIAL GLOBAL NAVIGATION SATELLITE SYSTEM INAUGURATED



Why in news?

- The Union Minister of Ports, Shipping and Waterways inaugurated the indigenous Differential Global Navigation Satellite System (DGNSS) 'SAGAR SAMPARK' recently.
- DGNSS is a terrestrial based enhancement system which corrects the errors and inaccuracies in the Global Navigation Satellite System (GNSS) allowing for more accurate positioning information.

Key Highlights:

- The launch of 'Sagar Sampark - Differential Global Navigation Satellite System (DGNSS)' at 06 locations under DGLL, will definitely enhance the capability of the DGLL in the field of the Radio Aids to Marine Navigation.'
- The DGNSS service will help mariners in safe navigation and will reduce the risk of collisions, groundings, and accidents in the port and harbour areas.
- This will lead to safe & efficient movement of vessels.

Key features:

- After recapitalization with multiple satellite constellations like GPS and Global Navigation Satellite System (GLONASS), DGNSS further increases the availability and redundancy as per International standards and helps the mariners to improve their positioning within 5 meters.
- The latest DGNSS system is now able to transmit corrections of GPS and GLONASS. The DGNSS significantly improves the accuracy of GPS positioning, reducing errors caused by the atmospheric inferences, satellite clock drift and other factors.
- This is achieved with the help of modern state of art technology receivers and latest software.
- The error correction accuracy has been improved from 5 to 10 meters to less than 5 meters for 100 Nautical Miles from Indian coastlines.

Way Forward:

- DGNSS is an important Radio Aid to Navigation towards fulfillment of international obligations of International Maritime Organisation (IMO), Safety of Life at Sea (SOLAS) and International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA).

MOU SIGNED TO ESTABLISH 1ST CAMPUS OF IIT DELHI IN ABU DHABI



Why in news?

- Recently, a Memorandum of Understanding (MoU) was signed between the Ministry of Education and Abu Dhabi Department of Education and Knowledge (ADEK), and the Indian Institute of Technology Delhi (IIT Delhi) to establish 1st campus of IIT Delhi in Abu Dhabi.

Potential:

- Complementing the ongoing UAE-India Comprehensive Economic Partnership Agreement (CEPA), the MoU reflects the shared vision of both nations to prioritize educational excellence, innovation, knowledge exchange, and investments in human capital as the foundations for future prosperity and enablers of long-term economic growth and sustainable development.
- An example of New India's innovation and expertise, the IIT Delhi campus in UAE will be an edifice of India-UAE friendship.

Key Highlights:

- IIT Delhi - Abu Dhabi will complement the academic, research and innovation ecosystem in Abu Dhabi through collaboration with key players such as Mohamed bin Zayed University of Artificial Intelligence, Khalifa University, New York University Abu Dhabi, Technology Innovation Institute, and Hub71 to offer complimentary programs, conduct cutting edge research, and advance the local startup ecosystem.
- It is expected to launch its academic programs in 2024 and a host of bachelor's, master's and Ph.D. programs, and operate research centers related to sustainable energy and climate studies, as well as computing and data sciences.
- It is expected to offer a diverse range of programs covering Energy and Sustainability, Artificial Intelligence, Computer Science and Engineering, Mathematics and Computing and other disciplines of engineering, sciences, and humanities.

Global ranking:

- IIT Delhi - Abu Dhabi graduates will join an illustrious alumni network of graduates from 23 campuses across India. With outstanding credentials, IIT Delhi recently ranked among the world's top 50 institutions for engineering and technology.
- It also scored a top 30 rank for global employability in the 2022 QS World University Rankings. IIT Delhi has been a frontline contributor to India's R&D ecosystem in sectors ranging from defense, healthcare, and rural development, to transportation, IT, and software.

SCIENTISTS DESIGN ORIGAMI DNA TO STOP VIRUS FROM ASSEMBLING

**Why in news?**

- Recently, the researchers have made significant progress in controlling the assembly of viruses.

Details:

- They manipulated the DNA to fold into various shapes, like origami, forcing them to assemble accordingly.
- This innovative approach allowed them to gain control over the shape, size, and topology of the virus proteins.

DNA origami:

- The researchers from Griffith University used DNA 'origami' templates to direct the formation of virus capsids, the protective protein shell of viruses, under physiological conditions.
- These user-defined DNA origami nanostructures served as platforms for binding and assembly, becoming embedded within the capsid.
- They equated the process to wrapping a present, with the virus proteins depositing on top of the DNA origami shape. Different virus proteins are like different wrapping paper, each relevant to different uses of the coated DNA origami.

Significance:

- This precise control over the size and shape of virus proteins could potentially revolutionize the development of new vaccines and delivery systems.

What's next?

- They are now focused on understanding how different viruses self-assemble and how they can be used to encapsulate different cargoes.

- Their findings have already led to the discovery that a virus found in mice can carry protein cargoes through inhospitable environments and into specific subcellular compartments in human cells..
- The next stage of their research will explore why viruses don't naturally assemble into different shapes.

FIRST EVIDENCE OF TWO PLANETS SHARING SAME ORBIT FOUND

**Why in news?**

- Astronomers have discovered the first evidence of two planets sharing the same orbit around a star and they are likely the size of Jupiter.

Details:

- Using Chile's Atacama Large Millimeter/submillimeter Array (ALMA), they detected a cloud of debris that could be the building blocks of a new planet or remnants of one that has already formed.
- If confirmed, this would be the strongest evidence yet of the existence of co-orbital or Trojan planets.
- The cloud of debris is in the same orbit as an already confirmed planet circling the star, 370 light-years away in the constellation Centaurus.

Trojan planets:

- The concept of Trojan planets was theorised two decades ago, suggesting that pairs of similar mass planets may share the same orbit around their star.
- Trojans, rocky bodies sharing an orbit with a planet, are common in our Solar System, with over 12,000 rocky bodies accompanying Jupiter on its orbital journey around the sun.
- Astronomers have long speculated that Trojans, particularly Trojan planets, could exist around other stars, but evidence has been elusive.

Key findings:

- The international team of scientists used ALMA to find the strongest observational evidence yet of Trojan planets in the PDS 70 system.
- This young star hosts two giant, Jupiter-like planets, PDS 70b and PDS 70c. The team spotted a cloud of debris at the location in PDS 70b's orbit where Trojans are expected to exist.

- The confirmed planet with the suspected tagalong takes 119 years to complete a lap. Another gas giant is known to circle this star.
- Trojans occupy the so-called Lagrangian zones, regions in a planet's orbit where the combined gravitational pull of the star and the planet can trap material.

What's next?

- To fully confirm their findings, they will have to wait until 2026 when they will be able to focus ALMA towards this unique system to see if both PDS 70b and its sibling cloud of debris move significantly along their orbit together around the star.

CHINA SENT SEEDS, PLANTS, FUNGI INTO SPACE TO MUTATE THEIR GENES



Why in news?

- The China Manned Space Agency (CMSA), which operates the newly built Tiangong space station, has announced a list of space seed projects to be carried aboard the Shenzhou-16 manned spaceship.

Space breeding:

- The initiative involves 136 types of space breeding experimental materials from 53 institutions, including a variety of crops, forest plants, grasses, flowers, medicinal plants, and microorganisms.
- Space breeding is a process that exposes seeds and strains to cosmic radiation and microgravity during a spaceflight mission, causing genetic mutations.
- This innovative approach aims to develop new crop varieties capable of withstanding extreme growing conditions.
- In the low-gravity environments beyond Earth's protective magnetic shield, seeds undergo subtle DNA changes, making them more resistant to drought and certain diseases.
- China has been at the forefront of space breeding since its first experiment in 1987.
- Over the years, the country has sent seeds of hundreds of plant species into space on numerous retrievable satellites and Shenzhou spaceships.

Shenzhou-16 spacecraft:

- The Shenzhou-16 spacecraft, launched on May 30,

2023, carried three astronauts who will stay aboard the station for approximately five months.

- During their stay, they will conduct scientific experiments and regular maintenance, contributing to China's ambitious space exploration program.
- This mission comes amid a growing rivalry between China and the US in the field of space exploration. While the competition has been largely friendly, it also reflects the sharpening contest for leadership and influence in technology, military, and diplomatic fields.

Background:

- China's decision to build its own space station was prompted by its exclusion from the International Space Station, primarily due to US concerns over the Chinese space programs' close ties with the People's Liberation Army, the military branch of the ruling Communist Party.
- China's first manned space mission in 2003 marked it as the third country after the former Soviet Union and the US to put a person into space using its own resources.

Way Forward:

- With the latest announcement of space seed projects, China continues to make strides in its space exploration endeavors.

GAGANYAAN HUMAN SPACEFLIGHT MISSION, ISRO SUCCESSFULLY TESTS SERVICE MODULE



Why in news?

- The Indian Space Research Organisation (ISRO) has successfully tested the Gaganyaan Service Module Propulsion System (SMPS) at ISRO Propulsion Complex (IPRC) at Mahendragiri in Tamil Nadu.
- The test involved five liquid apogee motor (LAM) engines with a thrust of 440 N (Newton) and 16 reaction control system (RCS) thrusters with a thrust of 100 N.

Gaganyaan project:

- The Gaganyaan project envisages demonstration of human spaceflight capability by launching a crew of three members to an orbit of 400 km for a three-day mission and bringing them back safely to Earth, by landing in Indian sea waters.

➤ The Gaganyaan SMPS is designed, developed, and realised by Liquid Propulsion Systems Centre (LPSC) of ISRO.

SMPS:

- The Service Module (SM) of Gaganyaan is a regulated bi-propellant based propulsion system that caters to the requirements of the Orbital Module, performing orbit injection, circularisation, on-orbit control, de-boost manoeuvring and SM based abort (if any) during the ascent phase.
- The 440 N Thrust LAM engines provide the main propulsive force during the mission ascending phase, while the RCS thrusters ensure precise attitude correction.
- The hot test of the System Demonstration Model (SDM) emulated the fluid circuit of the Service Module Propulsion System, encompassing the propellant tank feed system, helium pressurisation system, flight-qualified thrusters, and control components.

Way Forward:

- With the successful completion of this hot test, the SMPS has advanced in demonstrating its integrated performance in the full configuration.
- Moving forward, ISRO has scheduled five additional tests to demonstrate both nominal and off-nominal mission scenarios, reinforcing the rigour of testing and the commitment to mission success.

GENOMIC DATA THROW LIGHT ON DEMISE OF COPPER AGE



Why in news?

➤ An analysis of ancient human genomic data suggests that Copper Age farmers and steppe pastoralists may have interacted 1,000 years earlier than previously thought.

Background:

➤ Previous analyses of ancient genomic data have suggested that two major genetic turnover events occurred in Western Eurasia; one associated with the spread of farming around 7,000-6,000 BC and a second resulting from the expansion of pastoralist groups from the Eurasian steppe starting around 3,300 BC.

➤ The period between these two events, the Copper Age, was characterized by a new economy based on metallurgy, wheel and wagon transportation, and horse domestication.

➤ But what happened between the demise of Copper Age settlements (around 4,250 BC) and the expansion of pastoralists is not well understood.

Basis of research:

- The researchers analysed genetic data from 135 ancient individuals, dating to between 5,400 and 2,400 BC, from eight sites across southeastern Europe and the northwestern Black Sea region.
- While there was genetic continuity between the Neolithic and Copper Age groups, from around 4500 BC groups from the northwestern Black Sea region carried varying amounts of ancestry from Copper Age and steppe-zone populations.

Key findings:

- This findings shows that the groups had cultural contact and mixed nearly 1,000 years earlier. The transfer of technology between farmers and transitional hunters from different geographical zones was integral to the rise, formation and expansion of pastoralist groups around 3300 BC.
- The early admixture during the Eneolithic appears to be local to the NW Black Sea region of the fourth millennium BC and did not affect the hinterland in southeastern Europe.

Way Forward:

➤ The findings may aid understanding of the demise of the Copper Age and the expansion of pastoralist groups around 3,300 BC.

SOCIAL ISSUES

CENTRE ANNOUNCES SCHEME TO SUPPORT MINOR RAPE VICTIMS



Why in news?

➤ Recognising the trauma faced by minor rape victims, the Union government has decided to provide medical, financial and infrastructure support to victims in cases where the sexual assault results in pregnancies.

Implementation of special scheme:

- The special scheme, announced by the Women and Child Development Ministry (WCD), would operate under the aegis of the Nirbhaya Fund and an amount of ₹74.1 crore has been allocated.
- It have additionally leveraged the administrative structure of Mission Vatsalya in collaboration with State governments and Child Care institutions (CCIs) to actualise this support to minor victims.

Background:

- Mission Vatsalya, launched in 2021, is focused on the protection and welfare of children.
- In 2021, the National Crime Records Bureau reported 51,863 cases under the Protection of Children from Sexual Offences (POCSO) Act. Out of these, 64% cases were reported under Section 3 and 5 (penetrative sexual assault and aggravated penetrative sexual assault, respectively).

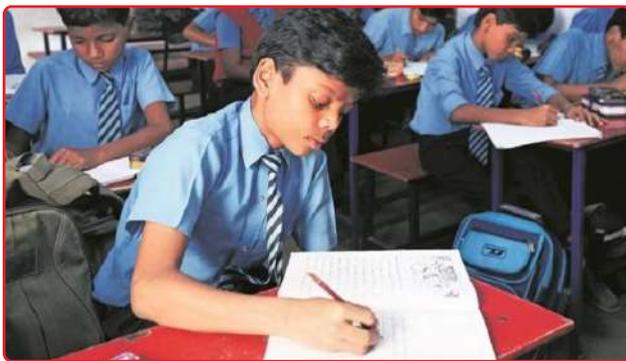
Fast track courts:

- The government had already accelerated access to justice for minor victims of rape by establishing 415 POCSO fast track courts in the country.

Integrated support:

- This additional support would be available at the level of CCIs up to the age of 18 and thereafter up to the age of 23 in aftercare facilities.
- In many of these cases, girls become pregnant and bear several physical and mental health concerns, which are further aggravated when they are disowned or abandoned by their own families or are orphans.
- This scheme aims to provide integrated support to girl child victims under one roof, facilitate immediate, emergency and non-emergency access to a range of services.

REPORT ON PERFORMANCE GRADING INDEX 2.0 FOR STATES/UTS FOR THE YEAR 2021-22

**Why in news?**

- Recently, the Ministry of Education released report on Performance Grading Index 2.0 for States/UTs for the year 2021-22.

Background**Why PGI 2.0?**

- Department of School Education & Literacy, Ministry of Education, devised Performance Grading Index (PGI) for States and UTs which assesses the performance of school education system at the State/UT level by creating an index for comprehensive analysis.
- The PGI - States/UTs was first released for the year 2017-18 and so far, has been released up to the year 2020-21.
- Therefore, to have more updated base with quality indicators, to align with new initiatives of the National Education Policy (NEP) 2020, to monitor indicators relating to Goal 4 of Sustainable Development Goals (SDGs), and to replace existing indicators which have achieved optimal target, the PGI – State structure for 2021-22 has been revised and renamed as PGI 2.0.
- In PGI 2.0, the data source for many of the indicators has been the data from UDISE+ and the grades have been aligned with the PGI - District to have uniformity and better comparability.

Indicators:

- The new PGI structure covers 73 indicators, focused more on qualitative assessment besides including digital initiatives and teacher education. The grades/level obtained by States/UTs in previous edition of the PGIs are thus not comparable as with the grades/levels obtained by States/UTs in this new edition.
- The PGI 2.0 structure comprises of 1000 points across 73 indicators grouped into 2 categories viz., Outcomes, Governance Management (GM).
- These categories are further divided into 6 domains, viz., Learning Outcomes (LO), Access (A), Infrastructure & Facilities (IF), Equity (E), Governance Process (GP) & Teachers Education and Training (TE&T).
- PGI 2.0 for 2021-22 classified the States/UTs into ten grades viz., highest achievable Grade is Daksh, which is for State/UT scoring more than 940 points out of total of 1000 points.
- The lowest grade is Akanshi-3 which is for score up to 460.

Significance:

- The ultimate aim of PGI 2.0 is to propel States & UTs towards undertaking multi-pronged interventions that will bring about the much-desired optimal education outcomes covering all dimensions.
- Indicators of PGI 2.0 have been aligned to policy initiatives and interventions introduced post implementation of National Education policy (NEP) 2020 for proper tracking the progress.

Way Forward:

- The PGI 2.0 is expected to help States and UTs to pinpoint the gaps and accordingly prioritize areas for intervention to ensure that the school education system is robust at every level.

ATAL VAYO ABHYUDAY YOJANA, EMPOWERING THE ELDERLY FOR A DIGNIFIED LIFE



Context:

- The Atal Vayo Abhyuday Yojana (AVYAY), introduced by the Ministry of Social Justice and Empowerment, is a comprehensive initiative aimed at empowering senior citizens in India.

Details:

- This scheme recognizes the invaluable contribution made by the elderly to society and seeks to ensure their well-being and social inclusion.
- By recognizing the invaluable contributions of the elderly to society, the government aims to empower and uplift them, ensuring their active participation and inclusion in all aspects of life.

Implementation:

- The Department of Social Justice and Empowerment, being the Nodal Department for welfare of senior citizens, is implementing various programs and schemes.
- National Action Plan for Senior Citizen (NAPSrc) had been revamped, renamed as Atal Vayo Abhyuday Yojana (AVYAY) and subsumed in April 2021.

Integrated Programme for Senior Citizens (IPSRc):

- Under the umbrella Scheme, Atal Vayo Abhyuday Yojana (AVYAY), an Integrated Programme for Senior Citizens (IPSRc) provides financial assistance to eligible organization's for running and maintenance of Senior Citizen Homes/ Continuous Care Homes to improve the quality of life of the senior citizens, especially indigent senior citizens by providing basic amenities, entertainment opportunities and by encouraging productive and active ageing.

Rashtriya Vayoshri Yojana (RVY):

- Another component under the AVYAY Scheme is Rashtriya Vayoshri Yojana (RVY), to provide eligible senior citizens suffering from any of the age-related disability/ infirmity, with assisted living devices which can restore near normalcy in their bodily functions, overcoming the disability/ infirmity manifested such as low vision, hearing impairment, loss of teeth and loco-motor disabilities.

- Financial criteria for beneficiaries are either the Senior Citizen belongs to 'Below Poverty Line' (BPL) category or he/ she has income up to Rs. 15,000 (Rupees Fifteen Thousand) per month.

Elderline for Senior Citizens:

- There is a national helpline number namely Elderline for Senior Citizens. A Toll-free No. 14567 was launched on 1st October 2021 to provide free information, Guidance, Emotional Support and field intervention in cases of abuse and rescues in order to improve the quality of life of senior citizens.
- Elderline is operational from 8 am to 8 pm, all 7 days of the week which is active in 31 States/UTs.

Way Forward:

- The Atal Vayo Abhyuday Yojana stands as a testament to the government's commitment to the well-being and empowerment of senior citizens in India.
- By addressing their financial, healthcare, and social needs, the scheme aims to empower the elderly, ensuring their active participation and inclusion in society.

MP GOVT, UNFPA LAUNCH CHATBOT FOR ADOLESCENTS ON SEXUAL HEALTH ISSUES



Why in news?

- The Madhya Pradesh government and the United Nations Population Fund recently launched 'Just Ask/Khulke Poochho' chatbot.
- It is an Artificial Intelligence-enabled chatbot to address the critical need for accurate and accessible information on social issues and sexual and reproductive health and rights (SRHR) among adolescents and young adults.

Key features:

- The 'Just Ask digital engagement platform will help users with questions related to growing up, bodily changes, menstruation, reproductive health, pregnancy and family planning, gender identity, sexual orientation and other SRHR topics.
- It engages users in interactive conversations and provides them with accurate and reliable information within minutes and free of cost. The user experience is designed to be safe, personalized, multi-lingual and empathetic.

- It features two aspiring role models, Dhruv and Drishti, who communicate information in a simple and relatable manner.
- The content is supported by engaging infographics that enhance comprehension and enable users to follow instructions easily.
- It links adolescents and young people to Adolescent Friendly Health Clinics (AFHCs), government health facilities and helplines.

Way Forward:

- Using the most popular mode of communication, it ensures that health and well-being is literally at the fingertips of young people," the UNFPA representative said.

HEALTH

CENTRE ADDING MORE SERVICES TO AYUSHMAN BHARAT HEALTH CENTRES



Why in news?

- The Union Health Ministry is expanding Ayushman Bharat-Health and Wellness Centres and the aim is to cover all the centres by August-end.

Details:

- The Ayushman Bharat-Health and Wellness Centres (AB-HWCs) programme, which has grown to more than 1.6 lakh centres and registered over 178.87 crore beneficiaries (as of June-end) in the five years since its inception, is undergoing its biggest expansion of services.
- The Union government is adding services such as screening, prevention, control and management of non-communicable diseases, care for common ophthalmic and ENT problems, basic oral health care, elderly and palliative health care services, emergency medical services and screening and management of mental health ailments.

Upgraded services:

- To complement the expanded services, the essential list of medicines and diagnostics has been expanded to make available 171 medicines at primary health care-health and wellness centres and 105 at the secondary centres. A total of 63 and 14 diagnostics will be added respectively.

- A new cadre of community health officers, with 1.29 lakh in position, has been introduced at the secondary centres to act as clinicians and public health managers and to lead the team of Accredited Social Health Activists, anganwadi workers and auxiliary nurse midwives.
- The centres were being encouraged to undergo the National Quality Assurance Standards assessment and certification with a target of 50% by 2026.

About AB-HWCs:

- The programme, started in 2018, is aimed at bringing in promotive, preventive, curative, palliative and rehabilitative aspects of universal health coverage.
- The goal is to provide comprehensive primary health care (CPHC), including both maternal and child health services and non-communicable diseases as well as free essential drugs and diagnostic services through AB-HWCs closer to the homes of people.
- CPHC and wellness package activities at AB-HWC include yoga, Zumba, meditation, counselling for healthy diet and lifestyle, marathons, cyclothons and celebration of annual health days. More than 2.16-crore wellness sessions have been conducted with participation of 23.83-crore individuals.

GUILLAIN-BARRE, WHAT IS THIS NEUROLOGICAL DISORDER AND HOW IS IT LINKED TO COVID 19



Why in news?

- A surge in cases of Guillain-Barre Syndrome (GBS) in Peru has brought forward concerns over the links between the novel coronavirus (COVID-19) and the rare neurological disorder.

Details:

- The syndrome was among the prolonged neurological issues, known as long COVID complications, reported around the world following the onset of the COVID-19 pandemic. Scientists have also been looking into the role of COVID-19 vaccines behind GBS cases.
- Peru has declared a 90-day national health emergency as 182 cases have been reported nationwide through June 2023.

What is GBS?

- GBS is a serious autoimmune disorder that attacks the peripheral nervous system and leads to weakness, tingling and numbness initially in the limbs. These can then expand to the rest of the body and eventually cause paralysis, which can last 6-12 months or longer.
- The syndrome can affect the nerves that control muscle movement as well as those that transmit pain, temperature and touch sensations. This can result in muscle weakness and loss of sensation in the legs or arms. While it is more common in adults and in males, people of all ages can be affected.

Transmission:

- The syndrome usually occurs following a bacterial or viral infection or, on rarer occasions, following vaccinations. People who develop GBS do so several days or weeks after they have been sick with diarrhoea or a respiratory illness, according to the United States Centers for Disease Control and Prevention.
- Patients with Epstein-Barr, Zika, human immunodeficiency virus (HIV), Herpes and Campylobacter jejuni have displayed GBS symptoms in the past.
- After the onset of the COVID-19 pandemic, several cases of GBS following infections with SARS-CoV-2 were reported around the world.

Treatment options:

- While there is no known cure for GBS, treatments are available that can reduce the severity of the illness and speed up recovery.
- The most commonly used treatment is intravenous immunoglobulin (IVIG), which is made from donated blood that contains healthy antibodies. This helps calm down the immune system's attack on the nerves.
- Another treatment option is plasma exchange, a procedure that filters the liquid part of your blood, removing the harmful antibodies attacking the nerves.

Is there a vaccine against GBS?

- No, there isn't. Since vaccines have an effect on the immune system, immunisations may be associated with subsequent GBS.

GOVT ANNOUNCES DRIVE FOR 100% COVERAGE UNDER AYUSHMAN BHARAT PM JAY**Why in news?**

- The government is planning to begin a mega enrolment drive under the Ayushman Bharat PM-JAY and has urged the states and Union Territories to register 100 per cent of the people eligible under the scheme.
- The drive was announced on the first day of the two-day long Swasthya Chintan Shivir, the 15th Conference of the Central Council of Health and Family Welfare.

**Details:**

- The union Health minister urged states and UTs to strive for a universal coverage roping in healthcare workers at grassroots level.
- The deliberations at the conclave focused on the implementation of Ayushman Bharat Pradhan Mantri-Jan Arogya Yojana and the Ayushman Bharat Digital Mission, and gaps in their coverage, owing to diverse local conditions and digital health literacy in the country.

About Ayushman Bharat PM-JAY:

- Launched in 2018, Ayushman Bharat PM-JAY aims to achieve a universal health coverage with access to free and affordable healthcare services to the people living in the remotest of the areas.
- The scheme aims to provide free and cashless healthcare services up to Rs 5 lakh per family per year to over 10.74 crore poor and vulnerable families with the number of beneficiaries running up to more than 53 crore.
- More than 4.34 crore hospital admissions worth more than Rs 51,749.40 crore have been authorised under the Ayushman Bharat PM-JAY so far.

CULTURE**ARCHAEOLOGISTS COME UP WITH RARE FINDINGS IN TAMIL NADU****Why in news?**

- Recently, a gold stud, a bone point and a carnelian bead have been unearthed by archaeologists at Porpanaikottai in Pudukottai district of Tamil Nadu.

- A Sangam-age fort is believed to have existed at the site.

Key excavations:

- The stud in floral design with six petals was found at a depth of 133 cm in one of the eight trenches dug at the site. The ornament, weighing 0.26 grams, was probably used as a nose stud and is an indication of the culture of the Sangam Age.
- The bone point and the broken piece of carnelian bead were found at a depth of 140-160 cm in another trench. The bone point, with pointed ends on both sides and carvings, was probably used for weaving.
- The discovery of the red round-shaped carnelian bead is a pointer to domestic trade. Carnelian beads have been found at Kodumanal and a few other places in Tamil Nadu. The stones were usually sourced from Gujarat.
- A three-course brick structure was unearthed within a few days of digging.
- Over 150 antiques, including potsherds, hopscotches, spouts, pieces of glass bangles and beads, a terracotta lamp, a coin, a spindle whorl and rubbing stone, besides a couple of graffiti, have been found at the site so far.

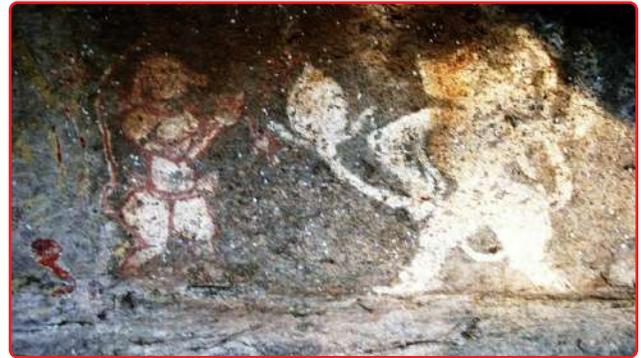
Habitations:

- Porpanaikottai, situated about 6.5 km to the east of Pudukottai town, is one of the new sites where the department had taken up excavation in 2023.
- Studies carried out at the site using Light Detection and Ranging (LIDAR), a remote sensing method, had indicated that a fort had existed at Porpanaikottai.
- A habitation mound spread over 1.26 hectares is believed to have existed within the fort. The excavation is currently focussed on this area.
- Eight trenches, six of them in the properties owned by three persons, are being dug currently.

A FASCINATING FUSION OF ROCK ART IN A.P'S RUDRAGIRI

Why in news?

- Rudragiri hillock, located in the village of Orvakallu, Atchampet mandal, in Guntur district of Andhra Pradesh, boasts a celebrated historical past and remarkable archaeological monuments.
- This site unveils a fascinating combination of prehistoric rock paintings from the Mesolithic period and exquisite artwork from the Kakatiya dynasty.



Key features:

- The paintings, adorned with a variety of colours derived from white kaolin and different pigments, depict captivating scenes from the epic Ramayana. Despite the impact of nature's wrath, fragments of these paintings offer valuable insights into their creation during the 13th century A.D.
- The first cave, starting from the southern end of the hillock, presents a narrative mural portraying the intense battle between the Vanara brothers – Vali and Sugriva.
- In the middle cave, a grand sketch of Hanuman, accompanied by sacred symbols of the conch (Sankha) and the fire altar (Yagna Vedi), captures visitors' attention. Hanuman is depicted carrying the Sanjivani hill in his hand, symbolising his mission to save Lakshmana's life.
- The third cave houses the prehistoric rock paintings from the Mesolithic era. Interestingly, the Kakatiya artist chose the same rock shelter to superimpose the elegant figure of Hanuman, who is portrayed in a unique 'Anjali' posture, folding his hands in a divine offering.
- Remarkably, the Ramayana figures neither overshadow the Mesolithic drawings nor diminish their scenic beauty.

Rock shelters in Rudragiri:

- Rudragiri, nestled amidst the Eastern Ghats, features five naturally formed rock shelters at its foothills, facing westward. These shelters served as living quarters for people during the Mesolithic age around 5000 B.C., and they bear witness to the luminous rock paintings of that era.
- Two natural caves at the southern end of the hillock also exhibit exceptional murals from the renowned Kakatiya kingdom.



PRACTICE QUESTION FOR UPSC PRELIMS EXAM

1. Consider the following statement regarding ordinance making power of the President:
 1. Article 123 of the Indian Constitution grants the President of India to Promulgate Ordinances.
 2. The Ordinances may have a retrospective effect
 3. The President cannot withdraw an ordinance.
 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 Shanghai Cooperation Organisation (SCO):
 1. The SCO currently comprises seven Member States.
 2. China, Kazakhstan, Kyrgyzstan, Russia, Tajikistan and Uzbekistan are the founding member of this organisation.
 3. India and Pakistan became permanent members in 2017.
 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 Satpura Tiger Reserve (STR):
 1. It is located in the Satpura ranges.
 2. It lies south of the river Narmada.
 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 Belle Robot:
 1. It is an autonomous underwater robot designed to collect DNA samples.
 2. It employs artificial intelligence (AI) to autonomously manoeuvre.
 3. Belle is silent, moves like a fish and doesn't create a disruptive wake.
 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 statement regarding Leatherback Sea turtle:
 1. It is the largest turtle in the world.
 2. It is listed as endangered species by IUCN.
 3. It is found in Arctic and Antarctic Ocean.
 Choose the correct option from the codes given below:

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

6. Consider the following statement regarding Sickle Cell disease:
 1. It is a group of inherited red blood cell disorders.
 2. People with this type of disease have their red blood cells in crescent or "sickle" shaped.
 3. It does not block blood flow to the rest of their body.
 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 the benefit of Nano Urea and choose the incorrect option:
 - a) The urea absorption rate by crops is 80 percent in the case of Nano Urea.
 - b) It has more carbon footprint.
 - c) It is produced by an energy-efficient, environment-friendly production process.
 - d) It is also easy to store than urea bags.

8. Consider the following statement regarding Laser Interferometer Gravitational Observatory (LIGO):
 1. It is an international network of laboratories that detect gravitational waves in space.
 2. These ripples were first postulated in Albert Einstein's.
 Choose the correct option from the codes given below:

a) 1 Only	b) 2 Only
c) 1 and 2	d) None of the above

9. Consider the following:
 1. VARUNA
 2. FRINJEX
 3. GARUDA
 Which among the above exercise is/are conducted between India and France?

a) 1 and 2	b) 2 and 3
c) 1 and 3	d) 1, 2 and 3

PRACTICE QUESTION FOR UPSC MAINS EXAM

1. Highlight the potential of India-Africa relations, challenges in the way and a roadmap for enhanced cooperation.
2. Highlight China's new law on foreign relations? What are the political and economic ramifications? What it holds for India?
3. Constructive interventions can ignite an institutionalised impetus for unleashing the true market potential of Green hydrogen (GH₂) in diverse sectors. Elaborate.
4. Discuss how the National Research Foundation (NRF) will play a pivotal role in seeding, nurturing and promoting research, innovation and development across India.
5. India's introduction of the Goods and Services Tax (GST) marked a significant milestone in the country's taxation history. There is potential for further growth and harmonization in the future. Elaborate.
6. The creative economy is one of the youngest and fastest-growing sectors, with unique challenges. Discuss how a collaborative model can help meet the challenges faced by the creative economy and promote the economic contribution of culture.
7. Highlight the reforms needed for further internationalisation of the rupee. What lessons India could learn from China's example in internationalising the Renminbi?
8. Biobanks host data fundamental to biological research and require governance to ensure that the results reach people across different countries equitably. Discuss how India can play help address the dissonance between the Global South and Global North in biobanking practices?
9. Which are the industries likely to be impacted if supply of gallium and germanium are controlled? What are the particularities of the restrictions being imposed? Is it a response to Western sanctions? How will India be affected?
10. World Trade Organization's (WTO) Dispute Settlement System (DSS) is dysfunctional by late 2019. It is likely that any solution to the ongoing crisis would require the negotiation of wide-reaching institutional and structural reforms between WTO member states. Comment.
11. In order to foster women-led development across various sectors in India, it is imperative to prioritize reproductive autonomy as a core component. Discuss.
12. India's demographic transition has brought about significant changes in the lives of women. Discuss the challenges and practical strategies for harnessing the potential of this transition.
13. There is a realisation that the South China Sea problem requires a political framework, which can only be created through quiet dialogue. Elaborate.
14. The NSE IX-SGX GIFT Connect creates a financial corridor between India and Singapore, and can drive deeper liquidity for the Nifty. Elaborate.
15. By prioritising regional economic integration, the I2U2 Business Forum can establish a strong foundation for a robust West Asian regional architecture. Comment.
16. What is the controversy surrounding the Forest (Conservation) Amendment Bill, 2023? Why have suggestions to the Joint Parliamentary Committee regarding the changes not been taken on board? Is the Bill diluting the 1996 Godavarman Thirumulpad judgment?
17. Considering the ever-changing nature of the job market, it is crucial to embrace technological advancements to pursue new opportunities. Discuss.
18. The combination of uniformly gender unjust personal laws and a disempowered LGBT population points to the advantage of having a universal civil code which encompasses all Indians. Discuss.
19. The pursuit of sustainable development cannot be effectively undertaken without the full and equal participation of women at all levels of decision-making and policy development. Elaborate.
20. Discuss how incorporating the two cardinal principles, i.e., 'equitable and reasonable utilisation' and the 'no harm rule', in the Indus Water treaty will help reduce tensions between India and Pakistan?
21. The Digital Personal Data Protection Bill, 2022 (DPDP Bill, 2022), is expected in Parliament during the Monsoon session of 2023. What are the gaps in this legislation? How it violates privacy of citizens?
22. Highlight the growing trend of Internet shutdown in India and the impact of an Internet shutdown on information dissemination.
23. Why has a single joint statement not been released so far at any G20 Ministerial meeting? What is the bone of contention? What are the 'Bali Paragraphs' and why are they being incorporated in the current document?

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. (a)
21. (a) 22. (b) 23. (c) 24. (d) 25. (a) 26. (a) 27. (b) 28. (c) 29. (d) 30. (a)
31. (a) 32. (b) 33. (c) 34. (d) 35. (a) 36. (a) 37. (b) 38. (c) 39. (d) 40. (a)
41. (a) 42. (b) 43. (c) 44. (d) 45. (a) 46. (a) 47. (b) 48. (c) 49. (d) 50. (a)
51. (a) 52. (b) 53. (c) 54. (d) 55. (a) 56. (a) 57. (b) 58. (c) 59. (d) 60. (a)
61. (a) 62. (b) 63. (c) 64. (d) 65. (a) 66. (a) 67. (b) 68. (c) 69. (d) 70. (a)
71. (a) 72. (b) 73. (c) 74. (d) 75. (a) 76. (a) 77. (b) 78. (c) 79. (d) 80. (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)



OUR CSE RESULT-2021



SHRUTI SHARMA



GAMINI SINGLA



AISHWARYA VERMA



YAKSH CHAUDHARY



PREETAM KUMAR

FREE COACHING & SCHOLARSHIP PROGRAMME GENERAL STUDIES

FOUNDATION COURSE FOR IAS

ENGLISH MEDIUM

ONLINE

NEW BATCH

OFFLINE

Class Starts 29 AUG @ 6 PM

FEATURES

 <p>CLASSROOM PROGRAMME</p> <p>24 Months/14 Months 1200-1500 Hrs. Classes 300 Hrs. NCERT Video & 150 Hrs. PT Booster Classes on App</p>	 <p>STUDY MATERIALS</p> <p>Latest, Updated & Exam Oriented Study Materials 10,000 Pages (50 Booklets)</p>	 <p>CURRENT AFFAIRS</p> <p>200 Hrs.+ Classes on Important Issues for 2 Yrs. & 3 Years Monthly Magazine Subscription</p>	 <p>WORKBOOK (MAINS)</p> <p>16 workbooks provides opportunity to review and extend your classroom learnings</p>	 <p>UNIT TEST (PRE+MAINS)</p> <p>32 unit test improves knowledge, skills, & aptitude for prelims & mains exam</p>
 <p>DAILY CLASS TEST</p> <p>250 Prelims and 200 Mains Test is used to check the quality of knowledge gained & started executing</p>	 <p>CURRENT AFFAIRS PRE TEST</p> <p>Through 100 tests you will get right approach for current affairs MCQs and their relevance in the UPSC exam</p>	 <p>MENTORSHIP PROGRAMME</p> <p>Individual doubt clearance by faculties/experts to increase confidence and exposure on different perspectives</p>	 <p>COURSE VALIDITY</p> <p>4 Years/3 Times Course Validity will help to increase your confidence and preparation for your exam</p>	