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Issue : 4

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Focus

- Nobel Prize
- Abortion Rights
- Moonlighting Culture
- India's First 'Flex Fuel' Car
- Digital Rupee



TNPSC தேர்வுகளில் வெற்றி பெறுவதற்கான

முக்கிய ஆலோசனைகள்...

1. தேர்வுகளில் வெற்றி பெறுவதற்காக சாத்தியமாகக் கூடிய கால அட்டவணையை முதலில் தயாரித்து, அதை உறுதியாகப் பின்பற்ற வேண்டும்.
2. TNPSC தேர்வுக்கான பாடத்திட்டம் என்ன என்பதை முழுமையாக அறிந்துகொண்டு, அதில் எந்தப் பகுதியையும் விடாமல் படிக்க வேண்டும்.
3. முதன்மை ஆதாரங்கள் அல்லது நூல்களில் இருந்து **தரமான குறிப்புகளைத் தயாரித்து** வைத்துக்கொள்ள வேண்டும்.
4. TNPSC தேர்வு எழுதுவதற்கான அறிவுத் திறனை அடுத்த நிலைக்கு மேம்படுத்த எஸ்.சி.இ.ஆர்.டி (SCERT) எனப்படும் மாநிலக் கல்வியல் ஆராய்ச்சி மற்றும் பயிற்சி நிறுவனக்குழு தயாரிக்கும் பாட நூல்களில் இருந்து அவற்றின் அடிப்படைத் தத்துவத்தை புரிந்துகொள்ள வேண்டியது மிகவும் முக்கியமாகும்.
5. பாடங்களில் இருந்து எவ்வாறு வினாக்கள் எழுப்பப்படும் என்பதை அறிந்து கொள்வதற்காக அவற்றின் தத்துவங்கள், உண்மைகள் போன்றவற்றை தேர்வுக்கானக் கோணத்தில் இருந்து புரிந்துகொள்ள வேண்டும்.
6. முந்தைய ஆண்டின் வினாக்களை நன்றாகப் படித்து, அவற்றை ஆய்வு செய்ய வேண்டும்.
7. அத்தியாயங்கள் வாரியாகவும், பாடங்கள் வாரியாகவும் பயிற்சித் தேர்வுகளை எழுதிப் பார்க்க வேண்டும். அவ்வாறு செய்வதன் மூலம் உண்மையான தேர்வு எவ்வாறு இருக்கும் என்பது குறித்த அனுபவம் நமக்குக் கிடைப்பதுடன், **தவறுகளைத் திருத்திக் கொண்டு** மேம்படுத்திக் கொள்ளவும் முடியும்.
8. கடந்த ஆண்டுக்கான பொது அறிவு வினாத்தாள்களுக்கு விடை அளிக்க முயற்சி செய்ய வேண்டும். **உங்களின் பலவீனம் என்ன என்பதை தெரிந்து கொள்ள** அது உதவும். நீங்கள் எந்த அளவிற்குத் தேர்வுக்கு தயாராக இருக்கிறீர்கள்? உங்களின் அறிவுத் திறன், விடை அளிக்கும் வேகம், துல்லியம் ஆகியவற்றை அளவிடுவதற்கும் இது உதவும்.
9. பாடங்களை ஒருமுறையாவது திருப்புதல் **செய்து பார்ப்பது கட்டாயம் ஆகும்.**
10. அனைத்துப் பாடங்களையும் ஒருமுறை திருப்புதல் செய்து பார்ப்பதும், தயார் செய்து வைக்கப்பட்டுள்ள குறிப்புகளை மூன்றாவது முறையில் படித்துப் பார்ப்பதும் சிறப்பாகும்.
11. தேர்வுக்கு முந்தைய ஒரு மாதத்தில் புதிய பாடங்களைப் படித்து ஆராய ஒருபோதும் முயற்சி செய்ய வேண்டாம். அந்த ஒரு மாதமும் ஏற்கனவே படித்த பாடங்களைத் திருப்புதல் செய்து பார்ப்பதற்கு மட்டுமே ஒதுக்கப்பட வேண்டும். அந்த ஒரு மாதம் முழுவதும் திருப்புதல், திருப்புதல், திருப்புதல் என்பதே மந்திரமாக இருக்க வேண்டும்.
12. **செய்திகளையும், நாட்டு நடப்புகளையும் தொடர்ச்சியாகப் படித்து வரவேண்டும்.** பாடங்களையும், தேசிய மற்றும் சர்வதேச நிகழ்வுகளையும் நன்கு அறிந்துகொள்ள வேண்டும்.
13. **அடுத்த நாள் தேர்வு நடக்க இருப்பதாகக் கருதிக் கொண்டு** அதற்கேற்ற வகையில் தேர்வுக்குத் தயாராகுவதற்கான உத்தி வகுக்கப்பட வேண்டும். அந்த அளவுக்கான தயாரிப்பு அவசியமாகும்.
14. ஒவ்வொரு நாளும் **உறங்கச் செல்வதற்கு முன் அந்த நாள் முழுவதும் படித்த பாடங்களை ஒருமுறை நினைவுபடுத்திக் கொள்ள வேண்டும்.** அது உங்களின் நினைவுத் திறனை வலுப்படுத்தும்.
15. முதல்நிலைத் தேர்வுக்கான பொது அறிவு முதல் தாளுக்கான தயாரிப்பு முதன்மைத் தேர்வையும் மனதில் கொண்டு தொடரப்பட வேண்டும்.

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I. Profile of State

Jharkhand

- Jharkhand, state of India, located in the northeastern part of the country.
- Jharkhand is bordered by the states of Bihar to the north, West Bengal to the east, Odisha to the south, Chhattisgarh to the west, and Uttar Pradesh to the northwest.
 - Its capital is Ranchi.
- Jharkhand, one of India's newest states, was carved out of the southern portion of Bihar in 2000.
- Statehood was the culmination of a long struggle carried on primarily by the Adivasis, or Scheduled Tribes (an official term applied primarily to indigenous communities that fall outside the predominant Indian caste hierarchy).
- Indian independence brought relatively little socioeconomic benefit to the people of the Jharkhand area, which led to widespread discontent with the Bihar administration, particularly among the tribal peoples.
- The tribal groups initiated a call for independence from Bihar, and in the 1980s they became militant in their demand.



- In the 1990s, the separation movement spread to nontribal communities, ultimately precipitating the creation of a new state

Relief, drainage, and soils

- The most prominent physical feature of Jharkhand is the Chota Nagpur plateau, part of the vast Deccan plateau that occupies most of peninsular India.
- Chota Nagpur, actually a series of plateaus, hills, and valleys, covers nearly the entire state and consists primarily of crystalline rocks.
- The main plateaus, Hazaribag and Ranchi, are separated by the faulted sedimentary coal-bearing basin of the Damodar River, and they average about 2,000 feet (610 metres) in elevation.
- Lowland plains flank the plateaus in the northwestern and northeastern parts of the state.
- In addition to the Damodar River in the northeast, the state is drained by the Subarnarekha River in the southeast and by the Brahmani River in the south.
- A third major river, the Son, runs along much of the northwestern state boundary.
- The soil in the Damodar valley is sandy, but heavier red soils are typical of the plateau regions.

Climate

- There are three well-defined seasons in Jharkhand.

- The cold-weather season, from November to February, is the most pleasant part of the year.
- High temperatures in Ranchi in December usually rise from about 50 °F (10 °C) into the low 70s F (low 20s C) daily.
- The hot-weather season lasts from March to mid-June.
- May, the hottest month, is characterized by daily high temperatures in the upper 90s F (about 37 °C) and low temperatures in the mid-70s F (mid-20s C).
- The season of the southwest monsoon, from mid-June to October, brings nearly all of the state's annual rainfall, which ranges from about 40 inches (1,000 mm) in the west-central part of the state to more than 60 inches (1,500 mm) in the southwest.
- Rainfall on the plateau is generally heavier than on the plains.
- Nearly half of the annual precipitation falls in July & August.

Plant and animal life

- More than one-fourth of Jharkhand's land area is forested.
- Most forests occur on the Chota Nagpur plateau; those on the plain largely have been cleared to allow cultivation of the land.
- The natural vegetation is deciduous forest; Chota Nagpur is rich in sal (*Shorea robusta*), a valuable hardwood.
- Other trees include the asan (*Terminalia tomentosa*), the leaves of which provide food for

the silkworms of the sericulture industry, as well as several trees that are important in the production of lac (a resinous substance used to make varnishes).

- The tree locally known as mahua (*Madhuca longifolia*) yields sweet edible flowers that are used to make liquor.
- Bamboo and bhabar (an Indian fibre grass; *Ischaemum angustifolium*) from Chota Nagpur supply raw materials for paper manufacture.
- Among the other common trees, most of which are found in the plain, are the banyan (*Ficus benghalensis*), Bo tree (or pipal; *Ficus religiosa*), and palmyra palm (*Borassus flabellifer*).
- The Hazaribag Wildlife Sanctuary is noted for its Bengal tigers.
- These endangered animals, along with leopards, elephants, and bears, inhabit only the more remote forests.
- Various species of small mammals, birds, reptiles, and fish are plentiful throughout the state.

People of Jharkhand

Population composition

- Nearly two-fifths of the population of Jharkhand consists of various indigenous peoples classified as Scheduled Tribes, as well as members of the Scheduled Castes (formerly called "untouchables"; groups that officially occupy a low position within the Indian caste hierarchy).

- The Santhal, Oraon (Kurukh), Munda, Kharia, and Ho are the principal indigenous groups, and together they constitute the great majority of the total tribal population.
- Non-Scheduled peoples, who hold a higher status within the traditional Indian social system, constitute most of the remaining three-fifths of the population.
- Hindus constitute the religious majority in Jharkhand.
- The Hindu population comprises the elite upper castes (Brahmans, Bhumihars, Rajputs, and Kayasthas), the large and diverse community of less-advantaged castes (such as the Yadavas, Kurmis, and Banias), and the Scheduled Castes (notably, the Chamars or Mochis, Dusadhs, and Mushars).
- Most of the tribal groups also follow Hinduism, although Christianity is significant among the Munda, Kharia, & Oraon peoples.
- Some members of the Scheduled Tribes - especially from the Ho community-adhere to local religions.
- There also is a notable Muslim minority within the state.
- Languages from the Indo-European family are the most widely spoken in Jharkhand.
- Most prominent of these are Hindi; the Bihari languages of Bhojpuri, Maithili, and Magadhi; & Urdu, which is used primarily within the Muslim community.
- Some of the tribal languages—

including Munda, Santhal, and Ho - belong to the Austroasiatic family, while other indigenous communities, such as the Oraon, speak Dravidian languages.

Settlement patterns

- With just over one-tenth of its population classified as urban, Jharkhand remained one of the most rural states in India in the early 21st century.
- Dispersed villages are characteristic of Chota Nagpur, where settlement is confined largely to river valleys, deforested peninsulars (areas reduced almost to plains by erosion), and mineral and industrial belts.
- The indigenous groups are concentrated mostly in the districts of Ranchi in central Jharkhand, Dumka in the northeast, and East and West Singhbhum in the southeast.
- The major cities and urban agglomerations are Ranchi, Jamshedpur, Dhanbad-Jharia-Sindri, and Bokaro-Chas.

Economy

- Since the achievement of statehood at the turn of the 21st century, the government of Jharkhand has pursued an active course of economic planning and development.
- Information technology, transportation and infrastructure, agriculture, and local craft production have been among the prioritized sectors.
- Meanwhile, several Industrial

Area Development Authorities - centred at Adityapur (near Jamshedpur), Bokaro, and Ranchi - have been charged with land acquisition, improvement of the infrastructure, and development of public utilities, among other functions, within their areas of jurisdiction.

Agriculture

- Jharkhand is endowed with surface water and groundwater, fertile land, and a moderate climate, all of which have helped the state build a strong agriculture sector.
- The state's agricultural-development programs have especially emphasized the raising of livestock for meat, dairy products, and wool.
- In an effort to improve quality and to increase the output of mutton and wool, a selective sheep-breeding program was implemented in the town of Chatra, in the northwest, and wool-collection centres were established in the district of East Singhbhum.
- Most of the state's goats are raised in the districts of Dumka, Deoghar, and Godda, all in the northeast, although the state also has goat farms in Sahibganj, Chatra, and Ranchi districts.
- There are pig farms in various towns across the state, notably in Kanke (in Ranchi district), Saraikela (near Dhanbad), and Jamshedpur.

Resources and power

- The Chota Nagpur plateau is the richest mineral belt in India, and it is responsible for a significant share (by value) of the country's mineral yield.
- Jharkhand produces almost the entire national output of copper, kyanite (used in the manufacture of heat-resistant porcelain), pyrite (used to make sulfuric acid), and phosphate, as well as much of the output of bauxite (a source of aluminium), mica, kaolin and other clays, and iron ore.
- Most of these minerals are mined in the districts of East and West Singhbhum.
- Coal, however, accounts for the bulk of Jharkhand's mineral production.
- The principal coalfields, all in the Damodar River valley in eastern Jharkhand, supply most of the coking coal of India.
- The Damodar Valley Corporation (DVC) is the most prominent multipurpose power project of Jharkhand.
- The corporation operates several thermal plants and hydroelectric dams not only in Jharkhand but also in neighbouring West Bengal; all the stations are networked within the DVC grid, which serves urban and rural areas in both states.

Manufacturing

Jamshedpur, India : Tata Steel foundry

- Traditional artisan-based cottage industries engage the

majority of the manufacturing workforce of Jharkhand, particularly in Hazaribag, Ranchi, East and West Singhbhum, and Jamshedpur districts.

- Some artisans engage in sericulture, while others manufacture lac and glasswork, handloom products, brassware, stone carvings, cane and bamboo products, various woodworks, and pottery.
- Most of the remainder of the state's manufacturing workers are employed in metal- and agriculture-based industries.
- Ranchi, Bokaro, and Jamshedpur rank among the largest industrial complexes in India.
- East and West Singhbhum, the richest mineral-bearing districts, are particularly important for heavy industries.
- Copper is smelted near the town of Ghatsila, in East Singhbhum, while Jamshedpur district is the seat of iron and steel production.
- Chaibasa, in West Singhbhum, manufactures cement from Jamshedpur slag.
- Heavy machinery is produced in Ranchi, and there is sheet-glass manufacturing at Kandra in West Singhbhum.
- Among the principal agricultural industries are sugar refining, tobacco processing, and jute milling.

Transportation

- Although the road network has continued to expand since

statehood, all-weather roads still reach fewer than half of Jharkhand's villages.

- However, a number of national highways pass through the state, including the venerable Grand Trunk Road (one of the oldest roads in India).
- Road service is best on the Chota Nagpur plateau, where Allied operations during World War II brought many improvements.
- The Kolkata-Delhi rail line, which opened in 1864, crosses Jharkhand.
- Extensive goods-handling facilities are located along the rails at Ranchi, Bokaro, Dhanbad, and Jamshedpur.
- In addition, ore-loading facilities are available at Lohardaga, in west-central Jharkhand, and at all the coal mines.
- Scheduled airlines serve Ranchi on a regular basis.
- Waterways, once important avenues of transport, are now of little significance in Jharkhand.

Government and society

Constitutional framework

- Like that of most other Indian states, the structure of Jharkhand's government is determined by the national constitution of 1950.
- Appointed by the president of India, the governor is the head of the state and functions on the advice of the chief minister, who is the head of the Council of Ministers.

- Jharkhand is one of the few Indian states that has a bicameral legislature; the upper house is the Legislative Council (Vidhan Parishad), and the lower house is the Legislative Assembly (Vidhan Sabha).
- There is a high court in Ranchi, with a chief justice and several other judges

Health

- Although Jharkhand has more than 500 medical centres, medical facilities, though improving, have remained inadequate outside the towns.
- Villages are served mainly by allopathic (Western) and Ayurvedic (ancient Indian) medical dispensaries.
- Unani (traditional Muslim) and homeopathic systems of medicine also are available.
- Large and well-equipped hospitals are located at Jamshedpur, Ranchi, and Dhanbad. Specialized facilities for the treatment of tuberculosis, mental illness, and leprosy are located near Ranchi; there is a cancer hospital in Jamshedpur.

Education

- Education has been a primary focus of Jharkhand's development initiatives.
- The literacy rate has been rising rapidly, having climbed more than 10 percent in the 1990s to surpass 50 percent by the start of the 21st century.
- Aside from thousands of primary and secondary schools

scattered throughout the state, Jharkhand has several universities, the most notable of which include Ranchi University (1960), Birsa Agriculture University (1981) in Kanke, Sido Kanhu Murmu University (1992) in Dumka, and Vinoba Bhave University (1992) in Hazaribag.

- There also are a number of colleges and research centres that specialize in engineering, labour relations, law, medicine, and other fields.
- Among the most prominent of these institutions are the Indian School of Mines (1926), Birsa Institute of Technology (1949), and the Central Institute of Mining and Fuel Research (1950), all in Dhanbad; Xavier Labour Relations Institute (1949) in Jamshedpur; and the Birla Institute of Technology (1955) in Ranchi.
- The Indo-Danish Tool Room (1991) in Jamshedpur, built with assistance from the government of Denmark, as well as other tool rooms and training centres in Ranchi and Dumka, has played an important role in providing a skilled foundation for Jharkhand's industrial development.

Cultural life

- Many of the villages of the various tribal peoples share some common characteristics.
- Most settlements have a community dance floor that springs to life during festive times.

- Among the most widely recognized of Jharkhand's dances is chhau, an elaborate masked dance of the southeastern region, particularly the Saraikela and East Singhbhum districts.
- Although once a village tradition associated with Chaitra Parva, a festival held every April in honour of the god Shiva, chhau eventually received royal patronage and then state sponsorship; it has since become a virtual emblem of the region.
- Other tribal celebrations that provide occasions for music and dancing include the festival of flowers known as Sarhul (or Baha), a cattle festival called Sohrai, and a postharvest festival called Mage Parab.
- In addition to the dance floor, most tribal villages have a sacred grove (sarna), where worship is offered by a village priest, and a bachelors' dormitory (dhumkuria).
- The haat, or weekly market, plays an important role in the village economy.
- There also are numerous annual Hindu celebrations in Jharkhand that span tribal & nontribal areas.
- Holi is a colourful fertility festival held in February or March.
- Chhatt is a tribute to the Sun, usually held in October or November.
- Jharkhand does not abound in literary arts.
- However, some peoples—and languages—are known for their extensive repertoire of oral traditional narratives.

- Bhojpuri and Magadhi are among the languages that carry a wealth of such oral tradition.
- The natural environment contributes to the cultural life of Jharkhand.
- Many are drawn for outdoor recreation to Dimna Lake and the Dalma Wildlife Sanctuary in Jamshedpur.
- Also popular is Jamshedpur's Jubilee Park, which is a replica of the famous Vrindavan Gardens of Mysore, in the state of Karnataka.
- Meanwhile, the cool air and pristine surroundings of Ne-

tarhat, on the Ranchi plateau, make it one of the most attractive tourist resorts in the state.

History

- Prior to the arrival of the British in Chota Nagpur, the area was ruled by chiefs of various indigenous groups.
- The area came under the British in 1765 as part of Bihar.
- As the British gradually expanded their authority over the plains to the north of present-day Jharkhand during the second half of the 18th century and the beginning of the 19th, revolts against them occasion-

ally erupted in Chota Nagpur.

- The most important of these uprisings were the Ho revolt (1820–27) and the Munda uprising (1831–32).
- From the period of British expansion until the turn of the 21st century, the history of Jharkhand overlapped with the history of Bihar.
- On Nov. 15, 2000, after decades of growing discontent, especially on the part of the indigenous peoples, Chota Nagpur was separated from Bihar to become Jharkhand, the 28th state of India.

National Symbol

National Currency

- The Indian Rupee is a symbol that represents India's international identity in terms of money transactions and economic prowess.
- The Indian Rupee symbol represents the Indian ethos.
- The emblem combines the Devanagari "Ra" and the Roman Capital "R," with two parallel horizontal stripes going across the top that signifies the national flag as well as the "equal to" sign (=).
- The Indian Rupee symbol was chosen by the Indian government on July 15, 2010.
- The emblem was picked among thousands of concept entries received by the Ministry of Finance

through an open competition among resident Indian nationals.

- It was conceptualised and developed by Udaya Kumar, a postgraduate in Design from the Indian Institute of Technology Bombay.
- Using various digital technology and computer tools, the process of defining and implementing this new identity is already ongoing.

Currency Basics

- Coins are currently issued in India in the values of one rupee, two rupees, five rupees, & ten rupees.
- With effect from June 30, 2011, coins in the denominations of 1 paise, 2 paise, 3 paise, 5 paise, 10 paise, 20 paise, and 25 paise have been withdrawn

from circulation and are no longer legal currency.

- Banknotes in the denominations of Rs 10, Rs 20, Rs 50, Rs 100, Rs 200, Rs 500, and Rs 2000 are currently issued in India.
- Because they are issued by the Reserve Bank of India, these notes are referred to as banknotes (Reserve Bank).
- Notes in the denominations of Rs 2 and Rs 5 are no longer printed because these denominations have been coined.
- The Legal Tender status of the Rs 500 and Rs 1,000 denominations of banknotes from the Mahatma Gandhi Series issued by the Reserve Bank of India has been withdrawn by the Government of India by

Notification No. 2652 dated November 8, 2016. Cotton and cotton rag are used to make currency paper.

- The 10000 note, first produced in 1938 and then again in 1954, was the biggest denomination note ever created by the Reserve Bank of India.
- In 1946, and again in 1978, these notes were demonetized.

Reserve Bank of India & the People

- The Reserve Bank currently manages currency operations through 19 issue offices in Ahmedabad, Bangalore, Belapur, Bhopal, Bhubaneswar, Chandigarh, Chennai, Guwahati, Hyderabad, Jaipur, Jammu, Kanpur, Kolkata, Lucknow, Mumbai, Nagpur, New Delhi, Patna, and Thiruvananthapuram, as well as a vast network of currency chests.
- Fresh banknotes are delivered to these offices from the banknote production plants.
- The RBI Issue Offices transmit new notes remittances to approved commercial bank branches.
- The mints provide the coins to the Reserve Bank offices in Hyderabad, Kolkata, Mumbai, and New Delhi (Mint connected Offices).
- These offices then forward them to the Reserve Bank's other offices, which in turn forward them to currency chests and tiny coin depots.
- The currency chests are loaded with banknotes and rupee

coins, while the tiny coin depots are stocked with small coins.

- Bank branches receive bank

notes & coins from Currency Chests & Small Coin Depots to distribute to the general public.

Comparison of Coin used in India

Coin Type	Metal	Details inscribed	Script & Language
Punch-marked coins	Mostly silver, sometimes copper	Mostly geometrical shapes, plants, animals, and geographical features	None
Indo Greek type	Mostly silver	Name of the issuing ruler with depicting legends	The language was Prakrit, mostly in Kharoshthi script
Kushana type	Mostly gold, but also silver and rarely copper	Figure, name, and title of the ruler on obverse, & the deities on the reverse	Legends in Greek, inscribed in Kharoshthi script
Gupta coinage	Mostly gold coins were issued	A figure of the ruler, with a deity	Brahmi
Chola coins	Gold, silver and copper	Legends of the rulers	Nagari script
Post Gupta	Decline in gold, mostly silver & copper	Names of the rulers, and a motif	Varied with dynasties.

Conclusion

- India's national currency is the rupee (symbol: ₹; code: INR).
- The rupee is divisible into 100 paise (singular: paisa), yet as of 2019, 1 rupee coins are the smallest denomination in use.
- The Reserve Bank of India is in charge of the currency's issuance.
- The Reserve Bank of India administers currency in India and draws its authority from the Reserve Bank of India Act, 1934.
- A new rupee sign (₹) was officially implemented in 2010.
- It was created by combining the

Devanagari consonant " र ", "ra" with the Latin capital letter "R" without the vertical bar.

- The parallel lines at the top (with white space between them) are considered to be a reference to the tricolour Indian flag, as well as a representation of the country's intention to minimise economic inequity.
- On July 8, 2011, the first generation of coins bearing the redesigned rupee symbol went into circulation.
- Previously, India used the symbols "Rs" and "Re" to represent several rupees and one rupee, respectively.



III. EMINENT PERSONS AND PLACES ,SPORTS,BOOK AUTHORS



1. EMINENT PERSONS

Appointment of Chief of Defence Staff (CDS)

Context

- The Government of India has appointed Lt General Anil Chauhan (Retired) as the next Chief of Defence Staff (CDS).
 - He will also function as a Secretary to the Department of Military Affairs.

Chief of Defence Staff (CDS)

- **Genesis** : The CDS was created in 2019 for a dual role, as the most senior uniformed officer in rank (First among equals) and as a Secretary of the Department of Military Affairs.
- **Roles** : To act as the primary military advisor to the government.
 - To create jointness among the armed forces.
 - To facilitate creation of integrated theater commands.
 - To help in prioritizing capital acquisition for the modernisation of the forces.

Work done by CDS since its inception

- Last CDS had directed the commissioned officers at the level of General Officer Commanding-in-Chief in each of the ser-

vices, to report on the possible structure of integrated theater commands.

- **Theater Commands** : As per the submitted reports, four to five integrated theater commands have been envisioned:
 - One for air defense.
 - One maritime defense.
 - Two land-based theater commands for the western border (Pakistan) and northern border (China).
 - Or an additional integrated command including the area under the Northern Army Command presently at the borders with Pakistan and China in the UTs of J&K and Ladakh.
- **Collective strength**: As per the requirement, the integrated commands will be able to utilize resources from all the three services available under them.
 - The operational control of all resources will be with the Theatre Commander, which will report to the Chiefs of Staff Committee headed by the CDS.

Widened CDS Selection Pool

- The government in a recent notification has amended the service rules of the armed

forces, related to the eligibility for the post of Chief of Defence Staff (CDS).

Amendments to service rules:

- **Vacancy**: Since India's first CDS General Bipin Rawat had died, the post has been vacant. The government amended the service rules of the armed forces to fill the vacancy.
- **Intent of the amendment**: To make all serving and recently retired three-star and four-star officers from the three services who are under the age of 62 eligible for the post of CDS.
- **Three-star officers**: Lt General, Air Marshal and Vice Admiral.
- **Four-star officers**: The CDS, the chiefs of the Indian Army, Indian Navy & Indian Air Force.
- **Amended Rules & regulations**: To enable the three star officer's appointment to the post of CDS, the government has amended the Army Rules, 1954; the Naval Ceremonial, Conditions of Service & Miscellaneous Regulations, 1963; and the Air Force Regulations, 1964.
- **Service Extension**: The government also has notified possible extension of the service of the CDS if deemed necessary subject to a maximum age of 65 years.

Critical Analysis of the amended rules

- **Benefits (Wider Pool):** The amendments to the service rules for the Army, Navy and Air Force will make the potential candidates on a level playing field with the serving officers.
- **Issues (Seniority vs. Merit):** As a convention, usually the most senior officer of the service is appointed as a service chief. Thus, the appointment of a serving or a retired three-star officer over the serving four-star officers might create issues.

Way Forward

- Last CDS General Rawat had planned the reorganization of the armed forces into integrated theater commands along with other measures to bring synergy and efficiency in operations.
- It will be the responsibility of the new CDS to build consensus over the reorganization plan by catering to objections from the Air Force and addressing other grievances.
- It will help in India's defense preparedness and modernization, promote the image as a net security provider in the South Asian region and prevent aggression on borders (LAC and LOC).

Dr Dilip Mahalanabis

In News

- Recently, Dr. Dilip Mahalanabis, who was an Indian pediatrician

known for pioneering the use of oral rehydration therapy to treat diarrheal diseases, passed away.

About Dr. Mahalanabis

- Born on November 12, 1934 in West Bengal, he studied in Kolkata and London and later joined the Johns Hopkins University International Centre for Medical Research and Training in Kolkata in the 1960s, where he carried out research in oral rehydration therapy.
- When the 1971 war broke out, millions of people from then East Pakistan took refuge in India.
 - Clean drinking water and sanitation were problems at these refugee camps, and cholera and diarrhoea broke out among people anyway exhausted and dehydrated.
 - Dr Mahalanabis and his team were working in one such camp at Bongaon.
- In the mid-1980s and early 1990s, he was a medical officer in the Diarrheal Disease Control Programme of the WHO.
- Later in the 1990s, he served as the Director of Clinical Research at the International Centre for Diarrhoeal Disease Research (ICDDR,B), Bangladesh.
- In 1994, he was elected a foreign member of the Royal Swedish Academy of Sciences.
- In 2002, Dr. Mahalanabis was awarded the first Pollin Prize in Pediatric Research for their

contributions to the discovery and implementation of oral rehydration therapy.

- In 2006, he was awarded the Prince Mahidol Prize, for his role in the development and application of oral rehydration therapy

Oral Rehydration Therapy

- It is an alternative to intravenous rehydration therapy for preventing and treating dehydration from diarrhea when intravenous therapy is not available or feasible.
- Oral rehydration therapy is calculated by the World Health Organization to have saved the lives of over 60 million persons.

First woman PM of Italy

- Giorgia Meloni looks set to become Italy's first woman prime minister at the head of its most right-wing government since World War Two after leading a conservative alliance to triumph at the election.
- Meloni will take over from Prime Minister Mario Draghi, the former head of the European Central Bank, who pushed Rome to the centre of EU policy-making during his 18-month stint in office, forging close ties with Paris and Berlin.
- The Italian far-right leader Meloni party came top in general elections.
- Leading the next government, she will work for the betterment of all Italians.

Roger Binny elected as BCCI President

- Roger Binny, the highest wicket-taker of India's triumphant 1983 World Cup campaign, has been officially elected as the 36th Board of Control for Cricket in India (BCCI) president.
- Binny was the only candidate to file a nomination for the post and was elected unopposed at the Annual General Meeting (AGM) on October 18, 2022, in Mumbai.
- Binny succeeded former Indian captain Sourav Ganguly, whose three-year tenure as the board chief came to end.
- Ganguly will now participate in the contest for the Cricket Association of Bengal top post.

Who is Roger Binny?

1. Binny has represented India in 27 Tests and 72 ODIs and has also served as a member of the national selection committee.
2. He is the right-arm medium pacer who was a handy batter down the order and is mostly remembered for his performance in the 1983 World Cup.
3. With 18 wickets, Binny ended up as the highest wicket-taker of the tournament and played an important role in the Kapil Dev-led Indian side lifting their maiden world title.

4. Binny has also served as a member of the BCCI selection committee.

Board of control for cricket in India

- The Board of control for cricket in India (BCCI) is the governing body for cricket in India and was formed in December 1928.
- BCCI is headquartered at the Cricket centre, Wankhede Stadium in Mumbai.
- The board is the richest governing body of cricket in the world and is also a part of the Big Three of International cricket, with Cricket Australia and the England and Wales cricket board.

The New Congress President

- Veteran Karnataka leader Mallikarjun Kharge defeated his rival Shashi Tharoor to become the first non-Gandhi Congress president in 24 years, and the first Scheduled Caste chief of the grand old organization in four decades.
- Kharge polled 7897 of the 9385 votes cast while Tharoor garnered a meagre 1072.
- He is the first non-Gandhi to head the Congress in 24 years, after Sitaram Kesri was unceremoniously ousted in 1988 through a Congress Working Committee resolution that invited Sonia Gandhi to become the party chief.
- Sonia had become a primary member of the Congress only a year ago at the AICC Kolkata plenary in 1997.

Samantha Cristoforetti to command International Space Station

- Samantha Cristoforetti has been appointed as the first woman to command International Space Station.
- She succeeded Russian Cosmonaut Oleg Artemyev during a live ceremony from space on September 28, 2022.
- Oleg Artemyev gave Samantha a symbolic key to hand over command and a little tube containing cake.
- Samantha will be the fifth and first woman European commander of the International Space Station.

What is the role of the station commander?

1. The Station's commander is accountable for the performance and well-being of the crew in orbit.
2. The commander is required to maintain effective communication with the teams on Earth.
3. The person has to coordinate with the crew response in case of emergencies.
4. Since Cristoforetti takes command in the final weeks of her stay on board, one of her critical duties will be to ensure a smooth and comprehensive handover to the next expedition crew.

What is International Space Station(ISS)?

- The International Space Station is the largest modular space station in low Earth orbit.
- It is a multinational collaborative project that consists of five participating space agencies including NASA, JAXA, CSA, Roscosmos, and ESA.
- The authority and use of the space station are established by intergovernmental treaties and agreements.

New Attorney General of India

- R Venkataramani, a senior advocate in the Supreme Court, has been appointed as the Attorney General of India for a period of three years.

Attorney-General of India

- Attorney-General of India is appointed by the President of India under Article 76 of the Indian Constitution.
- He is the highest law officer in India.
- Attorney General of India must be eligible for becoming a Supreme Court Judge.
- There is no specific tenure for Attorney-General and he holds the office during the pleasure of the President of India.
- The Constitution does not specify the grounds or procedure for his dismissal and he can be removed by the President at any time.

Russian Citizenship Edward Snowden

Why in the news?

- Recently, Russian President Vladimir Putin has granted Russian citizenship to former U.S. security contractor Edward Snowden.
- Snowden is one of 75 foreign citizens listed by the decree as being granted Russian citizenship.

Who is Edward Snowden?

- Former National Security Agency contractor Edward Snowden has been living in Russia since 2013 in order to avoid prosecution in the USA for disclosing secret documents describing secret government surveillance initiatives.

What Whistleblowing Edward Snoden did?

- Edward Snowden, a former computer intelligence consultant who was employed by and under contract with the National Security Agency (NSA), disclosed highly sensitive information in 2013.
- His illegal disclosures and whistle blowing activity revealed numerous global surveillance programmes, many run by the NSA and the Five Eyes Intelligence Alliance with the cooperation of telecommunication companies and European governments, and prompted a discussion about national security and individual privacy.

32nd Bihari Puraskar

- Writer-academic Madhav Hada to be awarded 32nd Bihari Puraskar - Writer Dr Madhav Hada will be honoured at the 32nd Bihari Puraskar for his 2015 literary criticism book 'Pachrang Chola Pahar Sakhi Ri', which has been announced by the KK Birla Foundation.
- Hada A literary critic & academic, has written extensively on literature, media, culture and history.
- Madhav Hada has also been a member of the general council of the Sahitya Akademi and the Hindi Advisory Board.
- He is a recipient of the Bhartendu Harishchandra Award for Media Studies & the Devraj Upadhyay Award for Literary Criticism.
- Hada's book 'Pachrang Chola Pahar Sakhi Ri' concentrates on the life of medieval devotee poet Meera.

Bihari Puraskar

- The Bihari Puraskar is one of the three literary awards which have been instituted by the KK Birla foundation in 1991.
- It carries a cash prize of Rs 2.5 lakh, a plaque and a citation.
- The recipient is chosen by a selection committee headed by chairman Hemant Shesh.

Nobel Prize Winner

Origin :

- Alfred Nobel, known for inventing dynamite, laid the founda-

tion of the Nobel prize in 1895 when he wrote his last will, leaving much of his wealth to the establishment of the prize.

- Since 1901, the Nobel prize has been honouring men and women from across the globe for their outstanding contributions in the field of Physics, Chemistry, Physiology or Medicine, Literature and for work in peace.
- In 1968, Sveriges Riksbank (Sweden's Central Bank) established the prize in Economic sciences in memory of Alfred Nobel.

Facts :

- Between 1901 -2022, 60 women have been awarded the Nobel prize, only one woman, Marie Curie, has been honoured twice, with the nobel prize in Physics in 1903 & the Nobel Prize in Chemistry in 1911.
- The work of the International committee of the Redcross has been honoured with the Nobel peace prize thrice.
- Linus pauling is the only person to have been awarded two unshared Nobel prizes the 1954 Nobel prize in Chemistry and the 1962 Nobel peace prize.
- Malala Yosafzai is the youngest Nobel laureate who received the peace prize in 2014 at the age of 17.
- Rabindranath Tagore was the first indian to receive a Nobel prize in the year 1913 for Literature.

Nobel Prize Winners from India

Winner	Year	Subject
Rabindranath Tagore	1913	Literature
Sir C.V. Raman	1930	Physics
Har Gobind Khorana	1968	Physiology or Medicine
Mother Theresa	1979	Peace
Subrahmanyam Chandrasekhar	1983	Physics
Amartya Sen	1998	Economic Sciences
Venkatraman Rama Krishnan	2009	Chemistry
Kailash Satyarthi	2014	Peace
Abhijit Banerjee	2019	Economic Sciences

List of Nobel Winners 2022

Field	Winners	Contribution
Medicine or Physiology	Svante Paabo (Swedish Genetist)	Concerning the genomes of extinct hominins and human evolution.
Economic Sciences	Ben Bernanke, Douglas Diamond and Philip Dybrig	For research on Banks and financial crisis.
Peace	Ales Bialiatski, Organisation memorial and organisation center for civil liberties	For promoting the right to Criticize power and protect the fundamental rights of citizens. For showing outstanding efforts to document war crimes, human rights abuses, and the abuse of power.
Literature	Annie Ernaux	For the courage and clinical acuity with which she convers the roots, estrangements and collective restraints of personal memory.
Physics	Alain Aspect, John F Clauser and Anton Zeilinger	For experiments with entangled photons, establishing the violation of Bell inequalities, and pioneering quantum information science.
Chemistry	Carolyn Bertozzi, Morten Meldal & Barry Sharpless	Click Chemistry and bioorthogonal Chemistry.

Subbu Arumugam

- Popular 'Villupattu' exponent Subbu Arumugam, who enthralled audiences for about four decades, passed away in Chennai on due to age-related ailments.
- He was 94.
- 'Villupattu' is an ancient form of musical story-telling and the narration is interspersed with music.
- It is performed mostly during temple festivals.
- Arumugam is said to have popularised this art form effectively attracting audiences of all age-groups over the years.
- Subbu Arumugam, the exponent of traditional Tamil 'Villupattu' had contributed richly to the films of actors N S Krishnan and Nagesh.
- Arumugam was born in 1928 at Chathiram Pudukulam village of the southern district of Tirunelveli.

Netaji Mulayam Singh Yadav

Context

- Former Chief Minister of Uttar Pradesh, Mulayam Singh Yadav, passed away on 10th October 2022 at 82.
- He founded the Samajwadi Party & was a serving leader for decades.
- He also worked in the Union Government as the Minister of Defence and had been elected

10 times as MLA (Member of the Legislative Assembly & 7 times as Lok Sabha MP.

- Mulayam Singh Yadav was born on 22nd November 1939 & served 3 times as Chief Minister of Uttar Pradesh.
- He was the son of Murti Devi and Sughar Yadav.
- Born in Saifai village in Uttar Pradesh, he had 3 degrees in political science, namely, B.A., B.T., and M.A. His son, Akhilesh Yadav, served as the Chief Minister of Uttar Pradesh from 2012 to 2017.

Mulayam Singh Yadav's Achievements

- He was MP of Lok Sabha five times between 1996 and 1998, 2004, 2009, 2014, then 2019.
- He was also a member of the Uttar Pradesh Legislative Assembly (1985, 1974, & 1967).
- In 1992, he created the Samajwadi Party.
- Ram Manohar Lohia was Mulayam Singh Yadav's mentor in many respects.
- Lohia was instrumental in developing the seasoned leader.
- Netaji Mulayam was the CM of Uttar Pradesh from 1989-1991, 1993-1995 & from 2003 - 2007
- He was also Minister of Defence in the Indian government from 1996 to 1998.
- In the Lok Sabha, he represented the Mainpuri seat.

First Native American woman astronaut in space

- Nicole Mann becomes First Native American Astronaut in space
- A US astronaut Marine Colonel Nicole Mann is set to become the first Native American woman in space following a Nasa launch on October 5, 2022.
- She is one of the four astronauts who blasted off from Florida at midday bound for the International Space Station.
- Nicole Mann will create history by becoming the second Native American who travelled to space following John Herington in 2002.

Mann's mission to space: Significance

1. The mission would inspire future generations of Native Americans.
2. Colonel Mann has to wait for years to make her debut in space after completing her training.
3. Mann was earlier assigned to a mission in Boeing's Starliner capsule but the vehicle was so late getting into service that NASA decided to pull her across to "Crew 5".
4. Since Mann is allowed to bring a limited amount of personal items, she has planned to bring her wedding ring, photographs, and a reminder of her family's Native American roots.

- The other members of the crew include John Cassada, Koichi Wakata, and cosmonaut Anna Kikina. The four are set to spend 6 months on the ISS.
- While Col Man, Mr. Cassada, and Ms. Kikina have never been to space before, Mr. Wakata is an experienced flyer and has been to orbit four times already.

Women in Space

- The first woman to visit Space was Valentina Tereshkova in 1963.
- Approx 12% of the space travelers were women by 2019.
- And as of April 2022, there were 73 women with completed spaceflights.
- Some of the women who went into space include Kayla Barron,

Shannon Walker, Jessica Meir, Anne McClain, Sunita Williams, and much more.

Odisha MP Aparajita Sarangi elected to IPU panel

- Lok Sabha member from Bhubaneswar, Aparajita Sarangi has been elected as a member to the executive committee of the Inter-Parliamentary Union (IPU).
- The Parliamentarian from Odisha bagged 12 out of the total of 18 available votes in the election to the post held at Kigali, Rwanda.
- Sarangi will represent India at the 15-member executive committee of the union.
- Notably, this will be the first time in 20 years, that India will have her representative in the international committee.

- The Indian Parliamentary Delegation is being led by Harivansh, Deputy Chairperson in Rajya Sabha.
- Aparajita Sarangi, Harivansh and Sasmit Patra attended a meeting called by the Governing Council of the Inter-Parliamentary Union following her nomination.
- The 145th Inter-Parliamentary Union Assembly is being held currently in Kigali, Rwanda.

About the Inter-Parliamentary Union:

- Set up in 1887, the global organization of national parliaments has a total of 178 members.
- IPU empowers parliaments and parliamentarians to promote peace, democracy, and sustainable development through diplomacy.

2. Sports

Oldest Indian to cross North Channel

- Veteran Assamese swimmer, Elvis Ali Hazarika has become the first from the North East to cross the North Channel.
- The North Channel is the strait between north-eastern Northern Ireland and south-western Scotland.
- Elvis and his team clocked a timing of 14 hours 38 minutes to achieve this feat.
- With this, Elvis has become the

oldest Indian swimmer to cross the North Channel.

- According to the Irish Long Distance Swimming Association, the distance of the route recognised as a North Channel swim is 34.5 km (21.4 miles).
- It is known for fickle weather, rough seas, tough currents and an abundance of jellyfish.
- As it is, over the past four years especially, the ace Assam swimmer has been pushing his limits, persevering and raising the

bar from time to time to create significant records, also making Assam and the country proud.

Jhulan Goswami Retirement

- The legendary Women's Cricketer, Jhulan Goswami announced her retirement from all forms of the game in a touching farewell statement on September 25.
- Jhulan played her last international game at the Lord's on the 24th, and she went out on a high note by helping India

women defeat England women 3-0 in an ODI series.

About Jhulan Goswami

- Jhulan Nishit Goswami, an ex-international cricket player from India, was born on November 25, 1982. She bats right-handed and bowls medium fast with her right arm. She is one of the all-time quickest female bowlers. She participated in 204 ODI games, claimed 255 wickets, and now holds the record for most wickets taken in women's ODI cricket. Jhulan Goswami received the M.A. Chidambaram trophy for best women's cricketer in 2011 and the ICC Women's Player of the Year award in 2007. In January 2016, she climbed to the top of the ICC Women's ODI Bowling Rankings.

FIH Men's and Women's Goalkeeper of the Year

- PR Sreejesh and Savita Punia have been voted FIH Men's and Women's Goalkeeper of the Year for the second year in a row.
- Savita Punia, the captain of the Indian women's hockey team, and veteran goalkeeper PR Sreejesh both received the FIH goalkeeper of the year title in the men's and women's categories on the strength of their performances beneath the bar.
- Savita is just the third athlete to win Goalkeeper of the Year (Women) for three years in a row since the award's debut in 2014.

Other awardees:

- The International Hockey Federation announced that young Indian forward Mumtaz Khan, and France's Timothée Clément have been named the FIH Rising Stars of the Year 2021-22 in the women's and men's categories respectively.
- Mumtaz burst onto the international hockey scene at the FIH Junior Women's World Cup 2022.
- She was the best performer for India at the event, scoring 8 times in 6 games.
- She finished in third place on the list of top scorers as India missed out on a bronze medal by a whisker, finishing in fourth place.

Mallakhamb Competitions begin at National Games

- Mallakhamb is an Indian indigenous sport that is a part of the 36th National Games.
- Mallakhamb is the display of aerial yoga and wrestling grips with vertical stationary or hanging wooden poles performed by gymnasts.
- It is one of the five new games which is added to the 36th National Games this year.
- The sport made its debut at the Khelo India University Games in which Madhya Pradesh bagged 12 medals including 5 golds, 5 silver, and 2 bronze.

Key Points related to the 36th National Games

- Maharashtra won gold in the women's diving 1-meter springboard event in the National Games 2022.
- In women's hockey Haryana qualified for the semi-finals by defeating Karnataka by 6-0.
- Olympian Shrihari Nataraj of Karnataka set a new national record in Swimming in the 100-meter backstroke event.
- Nina Venkatesh made a new record by clocking 28.38 seconds in 50 meters women's butterfly event.

About Mallakhamb

- Mallakhamb is a traditional sport that originated in the subcontinents of India. In Mallakhamb gymnasts perform aerial yoga and wrestling grips in concert with vertical stationary or hanging wooden poles. The word Mallakhamb also refers to the pole used to perform the sport.

Irani Trophy

- The Rest of India's side won the Irani Cup title after beating the Ranji Trophy Champion of 2019-2020 Saurashtra by eight wickets in Rajkot.
- Rest of India (ROI) chased down the 105-run target, with Abhimanyu Easwaran remaining undefeated on 63 runs while adding 81 runs and Kona Bharat not out at 27.

Key Points related to the Rest of India winning the Irani Cup

- Kuldeep Sen took most of the wickets in the first innings against Saurashtra.
- ROI dominated Saurashtra from the opening day when they clean-bowled the opposing

team for 98.

- The eight-wicket partnership of Jaydev Unadkat and Prerak Mankad, however, Kuldeep Sen changed the game in the favor of ROI.

About Irani Trophy

- Irani Trophy is also known as Mastercard Irani Trophy.

- It is a test match format cricket tournament in India.
- It is played annually between the incumbent Ranji Trophy winners and the Rest of the India Cricket Team.
- It is organized by the Board of Control for Cricket in India (BCCI).

3. Events/Awards

Dada Saheb Phalke Award

In News

- Recently, Veteran actress Asha Parekh has been declared the recipient of the 2020 Dadasaheb Phalke award, making her the 52nd awardee of the honour.

Dadasaheb Phalke award

- **Beginning:** The Government of India started it in 1969 to commemorate Dadasaheb Phalke, known as the 'Father of Indian Cinema'.
- He made India's first full-length feature film Raja Harishchandra in 1913.
- It is the highest honour for an artist in Indian cinema.
- It is presented annually at the National Films Awards ceremony by the Directorate of Film Festivals, an organisation set up by the Ministry of Information and Broadcasting.
- The recipients are honoured for their "outstanding contribution

to the growth and development of Indian cinema."

- The award comprises a Swarna Kamal (Golden Lotus) medalion, a shawl, and a cash prize of Rs. 10 lakh.

World Green Economy Summit

About the Summit

- It is one of the leading global forums on the green economy.
- It brings together world-class experts in critical sectors from around the world to directly focus on advancing the global green economy and sustainability agenda, achieving the UN Sustainable Development Goals.
- The 8th Summit focuses on four key pillars of the green economy: Energy, Finance, Food Security, and Youth.
- This Summit was organised by the Dubai Electricity & Water Authority, Dubai Supreme Council of Energy and World

Green Economy Organization in cooperation with WETEX.

- The WGES is the premier international platform to drive dialogue and action amongst industry stakeholders, and build partnerships and collaboration by connecting creative minds across different sectors.
- The summit showcases innovative solutions and leading practices to inspire change, and aims to align stakeholders with policy makers to create a facilitative environment and ecosystem for sustainable green growth that address current and future needs.

What is Green Economy?

- A green economy is defined as low carbon, resource efficient and socially inclusive.
- In a green economy, growth in employment and income are driven by public and private investment into such economic activities, infrastructure and assets that allow reduced car-

bon emissions and pollution, enhanced energy and resource efficiency, and prevention of the loss of biodiversity and ecosystem services.

Swachh Survekshan Awards 2022

In News

- Recently, the President of India, Smt Droupadi Murmu, presented the Swachh Survekshan Awards 2022 at a function held in New Delhi.
- Speaking on the occasion, the President congratulated residents, sanitary workers and local administration of the award winning cities.

About

- Indore was adjudged India's cleanest city for the sixth time in a row, while Surat and Navi Mumbai followed it on the next two spots.
- Telangana won the first prize under the large states category under the Swachh Survekshan Grameen (SSG) 2022 which looks into the sanitation status of rural areas.
 - Haryana was in the second position while Tamil Nadu was third.
- Among smaller states and Union territories, Andaman and Nicobar secured the first position followed by Dadra and Nagar Haveli and Daman and Diu and Sikkim.
- In the category of best performing states in 'Swachh Survek-

shan Awards 2022', Madhya Pradesh has secured the first position, followed by Chhattisgarh and Maharashtra.

- In the category of cities having population fewer than one lakh, Maharashtra's Panchgani was ranked number one, followed by Chhattisgarh's Patan (NP) and Maharashtra's Karhad.
- Haridwar was adjudged the cleanest Ganga town in the category of more than 1 lakh population, followed by Varanasi and Rishikesh.
- Bijnor was ranked the first among Ganga towns with fewer than one lakh population. followed by Kannauj and Garhmukhteshwar respectively.
- In to the survey, Maharashtra's Deolali was adjudged the country's cleanest Cantonment Board.

Swachh Survekshan 2022

- **About:** Swachh Survekshan was introduced by MoHUA in 2016 as a competitive framework to encourage cities to improve the status of urban sanitation while encouraging large scale citizen participation.
 - The 7th edition of Swachh Survekshan was conducted to study the progress of the Swachh Bharat Mission (Urban) and rank the Urban Local Bodies (ULBs) based on various cleanliness and sanitation parameters.
- **Implementing Ministry:** Swachh Survekshan survey is be-

ing implemented by Ministry of Housing and urban Affairs under its broader program-SBM(Urban) Scheme.

- **Importance:** Over the years Swachh Survekshan has been an enabler for Mission acceleration in the cities.
 - Swachh Survekshan has led to a healthy competition among cities to improve their performance on sanitation parameters thereby improving sanitation services delivery to the citizens.
- **Coverage:** The Swachh Survekshan has evolved from being an assessment of 73 cities in 2016 to covering 4,354 cities this year.

SASTRA Ramanujan Prize 2022

Why in News?

- The SASTRA Ramanujan Prize for 2022 will be awarded to Yunqing Tang, Assistant Professor with the University of California, Berkeley, U.S.A.
- Ms. Yunqing's works display a remarkable combination of sophisticated techniques, in which the arithmetic and geometry of modular curves and of Shimura varieties play a central role, and her results and methods are bound to have major impact on future research in this area.

What are the Key Points of the Awards?

- The award was instituted by the Shanmugha Arts, Science,

Technology & Research Academy (SASTRA) in 2005.

- A cash prize of USD 10,000 is presented annually to individuals aged 32 and below, who made outstanding contributions in the field of mathematics, influenced by Srinivasa Ramanujan in a broad sense.

International Day for Older Persons

Context

- The United Nations marks October 1 as International Day for Older Persons, as part of the organisation's efforts to draw attention to healthy ageing.

About

- Recently, a report by the UN Department of Economic and Social Affairs (UNDESA), "World Population Prospects 2022", has projected big shifts in global demographic patterns in the coming decades.
- **As per the report:**
 - 16% of the world population by 2050 is expected to be made up of people over 65 years.
 - India's population will be 7(one point seven) billion by 2050, having overtaken China to be the world's most populous country.
 - Eight countries — India is among them — will account for more than half of the world's increasing population by 2050.

Composition of the world population

- Between 1950 and 2010, life expectancy worldwide rose from 46 to 68 years.
- Globally, there were 703 million persons aged 65 or over in 2019.
- The region of Eastern and South-Eastern Asia was home to the largest number of older persons, followed by Europe and Northern America.
- Over the next three decades, the number of older persons worldwide is projected to more than double, reaching more than 1.5 billion persons in 2050.
- All regions will see an increase in the size of the older population between 2019 and 2050.
- The largest increase is projected to occur in Eastern and South-Eastern Asia.

What are the issues involved?

- This demographic change will have a profound impact on its health systems.
- The prevalence of non-communicable diseases such as diabetes, hypertension and heart disease, or disabilities related to vision, hearing or mobility is higher among the elderly.
- The change in demographic structure will increase the pressure on public health systems that are not geared to deliver universal health care along

with social security measures such as old-age and disability pensions.

- The COVID-19 pandemic has exacerbated existing inequalities, with the past three years intensifying the socioeconomic, environmental, health and climate related impacts on the lives of older persons, especially older women who constitute the majority of older persons.
- The Indian economy still needs to mitigate the fiscal costs that arise from a rising old-age dependency ratio.

Eye care and elderly health

- People with impaired vision had a greater fear, and risk, of falling (a major cause of disability and hospitalisation among the elderly).
- This reduced their movement and independence, leading to depression.
- The way forward can be a package of interventions, including assistive devices for sight, hearing, and mobility, or referrals to psychiatric support for depression or other mental health issues.
- Eye health in India has many cross-subsidy models to help alleviate the financial burden on individuals.
- The future of elderly care needs to be long term, comprehensive, and integrated, and must be oriented towards primary care to be accessible.

Need to protect the elderly population

- Older people have a wealth of skills and experiences.
- They contribute on a macro level to the workplace and financially and at a local level to their communities and individual networks in terms of experience.
- They can provide a vital generational link for the upcoming generation, such as providing support and stability to families and society at large.
- They help in transferring values and morals to the younger generation.
- Thereby contributing towards bringing up better human beings and responsible citizens.
- Many older people also contribute to the economy informally – by caring for their grandchildren or other family members.

Schemes for the welfare of elderly people

- The Government of India is implementing various schemes and programmes to provide healthy, happy, empowered, dignified and self-reliant life to senior citizens, along with strong social and inter-generational bonding.
- **Atal Vayo Abhyudaya Yojana (AVYAY):** It is a Central Sector Scheme under the Department of Social Justice & Empowerment.
 - AVYAY brings together articulation of each of the current schemes, future plans, strategies and targets and maps it with schemes/programmes, accountabilities, financials & clear outcomes.
 - This Plan takes care of the top four needs of the senior citizens viz financial security, food, health care and human interaction /life of dignity.
- It has the schemes under it, namely:
 1. Integrated Programme for Senior Citizens (IPSc),
 2. State Action Plan for Senior Citizens (SAPSc),
 3. Rashtriya Vayoshri Yojana (RVY),
 4. Senior Able Citizens for Re-employment in Dignity (SACRED),
 5. Action Groups Aimed at Social Reconstruction (AGRASR),
 6. Senior-care Aging Growth Engine (SAGE)-Silver economy for Senior Citizens,

International Day for Older Persons

- **About:**
 - Observed every year on 1st of October.
- **Background:**
 - On 14 December 1990, the United Nations General Assembly designated October 1 as the International Day of Older Persons (resolution 45/106).
 - This was preceded by initiatives such as the Vienna International Plan of Action on Ageing, which was adopted by the 1982 World Assembly on Ageing and endorsed later that year by the UN General Assembly.
 - In 1991, the General Assembly adopted the United Nations Principles for Older Persons (resolution 46/91).
 - In 2002, the Second World Assembly on Ageing adopted the Madrid International Plan of Action on Ageing, to respond to the opportunities & challenges of population ageing in the 21st century and to promote the development of a society for all ages.
- **Theme of 2022:**
 - Resilience of Older Persons in a Changing World.
- **Objectives:**
 - To highlight the resilience of older women in the face of environmental, social, economic and lifelong inequalities
 - To raise awareness of the importance of improved world-wide data collection, disaggregated by age and gender.
 - To call on member states, UN entities, UN Women, and civil society to include older women in the center of all policies

7. Elderline – National Helpline for Senior Citizens, 8. Channelizing the CSR fund for elderly care.
- **National Social Assistance Programme (NSAP):** Under the Ministry of Rural Development, under this the elderly, widows, and disabled persons belonging to Below Poverty Line (BPL) and fulfilling eligibility criteria prescribed in the NSAP guidelines, are provided financial assistance ranging from Rs.200/- to Rs.500/- p.m. and in the case of death of the breadwinner, a lumpsum assistance of Rs.20,000/- is given to the bereaved family.
 - **National Programme for the Health Care of Elderly (NPHCE):** Launched during 2010-11 is State oriented program with the basic thrust to provide comprehensive and dedicated health care facilities to the elderly persons above 60 year of age at various levels of primary, secondary and tertiary health care.

PowerEX-2022

In News

- Indian Computer Emergency Response Team (CERT-In) in collaboration with Power-CSIRTs (Computer Security Incident Response Teams in Power sector), successfully designed & conducted the Cyber Security Exercise "PowerEX"

About PowerEX-2022

- Exercise "PowerEX" was hosted by CERT-In on its exercise simulation platform.

- Around 350+ officials from various Power Sector Utilities participated in the event.
- The Objective of the exercise was to "Recognize, Analyse & Respond to Cyber Incidents in IT & OT Systems".
- **Theme:** "Defending Cyber induced disruption in IT & OT infrastructure"
- Exercise "PowerEX" was successful in meeting its objectives and helped the participants to learn, practice and respond to cyber security incidents.

6th East Asia Summit Education Minister's Meeting

Context

- India participated in the 6th East Asia Summit Education Minister's Meeting held in Hanoi, Vietnam.

About

• East Asia Summit:

- The concept of East Asia Grouping was first promoted in 1991 by the then Malaysian Prime Minister, Mahathir bin Mohamad.
- Established in 2005, it is the Indo-Pacific's premier forum for strategic dialogue, promoting peace, stability and economic prosperity in East Asia.
- It is the only leader-led forum at which all key partners meet to discuss political, security & economic challenges facing the Indo-Pacific.
- Apart from the 10 ASEAN

(Association of Southeast Asian Nations) member states, the East Asia Summit includes India, China, Japan, the Republic of Korea, Australia, New Zealand, the United States and Russia.

- There are six priority areas of regional cooperation within the framework of the EAS. These are:
 - Environment and Energy,
 - Education,
 - Finance,
 - Global Health Issues and Pandemic Diseases,
 - Natural Disaster Management, and
 - ASEAN Connectivity.

• India and EAS:

- India is one of the founding members of the East Asia Summit.
- India has been a part of EAS since its inception in 2005 in Kuala Lumpur and the fact that Indian Prime Ministers have participated in all the Summits, stands testimony to the importance India attaches to this process.
- At the East Asia Summit in Bangkok in November 2019, India had unveiled India's Indo-Pacific Oceans Initiative (IPOI), which is aimed at forging partnerships to create a secure and stable maritime domain.
- India greatly values educational cooperation with EAS countries.
- She also emphasised India's

commitment to working with EAS member countries.

Challenges Education Sector facing in India

- **High- dropout rates:** The major challenge in the education system is the high dropout rate in public schools or government schools.
 - It is all due to several factors such as poverty, lack of toilets, long distance to school, child marriages, patriarchal mindset, & cultural factors.
- **Poor governance and lack of responsibility:** Due to poor governance & insufficient funds, most educational institutions lack infrastructure, science equipment and libraries etc.
 - According to the UNESCO's State of the Education report for India 2021, there are 11.16 lakh teaching positions that are vacant in schools.
- **Problem of Brain drain:** When intelligent, talented and deserving candidates do not get suitable jobs in the country, they prefer to go abroad to seek jobs.
 - So our country is deprived of good talent. This phenomenon is called 'Brain drain'.
- **Mass Illiteracy:** In spite of constitutional directives and efforts aimed at enhancing education, around 25% of Indians still remain illiterate, which also leaves them socially and digitally excluded.
- **Expensive Higher Education:** According to a survey by Assocham, there has been a 169%

rise in inflation in primary and secondary education from 2005 to 2011.

- Specialized institutions and colleges are expensive in India.

India's Collaborative efforts in education

- **National Education Policy 2020:** It replaced the 34 years old National Policy on Education which was framed in 1986.
 - It is based on foundational pillars of access, equality, quality, affordability and accountability and is aligned with SDG 2030 goals.
 - India has had three educational policies so far. The first was in the year 1968, the second was in the year 1986 and the third one is in the year 2020.
- **PM SHRI Scheme:** Under this more than 14,500 schools will be developed across India with all components of NEP 2020 as exemplar schools.
 - These schools will offer mentorship to other schools in their vicinity.

- Other e-learning platforms: Also, an online, open and multi-modal learning has been promoted vigorously under our PM- eVidya and various e-learning platforms like DIKSHA, SWAYAM MOOCS platform, Virtual Labs, e-PG Pathshala and National Digital Library, and many others has been launched.

Solutions to Challenges: A way forward

- More importance should be given to the primary and secondary education of a child.
- The Government should spend more on building the infrastructure of schools and teachers' training.
- Appropriate measures need to be taken up by the Government for providing quality education that is affordable for all.
- Like ndeur National Education Policy 2020, the students are free to choose the language according to their own interests.
- In the education expenditure, from the year 1952 to 2014, the total GDP percentage increased from 0.64 to 4.13.

Provisions in the Indian Constitution on education

- **Article 21A:** 86th Constitutional Amendment Act of 2002 introduced Article 21A which made elementary education a Fundamental Right rather than a Directive Principle.
- **Article 45:** It was amended to provide early childhood care and education to children below the age of 6 years.
- **Right to Free and Compulsory Education Act, 2009:** This Act was passed to implement Article 21A. It also provided essential legal backing for the implementation of the Sarva Shiksha Abhiyan. Sarva Shiksha Abhiyan has been in operation since 2000-2001.

First Queen Elizabeth II Award

Context

- Britain's Indian-origin Home Secretary, Suella Braverman has been named winner of the first-ever Queen Elizabeth II Woman of the Year award at a ceremony in London.
- The 42-year-old barrister, who was appointed to the Cabinet earlier this month by British Prime Minister Liz Truss, said it was the "honour of her life" to take on the new role at the Asian Achievers Awards (AAA) 2022 ceremony, dedicated to the memory of the late monarch who passed away recently.
- Braverman was previously Attorney General between 2020-2022.
- The awards, now in their 20th year, recognise the achievements of individuals from across Britain's South Asian community via public nominations.
- Braverman expressed her gratitude for the honour saying that the UK is the best country in the world for anyone, regardless of race or origin.
- These awards were established in 2000 to honour South Asians for their great achievements in the UK.

About the "Suella" Braverman:

- Sue-Ellen Cassiana "Suella" Braverman KC is a British politician and barrister serving as Home Secretary since 6 September 2022.

- She was the Attorney General for England and Wales from 2020 to 2022.
- She has been a member of parliament for Fareham in Hampshire since 2015.

Breakthrough Prize 2023

- 2023 Breakthrough Prizes conferred to individuals who made key contributions in the scientific growth.

Key facts

- The Breakthrough Prizes are international awards conferred under three categories – mathematics, fundamental physics and life sciences.
- These awards give recognition to scientific advances in these fields.
- The awards were created in 2010 by a group of Silicon Valley entrepreneurs – Milner (venture capitalist), Mark Zuckerberg and his wife Priscilla Chan of Facebook and Sergey Brin of Google.
- The Breakthrough Prizes were conferred for the first time in 2012 and the ceremony was hosted by Morgan Freeman.
- Awardees receive 3 million USD each in prize money, which is higher than the 1 million USD received by Nobel laureates.
- These prizes are conferred at a televised award ceremony that is organized to celebrate their achievements and inspire the next generation of scientists.
- This year, three prizes were

conferred in the life sciences category, one for mathematics and one for fundamental physics.

- The total prize received by all these awardees are more than 15 million USD.

Who are the winners?

- **Life Sciences:** Clifford Brangwynne and Anthony Hyman received the prize for discovering a new mechanism of cellular organization.
 - Demis Hassabis and John Jumper were recognized for the development of AlphaFold, which predicts the structure of proteins.
 - The prize was also given to Emmanuel Mignot and Masashi Yanagisawa for the discovery of causes of narcolepsy – the chronic sleep disorder characterized by overwhelming daytime drowsiness and sudden attacks of sleep.
- **Mathematics:** Daniel Spielman of Yale University was given recognition for multiple discoveries in theoretical computer science and mathematics.
 - He has been a professor of applied mathematics and computer science at Yale University since 2006.
- **Fundamental physics:** The prize was shared by Charles Bennett, Gilles Brassard, David Deutsch & Peter Shor for their research in quantum information.

4. Historic persons

Shaheed Bhagat Singh

- **In News:** The Chandigarh International Airport was renamed as Shaheed Bhagat Singh Airport, on the occasion of the freedom fighter's birth anniversary and the controversy between Punjab and Haryana over their claims on the airport has finally ended.
- Earlier, Haryana had stated that the airport should only be named after Chandigarh, as it is the joint capital of both the states.
- An agreement was signed between the Airport Authority of India (AAI) and Punjab.

About Shaheed Bhagat Singh:

- Bhagat Singh was born on September 27, 1907 in Lyallpur, Western Punjab (now in Pakistan).
- He was a revolutionary hero of the Indian independence movement.
- He attended Dayanand Anglo Vedic High School, which was operated by Arya Samaj.
- He quit education at the age of thirteen and got admitted to the National College in Lahore, where he studied European revolutionary movements.
- He worked as a writer and editor in Amritsar for Punjabi- and Urdu-language newspapers espousing Marxist theories.

- The Jallianwala Bagh massacre of 1919 had a tremendous impact on Bhagat Singh who was just 12-years-old, he took the sand soaked with blood of the Indians killed at the garden and kept it with him to remind him of the ruthlessness of the British government.

Nationalist activities:

- He is credited with popularizing the catchphrase "Inquilab zindabad" ("Long live the revolution")
- Hindustan Socialist Republican Association (HSRA) was founded in 1928 by Chandrashekhar Azad, Bhagat Singh and others.
- In 1928, Bhagat Singh and Rajguru shot dead a British police officer, John Saunders, in Lahore, mistaking Saunders, for the British senior police superintendent, James Scott.
- They held Scott responsible for the death of Lala Lajpat Rai in a lathi charge of Simon Commission.
- On 8 April, 1929, Bhagat Singh and Batukeshwar Dutt threw bombs at the Central Legislative Assembly at Delhi 'to make the deaf hear'.
- In the Lahore conspiracy case, Bhagat Singh along with, Rajguru and Sukhdev were sentenced to death.
- Bhagat Singh was in one-year imprisonment.

- He was in the Lahore jail when he was hanged in March 1931.
- Widespread coverage in Indian-owned newspapers about his courage and spirit - turned him into a household name in India & after his execution into a martyr of Indian Freedom Struggle.
- **Philosophy:** He was an avid reader of the teachings of Mikhail Bakunin and also read Karl Marx, Vladimir Lenin and Leon Trotsky. In his last testament, "To Young Political Workers", he declares his ideal as the "Social reconstruction on new, i.e., Marxist, basis. Singh regarded Kartar Singh Sarabha, the founding-member of the Ghadar Party as his hero.
- **Books:** Why I am an Atheist, Letter to my father, Jail Notebook

Srinivasa Ramanujan

Context:

- The SASTRA Ramanujan Prize for 2022 will be awarded to Yunqing Tang, Assistant Professor with the University of California, Berkeley, U.S.A.

Key Points About Srinivasa Ramanujan:

- Born on 22nd December, 1887 in Erode, Tamil Nadu and died on 26th April 1920 in Kumbakonam, Tamil Nadu, India.
- In 1903 he secured a scholarship to the University of Madras

but lost it the following year because he neglected all other subjects in pursuit of mathematics.

- In 1911 Ramanujan published the first of his papers in the Journal of the Indian Mathematical Society.
- In 1913 he began a correspondence with the British mathematician Godfrey H. Hardy which led to a special scholarship from the University of Madras and a grant from Trinity College, Cambridge.
- In 1918 he was elected to the Royal Society of London.
- Ramanujan was one of the youngest members of Britain's Royal Society and the first Indian to be elected a Fellow of Trinity College, Cambridge University.

Contributions to Mathematics:

- **Formulas and Equations:**
 - Ramanujan compiled around 3,900 results consisting of equations and identities. One of his most treasured findings was his infinite series for Pi.
 - He gave several formulas to calculate the digits of Pi in many unconventional ways.
- **Game Theory:**
 - He discovered a long list of new ideas to solve many challenging mathematical problems, which gave a significant impetus to the development of game theory.

- His contribution to game theory is purely based on intuition & natural talent & remains unrivalled to this day.
- **Ramanujan's Book:**
 - One of Ramanujan's notebooks was discovered by George Andrews in 1976 in the library at Trinity College. Later the contents of this notebook were published as a book.
- **Ramanujan number:**
 - 1729 is known as the Ramanujan number.
 - It is the smallest number which can be expressed as the sum of two different cubes in two different ways.
 - 1729 is the sum of the cubes of 10 and 9 - cube of 10 is 1000 and cube of 9 is 729 adding the two numbers results in 1729.
 - 1729 is also the sum of the cubes of 12 and 1, cube of 12 is 1728 and cube of 1 is 1 adding the two results in 1729.
- **Other Contributions:** Ramanujan's other notable contributions include hypergeometric series, the Riemann series, the elliptic integrals, mock theta function, the theory of divergent series, and the functional equations of the zeta function.

Lal Bahadur Shastri

Why in News?

- In 2nd October, India celebrates the 118th birth anniversary of Lal Bahadur Shastri, the nation's second Prime Minister.

How can we Learn from Shastri's Life?

- **Against the Caste System:**
 - Lal Bahadur Shrivastava was the son of Ramdulari Devi and Sharada Prasad Shrivastava. However, being against the prevailing caste system, he decided to drop his surname.
 - The title 'Shastri' was given after he completed his graduation at Kashi Vidyapeeth, Varanasi in 1925.
 - The title 'Shastri' refers to a 'scholar' or a person, adept in the holy scriptures. Shastri in this way showed a broad outlook at a very young age.
- **Taking Responsibilities during Adverse Times:**
 - He was one of the giants in public life, who always took the country's myriad responsibilities on his shoulders.
 - In adverse situations, too, he came forward, held himself accountable, and demonstrated the qualities of a true leader.
 - He served as the Railway Minister in Jawaharlal Nehru's Cabinet and was so conscientious that he resigned following a train accident at Ariyalur in Tamil Nadu in 1956.
 - His gesture was hailed by all including Nehru, whom he considered as his "hero".
- **Inseparable Public and Private Life:**
 - In 1965, India was em-

broiled in war with Pakistan and the country was facing acute food shortage.

- There was added pressure with the United States threatening to cut supplies.
- o Faced with the crisis, Lal Bahadur Shastri announced to his family one evening that for the next few days they would all give up on their evening meal.
- **Morality:**
 - o It is said that he had a Chevrolet Impala car for official use, which his son once used for a drive.
 - When Shastri learned about it, he asked his driver to check the distance the car was used for and later deposited the money in the government account.

What Makes Shastri's Values Relevant Today?

- Indians should emulate the simplicity, humility, humanism, austerity, hard work, dedication, and nationalism displayed by the unassuming second prime minister of India today.
- Shastri's maiden Independence Day speech in 1964 is as relevant today as it was then, as he emphasized character and moral strength, which has acquired special significance as we witness all-round degeneration of values.

Shyamji Krishna Varma

Introduction

- Shyamji Krishna Varma, a great patriot, founded the Indian Home Rule Society, India House & The Indian Sociologist in London.
- He was born on October 4, 1857 in Mandvi, Gujarat, and passed away on March 30, 1930 in Geneva, Switzerland.

Why in news?

- Today is the birth anniversary of Shri Shyamji Krishna Varma, considered as a staunch nationalist.

Know about him

- Born in 1857 in modern-day Gujarat, Shyamji Krishna Varma completed his education in India, before moving on to teach Sanskrit at Oxford University.
- In 1905 he founded the India House and The Indian Sociologist, which rapidly developed as an organised meeting point for radical nationalists among Indian students in Britain at the time and one of the most prominent centres for revolutionary Indian nationalism outside India.
- Krishna Varma moved to Paris in 1907, avoiding prosecution.
- The monthly Indian Sociologist became an outlet for nationalist ideas and through the Indian Home Rule Society, he criticised the British rule in India.
- Varma, who became the first President of Bombay Arya Samaj,

was an admirer of Dayanand Saraswati, and he inspired Veer Savarkar who was a member of India House in London.

- Verma also served as the Divan of a number of states in India.

Know about Arya Samaj

- The Arya Samaj is a reform movement and a religious/social organization which was formally established in Bombay in 1875 by Swami Dayananda Saraswati (1824-1883).
- Contrary to some misconceptions, it is not a religion or a new sect in Hindu religion.
- He saw the degraded and de-based condition of the Hindus.
- His heart bled at the sight of millions of people who were weak, disjointed, deranged & helpless.
- They were dominated by a few egoistic and power-driven individuals with hidden agendas.

Know about India Home Rule Society

- On 18 February 1905, an Indian organisation, the Indian Home Rule Society IHRS was founded in London which sought to promote the cause of self-rule in British India.
- The organisation was founded by Shyamji Krishna Varma, with support from a number of prominent Indian nationalists in Britain at the time including Bhikaji Cama, Dadabhai Naoroji & Sardarsinhji Ravaji S. R. Rana.
- It was intended to be a rival organisation to the British Com-

mittee of the Indian National Congress that was the main avenue of the loyalist opinion at the time.

- The Indian Home Rule Society was a metropolitan organisation modelled after Victorian public institutions of the time.
- It had a written constitution and the stated aims to secure Home Rule for India and to carry on a genuine Indian propaganda in this country by all practicable means.
- The IHRS was open for membership to Indians only and found significant support amongst Indian students and other Indian populations in Britain.
- It recruited young Indian activists and maintained close contact with revolutionary movements in India.

What is Modi-Varma Link?

- Shyamji Krishna Varma passed away in 1930, hoping his ashes would return to his motherland after its Independence from the colonial rule.
- While the ruling governments had forgotten about the latter, it was Modi who finally brought it back from Geneva.
- On 22 August 2003, Modi collected Varma's ashes from the Ville de Genève and the Swiss government, fulfilling the last wish of the freedom fighter.
- Mr Modi got the reinstatement certificate of Shyamji Krishna Varma from UK when he visited there in 2015.

Loknayak Jayaprakash Narayan

In News

- Recently, the Prime Minister paid tributes to Loknayak Jayaprakash Narayan on his Jayanti.

About:

- He was born on October 11, 1902, in the remote village of Sitabdiara, Bihar.
- Socialist/ Marxist influence: Jayaprakash Narayan went to the US for education, where he was deeply influenced by Marxist ideology.
- However, he rejected the ultimate solution of "revolution" to bring down capitalism as being advocated by the Marxists and instead advocated Socialism.
- **Contribution to Freedom Struggle:**
 - In 1929, he joined the Indian National Congress.
- **Imprisonment:**
 - In 1932, he was imprisoned for a year, for participation in the civil disobedience movement.
 - In 1939, due to his opposition to Indian participation in World War II on the side of Britain, he managed to escape.
- He played a key role in the formation of the Congress Socialist Party (1934), a left-wing group within the Congress Party.

His role in the Post-Independence Era

- He left the Congress Party in 1948 and initiated an anti-Congress Campaign.
- In 1952- formed the Praja Socialist Party (PSP).
- In 1954- he started the Bhoodan Yajna Movement of Vinoba Bhave, which demanded land redistribution to the landless.
- In 1959, he fought for "reconstruction of Indian polity" by means of a four-tier hierarchy of village, district, state, and union councils (Chaukhamba Raj).
- **Total Revolution:** He started a program for social transformation named 'Sampoorna Kranti' (total revolution) in 1974 against corruption in public life.
 - This program targeted the Indira Gandhi Regime as she was found guilty of violating electoral laws by the Allahabad High Court.
 - The objective was to bring in a change in the existing society that is in tune with the ideals of the Sarvodaya (Gandhian philosophy-progress for all).

Accreditation

- He was posthumously awarded India's highest civilian award, the Bharat Ratna (1999), for his "invaluable contribution to the freedom struggle and upliftment of the poor and downtrodden".

5. Book Author's

Title	Author	Content
A confused mind story	Sahil Seth	<ul style="list-style-type: none"> The book is based on the contrast between the spiritual and material world. The book depicts the answers behind the confusion of the common man in day today life and explains the rationale behind the meaning of life and belief system.
The seven moons of Maali Almeida	Shehan Karunatilaka	<ul style="list-style-type: none"> The novel is set in Srilanka in the 1980's, and written in the second person. The Central character, Maali Almeida, is a dead photographer who is given one week during which he can travel between the afterlife and the real world. In this time he hopes to retrieve a set of photographs, stored under a bed, and to persuade his friends to share them widely to expose the brutalities of the Sri Lankan Civil war.

IV. History – Historical events

National Conference on Project Mausam

In News

- Recently, the Archaeological Survey of India (ASI) organized a two-day National Conference on Project Mausam at India Habitat Centre, New Delhi.

About:

- National Conference on Project Mausam is being organized with the objective of promoting further research and broadening our understanding of this
- Theme:** National Conference on Project Mausam 2022 is being organized on the theme of "Jaladhipurayatra: Exploring Cross- Cultural Linkages

along the Indian Ocean Rim Countries".

- Associated ministry:** ministry of culture is organizing the National Conference on Project Mausam 2022
- Participation:** Over twenty scholars from different parts of India participated in the Academic Sessions of the Conference.
 - These include meteorologists, archaeologists, historians and internationally-renowned experts in the fields of climate change, underwater explorations and intangible cultural heritage.

Key Sessions in National Conference on Project Mausam

- The Conference consists of a

Plenary Session followed by six Academic Sessions, each dealing with a particular aspect of India's maritime interactions.

- One session exclusively deals with issues relating to the World Heritage properties with special reference to-
 - Identification of historical sites and structures located in different countries of the Indian Ocean region and
 - Exemplifying inter-country relations, thus qualifying for trans-national nomination for UNESCO World Heritage certification.
- This was followed by a unique session in which the representatives and ambassadors of the different Indian Ocean region countries discussed-

- Different aspects of the region's inter-country ties and
- Trans-national nomination of important sites in the region for the World Heritage status.

Project 'Mausam'

- **Background:** Project Mausam' was launched by the Ministry of Culture, Government of India at UNESCO's 38th World Heritage Committee Meeting held at Doha, Qatar, in 2014.
 - Currently, the Project is being administered by the Archaeological Survey of India (ASI).
- **About:** Focusing on monsoon patterns, cultural routes and maritime landscapes, Project 'Mausam' is examining key processes and phenomena that link different parts of the Indian Ocean littoral as well as those that connect the coastal centres to their hinterlands.
- **Implementation:** Project 'Mausam' is a Ministry of Culture project.
 - It is to be implemented by Indira Gandhi National Centre for the Arts (IGNCA), New Delhi as the nodal coordinating agency with support of Archeological Survey of India & National Museum as associate bodies.

Shri Mahakal Lok Corridor

Why in News?

- Recently, the Prime Minister inaugurated the first phase of

the 'Shri Mahakal Lok' corridor in Ujjain, Madhya Pradesh.

- After Vishwanath temple in Varanasi and the Kedarnath shrine in Uttarakhand, Mahakal temple is the third 'jyotirlinga' site to see a major upliftment exercise.
- The Rs 800-crore Mahakal corridor is four times the size of the Kashi Vishwanath Corridor.

What is the Shri Mahakal Lok Corridor?

• **About:**

- Mahakal Maharaj Mandir Parisar Vistar Yojna is a plan for the expansion, beautification, and decongestion of the Mahakaleshwar temple and its adjoining area in Ujjain district.
- Under the plan, the Mahakaleshwar temple premises of around 2.82 hectares is being increased to 47 hectares, which will be developed in two phases by the Ujjain district administration.
 - This will include the 17 hectares of Rudrasagar lake.
- The project is expected to increase annual footfall in the city from the current 1.50 crore to nearly three crores.

• **First Phase:**

- One of the aspects of the Vistar Yojna's first phase is a visitor plaza with two entrances or Dwaars i.e., the Nandi Dwaar and the Pinaki Dwaar.
 - The visitor plaza can hold up to 20,000 pilgrims at a time.

- A circulation plan to reduce congestion has also been developed, keeping in mind the entry of visitors into the city and their movement up to the temple.
- A 900-metre pedestrian corridor has been constructed, connecting the plaza to the Mahakal temple, dotted with 108 murals and 93 statues depicting stories related to Lord Shiva, such as Shiv Vivah, Tripurasur Vadh, Shiv Puran, & Shiv Tandav Swaroop.
 - There are also 128 convenience points, eateries and shopping joints, florists, handicraft stores, etc. along this pedestrian corridor.
- **Second Phase:**
 - This includes expansion of the eastern and northern fronts of the temple.
 - It also includes development of various areas of Ujjain city, such as Maharajwada, Mahal Gate, Hari Phatak Bridge, Ramghat façade, and Begam Bagh Road.
 - Buildings in Maharajwada will be redeveloped and connected to the Mahakal temple campus, while a heritage dharamshala and Kumbh museum will be built.
 - The second phase is being developed with funding from Agence Francaise de Development (AFD) under the City Investments to In-

novate, Integrate and Sustain (CITIIS) programme.

What is the Significance of Shri Mahakal Lok Corridor?

- **Immense Cultural Beliefs:** The temple is believed to be governed by Mahakaleshwar, which means the 'Lord of time' i.e., Lord Shiva. As per Hindu mythology, the temple was constructed by Lord Brahma and is presently located alongside the holy river Kshipra.
- **Only Jyotirlinga Facing South:** Mahakaleshwar Jyotirlinga in Ujjain is one of the 12 jyotirlingas considered the most sacred abodes of Shiva. The shrine is revered as one of the 18 Maha Shaktia Peeth in India.
 - It is the only jyotirlinga facing the south, while all the others face east. This is because the direction of death is believed to be the south.
- In fact, people worship Mahakaleshwar to prevent an untimely death.
 - According to the Puranas, Lord Shiva pierced the world as an endless pillar of light, called the jyotirlinga.
- Besides Mahakal, these include Somnath and Nageshwar in Gujarat, Mallikarjuna in Andhra Pradesh, Omkareshwar in Madhya Pradesh, Kedarnath in Uttarakhand, Bhimashankar, Triyambakeshwar and Grishneshwar in Maharashtra, Viswanath at Varanasi, Baidyanath in Jharkhand, and Rameswaram in Tamil Nadu.

- **Mention in Ancient Texts:** The Mahakal temple finds a mention in several ancient Indian poetic texts. In the early part of the Meghadutam (Purva Megha) composed in the 4th century, Kalidasa gives a description of the Mahakal temple.
 - It is described as one with a stone foundation, with the ceiling on wooden pillars. There would be no shikharas or spires on the temples prior to the Gupta period.
- **Destruction and Rebuilt of Temple:** During the medieval period, Islamic rulers used to give donations to priests for offering prayers here.
 - In the 13th century, the temple complex was destroyed by Turk ruler Shams-ud-din Iltutmish during his raid on Ujjain.
 - The present-day five-storied structure was built by the Maratha general Ranoji Shinde in 1734, in the Bhumiya, Chalukya and Maratha styles of temple architecture.

What is the Historical Significance of the City of Ujjain?

- The city of Ujjain was one of the primary centres of learning for Hindu scriptures, called Avantika in the 6th & 7th centuries BC.
- Later, astronomers and mathematicians such as Brahmagupta and Bhaskaracharya made Ujjain their home.
 - In the 18th century, an observatory was built here by Maharaja Jai Singh II,

known as the Vedh Shala or Jantar Mantar, comprising 13 architectural instruments to measure astronomical phenomena.

- Also, as per the Surya Siddhanta, one of the earliest available texts on Indian astronomy dating back to the 4th century, Ujjain is geographically situated at a spot where the zero meridian of longitude and the Tropic of Cancer intersect.

Indian Air Force Day 2022

- **Indian Air Force Day 2022:** The Indian Air Force (IAF) is the fourth largest air force in the world after the US, China, and Russia.
- Indian Air Force Day is observed on October 8 and this year marks its 90th anniversary of this day.
- IAF will hold a parade at the Hindon airbase in Ghaziabad where it showcases its air power.
- On Indian Air Force Day 2022, nearly 80 planes, including a single-engine MiG-21, will put on a grand show at Sukhna Lake in Chandigarh.
- On this day, the planes will display five formations, including a three aircraft formation by LCH
- Indian Air Force is also known as "Bhartiya Vayu Sena" & is the air arm of the Indian Armed Forces.
- This day is celebrated for the inception of the Air Force in India to aid the Army that was fighting on the land.

Indian Air Force Day: History

- The Indian Air Force was officially established on 8 October 1932.
- Its first ac flight came into being on 01 April 1933.
- Therefore, the celebration of this day was officially started on 8th October in the year 1932 in order to increase the awareness of the Indian air force in any organization of national security both officially and publicly.
- The day is celebrated in air force bases all across the nation with air shows and parades conducted by air force cadets, as the Indian Air Force (IAF) has its prime responsibility of securing the Indian airspace as well as carrying out aerial warfare during any clash.
- It is known that the Indian Air Force has been a fundamental and crucial part of the defence system of the nation along with the Indian Navy and Army.
- The IAF's first flight came into being on 1st April 1933. The first time IAF came into brave action was during the Waziristan war against the tribal.
- Later IAF got expanded tremendously during the Second World War.
- IAF proved to be a great defence force during the war, especially in Burma.
- Its anonymous contribution and achievement made the IAF win the prefix of Royal in 1945 and hence came to be known as the Royal Indian Air Force (RIAF).

- As of 1 July 2017, the Indian Air Force has a sanctioned strength of 12,550 officers (12,404 serving with 146 under strength), and 142,529 airmen (127,172 serving with 15,357 under strength).
- Not only it has the responsibility to safeguard the Indian Territory from all risks, but also provides support during natural calamities to the affected areas.
- **The IAF has been involved in numerous wars:** World War II, Sino-Indian War, Operation Cactus, Operation Vijay, Kargil War, Indo-Pakistan War, Congo Crisis, Operation Poomalai, Operation Pawan, and few others.

7 amazing facts about Kargil Vijay Diwas

Indian Air Force Day Celebration

- This day is celebrated with the same zeal and pride at various Air Stations all over the country.
- All Air Force stations in several states will conduct their parades at their respective Airbases.
- Even the military parade will be conducted as per the same schedule and the protocol that is followed each year.
- The Supreme Commander of the IAF is the National Commander of the air force also contributes in many forms.
- In the last few years, the Indian Air Force has been expanding immensely and has initiated the bringing up of women into

the short service commissions.

Some Facts about India Air Force

- The Indian Air Force functions with the motto 'Nabham Sparsham Deeptham' which is "Touch the Sky with Glory".
- The Indian Air Force employs over 1,400 aircraft and around 170,000 personnel.
- The Indian Government, in January 2002, granted the rank of Marshal of the Air Force to Arjan Singh, thus making him the first and the only Five-star officer with the Indian Air Force & ceremonial chief of the air force.
- Indian Air Force is categorised into five operational and two functional commands.
- In 2010, the Air Force Network (AFNET), a robust digital information grid that enabled quick and meticulous threat responses, was launched.
- The Indian Air Force has been engaged in four wars with Pakistan and one with the People's Republic of China after its independence.
- The operations carried out by it are Operation Meghdoot, Operation Vijay – the invasion of Goa, Operation Cactus, and Operation Poomalai.
- It has also been involved in the United Nations peacekeeping missions.
- The Supreme Command of the Indian Armed Forces vests in the President. The responsibility for national defence rests with the Cabinet.

V. Polity-Political Parties and Political System in India

Election Commission Freezes Shiv Sena Symbol

In News

- Recently, the Election Commission barred the Shiv Sena factions led by former CM Uddhav Thackeray and current Maharashtra CM Eknath Shinde from using the party name and its election symbol.

About

- **Reason for doing this:**
 - In order to place both the rival groups on an even keel and to protect their rights and interests.
 - To cover the purpose of the current Bye-elections and to continue till the final determination of the dispute in the matter.
- **Symbols For Now:**
 - For the purposes of the current bye-elections, the two groups shall be allotted such different symbols as they may choose from the list of free symbols.

Election Symbols

- **About:**
 - The Election Symbols (Reservation and Allotment) Order, 1968 empowers the EC to recognise political parties and allot symbols.
 - Under Paragraph 15 of the

Order, it can decide disputes among rival groups or sections of a recognised political party staking claim to its name and symbol.

- The legal status of Paragraph 15 :
- Under Paragraph 15, the EC is the only authority to decide issues on a dispute or a merger. The Supreme Court upheld its validity in Sadiq Ali and another vs. ECI in 1971.
- **Types of Symbols:**
 - As per the Election Symbols (Reservation and Allotment) Order, 2017, party symbols are either:
 - **Reserved:** Eight national parties and 64 state parties across the country have “reserved” symbols.
 - **Free:** The Election Commission also has a pool of nearly 200 “free” symbols that are allotted to the thousands of unrecognised regional parties that pop up before elections.
- **Allocation of Symbols to Political Parties:**
 - As per the guidelines, to get a symbol allotted:
 - A party/candidate has to provide a list of three symbols from the EC’s free symbols list at the time of filing nomination papers.

- Among them, one symbol is allotted to the party/candidate on a first-come-first-serve basis.
- When a recognised political party splits, the Election Commission decides on assigning the symbol.

Internal Democracy in Political Parties

Why in News?

- The Election Commission is likely to take up the issue of internal democracy within parties.

What is the Need for Internal Party Democracy?

- **Representation:** The absence of intra-party democracy has contributed to political parties becoming closed autocratic structures.
 - This adversely impacts the constitutional rights of all citizens to equal political opportunity to participate in politics & contest elections.
- **Less Factionalism:** A leader with strong grassroots connections would not be sidelined.
 - This will allow less factionalism and division of parties. E.g., Sharad Pawar formed Nationalist Congress Party (NCP), Mamata Banerjee formed All India Trinamool Congress after leaving Indian National Congress (INC).

- **Transparency:** A transparent party structure with transparent processes will allow proper ticket distribution and candidate selection.
 - The selection would not be based on the whims of a few powerful leaders in the party but will represent the choice of the larger party.
 - **Accountability:** A democratic party will be accountable to its party members, for they will lose elections in the next cycle for their shortcomings.
 - **Decentralising Power:** Every political party has State and local body units, an election at each level will allow creation of power centres at different levels.
 - This will allow decentralisation of power and the decision making will take place at the ground level.
 - **Criminalization of Politics:** As there is no well-defined process for the distribution of tickets to candidates before elections, tickets are given to candidates on the vague concept of winnability.
 - This has led to an additional problem of candidates with criminal backgrounds contesting elections.
- What are the Reasons for Lack of Intra-Party Democracy?**
- **Dynasty Politics:** The lack of intra-party democracy has also contributed to the growing nepotism in political parties. With senior party leaders fielding their kins in elections, the succession plans for “family” constituencies are being put in place.
 - **Centralised Structure of Political Parties:** The centralised mode of functioning of the political parties and the stringent anti-defection law of 1985 deters party legislators from voting in the national and state legislatures according to their individual preferences.
 - **Lack of Law:** Currently, there is no express provision for internal democratic regulation of political parties in India and the only governing law is provided by Section 29A of the Representation of the Peoples’ Act, 1951 which provides for registration of political parties with the ECI.
 - However, ECI does not have any statutory power to enforce internal democracy in parties or to mandate elections.
 - **Personality cult:** There is a tendency of hero worship in people and many times a leader takes over the party and builds his own coterie, ending all forms of intra-party democracy.
 - **Easy to Subvert Internal Elections:** The ability of existing repositories of power to subvert internal institutional processes to consolidate power and maintain the status quo is unquestionable.
- What about the Direction of the Election Commission on Internal Democracy?**
- **Representation of the People Act, 1951:**
 - The ECI has periodically used guidelines issued for registration of parties under Section 29A of the Representation of the People Act, 1951 to remind parties to conduct elections and to ensure that their leadership is renewed, changed or re-elected every five years.
 - The EC’s guidelines for parties applying for registration under the Act state that the applicant should submit a copy of the party constitution.
 - **Power of De-registration of Political Parties:**
 - The commission has asked the Law Ministry for the power to deregister political parties in the past, but the proposal has not been implemented so far.
 - **No Permanent President for a Party:**
 - The Election Commission of India (ECI) has also recently rejected the idea of a ‘permanent president’ for a party.
 - The ECI says such a step is inherently anti-democratic.
- Way Forward**
- There is a need for a new interpretation and some bold moves from the ECI re-interpreting the existing laws, like:
 - Political parties should hold organizational elections regularly.
 - The parties are required to inform the ECI about changes in their office bearers and addresses.

- They are required to submit a document of expenditure incurred during elections & in the non-election period.
 - It shall be the duty of the political party to take appropriate steps to ensure the holding of elections at all levels.
 - The political party shall hold elections of national and State levels in the presence of the observers to be nominated by the ECI.
 - The ECI shall be competent to inquire into allegations of non-compliance with any of the provisions requiring elections.
 - ECI should have the penal power to deregister a party until free and fair elections in the party are conducted.
- ### Abortion Rights for Single Women
- #### Why in News?
- Recently, the Supreme Court has allowed all women in the country, regardless of marital status, can undergo an abortion up to 24 weeks into pregnancy to access safe and legal abortion care.
- #### What is the SC's Ruling?
- **Ruled over an Old Law:**
 - It has ruled over a 51-year-old abortion law (The Medical Termination of Pregnancy Act of 1971) which bars unmarried women from terminating pregnancies which are up to 24-weeks old.
 - **The Medical Termination of Pregnancy Act of 1971 and its Rules of 2003** prohibit unmarried women who are between 20 weeks to 24 weeks pregnant to abort with the help of registered medical practitioners.
 - The latest amendment to the MTP Act was made in 2021.
 - **Right to Choose under Article 21**
 - Court held that the rights of reproductive autonomy, dignity and privacy under Article 21 of the Constitution gives an unmarried woman the right of choice as to whether or not to bear a child on a similar footing as that of a married woman.
 - **Right to Equality under Article 14:**
 - Prohibiting single or unmarried pregnant women with pregnancies between 20 and 24 weeks from accessing abortion while allowing married women with the same term of pregnancy to access the care was violative of the right to equality before law and equal protection (Article 14).
 - A single woman may have suffered the same "change in material circumstances" as a married pregnant woman. She may have been abandoned or without a job or been a victim of violence during her pregnancy.
 - **Not Constitutionally Sustainable**
 - Artificial distinction between married and unmarried women is not constitutionally sustainable.
- The benefits of law extend equally to single and married women.
 - **Extended the Ambit of Reproductive Rights:**
 - The term Reproductive Right is not restricted to having or not having children.
 - Reproductive rights' of women included a "constellation of rights, entitlements and freedoms for women".
 - Reproductive rights include the right to access education and information about contraception and sexual health, right to choose safe and legal abortion and right to reproductive health care.
 - **Views on Marital Rape:**
 - For the sole purpose of the MTP Act, the meaning of rape must include marital rape to marshal a woman's right to reproductive and decisional autonomy.

What is India's Abortion Law?

- **Historical Perspective:**
 - Until the 1960s, abortion was illegal in India & a woman could face three years of imprisonment and/or a fine under Section 312 of the Indian Penal Code (IPC).
 - It was in the mid-1960s that the government set up the Shantilal Shah Committee and asked the group, headed by Dr Shantilal Shah, to look into the matter of

- abortions and decide if India needed a law for the same.
 - Based on the report of the Shantilal Shah Committee, a medical termination bill was introduced in Lok Sabha and Rajya Sabha and was passed by Parliament in August 1971.
 - The Medical Termination of Pregnancy (MTP) Act, 1971 came into force on 1st of April 1972 and applied to all of India except the state of Jammu and Kashmir.
 - Also, Section 312 of the Indian Penal Code, 1860, criminalises voluntarily "causing miscarriage" even when the miscarriage is with the pregnant woman's consent, except when the miscarriage is caused to save the woman's life.
 - This means that the woman herself, or anyone else including a medical practitioner, could be prosecuted for an abortion.
- About:**
- Medical Termination of Pregnancy (MTP) Act, 1971 act allowed pregnancy termination by a medical practitioner in two stages:
 - A single doctor's opinion was necessary for abortions up to 12 weeks after conception.
 - For pregnancies between 12 to 20 weeks old, the opinion of two doctors was required to determine if the continuance of the pregnancy would involve a risk to the life of the pregnant woman or of grave injury to her physical or mental health or if there is a substantial risk that if the child were born, it would suffer from such physical or mental abnormalities as to be seriously "handicapped" before agreeing to terminate the woman's pregnancy.

• **Recent Amendments:**

- In 2021, Parliament amended the law to allow for abortions based on the advice of one doctor for pregnancies up to 20 weeks.
- The modified law needs the opinion of two doctors for pregnancies between 20 and 24 weeks.
- Further, for pregnancies between 20 and 24 weeks, rules specified seven categories of women who would be eligible for seeking termination under section 3B of rules prescribed under the MTP Act,
- Survivors of sexual assault or rape or incest,
- Minors,
- Change of marital status during the ongoing pregnancy (widowhood and divorce),
- Women with physical disabilities (major disability as per criteria laid down under the Rights of Persons with Disabilities Act, 2016)
- Mentally ill women including mental retardation,
- The foetal malformation that has a substantial risk of be-

ing incompatible with life or if the child is born it may suffer from such physical or mental abnormalities to be seriously handicapped, and

- Women with pregnancy in humanitarian settings or disasters or emergencies may be declared by the Government.

What are the Concerns?

• **Cases of Unsafe Abortions:**

- Unsafe abortions are the third leading cause of maternal mortality in India, & close to 8 women die from causes related to unsafe abortions each day, according to the United Nations Population Fund (UNFPA)'s State of the World Population Report 2022.
- The women outside marriages & in poor families are left with no choice but to use unsafe or illegal ways to abort unwanted pregnancies.

• **Shortage of Medical Expert in Rural India:**

- According to a 2018 study in the Lancet, 15.6 million abortions were accessed every year in India as of 2015.
- The MTP Act requires abortion to be performed only by doctors with specialisation in gynaecology or obstetrics.
- However, the Ministry of Health and Family Welfare's 2019-20 report on Rural Health Statistics indicates that there is a 70% shortage of obstetrician-gynaecologists in rural India.

Illicit Abortions leading to Maternal Mortality:

- As the law does not permit abortion at will, it pushes women to access illicit abortions under unsafe conditions, thus result in maternal mortality.

Way Forward

- India's legal framework on abortion is largely considered progressive, especially in comparison to many countries including the United States where abortion restrictions are severely restricted — both historically, and at present.
- Further, there is a need for a serious rethink in public policy making, also accommodating all the stakeholders to focus on women and their reproductive rights, rather than drawing red lines those medical practitioners cannot cross while performing abortions.

Appointment of Chief Justice of India (CJI)**In News**

- Recently, Justice Dhananjaya Y Chandrachud was appointed as the 50th Chief Justice of India.
- He will have a relatively longer tenure of two years and is due to retire on November 10, 2024.

About Article 124

- The Constitution of India does not mention any procedure for appointing the CJI.

- Article 124 (1) of the Constitution merely says, "There shall be a Supreme Court of India consisting of a Chief Justice of India."
- Clause (2) of Article 124 of the Constitution says that every Judge of the Supreme Court shall be appointed by the President.
- Thus, in the absence of a constitutional provision, the procedure to appoint CJI relies on convention.

The Convention

- The outgoing CJI recommends his successor a practice, which is strictly based on seniority.
- Seniority, however, is not defined by age, but by the number of years a judge has been serving in the top court of the country.

The government's role

- The Central government has no role to play in the appointment of the CJI except for the Union Law Minister seeking the recommendation from the incumbent CJI, before sending it to the Prime Minister.

Who can become the Chief Justice of India?

- **Apart from being an Indian citizen, the person must:**
 - Have been for at least five years a Judge of a High Court or of two or more such Courts in succession or
 - Have been for at least ten years an advocate of a High Court or of two or more such Courts in succession, or

- Be, in the opinion of the President, a distinguished jurist.

Who appoints the CJI?

- The Chief Justice of India and the other judges of the Supreme Court are appointed by the President under clause (2) of Article 124 of the Indian Constitution.
- **Article 217:** which deals with the appointment of High Court judges, says the President should consult the CJI, Governor, and Chief Justice of the High Court concerned.
- Further, the tenure of a CJI is until they attain the age of 65 years, while High Court judges retire at 62 years.

Removal of CJI

- A Judge of the Supreme Court shall not be removed from his office except by an order of the President passed after an address by each House of Parliament supported by a majority of the total membership of that House & by a majority of not less than two-thirds of the members of that House present and voting.
- With the address in the same session presented to the President for removal on one of the two grounds:
 - Proved misbehaviour or incapacity.

What is the Collegium System?

- It is a novel mechanism devised to ensure a democratic system of appointment and transfer of judges

- It came into existence through Second and Third Judges Case judgments.
- **Please note:** There is no such law or constitutional provision that mentions or defines the collegium system.
- It is headed by the CJI and comprises 4 other senior-most judges of the court.
- An HC collegium is led by its Chief Justice and four other senior-most judges of that court.
- NJAC was thought of as a replacement of the Collegium System but it was invalidated by the Supreme Court.
- **Evolution:**
 - The collegium system has its genesis in a series of Supreme Court judgments called the 'Judges Cases'.
 - **FIRST JUDGES CASE:** In *S P Gupta Vs Union of India*, 1981, the Supreme Court judgment held that consultation does not mean concurrence and it only implies an exchange of views.
 - **SECOND JUDGES CASE:** In *The Supreme Court Advocates-on-Record Association Vs Union of India*, 1993, a nine-judge Constitution Bench overruled the decision and devised a specific procedure called 'Collegium System' for the appointment and transfer of judges in the higher judiciary.
- The majority verdict in the Second Judges Case accorded primacy to the CJI in matters

- of appointment and transfers while also ruling that the term "consultation" would not diminish the primary role of the CJI in judicial appointments.
- The role of the CJI is primal in nature because this being a topic within the judicial family, the executive cannot have an equal say in the matter.
 - **THIRD JUDGES CASE:** In the Third Judges case (1998), the Court opined that the

consultation process to be adopted by the Chief Justice of India requires 'consultation of plurality judges'.

- The sole opinion of the CJI does not constitute the consultation process.
- He should consult a collegium of four senior-most judges of the Supreme Court and even if two judges give an adverse opinion, he should not send the recommendation to the government.

His contribution in landmark verdicts of Supreme Court

- **Ayodhya land dispute**
 - In 2019, the apex court in a unanimous verdict cleared the way for the construction of a Ram Temple at the disputed site at Ayodhya and directed the Centre to allot a 5-acre plot to the Sunni Waqf Board for building a mosque.
- **Section 377 of the Indian Penal Code**
 - He was also part of a five-judge Constitution bench that unanimously decriminalised part of the 158-year-old colonial law under Section 377 of the Indian Penal Code which criminalises consensual unnatural sex between consenting adults, saying it violated the rights to equality.
- **Section 497 of the IPC**
 - He was also in the five-judge bench, which unanimously held Section 497 of the IPC which criminalised adultery to be unconstitutional on the ground of being arbitrary, archaic and violative of the right to equality and privacy.
- **Sabarimala case**
 - He had also concurred with the majority verdict in the Sabarimala case in holding that the practice of prohibiting women of menstruating age from entering the Sabarimala temple was discriminatory and violative of women's fundamental rights.
- **Medical Termination of Pregnancy (MTP) Act**
 - A bench headed by him also expanded the scope of the Medical Termination of Pregnancy (MTP) Act and the corresponding rules to include unmarried women for abortion between 20-24 weeks of pregnancy.

- The court held that the recommendation made by the chief justice of India without complying with the norms and requirements of the consultation process is not binding on the government.

Criticism of the collegium system

- The main issue with the collegium system is that it has little transparency.
- The 230th report of the Law Commission of India submitted in 2009, pointed to the possibility of nepotism prevailing.
 - A person whose near relation or well-wisher is or had been a judge in the higher courts or is a senior advocate or is a political higher-up, stands a better chance of elevation.
- It is not necessary that such a person must be competent because sometimes even less competent persons are inducted.

Way forward

- National Judicial Appointments Commission
- An alternative was proposed in form of the National Judicial Appointments Commission, which suggested a body for making appointments, comprising the CJI and two senior most judges, the law minister, and two "eminent" persons selected by a panel including the Prime Minister, the CJI and the leader of the largest Opposition party in the Lok Sabha.
- While the bill introduced for it was passed by the Parliament,

it was ultimately struck down by the Supreme Court in 2015.

Gubernatorial Procrastination

Why in the news?

- Recently, the governor's assent has generated debate in at least two States, Kerala and Tamil Nadu.
- After much delay, the Governor of Tamil Nadu forwarded the Bill for the National Eligibility Cumulation Entrance Test (NEET) exemption to the President.
- While the Governor of Kerala officially declared that he would not support the Lokayukta Amendment Bill and the Kerala University Amendment Bill, the situation has taken an odd turn.
- Therefore, it becomes extremely important to determine whether a governor is authorized under the Constitution to create uncertainty when it comes to assent to bills passed by State legislatures.

Significance of the governor's assent to the bill

- The Governor plays a significant role in the adoption of legislation. It is only complete when he gives his assent, indicating his approval.
- The Governor's approval, therefore, becomes the most important step in the entire legislative process.
- The Governor has certain options under Article 200 of the constitution when the bill is sent to him for assent:

- He can either assent to it or send it back to the Assembly with a request that it reexamine certain provisions or the entire Bill.
- In this instance, the Governor will be required to sign the Bill if the Assembly approves it without making any changes and sends it back to them.
- This clause in Article 200 (proviso) unequivocally affirms the legislature's supremacy in the legislative process.
- Reserving the Bill for the President's consideration is the third choice.

Practices Abroad

- **UK:** In the UK, a bill must have royal approval in order to become law, and the crown has the authority to refuse assent. But it is a dead letter.
- By convention and usage, the crown no longer has veto authority in England.
- Moreover, refusal of royal assent on the grounds that the monarchy strongly disapproves of the Bill or that the Bill is very controversial is considered unconstitutional.
- **United States:** The Constitution of the United States gives the President the authority to veto a bill and send it back to the House, but if both Houses pass it again with two-thirds of each, it becomes law.
- The conclusion from these customs is that refusal of assent is not a custom that other democracies follow.

- Additionally, in some circumstances, it is unconstitutional or the Constitution itself offers a remedy, allowing the legislature's passed legislation to become a law notwithstanding the refusal.
- However, the Indian Constitution does not offer such a remedy. The Governor's refusal to assent to the Bill has also been largely accepted by the courts.
- As a result, the entire legislative process will be useless. It conflicts with the ideal procedures in old and mature democracies.
- It should be underlined that the Governor must state his reasoning for withholding assent when announcing his decision. Being a high constitutional power, the Governor is required to provide justification for withholding assent and cannot act arbitrarily.
- The Governor's refusal may be declared unconstitutional if its reasons reveal ulterior motives, superfluous factors, or *supra vires*. In *Rameshwar Prasad and Ors. v. Union of India and Anr.*, a Constitution bench of the Supreme Court decided this issue.

Challenges

- A Governor or President cannot be sued by the court for any actions taken while acting within the scope of their authority, according to Article 361 of the Constitution. They enjoy complete immunity from court proceedings.
- There is no time limit for governor to give assent to the bill. He can wait for however long he wants before taking any action as the Constitution does not specify a deadline for him to decide whether to assent.

Way Forward

- The Governor cannot sit on a bill that has been enacted by an Assembly indefinitely just because no deadline has been set. Such a choice is not provided for in Article 200.
- One of the options listed in that Article must be used by the Governor. All constitutional powers are obligated to behave sensibly. Activities that are unreasonable are not legal acts.

History of the post of Governor

- Since 1858, provincial Governors were agents of the Crown, functioning under the supervision of the Governor-General.
- The Government of India Act, of 1935 came into force in 1937, bringing provincial autonomy.
- The GoI Act 1935, the Governor was required to act in accordance with the advice of Ministers of a province's legislature, however, he retained special responsibilities and discretionary power.
- The Provisional Constitution of 1947, which was adopted from the 1935 Act, preserved the position of Governor but left out the terms "in his discretion," "acting in his discretion," and "exercising his individual judgement."
- The Constituent Assembly debated the position of Governor in great detail before deciding to keep it but shifting its focus from the British era.
- The governor was envisioned as the constitutional head of a state under India's parliamentary & cabinet systems of government.

VI. Public Awareness and General Administration

Atma Nirbhar in Defence Production

Context

- The Defence Sector in India is identified as an important area with an ocean of opportunities for self-reliance.

- With large-scale modernisation requirements of the Indian Armed Forces, India's vision for Atma Nirbhar Bharat has provided further impetus to realise the goal of indigenisation of Defence Sector.
- According to a study released by the Stockholm International

Peace Research Institute (SIPRI), India ranks 4th among 12 Indo-Pacific nations in self-reliant arms production capabilities. But the concern is, India is also ranked as the 2nd largest importer of arms for its armed forces in 2016-20.

- In spite of significant efforts to become self-sufficient in defence production, the indigenous texture still lacks its flavour due to higher import bills and it needs to be addressed.

What is Indigenisation of Defence?

- Defence Indigenization is the process of developing and manufacturing defence equipment within a country as a way to reduce import dependency as well as achieve self-reliance.
 - Defence Research Development Organisation (DRDO), Defence Public Sector Undertakings (DPSUs) are the major front runners in Atma Nirbhar Bharat vision.
- 1983 is marked a significant milestone in defence indigenization as the government approved the Integrated Guided Missile Development Program to develop 5 missile systems:
 - Prithvi (surface-to-surface)
 - Akash (surface-to-air)
 - Trishul (the naval version of Prithvi)
 - Nag (anti-tank)
 - Agni Ballistic Missiles

What is India's Recent Indigenous Move in the Defence Sector?

- Defence India Startup Challenge
- **INS Vikrant:** Aircraft Carrier
- **Dhanush:** Long-range artillery gun
- **Arihant:** Nuclear Submarine

- **Prachand:** Light Combat Helicopter

What are the Challenges Related to the Defence Sector in India?

- **High Dependence on Imports:** The defence sector in India relies heavily on imports, and changing geopolitical circumstances cause it to be delayed. For instance, amid the Russia-Ukraine war, India is awaiting the delivery of the S-400 Air Defence Systems under a deal signed in 2018.
 - In addition, several new deals are in line including 12 Sukhoi-30MKI aircraft and 21 MiG-29 fighter jets for the Indian Air Force.
- **Narrow Private Participation:** Private sector participation in the defence sector is constrained by the lack of a conducive financial framework, that means our defence production is unable to benefit from modern design, innovation, and product development.
- **Lack of Critical Technology:** Lack of design capability, inadequate R&D investment, inability to manufacture major subsystems and components hamper indigenous manufacturing.
 - Also, the relationship between R&D institutions, production agencies (public or private) and end-users is extremely fragile.
- **Lack of Nexus Between Stakeholders:** India's defence manufacturing capability is hindered by overlapping juris-

dictions between the Ministry of Defence and the Ministry of Industrial Promotion.

What Should be the Way Forward?

- **Indigenisation with Private Boom:** There is a need to revitalise & regulate entry points for Private sector to enter in defence production embracing sustainable design and development to meet the needs of Indian Armed Forces in coming years.
- **Defence Industrial Corridors (DICs):** It is necessary to extend dedicated defence industrial corridors across the length and breadth of the country in order to harness and channel the potential of Indian MSMEs and DPSUs in the defence manufacturing sector, as well as to facilitate the smooth transit of raw materials.
 - Government's initiative to establish two Defence Industrial Corridors (DICs) in Uttar Pradesh & Tamil Nadu is a welcome step in this direction.
- **Defence Investor Cell:** It is necessary to strengthen investment in defence by providing entrepreneurs/industry with a single point of contact to deal with all defence production-related queries, procedures and regulatory requirements for investment in the sector.
 - The SRIJAN portal can be linked with Investment Cell.
- **Inclusion of Defence Entrepreneurs in Policy Making:** Through streamlining procurement and shaking hands with

newer defence entrepreneurs for better policy making and implementation, can reduce the qualitative and quantitative gaps in its defence sector.

- **Tapping the World's Defence Market:** There is also a need to give adequate attention to the promotion of exports of Indian Defence products.
 - It is important to simplify and streamline export authorisation procedures through an online mechanism and targeted outreach efforts.
 - Defence Exim Portal is a welcome step in this direction.
- **Strengthening Economy with Strategic Independence:** Indigenised India's defence sector would further strengthen the economy by generating employment opportunities and saving the exchequer by reducing the import burden.
 - Also, Self-sufficiency in defence will fundamentally lead to India's strategic independence.

Mission Karmayogi

- "Mission Karmayogi"- National Programme for Civil Services Capacity Building (NPCSCB)
- It aims to transition civil services from 'Rules based' to 'Roles based' Human Resource (HR) Management by aligning work allocation of civil servants by matching their competencies to the requirements of the post, thereby leading to "an effective citizen-centric civil service"

Its features are:

- 'On-site learning' to complement the 'off-site' learning: will ensure a citizen-centric approach to governance.
 - Under the Mission, nearly 95,000 railway staff, including all ticket conductors, reservation & freight clerks & station masters are being trained in better service delivery.
- Create an ecosystem of shared training infrastructure e.g. learning materials, institutions, and personnel.
- Setting up an Integrated Government Online Training-iGOT Karmayogi Platform: to provide curated digital e-learning material for capacity building.
 - **Using the "70-20-10" formula:** Seventy per cent of adult learning comes from job experience, 20 per cent is a result of peer-to-peer sharing, & only 10 per cent comes from classroom teaching.
- Creating a Dashboard view of Key Performance Indicators (KPI) at the iGOT portal for appropriate monitoring and evaluation of civil servants
- **Accountability and Transparency in Governance:** through real-time evaluation and constant training
- **PM's Public Human Resources (HR) Council:** will provide direction to the task of Civil Services Reform and capacity building
- Collaborative and common ecosystem: will end the culture of

working in silos, reduce duplication of efforts and bring out a new work culture that will focus on the individual as well as institutional capacity building.

- **Capacity Building Commission:** will assist the PM Public Human Resources Council in approving the Annual Capacity Building Plans
 - Cross immersive learning for the ministry staff in the Civil Aviation Ministry's Annual Capacity Building Plan.
 - Public officials were sent to private airlines/airports to observe their managerial practices.
- **Ensuring efficient service delivery:** work will be assigned as per specific role competencies (right man for the right job)
- **Bridging the gap between generalization and specialization:** which exists due to a lack of mid-level training at all levels.
- **Efficient, effective and empathetic civil services:** For instance, Inspector Inian, an SHO from Puducherry, after undergoing soft skills training under mission karmayogi, said that after receiving a mother's complaint, he used his professional skills to find her lost child.
 - This, he remarked, gave him far more joy compared to promotions or salary hikes.
- Mission Karmayogi is different in emphasising the democratisation of learning across all levels of civil services (all the class)

- **“Whole Government” approach:** Training resources are being shared across departments & silos are being broken.

Conclusion:

- Mahatma Gandhi likened public service to being a trustee of public resources. Civil servants are uniquely positioned to play a role in lifting more than 170 million out of poverty into prosperity. What is needed is professional bureaucracy i.e. bureaucratic in form and structure and non-bureaucratic in attitude and spirit.

Malnutrition in India is a Worry in a Modern Scenario

Context

- The country’s response to its burden of malnutrition and growing anaemia has to be practical and innovative.

What is malnutrition?

- Malnutrition refers to deficiencies, excesses or imbalances in a person’s intake of energy and/or nutrients.
- The term malnutrition covers 2 broad groups of conditions.
- One is ‘undernutrition’—which includes stunting (low height for age), wasting (low weight for height), underweight (low weight for age) and micronutrient deficiencies or insufficiencies (a lack of important vitamins and minerals).
- The other is overweight, obesity and diet-related non-communicable diseases (such as

heart disease, stroke, diabetes, and cancer).

What are the root causes of malnutrition in India?

- The following three deficits are the root cause of malnutrition in India.

1. Dietary deficit

- There is a large dietary deficit among at least 40 per cent of our population of all age groups, shown in the National Nutrition Monitoring Bureau’s Third Repeat Survey (2012), NFHS 4, 2015-16, the NNMB Technical Report Number 27, 2017.
- Our current interventions are not being able to bridge this protein-calorie-micronutrient deficit.
- The NHHS-4 and NFHS-5 surveys reveal an acute dietary deficit among infants below two years, and considerable stunting and wasting of infants below six months.
- Unless this maternal/infant dietary deficit is addressed, we will not see rapid improvement in our nutritional indicators.

2. Information deficit at household level

- We do not have a national IEC (information, education and communication) programme that reaches targeted households to bring about the required behavioural change regarding some basic but critical facts.
- **For example**, IEC tells about the importance of balanced diets in low-income household

budgets, proper maternal, child and adolescent nutrition and healthcare.

3. Inequitable market conditions

- The largest deficit, which is a major cause of dietary deficiency and India’s chronic malnutrition, pertains to inequitable market conditions.
- Such market conditions deny affordable and energy-fortified food to children, adolescents & adults in lower-income families.
- The market has stacks of expensive fortified energy food and beverages for higher income groups, but nothing affordable for low-income groups.

The vicious cycle of malnutrition

- **Link with mother:** A child’s nutritional status is directly linked to their mother.
- Poor nutrition among pregnant women affects the nutritional status of the child and has a greater chance to affect future generations.
- **Impact on studies:** Undernourished children are at risk of under-performing in studies and have limited job prospects.
- **Impact on development of the country:** This vicious cycle restrains the development of the country, whose workforce, affected mentally and physically, has reduced work capacity.

Marginal improvement on Stunting and Wasting

- The National Family Health Survey (NFHS-5) has shown

marginal improvement in different nutrition indicators, indicating that the pace of progress is slow.

- This is despite declining rates of poverty, increased self-sufficiency in food production, and the implementation of a range of government programmes.
- Children in several States are more undernourished now than they were five years ago.
- **Increased stunting in some states:** Stunting is defined as low height-for-age.
- While there was some reduction in stunting rates (35.5% from 38.4% in NFHS-4) 13 States or Union Territories have seen an increase in stunted children since NFHS-4.
- This includes Gujarat, Maharashtra, West Bengal & Kerala.
- Wasting remains stagnant: Wasting is defined as low weight-for-height.
- Malnutrition trends across NFHS surveys show that wasting, the most visible and life-threatening form of malnutrition, has either risen or has remained stagnant over the years.

Prevalence of anaemia in India

- What is it? Anaemia is defined as the condition in which the number of red blood cells or the haemoglobin concentration within them is lower than normal.
- **Consequences:** Anaemia has major consequences in terms of human health & development.
- It reduces the work capacity of individuals, in turn impact-

ing the economy and overall national growth.

- Developing countries lose up to 4.05% in GDP per annum due to iron deficiency anaemia; India loses up to 1.18% of GDP annually.
- The NFHS-5 survey indicates that more than 57% of women (15-49 years) and over 67% children (six-59 months) suffer from anaemia.

Way forward

1. Increase investment:

- There is a greater need now to increase investment in women and children's health and nutrition to ensure their sustainable development and improved quality of life.
- Saksham Anganwadi and the Prime Minister's Overarching Scheme for Holistic Nourishment (POSHAN) 2.0 programme have seen only a marginal increase in budgetary allocation this year (20,263 crore from 20,105 crore in 2021-22).
- Additionally, 32% of funds released under POSHAN Abhiyaan to States and Union Territories have not been utilised.

2. Adopt outcome oriented approach on the nutrition programme

- India must adopt an outcome-oriented approach on nutrition programmes.
- It is crucial that parliamentarians begin monitoring needs and interventions in their constituencies and raise awareness

on the issues, impact, and solutions to address the challenges at the local level.

- **Direct engagement:** There has to be direct engagement with nutritionally vulnerable groups and ensuring last-mile delivery of key nutrition services and interventions.
- This will ensure greater awareness & proper planning and implementation of programmes.
- This can then be replicated at the district and national levels.

3. Increase awareness & mother's education

- With basic education and general awareness, every individual is informed, takes initiatives at the personal level and can become an agent of change.
- Various studies highlight a strong link between mothers' education and improved access and compliance with nutrition interventions among children.

4. Monitoring

- There should be a process to monitor and evaluate programmes and address systemic and on the ground challenges.
- A new or existing committee or the relevant standing committees meet and deliberate over effective policy decisions, monitor the implementation of schemes, and review nutritional status across States.

Conclusion

- We must ensure our young population has a competi-

tive advantage; nutrition and health are foundational to that outcome.

Moonlighting Culture

Why in News?

- Recently, Information technology giant Infosys warned its employees against moonlighting, threatening them with contract termination.
- The company said that dual employment is not permitted as per the company's Employee Handbook & Code of Conduct.
 - The tech firm also stated that employees are not allowed to take up roles in other firms without Infosys' permission.
- Earlier, Swiggy announced an "industry first" policy that allowed moonlighting for its employees.

What is Moonlighting?

- Moonlighting refers to the practice of taking up secondary jobs after regular work hours.
- This secondary job is taken without employers' knowledge & is usually the side jobs taken at night or on the weekends.
- The phrase became well-known when Americans began looking for second jobs in addition to their regular 9-to-5 jobs to supplement their income.

What is Driving the Culture of Moonlighting Among Employees?

- **Work from Home Culture:**
 - Work from home was the new normal and companies

could no longer judge the productivity of their resources through clock in-clock out time sheets, which also gave a boost to moonlighting.

Impact of Covid-19:

- In the year 2020, with the onset of Covid-19 leading to lockdown, the economy started stalling and hence thousands of employees were laid off.
 - This also led to employees searching and/or working for multiple jobs to maintain job security and a steady flow of income with as many as 70% of remote workers working on second jobs.
- **To Have More to Spend:**
 - Employees also opt for a second job for additional income if they have low pay at their primary jobs and need additional source of income to meet their needs or the primary income may not be sufficient to take care of the demands of their lavish lifestyle.
 - **To Gain Additional Work Experience:**
 - Employees may also consider a second job to gain additional skills or indulge in work profiles they are more passionate about.

- **To Combat Boredom:**
 - Employees also opt for moonlighting to utilize the free time at hand when they do not have enough work

to keep them occupied at their primary jobs or to keep themselves busy throughout the day.

What are the Concerns Regarding Moonlighting?

- **Legal but may not be Ethical:**
 - There is no overarching law which prohibits a person from doing multiple jobs. However, a person with a similar nature of jobs may spark confidentiality issues.
- **Exhausted Employees:**
 - If employees are working long hours, the second job may cause the employee to become distracted, unproductive, and neglect job responsibilities because of physical fatigue.
- **Use of Company Resources:**
 - Employees may use company resources for their second job which increases operating expenses.
- **Impact on Health:**
 - Poor diet, lack of sleep and exercise can impact employee health.

What about Laws related to Dual Employment?

- **Scenario in India:**
 - A person may work more than one job in India without breaking the law.
- However, a person with a similar set of jobs could give rise to concerns about a violation of confidentiality because

many employers include such restrictions in their employment agreements in addition to prohibitions against holding down multiple jobs.

- Moonlighting could be considered cheating if an employee's contract calls for non-compete and single employment, which is the situation with the majority of conventional employment contracts.
- However, it is not cheating if the employment contracts do not have such a clause or provide relaxations.
- Under the Factories Act, 1948 dual employment is prohibited. However, in some states, IT companies are exempt from that rule.
- **Scenario in Other Countries:**
 - Overemployment, which is called dual employment in India, is technically permissible in the US and the UK from a tax perspective.
- A second employment in the UK could alter a worker's tax status, but it wouldn't be expressly noted as such to the payroll department of the first employer & would probably go unreported in larger organisations.
- The US tax system is simpler since it is built on the idea of self-assessment & voluntary reporting.
- Many companies deploy tools and techniques to detect and prevent risks associated with moonlighting such as data leakage and daylighting (working on another job during the working hours of the primary job).
- These that highlights employees that may be exhibiting behaviours of moonlighting and show indication of data leakage or abuse of intellectual property of the company.
- **Discouragement from Employers:**
 - Employers may discourage their employees from moonlighting out of concerns on conflicts of interest, impact on primary job performance, misuse of company resources, absenteeism, poor attentiveness, or fatigue.
- **Moonlighting As A Choice:**
 - Moonlighting should be a choice unless it affects the efficiency and integrity of employees' primary work duty.
- **Employees' Responsibility:**
 - Before looking for side jobs or starting a business, it is crucial for employees to carefully check their employment contract with their principal job to ensure compliance with any moonlighting policies.

Letting go of a Chance to Democratize Telecom Services

Context

Draft Indian Telecommunication Bill, 2022:

- **Update the extant regulatory framework:** The draft is to update the extant regulatory framework in keeping with the advancements and challenges in the sector.
- **Repeal legislations:** It looks to repeal three legislations and "restructure the legal and regulatory framework" for the telecommunications sector.
- **Enabling the government to order suspension of internet power:** It has been introduced through the draft Bill.
 - Currently, suspension of internet services is ordered under the Temporary Suspension of Telecom Services (Public Emergency and Public Safety) Rules, 2017.
- **Primary route for allocation of the spectrum is auction:** when spectrum is to be allocated for certain functions of the government such as defense or transportation.
- **TSP to exploit its spectrum resource fully:** By enabling sharing, trading, leasing, surrendering or returning unutilised spectrum.
- **Simplifies:** The Bill also simplifies the process for restructuring, merging or demerging.

Way Forward

- **Deploy Tools and Techniques:**

- **Land owned by a public entity:** It mandates that land owned by a public entity should be available expeditiously unless there is an express ground of refusal.
- **Universal Service Obligation Fund:** It allows this fund to be utilized for other purposes such as urban areas connectivity, research etc.

Issues Involved:

- **Democratization:** The Telecom Bill misses the opportunity for the democratization of telecommunication services.
- **Centralisation:** It has preferred a move towards centralisation of power through its new licensing regime.
- **Failed to include modern laws:** It also fails to inculcate the learnings evolved in courts and other institutions of authority.
- **Pre-independence laws:** Re-packages the provisions from pre-Independence laws to pass them off as legislative advancements.
- **Clause 24(2)(b) of the Telecom Bill:** It lays down a specific power for suspension of Internet services (Internet shutdowns).
 - The clause does not solve any of the issues that exist with the current framework for Internet shutdowns in India,

Over-the-top (OTT) communication services:

- It refers to services that provide real time person-to-person telecommunication services.

- **Some popular examples include:**
 - Messaging platforms like Whatsapp, Telegram, Signal, Messenger, Duo, Google Meet etc.

Issues related to OTT:

- **Reductionist approach:** OTT services can only be accessed through telco-controlled infrastructure.
 - Introduction of OTT communication services under the ambit of telecommunication services is a reductionist approach.

Issues related to TRAI:

- The Department of Telecommunication (DoT) did not recognise the positive recommendations of TRAI and diluted TRAI's responsibility of providing recommendations to the central government.

Privacy Issues:

- **Data localisation:** It requires online service providers to store data locally, in India.
 - Such a data localisation requirement confers excessive discretion to the Government, and adversely affects the privacy of individuals.
- **Practice of E2EE:** It formalizes attempts of the executive to bypass the privacy protecting practice of E2EE & requires OTT communication service providers to intercept or disclose any message or class of messages to the authorized officer.

Way Forward

- **Internet shutdown:** The impact Internet shutdowns have on the fundamental right to free speech of citizens, the high economic costs have been consistently raised as a criticism which needs to be addressed.
- **Socio-Economic growth:** The Telecom Bill recognises socio-economic growth as one of its stated objectives, steps which promote growth should be taken.
- **Anuradha Bhasin vs Union Of India:** Learnings and recommendations from the Supreme Court's decision & the 2021 report of the Standing Committee on Information Technology need to be taken into consideration.

Space Bill & Potential of India's Space Sector

In Context

- A new space Bill - a legal framework for commercial use of space will soon be released.

More about the new bill

- **The 2017 Bill:**
 - The previous Bill (of 2017) provides for imprisonment of up to three years and fine of over Rs 1 crore if
 - any activity is undertaken without prior licensing,
 - false information is furnished, or
 - it pollutes earth, airspace, outer space or celestial bodies.
- **Issues with the bill (2017):**
 - This bill was criticised for being a little harsh.

- Also, Imprisonment was a very major disincentive for the industry, so the government sought to remove it.

About the new bill:

- **Leniency:**
 - It will do away with provisions for imprisonment.
 - The bill will be lenient when it comes to criminal charges.
- **Insurance mechanism:**
 - It will also create mechanisms for insurance damages.
- **Significance of insurance:**
 - The cost of insurance (for space activities) is very high.
 - Today, ISRO does not pay for it because it is a government commitment, but when a private player is there, they will need insurance.

Potential of India's space sector

- Recently, a joint report was prepared by EY and the Indian Space Association (ISpA).

Report highlights:

- **Indian space economy:**
 - The Indian space economy is set to reach \$13 billion by 2025, according to this joint report.
- **Space launch segment:**
 - The report also said the space launch segment would grow fastest at a CAGR of 13% spurred by growing private participation, latest technology adoption and low cost of launch services.

- **Satellite services and application segment:**

- This segment would form the largest share of the space economy accounting for 36% of the space economy by 2025, as per the study.
 - On the country's satellite manufacturing opportunity, it said in 2020 it was \$2.1 billion and this would reach \$3.2 billion by 2025.
 - Also, by 2025, satellite manufacturing would be the second fastest-growing segment in the Indian space economy.
- **Space tech start-ups:**
 - There are over 100 space tech start-ups in the country & investments in space tech start-ups increased 196% y-o-y in 2021, the survey said.
 - **Space parks:**
 - Space parks that are coming up across the country would give a fillip to companies operating across the space value chain, especially manufacturing, found the study.

India's upcoming commercial launch:

- Marking the shift towards the private sector, India's heaviest rocket, GSLV Mk III, will launch 36 satellites OneWeb global communication satellite constellation.
- This is the first commercial launch by the vehicle, so far having carried two ISRO communication satellites for two

of its development flights and the Chandrayaan-2 for its first operational flight.

Significance of the Space industry

- **Assessing & recording weather information:**
 - Satellites provide more accurate information on weather forecasts.
 - It can also assess (and record) long-term trends in the climate and habitability of a region.
- For example, by monitoring the long-term impact of climate change at regional, territorial, and national scales, governments would be able to devise more pragmatic and combative plans of action for farmers and dependent industries.
- **Real-time tracking :**
 - Satellites can serve as real-time monitoring and early-warning solutions against natural disasters such as earthquakes, tsunamis, floods, wildfires, mining etc.
 - Real-time tracking can also serve multiple purposes in defence.
- **Communication and connectivity:**
 - As for connectivity, satellite communication can reach more remote areas where conventional networks would require heavy complimenting infrastructure.
 - Additionally, as to the reliability, the World Economic Forum (WEF) stated that

satellite communication can help connect 49% of the world's unconnected population.

- In this light, it must be noted that satellite communications, which are used to facilitate telecommunication services, are among the major categories for investment in the space technology sector.
- Other prominent categories include spacecraft and equipment manufacturing.
- **Benefits to other sectors:**
 - The space avenue is an integration of the aerospace, IT hardware & telecom sectors.
 - It is thus argued that investment in this arena would foster positive carryover effects to other sectors as well.

RTI: Pendency of Cases

- Context
- The transparency regime set up by the Right to Information (RTI) Act has nearly 3.15 lakh pending complaints or appeals with 26 information commissions across India.

About Indian Space Association (ISpA)

- **Aim:**
 - To supplement the Centre's efforts in commercial space exploration and space-based communication.
- **Members:**
 - Various stakeholders in the Indian space domain with members comprising the Indian Space Research Organisation (ISRO), Bharti Airtel, OneWeb, Tata Group's Nelco, L&T, MapMyIndia among others.
- **About:**
 - ISpA is an industry association for private players in space.
 - It is an organisation meant to represent the interests of the space sector with government and private sector bodies across the board.
 - It will support start-ups and will work towards facilitating and enabling private players to work in tandem with ISRO.
 - The industry association will act as an independent and "single-window" agency for enabling the opening up of the space sector to start-ups and the private sector.
- **The progress:**
 - While ISpA has grown from seven members to more than 50 members in a year, the number of space sector start-ups in the country has also boomed from just a handful two years ago, before the space sector was opened up, to over a hundred now.

RTI Pendency in India

• Pendency and delays:

- As per the data obtained from several information commissions (ICs), the backlog of appeals or complaints with them is steadily increasing every year (reference period 2019-2022) resulting in a long waiting time for disposal.
- States with the highest number of pending cases & appeals were Maharashtra, Uttar Pradesh, Karnataka, Bihar etc.
- RTI cases filed till now-4.2 crore RTIs and 26 lakh second appeals with average waiting period of two years.

• Functioning Issues:

- **Completely defunct ICs:** 2 ICs in Jharkhand and Tripura (out of total 29) are completely defunct for 29 and 15 months respectively
- Lack of transparency in the functioning of ICs causes tardy disposal rates thereby violating the mandate of safeguarding and facilitating people's fundamental right to information.
- **Personnel Management:** ICs are becoming parking lots for retired bureaucrats.
- **Behavioral traits:** Casual attitude by PIO/First Appellate Authority while rejecting RTI applications.
- **Gender disparity:** Only 5% of the positions of Information Commissioners are occupied by women.

- **Imposition of penalties:** The commissions did not impose penalties in 95% of the cases where penalties were potentially imposable.
- **Vacancies:**
 - As per the report by the Transparency International, one-fourth (42 of the total 165) information commissioner posts are vacant.
 - Four ICs in Manipur, Telangana, West Bengal and Andhra Pradesh are without chiefs or heads.

Right to Information (RTI) Act, 2005

- **Mandate:** The Right to Information (RTI) Act 2005, was enacted by Parliament to empower citizens, promote accountability & transparency in the working of the government while containing corruption.
- **The Right to Information (Amendment) Act, 2019:** This amendment changed the tenure of the CIC and ICs from five years and provided for the central government to notify the term of office for the CIC and the ICs. Accordingly, tenure of the commissioners has been cut to 3 years.
- 'Public Authorities' are institutions of self-government established under the Constitution or under any law or government notification.
- They include Ministries, public sector undertakings & regulators.
- They also include any entities

owned, controlled or substantially financed and non-government organizations substantially financed directly or indirectly by government funds.

Functioning of Right to Information Act

- Under the RTI Act 2005, a three-tier structure has been set up for enforcing the right to information.
- **Public Information Officers:** The first request for information goes to the Assistant Public Information Officer and Public Information Officer, designated by the Public Authorities.
- They are required to provide information to an RTI applicant within 30 days of the request.
- **Appellate Authority:** It caters to the appeals against decisions of the Public Information Officer.
- **State Information Commission or the Central Information Commission (CIC):** They are mandated to hear appeals against the order of the Appellate Authority.
- Information Commissions consist of a Chief Information Commissioner (CIC) and up to 10 Information Commissioners (ICs).

Utility of RTI

- RTI helps in addressing the matters of constitutional rights and empowers people to seek answers from the government establishment, which forms the very basis of democracy.
- RTI has been instrumental in

preventing policy paralysis and institutionalization of a more informed, equitable and robust decision-making process.

Way Forward

- There is an urgent need for the transparency watchdogs to function in a more effective and transparent manner.
- The entire system of RTI is in need of digitisation for better record management. e-filing facility for RTI applications or appeals should be made functional in every ICs.
- The digital RTI portal (website or mobile app) can deliver more efficient & citizen-friendly services & minimize the issues of pendency and delays substantially.
- PIOs can be trained by experts in-house mechanisms for efficient management and disposal of cases.

One Nation, One Fertilizer' Scheme

In News

- Recently the 'One Nation, One Fertiliser' scheme was launched.

More about the 'One Nation, One Fertilizer' scheme

- **About:**
 - Under the scheme, all fertiliser companies, State Trading Entities (STEs) and Fertiliser Marketing Entities (FMEs) will be required to use a single "Bharat" brand for fertilisers and logo under the PMBJP.

- The new “Bharat” brand name and PMBJP logo will cover two-thirds of the front of the fertiliser packet.
- The manufacturing brands can only display their name, logo, & other information on the remaining one-third space.

Significance of the scheme:

- **Standardisation:**
 - This will standardise fertiliser brands across the nation irrespective of the company that manufactures it.
- **Affordability:**
 - Scheme will ensure affordable quality fertiliser of Bharat brand to the farmers.
 - This scheme will result in reduction of the cost of fertilisers & increase their availability.
- **Single branding:**
 - Competition among companies that push their brands will get reduced with this single branding, which will ensure sufficient supply of fertilisers across the country.
- **Reduced freight charges:**
 - A single brand name will help in the reduction of freight charges due to stopping of crisscross movement of fertilizers this will help in reducing the transit time
- **Stopping urea diversion:**
 - It will also stop the diversion of urea for industrial purposes.

Major Issues/ Challenges associated with the fertiliser sector

- **Supply-side constraints:**
 - India is facing a tight supply position in fertilisers, especially of phosphatic and potassic nutrients.
 - Retail food inflation has hit a 7.68 per cent mark.
 - The challenges include securing supply from new sources, costlier raw material, and logistics.
 - The pandemic has impacted fertilizer production, import and transportation across the world.
- **Global issues:**
 - Major fertiliser exporters such as China have gradually reduced their exports in view of a dip in production.
 - This has impacted countries such as India, which sources 40–45% of its phosphatic imports from China.
 - There has been a surge in demand in regions like Europe, America, Brazil and Southeast Asia.
 - While the demand has increased, the supply side has faced constraints.
- **Other:**
 - There has been a steady increase in prices of raw material as well as logistics and freight costs.
 - The disruption in the logistics chain during COVID has

caused the average freight rates for ships to jump up to four times.

- Besides, prices of fertilisers such as DAP and urea, and raw materials such as ammonia and phosphatic acid, have risen up to 250–300%.
- The total fertiliser subsidy bill is expected to reach Rs 2.5 lakh crore this financial year, up from Rs 1.62 crore in the revised estimates for the previous fiscal.

Criticisms

- **Major criticisms:**
 - Critics argue that completely commoditising fertilisers could
 - impact their quality,
 - discourage manufacturers from bringing newer and more efficient products into the market if there is less scope for building a unique brand identity.
 - It may also leave them as mere importers or contractors of fertilisers.
- **Brands not owned:**
 - Many manufacturers have also expressed reluctance to spend on a brand they do not own.
 - Once in a while, some companies may bear the expense, but it will be difficult to spend continuously on advertisements where

brand value for that company is zero.

• **Regulation:**

- A government brand will add another layer of regulation to the fertiliser manufacturing sector where almost every aspect- from product pricing to cost structure to geographical distribution and sale- is controlled by the government.

Government's rationale on One Nation, One Fertilizer scheme

• **Subsidy and MRP**

- The maximum retail price of urea is currently fixed by the government, which compensates companies for the higher cost of manufacturing or imports incurred by them.
- The MRPs of non-urea fertilisers are on paper decontrolled.
- But companies cannot avail of subsidy if they sell at MRPs higher than that informally indicated by the government.

- Simply put, there are some 26 fertilizers (inclusive of urea), on which the government bears subsidy and also effectively decides the MRPs.

• **Supply plan**

- Apart from subsidising and deciding at what price companies can sell, the government also decides where they can sell.
- This is done through the Fertiliser (Movement) Control Order, 1973.

- Under this, the department of fertilisers draws an agreed monthly supply plan on all subsidised fertilisers in consultation with manufacturers and importers.

• **Taking Credit**

- When the government is spending vast sums of money on fertiliser subsidy plus deciding where and at what price companies can sell, it would obviously want to take credit and send that message to farmers.

Other highlights for farmers

- The PM Kisan Samman Sannam 2022 was also inaugurated at the Indian Agricultural Research Institute.
- An e-magazine on fertilisers, called Indian Edge was launched.
- Prime minister also inaugurated 600 'PM-Kisan Samruddhi Kendras (PM-KSK).

PM-Kisan Samruddhi Kendras (PM-KSK)

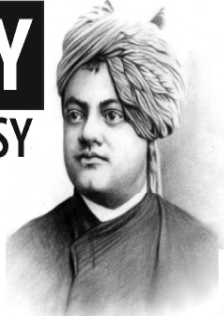

- These kendras are expected to act as one- stop-shop providing multiple services to farmers.
- PM-KSK will supply agri-inputs like seeds, fertilisers and farm implements, along with providing testing facilities for soil, seeds and fertilisers, besides information about government schemes.
- About 3.25 lakh fertiliser retail shops will be converted into PM-KSKs across the country.

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VII. Welfare Oriented Schemes and their Utility Problem in Public Delivery System (Central Government and State Government)

1. Central Government

YUVA 2.0

In News

- The Prime Minister's Scheme for Mentoring Young Authors – YUVA 2.0 was launched .

About Young, Upcoming and Versatile Authors(YUVA) 2.0

- The launch of YUVA 2.0 is in tune with the Prime Minister's vision to encourage the youth to understand and appreciate India's democracy.
- The National Book Trust (NBT), India, under the Ministry of Education as the Implementing Agency will ensure phase-wise execution of the Scheme under well-defined stages of mentorship.
- It aims to promote reading, writing, & book culture in the country.
- **Significance** : It will help to develop a stream of writers who can write on a spectrum of subjects to promote the Indian heritage, culture, and knowledge system.
 - It will also provide a window to the aspiring youth to articulate themselves and present a comprehensive outlook of Indian Democratic values at domestic as well as international platforms.

'herSTART' Platform

Context

- Recently, the President of India has launched 'herStart' — a start-up platform of Gujarat University for women entrepreneurs.

About

- It is supported by the state government of Gujarat, the Central Government and the United Nations International Children's Emergency Fund (UNICEF).
- The Department for Promotion of Industry and Internal Trade (DPIIT) recognized it as key driving initiative of the Gujarat Startup Ecosystem in the States Startup Rankings Framework Report of 2022.
- Besides encouraging the entrepreneurial endeavours of women, the 'HerStart' initiative will link the women entrepreneurs with various private and government platforms.
- It will boost innovation and start-up efforts of women entrepreneurs.
- It will provide resources and training modules free of cost to aspiring women entrepreneurs.
- India has moved from 81st position to 40th position in the Global

Innovation Index (GII) of 2022 as a result of the startup program started across the country.

Telecom Technology Development Fund (TTDF) Scheme

Why in News?

- Recently, the Universal Service Obligation Fund (USOF) launched the Telecom Technology Development Fund (TTDF) Scheme.
 - Universal Service Obligation Fund (USOF) is a body under the Department of Telecommunications (DoT) to fund rural and remote digital connectivity.
 - The Centre in the draft telecom bill, 2022 has said that the USOF, created under the Indian Telegraph Act of 1885, shall be referred to as the "Telecommunication Development Fund".

What is the Telecom Technology Development Fund (TTDF) Scheme?

- TTDF aims to fund R&D in rural-specific communication technology applications and form synergies among academia, start-ups, research institutes, & the industry to build and develop the telecom ecosystem.

- The scheme aims to promote technology ownership and indigenous manufacturing, create a culture of technology co-innovation, reduce imports, boost export opportunities and creation of Intellectual Property.
- Under the scheme, USOF is also targeting to develop standards to meet countrywide requirements and create the ecosystem for research, design, prototyping, use cases, pilots, & proof of concept testing, among others.
- The scheme entails grants to Indian entities to encourage & induct indigenous technologies tailor-made to meet domestic needs.

What is the Present Status of the Telecom Sector of India?

- The Telecom industry in India is the second largest in the world with a subscriber base of 1.17 billion as of 2022. India has an overall teledensity of 85.11%.
- The industry's exponential growth over the last few years is primarily driven by affordable tariffs, wider availability, the roll-out of Mobile Number Portability (MNP), expanding 3G and 4G coverage, and evolving consumption patterns of subscribers.
- The Telecom sector is the 3rd largest sector in terms of Foreign Direct Investment (FDI) inflows, contributing 6.44% of total FDI inflow, & contributes directly to 2.2 million employment & indirectly to 1.8 million jobs.
- Between 2014 and 2021, the

FDI inflows in the Telecom sector rose by 150% to USD 20.72 billion from USD 8.32 billion during 2002-2014.

- 100% Foreign Direct Investment (FDI) has now been allowed in the Telecom sector under the automatic route.
- India is on its way to becoming the second-largest smartphone market globally by 2025 with around 1 billion installed devices & is expected to have 920 million unique mobile subscribers by 2025 which will include 88 million 5G connections.

Pradhan Mantri Awas Yojana (Gramin)

In News

- Recently, according to the data shared by the government over 69% houses constructed under PMAY in rural India are either wholly or jointly owned by women.

About

- Housing is one of the basic requirements for human survival.
- For a normal citizen owning a house provides significant economic and social security and status in society.
- In pursuance to the goal - Housing for all by 2022, the rural housing scheme Indira Awas Yojana has been revamped to Pradhan Mantri Awas Yojana – Gramin.

2016:

- It was launched by the Prime Minister in 2016 with the aim of constructing 2.95 crore houses.

Objective:

- Under the scheme, financial assistance is provided for construction of pucca houses to all houseless and households living in dilapidated houses.

Implementation:

- Implemented in rural areas throughout India except Delhi and Chandigarh.

Funding Pattern:

- The cost of unit assistance is to be shared between Central and State Governments in the ratio 60:40 in plain areas and 90:10 for North Eastern and hilly states.
- The unit assistance given to beneficiaries under the programme is Rs 1, 20,000 in plain areas and to Rs 1, 30,000 in hilly states/difficult areas/Integrated Action Plan (IAP) for Selected Tribal and Backward Districts.

Other features:

- The beneficiary is entitled to 90/95 days of unskilled labour from MGNREGA.
- The beneficiary would be facilitated to avail loan of up to Rs.70, 000/- for construction of the house which is optional.
- Funds will be transferred electronically directly to the account of the beneficiary.

Target Group:

- Identification of beneficiaries eligible for assistance and their prioritisation to be done using information from Socio Eco-

conomic and Caste Census (SECC) ensuring total transparency and objectivity.

- The list will be presented to Gram Sabha to identify beneficiaries who have been assisted before or who have become ineligible due to other reasons. The finalised list will be published.
- Gram Sabha will need to justify in writing with reasons for any alteration of priority in the original list.

Significance of the scheme

- **Nari Shakti initiative:** it had been the government's endeavour to ensure women get a fair share of government schemes under Nari Shakti initiative.
- **Women-led development:** The idea behind the initiative is to have "women-led" development instead of "development of women".
- **Financial decision making:** By providing houses under the PMAY-G, the government has fulfilled the aspirations of women of owning a pucca house and strengthened their participation in the financial decision making of the household.
- Living in a pucca house with basic amenities gives security, dignity and basic amenities economic power and uplifts their social inclusion.

Way Forward

- Another initiative which has helped safeguard the health of women and children was en-

suring supply of clean cooking fuel under the Pradhan Mantri Ujjwala Yojana.

- Over 9.4 crore LPG connections have been released under the Ujjwala Yojana.
- This scheme also received global recognition from the International Energy Agency.
- Another scheme that has helped women gain dignity and security is the Swachh Bharat Mission under which 11.5 crore toilets were constructed in the rural areas and 70 lakhs were built in the urban areas.
- After the construction of toilets, 93% of women reported that they were no longer afraid of being hurt by someone or harmed by animals while defecating.
- 93% of women reported they are no longer afraid of contracting health infections.
- 92% of women said they were no longer afraid of going to the toilet in the dark of night.

Merger of Amul with Cooperative Societies

In News

- Amul will be merged with five other cooperative societies to form a multi-state cooperative society (MSCS).

About

- Formed in 1946. Amul is an Indian dairy state government cooperative society, based at Anand, Gujarat.

- The Gujarat Cooperative Milk Marketing Federation Ltd markets its products under the Amul brand.
- Amul spurred India's White Revolution which made the country the world's largest producer of milk and milk products.
- Verghese Kurien (father of the white revolution in India) is credited with the success of Amul's marketing.
- Tribhuvandas Kishibhai Patel under the guidance of Sardar Vallabhbhai Patel became the founding chairman of the organization.
- The Amul Model of dairy development is a three-tiered structure with the dairy cooperative societies at the village level federated under a milk union at the district level and a federation of member unions at the state level.

Significance

- The MSCS will ensure the export of the products after its certification so that profit can go directly into the bank accounts of the farmers.
- India has a huge opportunity to deliver milk to countries like Bhutan, Nepal, Bangladesh and Sri Lanka, and to explore this world market.
- India is the top milk producer and has the highest cattle population in the world. Uttar Pradesh is the highest milk-producing state in India.

2. State Government

Is TN's Breakfast Scheme Populist or Pertinent?

Context:

- The breakfast scheme caters to 1,14,095 primary school students from 1,545 government school

Aim:

- To help students attend school hunger-free and improve their nutritional status.

Socio political developments around the scheme:

- Political debate on freebies
- Falling human development performance
- Educational disruption caused by COVID-19

Responsibility of state under Constitution(Article 38):

- To promote welfare and minimize inequalities in income as well as in facilities and opportunities among individuals and groups.

Welfare status of India:

- Global Food Security Index:** India is ranked 71 out of 113 countries
- Global Hunger Index:** 101 out of 116 countries
- Human Development Index:** 132 out of 191 countries
- Schooling:** India's mean years of schooling stood at just 7(six

point seven)years in 2020-21.

- Inequality in education:** India has among the highest levels of inequality in education.
- Credit Suisse report:** Rising wealth inequality.

Welfare Status of Tamil Nadu: (The Comprehensive National Nutrition Survey 2016-18):

- Stunted:** About 10% of children aged 5-9 years were stunted in 2018, much lower than the all-India average of 22% and marginally lower than Kerala's average (11%).
- Underweight:** Marginally higher level of underweight children (23%) than Kerala (21%), but this was lower than the national average (35%).
- Malnutrition:** 19% of children were malnourished (BMI for age), which was higher than the 16% in Kerala but lower than the national average (23%).
- Anemia:** About 10% and 7% were anemic & deficient in Vitamin A, respectively, whereas 41% were deficient in Vitamin D.

Malnutrition:

- It refers to deficiencies or excesses in nutrient intake, imbalance of essential nutrients or impaired nutrient utilization.

Stunting:

- It is defined as low height-for-age.

- It is the result of chronic or recurrent undernutrition.

Underweight:

- It is defined as low weight-for-age.
- A child who is underweight may be stunted, wasted or both.

Anemia:

- It is a condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet physiological needs.

Freebies:

- Any public policy intervention that doesn't support medium-term to long-term production and productivity may be termed as a freebie.
 - Free electricity, free water, free public transportation, waiver of pending utility bills & farm loan waivers are often regarded as freebies

Welfare:

- Expenditure on which brings economic benefits, such as the public distribution system, employment guarantee schemes, states' support for education and health.

Way forward:

- Urgent need for implementing innovative and effective welfare schemes: To address the disruptions caused by the

pandemic in the education and nutrition sectors and strengthen these sectors.

- **Initiatives:** Such as Illam Thedi Kalvi and Ennum Ezhuthum were positive attempts in the education sector.
 - It is relevant to look at how T.N. fares in breakfast scheme
- **Studies from other countries:** Free breakfast schemes might help increase educational outcomes and likely increase in school attendance & improved concentration on studies.

Slender Loris

In News

- In a first in the country, the Tamil Nadu government notified Kaduvur slender loris sanctuary covering 11,806 hectares in Karur and Dindigul districts.

About

- The Kadavur slender loris sanctuary is to cover Veda sandur, Dindigul East and Natham taluks in Dindigul district and Kadavur taluk in Karur district.
- The government notified 'Kadavur slender loris sanctuary' under Section 26 (A)(1)(b) of Wildlife (Protection) Act, 1972.

About Slender Loris

- They are small nocturnal mammals that are arboreal in nature as they spend most of their life on trees.
- The species acts as a biological predator of pests in agricultural crops and benefits farmers.

- It has a wide range of ecological roles to play in the terrestrial ecosystem.
- The survival of the species depends on its habitat improvement, conservation efforts and mitigation of threats,

Dugong Conservation Reserve

Why in News?

- Tamil Nadu government has notified India's first Dugong Conservation Reserve.
- The Dugong Conservation Reserve has been notified in Palk Bay.
 - It facilitates India to act as the leading nation in the South Asia Sub-region with respect to dugong conservation.

What are Dugongs?

- Dugong (*Dugong dugon*) also called 'Sea Cow' is one of the four surviving species in the Order Sirenia and it is the only existing species of herbivorous mammal that lives exclusively in the sea including in India.
- Dugongs are an important part of the marine ecosystem and their depletion will have effects all the way up the food chain.
 - **Distribution and Habitat:** They are found in over 30 countries & in India are seen in the Gulf of Mannar, Gulf of Kutch, Palk Bay, and the Andaman and Nicobar Islands.
- **Conservation Status:**
 - IUCN Red List status: Vulnerable

- Wild (Life) Protection Act, 1972: Schedule I
- CITES: Appendix I

Threats:

- Dugongs graze on seagrass and the loss of seagrass beds due to ocean floor trawling is one of the most important factors behind decreasing dugong populations in many parts of the world.
- Trawling is a method of fishing that involves pulling a fishing net through the water behind one or more boats.
- It is harmful to the environment because it damages the seafloor, coral reefs and other marine animals.
 - Human activities such as the destruction & modification of habitat, pollution, rampant illegal fishing activities, vessel strikes, unsustainable hunting or poaching and unplanned tourism are the main threats to dugongs.
- Dugong meat is consumed under the wrong impression that it cools down human body temperature.

Steps Taken for Conservation:

- In February 2020, India hosted the 13th Conference of Parties (CoP) of the Convention on the Conservation of Migratory Species of Wild Animals (CMS), an environmental treaty under the aegis of the United Nations Environment Programme (UNEP).
- The Government of India has been a signatory to the CMS since 1983.

- India has signed non-legally binding Memorandums of Understanding (MoU) with CMS on the conservation & management of Siberian Cranes (1998), Marine Turtles (2007), Dugongs (2008) and Raptors (2016).
 - The Ministry of Environment, Forests and Climate Change constituted a 'Task Force for Conservation of Dugongs' to look into issues related to conservation of dugongs and implementation of the 'UNEP/CMS Dugong MoU' in India.
- It also facilitates India to act as the leading nation in the South Asia Sub-region with respect to dugong conservation.

What are Conservation Reserves?

- Conservation reserves and community reserves are terms denoting protected areas of the country which typically act as buffer zones to or connectors and migration corridors between established national parks, wildlife sanctuaries and reserved and protected forests.
- Such areas are designated as conservation areas if they are uninhabited and completely owned by the Government of India but used for subsistence by communities and community areas if part of the lands are privately owned.
- These protected area categories were first introduced in the Wildlife (Protection) Amend-

ment Act of 2002 – the amendment to the Wildlife Protection Act of 1972.

- These categories were added because of reduced protection in and around existing or proposed protected areas due to private ownership of land & land use.

TamiraSES project

Why in News?

- The district administration of Tirunelveli in Tamil Nadu along with Ashoka Trust for Research in Ecology and the Environment (ATREE), a non-profit Organisation, are using a 'hyper local' approach called TamiraSES to restore the Thamirabarani River.

What is the Project About?

Need:

- The Thamirabarani is of great importance to southern Tamil Nadu environmentally and historically. But it too has suffered, which is why the restoration project has been started.
- While the Thamirabarani landscape, in general, appears water-rich, it faced severe drought in 2016 despite the diverse water storage systems in place.
- Settlements have been on the rise, which has led to the shrinkage of agricultural land and water bodies.

TamiraSES project:

- It is a district level initiative, which aims to restore the Social Ecological Systems of Tamiraparani river riverscape from head-

waters to the estuary to enable conditions for native biodiversity to thrive and maintain and enhance multiple ecosystem services to local stakeholders.

- Five social ecological observatories will be set up as part of the first phase of the project. These will serve as pilots to scale up from the learnings from these sites.

- The idea is to rejuvenate not just the Thamirabarani but all the water bodies in the riverscape of Tirunelveli.

What are the Key Points of Thamirabarani River?

- The Thamirabarani is the only perennial (continuous flow of water) river in Tamil Nadu.
- This is the shortest river in the state, the Thamirabarani starts in Pothigai hills of the Western Ghats in the Ambasamudram taluk, flows through Tirunelveli and Thoothukudi districts and empties at Korkai into the Gulf of Mannar (Bay of Bengal). It thus originates and ends in the same state.
- The river supports wildlife such as the Nilgiri marten, slender loris, lion-tailed macaque, white spotted bush frog, galaxy frog, Sri Lankan Atlas moth and the great hornbill.
- Besides the ecosystem services it provides, the river also has historical value for the people of the state. It is mentioned extensively in Sangam Era literature.

Rhino Memorial in Kaziranga National Park

- Memorial made of ashes collected from rhino horns were unveiled recently at the Kaziranga National Park in Assam.

Key facts

- The memorial having three rhino sculptures was named "Abode of the Unicorns".
- It has one male rhino, a female rhino and a calf.
- It also has three statues of forest guards, created using different materials.
- The male rhino is 10.5 feet long and 6 feet tall, the female is 11 feet long & 5.6 feet tall & the calf is 3.5 feet long & 1.5 feet tall.
- The rhino statues were created using ashes collected from around 2,500 rhino horns that burnt to flames by the Assam Government.
- On the occasion of World Rhino Day (September 22) last year, rhino horns were burnt cinders remotely using drones at the Kaziranga National Park.
- They were collected or seized over the past 40 years.
- The statues were made using around 128 kg of ash obtained from these burnt horns.
- They were created by sculptors Biju Das.
- The statues of the forest guards were sculpted by Biren Singha.
- It took four months to create these statues.

- The memorial was unveiled by Assam Chief Minister Himanta Biswa Sarma.
- The estimated cost of this project is Rs.10 to 12 lakh.

About Kaziranga National Park

- Kaziranga National Park in Assam hosts the world's largest population of one-horned rhinos.
- It is situated at the edge of the Eastern Himalayan biodiversity hotspots – Golaghat and Nagaon districts.
- It was declared as a UNESCO World Heritage Site in the year 1985.
- According to the latest State of Rhino Report, the national park hosts 2,613 rhinos – the highest in India.

State of Rhino Report

- According to the State of Rhino Report 2022, released by the International Rhino Foundation, one-horned rhinos' population in India, Nepal and Bhutan has increased while the population of rhinos in Africa and Indonesia either fell or saw only a slight rise.
- The estimated population of one-horned rhinos is 4,014. The population is surging mainly because of efforts of governments of India & Nepal towards expanding the natural habitats & anti-poaching activities.
- The Kannada Language Comprehensive Development Bill

Key facts

- The Kannada Language Comprehensive Development Bill

gives preference to Kannadigas in government jobs & provides reservations to locals in private jobs generated in the state.

- The Bill defines Kannadigas as individuals whose parents have resided in Karnataka for a minimum of 15 years with the knowledge of reading and writing Kannada.
- Under this Bill, practical and functional knowledge of Kannada will be taught in higher, technical and professional education courses.
- Students who have studies in Kannada Medium schools will get reservations in higher education.
- It will deny land concession, tax rebates and other incentives to private companies that do not recruit at least a minimum percentage of Kannadigas.
- Government jobs in the state will be provided only if a Kannada language exam is passed.
- This exam is not required for individuals who have passed Class 10 with Kannada as first or second language.
- The Bill proposes the use of Kannada language for all official and administrative correspondences in the state and by local authorities.
- Earlier, the state government was criticised for using only English language for correspondence.
- Kannada is also made mandatory in subordinate courts, tribunals, banks and other financial institutions.

- Shops, industries and commercial establishments who violate this proposed legislation will incur a fine of Rs.5,000 to Rs.10,000, including suspension of license.
- The other two Apple suppliers with facilities in India are the Taiwanese companies Foxconn and Wistron.

Pegatron third iPhone manufacturer in India: Key Points

- The Sarojini Mahishi Committee had provided 58 recommendations to provide job security for Kannadigas in Karnataka.
- However, these recommendations were not adopted because they were highly stringent.
- Among them are the 100 per cent reservation for Kannadigas in all public sector units, 100 per cent reservation for Kannadigas in group C and D jobs in central government departments and PSUs in Karnataka and minimum 80 per cent & 65 per cent reservation in Group B and A jobs respectively.
- These recommendations were not adopted as they may cause several constitutional challenges & violate fundamental rights.
- The opening of Pegatron's factory coincides with Apple's anticipated relocation of at least a quarter of its manufacturing operations to India by 2025.
- In February of last year, it and the Tamil Nadu government inked an agreement known as an MoU.
- The production-linked incentive programme of the central government received an application from the electronics firm.
- Hosur, Coimbatore, and Sripurumbudur will be transformed into centres for the production of electronics by Tamil Nadu.
- 20% of the nation's electronics are produced with help from the state. Among the state's main investments are Samsung, Foxconn, Tata Electronics, & Dell. Stalin claimed that the government was improving the supply chain.

Pegatron in Chennai

Context

- **Pegatron third iPhone manufacturer in India:** With the opening of a factory in Mahindra World City in Chennai, Taiwan's Pegatron became the third Apple supplier to establish a production facility in India.
- It will put about Rs 1,100 crore into the facility, which might lead to the creation of 14,000 employment.

iPhone manufacturing in India:

- Stalin reaffirmed the plan put forward by the government to reach the goal of a \$1 trillion economy.
- The state is providing particular incentives for the industrial sector in order to progress in that direction.
- He said, "We are making efforts to increase employment and support diversification initiatives in every area."
- Apple began assembling iPhone

locally in 2017 and produced the majority of its older phone models in India.

- According to a JP Morgan study, Apple is planning to produce 25% of its phones in India by 2025 and to relocate 5% of the world's iPhone 14 production to India by the end of 2022 in an effort to diversify its China-focused manufacturing.

Wind Turbine Generator

Context

- India's first 4.20-MW wind turbine generator has been installed at Vadalivilai near Valliyoor in Tirunelveli district.

Key points

- It has a single unit with the largest generation capacity.
- Vadalivilai is close to the advantageous Aralvaimozhi Pass in the Kanyakumari District.
- So far, the 3,000-odd windmills installed in the Aralvaimozhi Pass have the capacity to generate power up to 2 MW.
- The Centre had set the target of producing 500 GW of power through renewable energy sources by 2030.
- It had planned to generate 35 GW of solar & wind power each.
- Gujarat and Tamil Nadu would be the major players in the mission.
- Of the 500 GW, solar energy would account for 300 GW.
- Tamil Nadu has the potential to generate 35 GW of wind power, including 30 GW in Dhanushkodi alone.

Madhya Pradesh got 8 Awards in National Tourism Awards

Why In News?

- The Union Ministry of Tourism presented awards in 8 different categories to Madhya Pradesh under the 'National Tourism Awards 2018-19' at the award function held in New Delhi on World Tourism Day on September 27, 2022.

Key Points

Madhya Pradesh has received 8 National Tourism Awards:

- Indore, the cleanest city in the country, won the award for 'Civic Management of a Tourist Destination in India' (Category A). The state has so far received 7 awards in this category. Mandu has been awarded in 2010-11 and 2011-12, Pachmarhi in 2012-13, Maheshwar in 2013-14, Khargone (Category B) in 2015-16 and Omkareshwar (Category B) in 2016-17.
- For the first time in the category of 'Swachh Tourism Place- Western Region', the award was received by Municipal Corporation Ujjain
- Shiv Mandir, Bhojpur won the award for 'Best Intended and Disabled Friendly Monument'. Earlier, the state has received this honor for Sanchi Stupa in 2017-18, Amarkantak Temple in 2014-15 & Shiva Temple Bhojpur in 2013-14.
- Devi Ahilya Bai Airport, Indore has received this honor for the third consecutive time for 'Best Airport- Rest of India'.
- Malwa's mural has won the award for the category 'Excellence in Publishing-Hindi'. Earlier, in 2015-16, this honor was given for Simhastha Brochure.
- Bhopal Brochure has received this award for 'Best Tourism Promotion Publicity Material'. Prior to this, the award has been received for Lonely Planet Pocket Books in 2017-18 and CORPORATE BROCHURE of MPSTDC in 2010-11.
- Mr. Subhash Bhavre, Guide, Pench Tiger Reserve has received the award for 'Best Wildlife Guide, Western-Central'. Shri Manoj Kumar Dwivedi from Panna in 2017-18, Radhika Prasad Omre from Panna in 2016-17 & Saib Khan from Satpura in 2015-16 have received this award.
- 'Cotyard House', a homestay of Patpara village in Kanha National Park in Mandla district, has bagged the award for 'Incredible India Bed and Breakfast Establishments Approved by State Government'.
 - The state has received awards for the first time in the categories "Clean Tourism Place – Western Region" (Ujjain) and "Incredible India Bed and Breakfast Establishment Approved by State Government" (Cottyard House, Homestay, Mandla). Guides of Madhya Pradesh have been awarded for the 'Best Wildlife Guide' for the fourth time in a row.

VIII. Geography-Geographical marks

Sapta Kosi High Dam Project

Why in News?

- Recently, India and Nepal have agreed to take forward the Sapta Kosi high dam project through further studies.
 - Senior officials of the two

sides have met and reviewed the bilateral water-sector cooperation, including the implementation of the Mahakali Treaty.

What is Sapta Kosi High Dam Project & Mahakali Treaty?

- Sapta Kosi High Dam is a multi-purpose project proposed to be

constructed on the Saptakoshi River of Nepal (Known as Kosi River in India).

- The project is primarily aimed to control floods in south-east Nepal and northern Bihar and to generate hydropower.
- The project will provide irrigation, control floods and generate 3,000 MW of electricity.

Mahakali Treaty:

- The Mahakali Treaty was signed in 1996 over the integrated development of the Mahakali River, including Sarada Barrage, Tanakpur Barrage and Pancheswar project.
- Mahakali River is also known as Sharda River or Kali Ganga in Uttarakhand.
- It joins Ghagra river in Uttar Pradesh, which is a tributary of Ganga.

What do we know about the Kosi River System?

- The Kosi is a trans-boundary river which flows through Tibet, Nepal and India.
- It has its source in Tibet that includes the world's highest upland, it then drains a large part of Nepal before emerging onto the Gangetic plains.
- **Its three major tributaries:** the Sun Kosi, Arun and Tamur meet at one point just upstream of a 10 km gorge cut through the Himalayan foothills.
- The river crosses into northern Bihar, India where it branches into distributaries before joining the Ganges near Kursela in Katihar district.
- The Kosi carries the maximum amount of silt and sand after the Brahmaputra in India.
- It is also known as the "Sorrow of Bihar" as the annual floods affect about 21,000 sq. km. of fertile agricultural lands thereby disturbing the rural economy.

What are some other Recent Developments in India Nepal Relations?

Build Own Operate and Transfer (BOOT):

- A Memorandum of Understanding (MoU) was signed between the Government of Nepal & Sutej Jal Vikas Nigam (SJVN) Limited for the project in 2008 for execution on a Build Own Operate & Transfer (BOOT) basis for a period of 30 years including five years of the construction period.

Hydropower Projects:

- Nepal also invited Indian companies to invest in the West Seti hydropower project in Nepal.

Cross-border Rail Link:

- The operationalisation of the 35 kilometers cross-border rail link from Jayanagar (Bihar) to Kurtha (Nepal) will be further extended to Bijalpura (Nepal) and Bardibas (Nepal).

Arctic Ice

In Context

- Recently, a team of researchers has flagged the changing chemistry of the western region of the Arctic Ocean.

More about the research

Research observations:

- The research discovered that the acidity levels in Arctic seas are increasing three to four times faster than ocean waters elsewhere.
- Seawater is normally alkaline,

with a pH value of around 8.1.

- The team also identified a strong correlation between the accelerated rate of melting ice & the rate of ocean acidification.

Reasons:

- Scientists Point to sea-ice melt as the key mechanism to explain this rapid pH decrease, because it changes surface water in three primary ways:
- The water under the sea ice, which had a deficit of carbon dioxide, now is exposed to the atmospheric carbon dioxide and can take it up freely.
- The seawater mixed with meltwater is light and can't mix easily into deeper waters, which means the carbon dioxide is concentrated at the surface.
- The meltwater dilutes the carbonate ion concentration in the seawater, weakening its ability to neutralise the carbon dioxide into bicarbonate and rapidly decreasing ocean pH.

Data timeline:

- It is the first analysis of Arctic acidification that includes data from 1994 to 2020.

Predictions:

- Scientists have predicted that by 2050, Arctic sea ice in this region will no longer survive the increasingly warm summers.

Consequences:

- The ocean's chemistry will grow more acidic, creating life-threat-

ening problems for the diverse population of sea creatures, plants & other living things that depend on a healthy ocean.

- Crabs, for example, live in a crusty shell built from the calcium carbonate prevalent in ocean water.
- Polar bears rely on healthy fish populations for food, fish and sea birds rely on plankton and plants, and seafood is a key element of many humans' diets.

Location: Arctic Region

- It is commonly understood to refer to the region above the Arctic Circle, north of latitude 66° 34' N, which includes the Arctic Ocean with the North Pole at its centre.

Arctic Council:

- Eight Arctic States-Canada, Kingdom of Denmark, Finland, Iceland, Norway, Russia, Sweden, & USA form the Arctic Council.

Resources and inhabitants:

- The Arctic is home to almost four million inhabitants, of which approximately one tenth are considered as indigenous people.
- The Arctic Ocean and its surrounding landmass has been a topic of immense interest and a high-priority area of research among the global scientific fraternity as well as of importance to policy makers.
- The Arctic influences atmospheric, oceanographic and biogeochemical cycles of the earth's ecosystem.

Mineral Resources:

- The Arctic region has rich deposits of coal, gypsum and diamonds and also substantial reserves of zinc, lead, placer gold and quartz.
- Greenland alone possesses about a quarter of the world's rare earth reserves.

Hydrocarbons:

- The Arctic also contains a wealth of hydrocarbon resources. India is the third-largest energy-consuming country in the world.
- The Arctic can therefore potentially address India's energy security needs.

Arctic warming

- The Arctic is heating up twice as fast as the rest of the world.
- Global warming, caused by greenhouse gas, is responsible for the decline in Arctic sea ice.

Arctic amplification:

- The phenomenon, known as Arctic amplification, occurs when the sea ice, which is white, thins or disappears, allowing dark ocean or land surfaces to absorb more heat from the sun and release that energy back into the atmosphere.

Consequences of Arctic warming (on India)

Rising Sea Level:

- The Greenland ice sheet holds the second largest amount of

ice, after Antarctica, and therefore it is crucial for maintaining the sea level.

- According to the World Meteorological Organization's report, 'State of Global Climate in 2021', sea level along the Indian coast is rising faster than the global average rate.
- One of the primary reasons for this rise is the melting of sea ice in the polar regions, especially the Arctic.

Global warming:

- The permafrost in the Arctic is thawing & in turn releasing carbon & methane which are among the major greenhouse gases responsible for global warming.

Biodiversity:

- The warming of the Arctic Ocean and the seas in the region, the acidification of water, changes in the salinity levels, are impacting biodiversity, including the marine species and the dependent species.

Connectivity:

- The Arctic's ice meltdown and its geographical location will ensure the shortest sea distance between America, Europe and North East Asia.
- This will likely transform the global maritime commerce, presently conducted through the traditional East-West route through the Malacca Strait and Suez Canal.

Monsoons:

- The link between the impact of the changing Arctic and monsoons in India is growing in importance due to the extreme weather events the country faces, & the heavy reliance on rain-fall for water & food security.

Geopolitics:

- The melting Arctic ice is also raising the geopolitical temperatures.
- In 2018, China's White Paper on Arctic policy called itself a 'Near-Arctic State'.

- The opening of the shipping routes and possibilities of increased resource extraction is leading to the big three—US, China and Russia—and NATO, jockeying for position and influence in the region.

India's Arctic Policy

- In March 2022, Government of India released India's Arctic Policy titled "India's Arctic Policy: Building a Partnership for Sustainable Development".
- The six pillars of the Policy are as follows:
 - Science and Research
 - Climate and Environmental Protection
 - Economic and Human Development
 - Transportation and Connectivity
 - Governance and International Cooperation
 - National Capacity Building
- Implementing India's Arctic policy will involve multiple stakeholders, including academia, the research community, business, & industry.

Way Ahead

- The problem is that we do not completely understand the factors that control how rapidly the ice flows & thus enters the ocean.
- One way to approach the problem of not understanding the process is to study how sea level changed in the past.
- Earth is nearly as warm now as it was during the last interglacial period, about 125,000 years ago.
- We must act urgently to reduce and mitigate the impact of human-made climate change on the glaciers.

IX. Environment

Eco-Sensitive Zones (ESZ)

- **Context:** Recently, the Supreme Court (SC) directed that every protected forest, national park & wildlife sanctuary across the country should have a mandatory eco-sensitive zone (ESZ) of a minimum one km starting from their demarcated boundaries.

Eco Sensitive Zone (ESZ):

- The Eco-Sensitive Zone (ESZ) are areas in India notified by the Ministry of Environment,

Forest and Climate Change (MoEF&CC), Government of India around Protected Areas, National Park and Wildlife sanctuaries.

- To create some kind of "shock absorbers" to the protected areas by regulating & managing the activities around such areas
- Therefore, these areas act as a buffer for protected areas and reduce developmental pressures around a wildlife sanctuary or national park.

- They also act as a transition zone from areas of high protection to areas involving lesser protection.

Range:

- All identified areas around Protected Areas and wildlife corridors to be declared as ecologically fragile under the Environment (Protection) Act, 1986 (National Wildlife Action Plan, 2002-2016).
- Eco-sensitive Zone could go upto 10 Kms around Protected Areas.

- In cases where sensitive corridors, connectivity and ecologically important patches, crucial for landscape linkage, are even beyond 10 Kms width.
- Further, Eco-sensitive zones may not be uniform all around and it could be variable width and extent.

Prohibited activities:

- Activities like industries which cause pollution Commercial mining, saw mills, establishment of major hydroelectric projects (HEP), commercial use of wood, Tourism, discharge of effluents or any solid waste or production of hazardous substances are all prohibited.

Regulated activities:

- Activities like felling of trees, establishment of hotels and resorts, commercial use of natural water, erection of electrical cables, drastic change of agriculture system, e.g., adoption of heavy technology, pesticides etc., widening of roads.

Permitted activities:

- Activities like ongoing agricultural or horticultural practices, rainwater harvesting, organic farming, use of renewable energy sources, adoption of green technology for all activities are permitted.

Significance of Eco Sensitive Zone (ESZ):

- ESZs help in in-situ conservation, which deals with conservation of an endangered species in its natural habitat.

For example, the conservation of the One-horned Rhino of Kaziranga National Park, Assam.

- They minimize forest depletion and man-animal conflict.
- The protected areas are based on the core and buffer model of management, through which local area communities are also protected and benefitted.

Significance of Recent Judgement:

- It can lead to more sustainable development.
- Tribal rights will also be protected with the recent judgement i.e., their culture, diversity etc will be preserved.

Challenges Ahead:

Developmental activities:

- Activities such as construction of dams, roads, urban & rural infrastructures in the ESZ, create interference, negatively impact upon the environment & imbalance the ecological system.

Blatant violations:

- To cater to the increasing demand for eco-tourism, land around parks & sanctuaries is being cleared through deforestation, displacement of local people etc.
- Failing to recognize the rights of forest communities and curbing poaching of animals, environmental legislations undermine the ESZs in favour of developmental activities.

Climate Change:

- Biodiversity and climate change are interconnected, for exam-

ple, the rise in global temperature has generated land, water & ecological stress on the ESZs.

Tourism related Pollution:

- As the pressure of tourism is rising, the government is developing new sites and gateways to the ESZ. The tourists leave behind garbage such as plastic bags & bottles etc. which lead to environmental degradation.

Local communities:

- Slash and burn techniques used in agriculture, pressure of increasing population and the rising demand for firewood and forest produce, etc. exerts pressure on the protected areas.

Way Forward:

- The Centre needs to come up with a plan to incentivise farmers for sticking to green practices in Eco Sensitive Zones (ESZs).
- Communities living around Protected Areas in several states should promote conservation of Eco Sensitive Zones (ESZs).
- There is a need for rethinking on the impacts of the environmental policies at the local level & prospects of local participation.

Swachh Vayu Sarvekshan

- **Context:** Swachh Vayu Sarvekshan- Ranking of Cities' released under National Clean Air Programme (NCAP).

Concept:

- Under the guidance of the Minister for Environment, Forest and climate Change, the

Ministry is going to launch Swachh Vayu Sarvekshan that promotes ranking of 131 cities in the country for implementing City Action Plans prepared as part of National Clean Air Programme (NCAP) for reducing air pollution upto 40% by 2025-26

The objectives of Swachh Vayu Sarvekshan are:

- To create awareness among all sections of the society
- Inform citizens about the health impacts related due to exposure
- Comparing air quality conditions at different locations/cities
- To achieve the goal of NCAP "Clean air for all".

Categorisation of cities:

- 131 cities are categorized into three groups based on population.
- 47 cities are in the first group having population more than 10 lakh.
- 44 cities are in the second group having population between 3 to 10 lakh.
- Third group consists of 40 cities having population less than 3 lakh.

How is the survey done?

- Cities are required to do the self-assessment as per the framework provided on PRANA online portal. This assessment is carried out annually.
- Cities have to report implementation of activities & measures taken in respect of solid waste

management, road dust management, management of construction and demolition waste, control of vehicular emissions and industrial pollution.

Features of the survey:

- It was informed that based on the self-assessment and third party assessment, 3 best performing cities in each group will be given cash award in the spirit of competitive federalism.
- It is not based on the measurement of the air quality parameters to rank the cities. It is based on the actions taken by the cities to improve the air quality in different domains. The actions taken by the cities would result in the improvement of air quality.
- It thus, provides a planning implementation tool to improve the air quality & the assessment of the cities regarding how better they have aligned their actions to improve the air quality.

India's First 'Flex Fuel' Car

Context

- India's first 'flex fuel' car, a Toyota sedan is set for an unveiling later this month. India will join the club of countries – Germany, France, and Brazil – which are already using flex-fuel engines for their cars.

Flex Fuel Vehicle

- A flex fuel, or flexible-fuel vehicle (FFV) has an internal combustion engine (ICE), but unlike a regular petrol or diesel

vehicle, this can run on more than one type of fuel, or even a mixture of fuels. Flex fuel vehicles (FFV) are capable of running on 100 per cent petrol or 100 per cent bio-ethanol or a combination of both.

- The most common versions use a blend of petrol and ethanol or methanol, but these engines are also equipped to run on 100 per cent petrol or ethanol as well. Both fuels are stored in the same common tank.
- Flex-fuel vehicles are distinguished from bi-fuel vehicles, where two fuels are stored in separate tanks and the engine runs on one fuel at a time, for example, compressed natural gas (CNG), liquefied petroleum gas (LPG), or hydrogen.
- The most common commercially available FFV in the world market is the ethanol flexible-fuel vehicle.

Flex Fuel Benefits

- Cheaper Oil Alternative. Oil is a finite resource so it is necessary to find an alternative or a way to reduce its usage. The flex fuel is a gasoline alternative that is ready for mass commercial use. Mixing up gasoline with ethanol definitely expands the world's oil supply.
- Steady Supply of Raw Materials. Ethanol is made from either sugarcane or corn – both crops are cheap & mass-produced. Except for the possibility of increased costs of corn for food pro-

duction, the supply of the raw materials for flex fuel is steady.

- **Natural Anti-freeze.** Ethanol is a natural anti-freeze, so it prevents the gas lines from freezing during the chilly winter.
- **Less Carbon Footprint.** Ethanol burns cleaner than gasoline, emitting much lower greenhouse gases and carcinogen benzene than petroleum oil. It is water-soluble, non-toxic, and biodegradable. Use of ethanol blending sharply lowers harmful pollutants such as carbon monoxide, sulphur, and carbon and nitrogen oxides.
- **Cost-efficient.** Each gallon of flex fuel costs less than per gallon of gasoline.
- **Burning facility:** Possibly the greatest advantage is that the flex fuel vehicle has been designed to burn whatever proportion of mixture is in its combustion chamber. Electronic sensors gauge the blend, while microprocessors adjust the fuel injection and timing.
- **Alternative to oil:** Many flex fuel vehicles make use of ethanol, which originates from corn and sugar cane, a viable alternative to purchasing foreign oil.
- **Sustainably produced:** Many Flex fuel vehicles run on ethanol. This is sustainably produced from ingredients such as cane sugar and corn. This makes ethanol a good alternative to purchasing foreign oil.
- **Import Dependency:** It will help in deleveraging the coun-

try's dependence on imported fossil fuels for transportation.

- **Similar Performance:** CNG-fueled cars are known to produce less power than their petrol counterparts. This is not the case with flex-fuel cars as they still use some petrol in the fuel, which provides similar, and sometimes better, performance than pure petrol cars.

In a nutshell,

- FFV Technology (Vehicle can run on either 100% diesel or DME-Diesel mode)
- The transition of diesel trucks from conventional diesel to DME as an alternative fuel (First phase as FFV; Second Phase as dedicated 100% DME/alternative fuelled vehicle)
- Less/negligible smoke/soot/particulate matter (PM) emission
- Lower noise with smoother engine/vehicle operation
- Improvement in transient engine performance
- Enhancement of energy security
- Sustainable environment as there is a substantial reduction in GHG emissions.

The cons of Flex fuel

- **Not Quite Eco-Friendly:** Ethanol yields fewer greenhouse gases but it produces more smoke-causing chemicals than petroleum oil. Many ethanol plants also use coal instead of natural gas as their primary energy source, which is not good for the environment.

- **May Cause Corrosion:** Being a type of alcohol, ethanol breaks down faster than gasoline & attracts water. As it causes water absorption into the fuel, it may lead to the forming of rust in different engine parts. Plus, the rust particles can clog the fuel filter.
- **Engine Damage:** Ethanol can also unfortunately cause corrosion & damage to the engine, mainly because it absorbs dirt easily.
- **Expense:** Ethanol is also not as economical as gasoline; in that it does not provide the same level of fuel efficiency.
- **Possible Increase in Food Prices:** The two chief raw materials for ethanol production are corn and sugarcane – both of which are food crops. Using them for the mass production of flex fuel may increase their prices as human and animal food products. Plus, a big-scale cultivation will take a huge amount of land that can otherwise be used for different purposes.
- **Fuel Economy :** A flex fuel car typically takes a small hit on fuel efficiency when using ethanol for motive power, ranging from between 4 per cent and 8 per cent. So, fuel economy is generally lower with increased levels of ethanol (engines are optimised for petrol). But on the flip side, many flex fuel vehicles have improved acceleration performance when operating on higher ethanol blends.
- **Water Intensive:** A major problem with ethanol blending is that crops such as sugar-

cane are usually very water-intensive. A NITI Aayog report suggested that in 2019-20, of the total ethanol produced in the country, over 90 per cent came from sugarcane alone.

- **Pricier Vehicles:** Higher blending of ethanol will mean higher manufacturing costs which translates to pricier vehicles. Certain auto parts, especially those that come in contact with higher ethanol content, will have to be replaced with a compatible product to avoid corrosion.

Why is government of India pushing for FFVs?

- Last year (FY21), India's oil import bill stood at \$62.7 billion which was matched in just the first seven months (April-October) of this year.
- To make matters worse, the rupee is at its weakest level in last three financial years. The government is desperate to bring down the oil import bill by creating fuel substitutes like ethanol, hydrogen and electricity.
- Even a push till the E20 level (petrol blended with 20 per cent ethanol) can result in savings of \$4 billion per annum, as per estimates.
- A per, Ministry of Petroleum and Natural Gas, by just hitting E20, carbon monoxide emissions were observed to be 50 per cent lower in two-wheelers and 30 per cent lower in four-wheelers compared to petrol.

Way Ahead

- During a time when the country imports most of its fuel from other nations, inclusion of flex fuel engines will be a boon for the country's economy. Furthermore, usage of flex fuel will also give the country more grip in completing its goals for reducing the carbon footprint.
- More ethanol refining plants need to be developed.
- There can be a government subsidy to narrow the price gap of higher ethanol blends, just to make the proposition viable. That is another factor that would have to be considered as India steps up its fuel blending plan.

Case Study

- In Brazil, nearly all cars are required to be equipped to handle fuel blends with a minimum of 22 per cent ethanol. As a result, across most cities in Brazil, practically no light vehicles run on pure petrol. There is also a government subsidy to narrow the price gap of higher ethanol blends.

Innovation Roadmap of the Mission Integrated Biorefineries

What is the News?

- The Government of India has announced the launch of the "Innovation Roadmap of the Mission Integrated Biorefineries" at the Global Clean Energy Action Forum in Pittsburgh in the United States.

- **Note:** Global Clean Energy Action Forum is an international clean energy event organized jointly by the 13th Clean Energy Ministerial and the 7th Mission Innovation ministerial.

What is the Innovation Roadmap of the Mission Integrated Biorefineries?

- **Launched by:** India with active inputs from Brazil, Canada, EC and the UK
- **Aim:** To fill the void by identifying gaps and challenges in current biorefining value chains, prioritizing Eight key actions to support the Mission and guiding the Mission's overall path in achieving its goal.
- The roadmap also provides policymakers with a strategic framework to establish a rising R&D portfolio over the next five years, specific financing proposals across the entire spectrum of vital Biorefinery technologies & rapid action suggestions.

What is the Integrated Biorefineries Mission?

- Launched under Mission Innovation
- **Co-Led by:** India and Netherlands
- **Aim:** Develop and demonstrate innovative solutions to accelerate the commercialization of integrated biorefineries, with a target of replacing 10% of fossil-based fuels, chemicals and materials with bio-based alternatives by 2030.
- The mission is a PPP (Public

Private Participation) mode initiative that unites countries, international organizations, the corporate sector, academic institutions & civil society to accelerate innovation for renewable fuels, chemicals, and materials for a low-carbon future.

- **Other Countries Involved in the Mission:** The other countries involved are Brazil & Canada as core members & the European Commission & the United Kingdom as supporting members.

What are the other initiatives mentioned in the article?

- **Hydrogen Valley Platform:** It is a global initiative to optimize the hydrogen demand and supply by onsite generation and utilization. The platform utilizes renewable resources effectively, and water in excess areas with geographical identity.
- **Note:** DST has committed to facilitate the delivery of three clean hydrogen valleys in India by 2030.
- **National Funding Opportunity on Sustainable Aviation Fuels:** It aims to support and conduct RD&D (Research, Development & Demonstration) to foster technological innovations in advanced biofuels for aviation applications.
- **Three Material Acceleration Platforms(MAP):** It has been set up by the Department of Science and Technology (DST). These platforms would leverage emerging capabilities in

next-generation computing, artificial intelligence (AI) and machine learning and robotics to accelerate the pace of materials discovery up to 10 times faster.

How can India Reduce its Impact on Global Warming

In News

- Recently, the U.S. Environmental Protection Agency (EPA) has pointed out that since the industrial revolution, human activities have released large amounts of carbon dioxide (CO₂).

About

Alarming Increase in Carbon Dioxide:

- Atmospheric carbon dioxide levels have increased by over 40%, from 280 ppm in the 18th century to 414 ppm in 2020, and greenhouse gases level by over these 200 years.
- **Reason:** Due to fuel burning and other 'greenhouse gases' such as methane, nitrous oxide, and compounds of sulphur, phosphorous, ozone into the atmosphere, changing the earth's climate.

India Specific Observations:

- **Rise in Greenhouse gases:** The industrial revolution started only after India's Independence 75 years ago which has led to a rise in atmospheric carbon dioxide and greenhouse gases.
- **Need to Reduce Carbon Footprint in Farming Sector:** India has a total food-grain produc-

tion of 275 million tonnes. India is the second largest producer of rice, wheat, sugarcane, cotton and groundnuts. It, thus, becomes important that India try and reduce its carbon footprint as much as possible, more in its farming sector.

Innovative Initiatives in Agriculture to Reduce Global Warming

- Farmers are using solar panels in their fields, so that they can avoid diesel for groundwater pumps.
- Climate-friendly agriculture offers new income sources and is more sustainable and India's carbon emissions could drop by 45-62 million tonnes annually.
- India has about 20-39% vegetarians and 70% of the population eat meat — mainly chicken, mutton and fish. India, with its many rivers, has a vast coastline which is rich in fishes and fishes have high nutritional value and help in reducing carbon footprint.

India's Efforts

Updated Nationally Determined Contributions (NDCs):

- India now stands committed to reducing the emissions intensity of its GDP by 45 percent by 2030 from its 2005 levels, as per the updated NDC.
- The country will also target about 50 percent of cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030.

- To create an additional (cumulative) carbon sink of 2.5-3 gigatonnes of carbon dioxide equivalent (GtCO₂e) by 2030 through additional forest and tree cover.
- To further a healthy and sustainable lifestyle, 'LIFE' 'Lifestyle for Environment' as a key to combating climate change" has been added to India's NDC.
- The update is also a step towards achieving India's long term goal of reaching net-zero by 2070.

Adaptation and Mitigation:

- The Government has launched many schemes and programs to scale up India's actions on both adaptation and mitigation.
- Appropriate measures are being taken under these schemes and programs across many sectors, including water, agriculture, forest, energy and enterprise, sustainable mobility and housing, waste management, circular economy and resource efficiency, etc.
- As a result of the aforesaid measures, India has progressively continued decoupling of economic growth from greenhouse gas emissions.

Focus on Renewable Energy:

- The PM has set the targets and reiterated that the Indian government is committed to increasing the share of renewable energy in India's total energy share. Initially, the target for renewable energy was set at 175 GW, but now it has been further revised to 450 GW by 2030.

- It will lead to an overall increase in green jobs such as in renewable energy, clean energy industries- in automotives, manufacturing of low emissions products like Electric Vehicles and super-efficient appliances, and innovative technologies such as green hydrogen, etc.

Mobilisation of Resources:

- India is earmarking a large part of its developmental resources to the fight against climate change.
- This is a stupendous effort as compared to the western countries, which are already at the advanced stages of development.

International Solar Alliance (ISA):

- ISA is a global alliance being initiated by India as well as headquartered in India.
- It is aimed at promoting research to develop more efficient, low-cost solutions to the global energy requirements, by leveraging advanced technology as well as providing incentives & regulation of solar power.
- Currently, it has 88 members.

Challenges

Reducing India's Coal Dependency

- According to one estimate, 68% of India's greenhouse gas emissions come from energy production, which remains largely reliant on coal power plants.
- Given coal's centrality to the country's power, it will be difficult to completely displace it with renewable energy.

Climate-insensitive Agriculture Policy:

- A significant chunk of India's fiscal resources are directed towards the minimum support price combined with helpful electricity and fertilizer subsidies, encouraging farmers to grow water-intensive crops.
- Taken together, India's agricultural policies aggravate water shortages, encourage crop burning and do little for climate change mitigation.

Impact on Urban Livelihood:

- Climate change is already impacting health, livelihood and infrastructure in India's urban areas.
- The impact will be felt more by economically and socially marginalized urban residents, who live in informal settlements.

Balancing Growth and Environment:

- Ultimately, tackling climate change is a balancing act between the present and the future.
- Like governments everywhere, the Indian government will have to strike a balance on inter-generational equity.

Way Ahead

- **Shift to green economy:** India needs to ensure policies and investments shift from the grey to green economy, giving up fossil fuel and making societies and people more resilient to climate shocks.

- **Decarbonise emission-intensive sectors:** More efforts are required to reduce emissions in heavy industries like iron and steel, chemicals and cement. An 'ecosystem-based' approach, which looks at greening both 'supply' and 'demand', is the way ahead.
- **Climate-smart agriculture:** Considering the rapid population growth and globalization, there is an urgent need to identify & promote sustainable farming practices & tools, using inputs more efficiently & effectively to grow more from less.
- **More Carbon Sinks:** India's efforts to reduce emissions must be complemented with creation of more carbon sinks, areas that store carbon, like forests, oceans and wetlands. This is where the role of local communities is vital.
- **Role of the indigenous community:** Indigenous communities could play a strategic role in mitigating climate change. It is high time to acknowledge their traditional wisdom on climate variability and deep-knowledge of environmental cycles, which could substantially enrich modern scientific knowledge and reinforce the effectiveness of adaptation activities worldwide.
- **Importance of Private Sector:** Businesses bring investments, innovation and the ability to transform challenges into opportunities — all essential weapons in our fight against

climate change. Companies need to come forward & deliver on their responsibility towards the people and the planet.

Desertification and Land Degradation

In News

- The government is planning to bring convergence between the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) to restore degraded land and reverse desertification in India.

Key Points

Increasing Degraded Land:

- According to the Desertification and Land Degradation Atlas 2021, at least 30% of India's total geographical area is under the category of "degraded land".

Statewise Data:

- Jharkhand, Rajasthan, Delhi, Gujarat and Goa have more than 50% of land area undergoing desertification or degradation.
- Kerala, Assam, Mizoram, Haryana, Bihar, Uttar Pradesh, Punjab and Arunachal Pradesh are states with less than 10% land degradation.

Concerns:

- In 2019, the government raised its target of restoration of degraded land from 21 million hectares to 26 million hectares by 2030 following a commitment made during the UN

Convention to Combat Desertification (COP14).

- Nearly three years on, the government is nowhere near this target.
- Though the Ministry of Rural Development has been making efforts to contribute towards meeting the international commitment, the constraints posed on the economy by the pandemic restricted the target to 4.95 million hectares by 2025-26.
- Therefore, there is a compelling reason for the Ministry to explore alternative opportunities to fulfill the commitment.

Suggestion for Convergence: Using MGNREGS Funds

- Presently, activities such as ridge area treatment, drainage line treatment, soil and moisture conservation, rainwater harvesting, nursery raising, afforestation, horticulture and pasture development are done under the Department of Land Resources, the Ministry of Rural Development.
- The Union government now wants the States to undertake these activities using MGNREGS funds, which go towards both material & wage components.
- As of now, there is Central allocation of ₹8,134 crore for developing 4.95 million hectares.
- The Rural Development Ministry is now hoping that by making use of the MGNREGS, which for the financial year 2022-23 has a budget of ₹73,000 crore,

the government can scale up the area to be covered.

- By the Ministry's own estimate, a convergence with the MGN-REGS could help take up treatment of about 30% more land than feasible with the current scheme size.

Land degradation

- It is a temporary or permanent degeneration of productivity of land due to physical, chemical or biological factors.

Causes:

- Land degradation is caused by multiple forces, including extreme weather conditions, particularly drought.
- It is also caused by human activities that pollute or degrade the quality of soils & land utility.

Desertification

- Desertification is a form of land degradation by which fertile land becomes desert.
- It leads to the advancement of sand from the desert to the adjoining regions.
- The sand covers fertile soil and affects its fertility.
- This problem is particularly serious in areas adjoining the Thar desert in Rajasthan.

Impact of Land degradation

Environmental Impact:

- Land degradation results in problems like soil erosion, loss of natural nutrients, water-logging and salinity and

contamination of ground and surface water.

- Loss of Fertility due to the use of various scientific inputs like irrigation, fertilizers, pesticides etc. Unscientific cropping practices are also causing harm.
- Soil Erosion is the process by which the topsoil is detached from land and either washed away by water, ice or sea waves or blown away by the wind.
- Salinity/Alkalinity occurs in areas of temporary water surplus and high temperatures due to over-irrigation or high rainfall. The salt layer plays havoc with the fertility of topsoil and renders vast stretches of useful land infertile.
- Waterlogging happens when the water table gets saturated for various reasons—over-irrigation, seepage from canals, inadequate drainage etc.

Potential Impacts on Human Health:

- It negatively affects food production, livelihoods, and the production & provision of other ecosystem goods and services.
- higher threats of malnutrition from reduced food & water supplies;
- more water- and food-borne diseases that result from poor hygiene & a lack of clean water;
- respiratory diseases caused by atmospheric dust from wind erosion & other air pollutants;
- the spread of infectious diseases as populations migrate.

Global Efforts to Combating Land Degradation

• **United Nations Convention on Combating Desertification (UNCCD):**

- Established in 1994
- **Aim:** To protect and restore our land & ensure a safer, just, & more sustainable future.
- The UNCCD is the only legally binding framework set up to address desertification and the effects of drought.
- There are 197 Parties to the Convention, including 196 country Parties and the European Union.
- The Convention is based on the principles of participation, partnership and decentralization.

• **Bonn Challenge:**

- It is a global goal to bring 150 million hectares of degraded and deforested landscapes into restoration by 2020 and 350 million hectares by 2030.
- Launched by the Government of Germany and IUCN in 2011, the Challenge surpassed the 150-million-hectare milestone for pledges in 2017.

• **Great Green Wall Initiative:**

- Launched in 2007 by the African Union, being implemented across 22 African countries
- **Aim:** To restore the continent's degraded landscapes and transform millions of lives in the Sahel.

- **Objective:** To restore 100 million hectares of currently degraded land; sequester 250 million tons of carbon and create 10 million green jobs by 2030.

Indian Initiatives

National level land degradation mapping:

- It is taken up by ISRO along with partner institutions, under the Natural Resources Census (NRC) mission of DOS/ISRO, towards generating information on land degradation at 1:50,000 scale, using 23m resolution (multi-temporal & multi-spectral) IRS data.

Desertification and Land Degradation Atlas of India:

- Published by: Space Application Centre (SAC), ISRO, Ahmedabad.

Content:

- Provides a state wise area of degraded lands for the time frame 2018-19.
- Provides the change analysis for the duration of 15 years, from 2003-05 to 2018-19.

United Nations Convention on Combating Desertification (UNCCD)

- India is a signatory to the UNCCD.
- India hosted the 14th session of Conference of Parties (COP 14) of United Nations Convention to Combat Desertification (UNCCD) in September 2019.

- India is striving towards achieving the national commitments of Land Degradation Neutrality (LDN) and restoration of 26 Million ha of degraded land by 2030 which focus on sustainable and optimum utilisation of land resources.
- Nodal Ministry for the Implementation: Ministry of Environment, Forest and Climate Change (MoEF&CC)

Joined Bonn Challenge:

- At the United Nations Framework Convention on Climate Change Conference of the Parties (COP) 2015 in Paris, India joined the voluntary Bonn Challenge and pledged to bring into restoration 13 million hectares of degraded and deforested land by 2020, and an additional 8 million hectares by 2030.

Flagship Schemes:

- The government sees schemes are formulated as tools to tackle the problem of land degradation namely
 - Pradhan Mantri Fasal Bima Yojana
 - Soil Health Card Scheme
 - Pradhan Mantri Krishi Sanchayee Yojana etc
- The government of India has adopted a collective approach for making progress towards achieving the national commitments related to land restoration.

Way Ahead

- Combating desertification and land degradation and mitigat-

ing the effects of drought will secure long-term socio-economic benefits for people living in the drylands and reduce their vulnerability to climate change.

- Land Degradation Neutrality (LDN)—with conservation, sustainable use, and restoration as its three pillars—provides an effective framework.
- Creating an enabling environment for LDN can help policymakers and planners to navigate social, economic, and environmental trade offs so food security, energy needs, land tenure, gender equality, access to clean water, and biodiversity are considered—and addressed—together.

Paddy Straw Pelletisation & Torrefaction Plants

In News

- Recently, MoEFCC announced a 50 crore scheme to incentivise industrialists and entrepreneurs to set up paddy straw pelletisation and torrefaction plants to arrest stubble burning.

What is Stubble Burning?

- Stubble (parali) burning is a method of removing paddy crop residues from the field to sow wheat from the last week of September to November.
- Stubble burning is a process of setting on fire the straw stubble, left after the harvesting of grains, like paddy, wheat, etc.

- It is usually required in areas that use the combined harvesting method which leaves crop residue behind.
- The process of burning farm residue is one of the major causes of air pollution in parts of north India, deteriorating the air quality.
- Paddy stubble burning is practised mainly in the Indo-Gangetic plains of Punjab, Haryana, and UP to clear the fields for rabi crop sowing.

About the scheme

Funding

- New units set up would be eligible for government funding in the form of capital to set up such plants.

Participants

- The financial assistance can be availed by individuals and companies setting up new plants and units using only paddy straw generated in Delhi, Punjab & Haryana, and NCR districts of Rajasthan and Uttar Pradesh.

Costing

- The estimated cost of setting up a regular pelletisation plant, which can process a tonne per hour, is 35 lakh.
- Under the scheme, the Centre will fund such plants to a maximum of 70 lakh subject to capacity.

Torrefaction plant

- The cost of establishing a torrefaction plant is 70 lakh and under

the scheme, is eligible for a maximum funding of 1.4 crore.

One-time only scheme

- The Government has underlined that this would be a one-time only scheme and regular pellet plants would be eligible for 40 crore of the overall pie.

Do you know?

- Pelletisation means converting paddy straw into pellets which can be used in thermal power plants and industries as fuel.
- Torrefaction is a process to improve physical properties and chemical composition of biomass.
- Torrefaction is costlier but can deliver a product whose energy content is much higher & theoretically substitute for more coal in a power plant.
- The first 2G Ethanol Plant in Panipat is expected to utilise 2 lakh metric tonnes of paddy straw every year.

Major challenges due to stubble burning

Paddy straw generation

- Every year, about 27 million tonnes of paddy straw is generated in Punjab and Haryana.
- Farmers set their fields on fire to quickly clear off the crop residue before cultivating wheat and potato.

Cannot be fed to cattle

- The problem is that about 75%

or 20 million tonnes is from non-basmati rice, which cannot be fed to cattle as fodder because of its high silica content.

Air pollution

- About 11 million tonnes can be managed in the field & the rest is usually burnt which adds to the air pollution crisis in Delhi.

Impact on Soil fertility

- Burning husk on the ground destroys the nutrients in the soil, making it less fertile.
- Heat generated by stubble burning penetrates into the soil, leading to the loss of moisture and useful microbes.

Health effects

- The pollution makes people more vulnerable to infection and slows their recovery post infection.

Significance of the scheme

- Saving coal and reducing carbon emissions
- Paddy straw made into pellets or torrefied can be mixed along with coal in thermal power plants.
- This saves coal as well as reduces carbon emissions that would otherwise have been emitted were the straw burnt in the fields.

Entrepreneurship opportunities

- This scheme will help convert waste to wealth and provide entrepreneurship opportunities to our rural youth in Punjab and Haryana.

Way forward/ Suggestion

Penalising and Incentivising

- Through the years the government has attempted to dissuade farmers from burning straw through penalising them as well as incentivising them, such as giving them alternatives to burning the straw.

Bio-decomposer

- The Government has also encouraged using bio-decomposer, a chemical that decomposes the straw into mulch.

Co-firing

- The government had earlier mandated co-firing of 5 to 10 percent of biomass along with coal to address the issue of air pollution and to reduce the carbon footprint.

Alternatives to Stubble Burning can be used:

- **Turbo Happy Seeder (THS) machine:** which can uproot the stubble & also sow seeds in the area cleared. The stubble can then be used as mulch for the field.
- **In-situ treatment of stubble:** Providing equipment to farmers

to mix the stubble back into the soil, so that they do not have to burn it.

- **Ex-situ treatment:** Under this, some companies have started collecting stubble for their use, but we need more action on this front.
- Changing cropping pattern: It is the deeper and more fundamental solution.
- **Subsidise crops other than paddy, the source of most stubble burning:** Policy and money should incentivise farmers in the region to plant more fruits and vegetables.

X. Economy-Economy, Socio-Economic issue

1. Economy

Government commits Rs. 7,385 crores under Fund of Funds for Startup India Investment

Context

- Fund of Funds for Startups (FFS) has committed Rs. 7,385 crores to 88 Alternative Investment Funds (AIFs) till September 2022

Fund of Funds for Startup Scheme

- It was launched under the Startup India initiative in 2016.
- It was announced with a corpus of Rs. 10,000 crores.
 - The corpus is to be built up over the 14th and 15th Finance Commission Cycles

(FY 2016-2020 and FY 2021-2025) through budgetary support by the Department for Promotion of Industry and Internal Trade (DPIIT).

- It is a multi-manager investment fund that helps startups by reducing the risk of investing in bonds, stocks, and other types of securities.
- Small Industries Development Bank of India (SIDBI) is responsible for operationalizing the Scheme.
- Under this, support is extended to SEBI registered Alternative Investment Funds (AIFs), which in turn invest in startups.
- It has made capital available

for startups at the early stage, seed stage, and growth stage.

- It played a catalytic role in terms of facilitating the raising of domestic capital, reducing dependence on foreign capital, and encouraging homegrown and new venture capital funds.

Performance of FFS

- The amount committed under FFS has grown over the years recording a CAGR (Compound Annual Growth Rate) of over 21% since the launch of the Scheme.
- SIDBI has undertaken reforms to expedite the drawdowns to enable AIFs assisted under FFS to avail of accelerated drawdowns.

- This has resulted in a year-on-year surge of 100% in the number of drawdowns.

Alternate Investment Funds (AIF)

- It is any fund established or incorporated in India that is a privately pooled investment vehicle that collects funds from sophisticated investors, whether Indian or foreign, for investing it in accordance with a defined investment policy for the benefit of its investors.
- It does not include funds covered under the SEBI (Mutual Funds) Regulations, 1996, SEBI (Collective Investment Schemes) Regulations, 1999, or any other regulations of the Board to regulate fund management activities.
- It is described under Regulation 2(1)(b) of the Regulation Act, 2012 of the Securities and Exchange Board of India (SEBI).
- AIF can be established in the form of a company or a corporate body or a trust or a Limited Liability Partnership (LLP).

A Push for the Semiconductor Industry

- **Context:** In a bid to make India's \$10 billion chip-making initiative more attractive to investors, the government approved changes to the scheme for the development of a semiconductor & display manufacturing ecosystem in the country.

What are semiconductors?

- A semiconductor is a substance

that has specific electrical properties that enable it to serve as a foundation for computers and other electronic devices.

Importance:

- It is the building block of almost every modern electronic device from smartphones to connected devices in the Internet of Things (IoT).
- The global semiconductor industry is currently valued at \$500-\$600 billion and caters to the global electronics industry currently valued at about \$3 trillion.

What are Semiconductor Chips?

- Semiconductors are materials which have a conductivity between conductors and insulators. They can be pure elements, silicon or germanium or compounds; gallium, arsenide or cadmium selenide.

Significance of Semiconductor Chips:

- They are the basic building blocks that serve as the heart & brain of all modern electronics & information and communications technology products.
 - These chips are now an integral part of contemporary automobiles, household gadgets and essential medical devices such as ECG machines.
- **Components of semiconductor chip:** The basic component of a semiconductor chip is a sliver of silicon, which is etched

with billions of microscopic transistors to control the flow of current.

- The most-advanced semiconductor technology nodes are available today are the 3 nanometre (nm) & the 5nm ones. Semiconductors having higher nanometre value are applied in automobiles, consumer electronics & so on, while those with lower values are used in devices such as smartphones & laptops.

Issues with the Semiconductor chipmaking industry:

- **Shortage of chips:** Due to Pandemic induced closure of factories, US-China tension in Taiwan, the Russia-Ukraine war disrupting the Supply chain, and rising demand.
- The chip-making industry is a highly-concentrated one: 90% of 5nm (nanometre) chips are mass-produced in Taiwan, by the Taiwan Semiconductor Manufacturing Company (TSMC).
- So, governments all over the world are trying to create their domestic chip-making industry.

Indian Government steps:

- **2021:** 10 billion dollar production-linked incentive (PLI) scheme to encourage semiconductor and display manufacturing in the country.
- Fiscal support for a design-linked initiative (DLI) scheme to drive global and domestic investment related to design software, IP rights etc.
- Modifications in "Programme

for Development of Semiconductors and Display Manufacturing Ecosystem in India: The Union Cabinet has approved a uniform incentive of 50% of the project cost for setting up semiconductor, display and compound semiconductor fabrication units.

- India Semiconductor Mission (ISM) will be set up
- Scheme for setting up of Compound Semiconductors facilities
- Vedanta and Taiwanese chip-maker Foxconn will set up a Rs.1,54,000 crore semiconductor plant in Gujarat.

What are the challenges?

1. High Investments Required: one semiconductor fab requires an investment of anywhere between \$3 and \$7 billion
2. Minimal Fiscal Support from Government.
3. Lack of Fab Capacities.
4. Insufficient Grants under PLI Scheme.
5. Resource Inefficient Sector.
6. Chip production is a resource-intensive & expensive process
7. Chip-making also requires gallons of ultrapure water in a single day.

Women's Role in livestock sector

In News

- Recently, The need to recognise the role of women in livestock rearing was highlighted.

About livestock sector

- Livestock is the primary livelihood activity used to meet household food needs as well as supplement farm incomes.
- It is emerging as the most important sector in the Indian agri-food system.
 - Production and consumption of livestock products (milk, milk products, meat & eggs) are increasing rapidly.
- The livestock sector is one of the most rapidly growing components of the rural economy of India, accounting for 5% of national income and 28% of agricultural GDP in 2018-19.
- In the last six years, the livestock sector grew at 7.9% (at constant prices) while crop farming grew by 2%.

Role of role of the woman

- It has been observed that in rural household women are invariably engaged in animal rearing
- There were five million women members in dairy co-operatives in 2015-16, & this increased further to 5.4 million in 2020-21.
 - Women accounted for 31% of all members of dairy producer cooperatives in 2020-21.
- In India, the number of women's dairy cooperative societies rose from 18,954 in 2012 to 32,092 in 2015-16.

Issues

- The M.K. the Jain Committee Report has highlighted that

livestock farmers face greater challenges in comparison to traditional agricultural farmers especially while accessing credit and livestock insurance.

- Women livestock farmers are not visible to policymakers, and one reason is the lack of gender-disaggregated data
 - Recent employment surveys such as the Periodic Labour Force Survey fail to collect data on specific activities of persons engaged primarily in domestic duties.
- The reach of extension services to women livestock farmers remains scarce.
- Women in poor households, without collateral to offer to banks, found it difficult to avail loans to purchase livestock.
 - Around 15 lakh new Kisan Credit Cards (KCC) were provided to livestock farmers under the KCC scheme during 2020-22.
- There is no information on how many of them were women farmers.
- Women livestock farmers lacked technical knowledge on choice of animals (breeding) and veterinary care.
- Women were not aware of the composition and functions of dairy boards and that men exercised decisions even in women-only dairy cooperatives.
- The voice of women from landless or poor peasant Scheduled Caste households was rarely heard.

Initiatives

- The Government has identified a slew of measures within the revised provisions of the Livestock Health and Disease Control (LH&DC) programme : a major focus has been on the 'Establishment and Strengthening of Veterinary Services – Mobile Veterinary Units (MVUs)'
- The National Livestock Policy (NLP) of 2013, aimed at increasing livestock production and productivity in a sustainable manner, rightly states that around 70% of the labour for the livestock sector comes from women.
 - One of the goals of this policy was the empowerment of women.
- The National Livestock Mission (NLM) of 2014-15 was initiated for the development of the livestock sector with a focus on the availability of feed and fodder, providing extension services, and improved flow of credit to livestock farmers.
 - However, the NLM does not propose any schemes or programmes specific to women livestock farmers.
- The policy proposes that the State government allocates 30% of funds from centrally-sponsored schemes for women.

Way Forward

- Women's labour is critical to the livestock economy and It follows then that women should be included in every stage of

decision-making and development of the livestock sector.

- We need to recognise the role of women in livestock rearing, and to include women in all facets of livestock development, be it breeding, veterinary care, extension services, training or access to credit and markets.

Proposed Digital Rupee

Why in News?

- The Reserve Bank of India (RBI) will soon commence limited pilot launches of e-rupee (e`), or Central Bank Digital Currency (CBDC) or digital rupee, for specific use cases.
 - It has hinted at two broad categories for the use of e-rupee - retail and wholesale - for various transactions.

What is e-rupee?

- **Definition:** RBI defines the CBDC as the digital form of currency notes issued by a central bank. It is a sovereign or entirely independent currency issued by the central bank (in this case, RBI), in accordance with the country's monetary policy.
- **Legal Tender:** Once officially issued, CBDC will be considered as a medium of payment and legal tender by all three parties - citizens, government bodies, and enterprises. Being government-recognised, it can be freely converted to any commercial bank's money or notes.
 - RBI is not in favour of e-rupee with interest. Because

people might withdraw money from banks and convert it to digital rupee - causing banks to fail.

- **Difference with Cryptocurrencies:** The underlying technology of cryptocurrency (distributed ledger) can underpin parts of the digital rupee system, but the RBI has not decided on this, yet. However, cryptocurrencies like bitcoin or ethereum are 'private' in nature. Digital rupee on the other hand, will be issued and controlled by the RBI.
- **Global Scenario:** As of July 2022, 105 countries were exploring CBDC. Ten countries have launched CBDC, the first of which was the Bahamian Sand Dollar in 2020 and the latest was Jamaica's JAM-DEX.

What is RBI's Plan for CBDC?

- **Types of CBDC:** On the basis of usage and the functions performed by the digital rupee and considering the different levels of accessibility, CBDC can be demarcated into two broad categories - general purpose (retail) (CBDC-R) and wholesale (CBDC-W).
 - Retail CBDC is an electronic version of cash primarily meant for retail transactions. It will be used by all - private sector, non-financial consumers and businesses. However, the RBI has not explained how e-rupee can be used in merchant transactions in the retail trade.

- Wholesale CBDC is designed for restricted access to select financial institutions. It has the potential to transform the settlement systems for financial transactions undertaken by banks into government securities (G-Sec) segment, inter-bank market and capital market more efficiently and securely in terms of operational costs, use of collateral and liquidity management.
 - **Structure:**
 - A token based CBDC would be a bearer instrument like banknotes, the person receiving a token will verify that his ownership of the token is genuine. A token-based CBDC is viewed as a preferred mode for CBDC-R as it would be closer to physical cash.
 - An account-based system would require maintenance of records of balances and transactions of all holders of the CBDC and indicate the ownership of the monetary balances. In this case, an intermediary will verify the identity of an account holder. This system can be considered for CBDC-W.
 - **Available in online and offline mode:** The offline functionality as an option will allow CBDC to be transacted without the internet and thus enable access in regions with poor or no internet connectivity.
 - However, the RBI feels in the offline mode, the risk of 'double-spending' will exist because it will be technically possible to use a CBDC unit more than once without updating the common ledger of CBDC.
 - **Model for Issuance:**
 - In the direct model, the central bank will be responsible for managing all aspects of the digital rupee system such as issuance, account-keeping and transaction verification.
 - An indirect model would be one where the central bank and other intermediaries (banks and any other service providers), each play their respective role. The central bank will issue CBDC to consumers indirectly through intermediaries and any claim by consumers will be managed by the intermediary.
- What are the advantages of e-rupee?**
- Reduction in operational costs involved in physical cash management, fostering financial inclusion, bringing resilience, efficiency and innovation in the payments system.
 - Provide the public with uses that any private virtual currencies can provide, without the associated risks.
- What are the issues related to CBDC in India?**
- **Cyber Security:** CBDC ecosystems may be at a similar risk of cyber-attacks that the current payment systems are exposed to.
 - **Privacy issue:** The CBDC is expected to generate huge sets of data in real time. Privacy of the Data, concerns related to its anonymity and its effective use will be a challenge.
 - **Digital divide and financial illiteracy:** The NFHS-5 also provides data segregation based on the rural-urban divide. Only 48.7% of rural males and 24.6% of the rural females have ever used the internet. So, CBDC may wide gender-based hurdle in financial inclusion along with digital divide.
- Way Forward**
- Technical clarity must be ensured to decide on the underlying technologies that can be trusted to be safe and stable.
 - To make CBDC a successful initiative and movement, RBI must address the demand side infrastructure and knowledge gap to increase its acceptance in rural areas for wide base.
 - The RBI must proceed cautiously, remaining mindful of the various issues, the design considerations and the implications surrounding the introduction of the digital currency.
- Trend Analysis of Non-Performing Assets (NPAs)**
- In News**
- Recently, it has been observed that Probing the links between twin balance sheet crises and

external commodity shocks could lead to a better understanding of the Non-Performing Asset (NPA) problem.

About Non-Performing Asset (NPA)

- NPAs are loans or advances made by a financial institution, on which both principal or interest is unpaid for a specified period of time.
- NPAs can be classified as a substandard asset, doubtful asset, or loss asset, depending on the length of time overdue and probability of repayment.

- Thus, NPAs are those loans that have ceased to generate income for the bank

- They are recorded on a bank's balance sheet after a prolonged period of non-payment by the borrower.

Data Analysis

- The Indian banking system faced a significant challenge after 2011 with an increasing quantum of non-performing assets (NPAs).
 - NPAs began to rise in 2011 and peaked at 11.18 per cent in the fiscal year that ended in 2018.
 - As expected, this rise occurred with the deterioration of the balance sheets of non-financial firms, and this twin balance sheet crisis contributed significantly to the deceleration of growth in the late 2010s.
- **Recent data** : As per Reserve Bank of India (RBI) data, recovery made by public sector banks (PSBs) during the financial year as a percentage of gross non-performing assets (NPAs) as on beginning of the financial year (FY) has improved from 11.33% in FY 2017-18, to 13.52% in FY 2018-19, to 14.69% in FY 2019-20.
 - Gross non performing assets (GNPAs) of scheduled commercial banks (SCBs) fell to a six-year low of 5.9 per cent in March 2022 and could fall further to 5.3 per cent by March 2023, according to the Financial Stability Report of the Reserve Bank of India (RBI).

Issues /Concerns

- **Disproportionate share NPAs:** Public sector banks have a disproportionate share of NPAs.
 - A large fraction of the difference between NPAs in the public & private sector banks arose due to differences in their business models.
- Because at the beginning of the 2010s, public sector banks had significantly higher exposure (percent of total loans) to commodity-sensitive sectors such as iron and steel & textiles compared to private sector banks.
- **Profitability issues** : The banks are required to provision for bad loans out of their operating income. The concerned bank becomes less profitable because it has to use some of its profits from other loans to make up for the loss on the bad loans.
- **Risk-averse:** Banks hesitate from extending loans to business ventures that may remotely appear risky for the fear of aggravating an already high level of non-performing assets (or NPAs).

Measures taken

Causes for NPAs

- **Several factors** - including prevailing macroeconomic conditions, sectoral issues, global business environment, delayed recognition of stress by banks, aggressive lending during upturns, improper risk pricing & poor credit underwriting - were attributed towards NPA build-up
- Poor management and governance issues in such banks stemming from government ownership have been cited as the major causes of the crisis.
- Most of NPAs arose due to defaults by private sector non-financial firms.
- A large proportion of NPAs arose because of exogenous shock

- Government and RBI (Reserve Bank of India) regularly issue guidelines and have taken several initiatives aimed at resolution of long-standing stressed assets on the books of banks as well as timely identification and recognition of stress immediately upon default and take corrective action for mitigation of the same.

- These measures complement the statutory provisions already available to lenders for recovery and resolution, including, the Recovery of Debts and Bankruptcy Act, 1993, Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002 and Insolvency & Bankruptcy Code, 2016 (IBC).
- The Finance Minister announced that the National Asset Reconstruction Company (NARCL) along with the India Debt Resolution Company (IDRCL) will take over the first set of bad loans from banks and try to resolve them.

Suggestions

- Instituting use of third party data sources in PSBs for comprehensive due diligence across data sources at the sanction stage itself, to mitigate risk on account of misrepresentation and fraud;
- Incentivising regular repayment through linking of eligibility for the next cycle of working capital loan with an enhanced limit with on-time or early repayment of existing loan under PM SVANidhi scheme.

Monetary Policy of RBI

- **Context:** The Reserve Bank of India's Monetary Policy Committee (MPC) raised the policy repo rate by 50 basis points (bps) to 5.9%, with RBI Governor citing the 'persistence of high inflation that necessitated

the withdrawal of monetary accommodation to restrain broadening of price pressures and contain second round effects.

Key highlights

- This action will support medium-term growth prospects.
- The Monetary Policy Committee also voted by a 5:1 majority to "remain focused on the withdrawal of accommodation to ensure that inflation remains within the target going forward".
- Despite the unsettling global environment, the Indian economy continues to be resilient; there is macroeconomic stability.
- However, given headwinds from extended geopolitical tensions, tightening global financial conditions and a possible decline in external demand, RBI projected economic growth in FY23 at 7% (down from the 7.2% it had forecast earlier).
- The MPC, however, retained the retail inflation projection for the current fiscal year at 6.7%.
- Having weathered two major shocks — the COVID-19 pandemic & the conflict in Ukraine — over the last two-and-a-half years, the RBI was confident that it could effectively deal with new challenges which may emerge on the horizon.
- According to RBI, Indian buffers are very strong, & its focus is always on maintaining financial stability & macroeconomic stability.
- The RBI as a central bank maintains price & financial stability.

- RBI Governor said liquidity in the system continued to be in surplus and henceforth only 14 days VRRR auctions would be adopted, and the RBI will continue with our two-way fine-tuning operations of injection or absorption of liquidity.

About Repo rate and its hike

- Repo rate refers to the rate at which commercial banks borrow money from the Reserve Bank of India.
- The hike in Repo rate - the key policy rate of RBI or the rate at which it lends to banks - means the cost of funds for banks will go up.
- When interest rates are raised, it makes money more expensive, thereby resulting in reduction of demand in the economy and bringing down inflation.

Impact of the rising rates

- **Loans :** Equated monthly instalments (EMIs) on home, vehicle & other personal and corporate loans are likely to go up.
- **Inflation :** By hiking the Repo rate, the RBI is aiming to keep inflation - which is already close to 7 per cent - at its desired level, & control and monitor money flow into the banking system at a time when the global economy is facing turbulent times.
- **Real state sector:** The Reserve Bank of India's decision to raise interest rates will impact housing sales. There are already inflationary trends of primary raw materials, including cement, steel, labor that have

recently led to a rise in property prices. Together, these factors will impact residential sales.

- **Bank Deposits** : Bank depositors will get higher returns on their deposits depending on how banks pass on the new interest rate hike. These deposits include fixed deposits.

Policy Stances of RBI

Accommodative Stance

- Accommodative stance means the central bank is telling the market to expect a rate cut anytime
- Usually, this policy is adopted when there is slowdown in the economy.

Neutral stance

- Neutral stance doesn't have any particular meaning. This means anything can happen anytime means the RBI would have the flexibility to either increase or decrease the policy rates

Tight and Calibrated Tightening stance

- **Tight** – It indicates an impending rate hike
- **Calibrated Tightening** – RBI would either keep the rates constant or increase the rates.

Monetary Policy Committee

- RBI Act, 1934 provides for an empowered six-member monetary policy committee (MPC) to be constituted by the Central Government.
- The first such MPC was constituted in 2016.

Members:

- Governor of the RBI;
- Deputy Governor of the RBI in charge of Monetary Policy;
- one officer of the RBI to be nominated by the Central Board;
- Three people to be appointed by the Central Government
- Governor of the Reserve Bank of India is the ex-officio Chairperson of the committee
- Members hold office for a period of four years or until further orders, whichever is earlier)
- It determines the policy repo rate required to achieve the inflation target.
- The MPC is required to meet at least four times in a year.
- The quorum for the meeting of the MPC: four members.
- Each member of the MPC has one vote, and in the event of an equality of votes, the Governor has a second or casting vote.

Direct & Indirect instruments used for implementing monetary Policy

- **Repo Rate**: The (fixed) interest rate at which the Reserve Bank provides overnight liquidity to banks against the collateral of government & other approved securities under the Liquidity Adjustment Facility (LAF).
- **Reverse Repo Rate**: The (fixed) interest rate at which the Reserve Bank absorbs liquidity, on an overnight basis, from banks against the collateral of eligible government securities under the LAF.

- **Liquidity Adjustment Facility (LAF)**: The LAF consists of overnight as well as term repo auctions. Progressively, the Reserve Bank has increased the proportion of liquidity injected under variable rate repo auctions across the range of tenors. The aim of term-repo is to help develop the inter-bank term-money market, which in turn can set market-based benchmarks for pricing of loans and deposits, and hence improve transmission of monetary policy. The RBI also conducts variable interest-rate reverse-repo auctions, as necessitated under market conditions.

- **Marginal Standing Facility (MSF)**: A facility under which scheduled commercial banks can borrow additional amount of overnight money from the Reserve Bank by dipping into their Statutory Liquidity Ratio (SLR) portfolio up to a limit at a penal rate of interest. This provides a safety valve against unanticipated liquidity shocks to the banking system

- **Corridor**: The MSF rate and reverse repo rate determine the corridor for the daily movement in the weighted average call money rate.

- **Bank Rate**: It is the rate at which the Reserve Bank is ready to buy or re discount bills of exchange or other commercial papers. The Bank Rate is published under Section 49 of the Reserve Bank of India Act, 1934. This rate has been

aligned to the MSF rate and, therefore, changes automatically as and when the MSF rate changes alongside policy repo rate changes.

- **Cash Reserve Ratio (CRR):** The average daily balance that a bank is required to maintain with the Reserve Bank as a share of such per cent of its Net demand and time liabilities (NDTL) that the Reserve Bank may notify from time to time in the Gazette of India.
- **Statutory Liquidity Ratio (SLR):** The share of NDTL that a bank is required to maintain in safe and liquid assets, such as unencumbered government securities, cash and gold. Changes in SLR often influence the availability of resources in the banking system for lending to the private sector.
- **Open Market Operations (OMOs):** These include both outright purchase and sale of government securities, for injection and absorption of durable liquidity, respectively.
- **Market Stabilization Scheme (MSS):** This instrument for monetary management was introduced in 2004. Surplus liquidity of a more enduring nature arising from large capital inflows is absorbed through sale of short-dated government securities and treasury bills. The cash so mobilized is held in a separate government account with the Reserve Bank.

Regional Rural Banks (RRBs) Listing on Stock Exchanges

In News

- Recently the draft guidelines were issued by the Finance Ministry for Regional rural banks (RRBs) listing on stock exchanges.
 - RRBs play a crucial role in credit disbursement in remote areas.

More about the news

- According to the draft guidelines issued by the Finance Ministry, Regional rural banks (RRBs), will be eligible to list on stock exchanges and raise funds.

The RRBs should fulfill the following criteria:

- RRBs should have a net worth of at least Rs 300 crore over the previous three years.
- Such banks must also have capital adequacy of 9 percent in each of the previous three years and recorded operating profit of at least Rs 15 crore for a minimum of three out of the preceding five years.
- There should not be any accumulated loss and
- The RRB should have offered at least a 10 percent return on equity in three out of the previous five years, according to the norms.
- As per the draft norms, the responsibility of identifying suitable lenders for issuing initial public offering (IPO) has

been left with the respective sponsor banks.

- The sponsor bank would take into account the relevant norms & regulations of the Securities & Exchange Board of India (Sebi) and Reserve Bank of India (RBI) regarding capital raising and disclosure requirements while identifying RRBs for IPO
- Recently the Indian Banks' Association (IBA) was asked to take the initiative to ensure technological advancements at RRBs, which is a key prerequisite to modernising them.

About Regional Rural Banks (RRBs)

Regional Rural Banks Act, 1976:

- Regional Rural Banks (RRBs) were set up as government-sponsored, regional based rural lending institutions under the Regional Rural Banks Act, 1976.
- The RRBs were established as per the recommendations of the Narasimham Committee to cater to the rural credit needs of the farming & other rural communities.
- The Prathama Grameen Bank was the first bank to be established on 02nd October 1975.
- The Syndicate Bank became the first commercial bank to sponsor the Prathama Grameen Bank RRB.

2015 amendment to the Act:

- The Act was amended in 2015, whereby such banks were permitted to raise capital from

sources other than the Centre, states and sponsor banks.

Operation:

- Regional Rural Banks (RRBs) are government-owned scheduled commercial banks of India that operate at the regional level in different states of India.
- The area of operation is limited to the area notified by the government of India covering, & it covers one or more districts in the State.

Ownership:

- The equity of the Regional Rural Banks is held by the stakeholders in a fixed proportion. This proportion is 50:35:15, distributed as:
 - Central Government – 50%
 - Sponsor Bank – 35%
 - State Government – 15%

Aim:

- They were created to serve rural areas with basic banking and financial services.
- However, RRBs also have urban branches.

Functions:

- RRBs perform various functions such as providing banking facilities to rural and semi-urban areas, carrying out government operations like disbursement of wages of MGNREGA workers and distribution of pensions, providing para-banking facilities like locker facilities, debit and credit cards, mobile banking, internet banking, and UPI services.

Objectives of RRBs:

- To provide cheap and liberal credit facilities to small & marginal farmers, agriculture labourers, artisans, small entrepreneurs and other weaker sections.
- To save the rural poor from the moneylenders.
- To act as a catalyst element & thereby accelerate the economic growth in the particular region.
- To cultivate the banking habits among the rural people and mobilize savings for the economic development of rural areas.
- To increase employment opportunities by encouraging trade and commerce in rural areas. To encourage entrepreneurship in rural areas.
- To cater to the needs of the backward areas which are not covered by the other efforts of the Government.
- To develop underdeveloped regions and thereby strive to remove economic disparity between regions.
- Identify the financial need especially in rural areas.

Role of RRBs:

- To accept deposit
- To grant advances
- To provide ancillary banking services
- To supply inputs and equipments to farmers
- To provide assistance in the marketing of their products
- To maintain Godowns

Status of RRBs & ways of Raising capital

- RRBs are sponsored by Public Sector Banks (PSBs).
 - There are currently 43 RRBs supported by 12 public sector banks with 21,856 branches across 26 states and 3 Union Territories - Puducherry, Jammu & Kashmir & Ladakh.
 - These banks have 28.3 crore depositors & 2.6 crore borrowers. A total of 30 out of 43 RRBs together earned a net profit of ₹1,682 crore in FY'21
- In 2015 RRBs were permitted to raise capital from sources other than the Centre, states and sponsor banks.
- The RBI has given RRBs the option to issue perpetual debt instruments as another way to obtain regulatory capital.
 - RBI has also made these instruments eligible for inclusion as extra tier-1 capital, subject to certain restrictions

Way Ahead

- RRBs incur losses mostly because many of these branches do not have enough business as they focus mainly on offering government's schemes like direct benefit transfer in the rural areas of the country.
- Participation of local people in the equity share capital of the RRB should be encouraged.
- The State Government should also take a keen interest in the growth of RRB.

Sugar Production in India

In News

- India overtakes other countries to become the world's largest producer, consumer of Sugar, & second largest exporter of sugar.

Key Points

Production:

- A record amount of sugarcane—more than 5000 Lakh Metric Tons (LMT)—was produced in the nation during the sugar season Oct. to Sep. (2021–22), of which around 3574 LMT was crushed by sugar mills to make about 394 LMT of sugar (Sucrose).
- Out of this, 359 LMT of sugar was produced by sugar mills, while 35 LMT of sugar was diverted to the manufacturing of ethanol.

Exports:

- Exports brought in Rs. 40,000 crores in foreign currency
- The largest exports of 109.8 LMT, which were made without any financial aid and continued through 2020–21, is another achievement of the season.

It became possible because:

- This achievement of the Indian sugar industry was made possible by favourable worldwide prices & Indian Government Policy.

Employment and Jobs:

- In addition to having a significant impact on the rural livelihoods of the approximately 5

lakh directly employed individuals in sugar mills and the 50 million sugarcane farmers, the sugar industry is a major agro-based sector.

- Additionally, jobs are created in a number of ancillary activities related to transportation, machine repair, and the provision of agricultural inputs.

Output from sectors:

- The current annual output of the Indian sugar industry is approximately Rs. 80,000 crores. As of 31 July 2017, the country had 732 installed sugar factories with enough crushing capacity to generate around 339 lakh MT of sugar.
- The capacity is split almost evenly between units in the cooperative and private sectors.

No financial aid needed till now:

- Without any financial help (subsidy) from the government, sugar mills bought sugarcane worth more than 1.18 lakh crore and released payments totaling more than 1.12 lakh crore during Sugar Season(SS) 2021–22.
- Therefore, the fact that the cane debt at the end of the sugar season is less than 6,000 crore indicates that 95% of the cane debt has already been paid.
- It is also significant that more than 99.9% of the cane dues are paid for SS 2020–21.

Revenue from Ethanol sale:

- The growth of ethanol as a biofu-

el sector in the last five years has greatly aided the sugar sector.

- The conversion of sugar to ethanol has resulted in better financial positions for sugar mills due to:
 - Faster payments,
 - Reduced working capital requirements, and
 - Less fund blockage due to less surplus sugar with mills.
- Sugar mills/distilleries made around 18,000 crores in revenue from the sale of ethanol during 2021-22, which also played a role in the early settlement of farmers' cane dues.

Expansion predicted:

- Sugar diversion to ethanol is predicted to expand from 35 LMT to 50 LMT in the upcoming season, generating approximately 25,000 crores in revenue for sugar mills.
- The government has been encouraging sugar mills to divert sugar to ethanol and export surplus sugar so that sugar mills can pay cane dues to farmers on time and mills can operate in better financial conditions

Sugar

Pricing policy :

- The concept of Statutory Minimum Price (SMP) of sugarcane was replaced with the 'Fair and Remunerative Price (FRP)' of sugarcane for 2009-10 and subsequent sugar seasons with the

amendment of the Sugarcane (Control) Order, 1966 in 2009.

- Under the FRP system, the farmers are not required to wait till the end of the season or for any announcement of the profits by sugar mills or the Government.
- The new system assures margins on account of profit and risk to farmers, irrespective of the fact whether sugar mills generate profit or not and is not dependent on the performance of any individual sugar mill.
- The FRP has been determined on the basis of recommendations of the Commission for Agricultural Costs and Prices & after consultation with State Governments and other stakeholders.

Sugar Subsidy:

- Sugar was distributed through the Targeted Public Distribution System (TPDS) by the States/UTs at subsidized prices for which the Central Government was reimbursing @ 18.50 per kg of sugar distributed by the participating State Governments /UT Administrations.
- The scheme was covering all BPL population of the country as per 2001 census and all the population of the North Eastern States / special category/ hilly states and Island territories.
- The National Food Security Act, 2013 (NFSA) is now being universally implemented by all 36 States/UTs. Under the NFSA, there is no identified category of BPL; however, the Antyodaya

Anna Yojana (AAY) beneficiaries are clearly identified.

Location of Sugar Industry in India:

- Sugar industry is broadly distributed over two major areas of production- Uttar Pradesh, Bihar, Haryana and Punjab in the north and Maharashtra, Karnataka, Tamil Nadu and Andhra Pradesh in the south.
- South India has tropical climate which is suitable for higher sucrose content giving higher yield per unit area as compared to north India.

Challenges for Sugar Industry in India

- **Dependence on Monsoon:** Apart from irrigation equipped northern states, Sugarcane is largely grown in rainfed regions of central and southern India. So, a good monsoon becomes extremely important.
- **Hurdle for Export of surplus sugar:** The international sugar prices are low compared with India's domestic raw sugar price by almost Rs.12 – Rs.13 a kg, creating low incentive for export of surplus sugar. Due to inadequate exports, farmers are not compensated well for the produce.
- **Low Productivity:** India has the largest area under sugarcane cultivation in the world but the yield per hectare is extremely low and is even lower in North India than in South India.
- **Low Sugar Recovery rate:** Average rate of sugar recovery from the sugar cane is less than

10% whereas in other sugar producing areas like Java, Hawaii and Australia, it is 14%.

- **Government Pricing Policy:** The government policy, based on a dual price system, discourages the entrepreneurs from making investment for further growth and improvement.
- **Short smashing season:** Sugar creation is an occasional industry with a short smashing season-changing regularly from 4 to 7 months in a year. It causes monetary misfortune and occasional work for laborers & absence of full use of sugar plants.

Way Ahead

- In October, 2021, the government announced an incentive to encourage sugar companies to divert excess sugar cane stock in producing ethanol, which can be blended with petrol and used as fuel in vehicles.
- Besides, this is also a good solution to address the problem of excess sugar production in the country.

Indian Cough Syrup & Deaths in Gambia

In News

- Recently, the Haryana state government decided to “completely stop” the production of medicines that caused deaths in Gambia.

More about the news

WHO Alert:

- WHO has issued a medical

product alert for four contaminated medicines identified in The Gambia.

- The four medicines are cough & cold syrups produced in India.

Issue:

- These medicines have been potentially linked to 66 deaths among children in Gambia.
- The drug has been identified as containing a significant amount of a toxin that damages kidneys irreversibly.

India's probe:

- The cough syrups manufactured by the pharmaceutical company was approved for export.
 - It is not available for sale or marketing within the country.
- India's drug regulator – The Drugs Controller General of India had also initiated a probe.

Indian Pharmaceutical Industry

The Pharmacy of the World:

- The Indian Pharmaceutical industry is the third largest in the world by volume.
 - The Indian Pharmaceutical Industry has been using its powers very responsibly.
 - It has made a name for itself and India is being called "The Pharmacy of the World" in some circles.

Export:

- India exported pharmaceuticals worth Rs 175,040 crore in the financial year 2021-22, including Bulk Drugs/Drug Interme-

Drugs and Cosmetics Act, 1940

- The Act regulates the import, manufacture, and distribution of drugs in India.
- The primary objective of the act is to ensure that the drugs and cosmetics sold in India are safe, effective and conform to state quality standards.

New Drugs, Medical Devices and Cosmetics Bill, 2022

- For the first time, regulations for conduct of clinical trials for new drugs and medical devices have been brought under the draft New Drugs, Medical Devices and Cosmetics Bill, 2022
 - The bill seeks to replace the existing Drugs and Cosmetics Act of 1940.
- **New definitions:**
 - The draft bill introduces various new definitions or provisions like bioequivalence study, bioavailability study, clinical trial, clinical investigation, controlling authority, manufacturer, medical device, new drugs, over-the-counter (OTC) drugs, adulterated cosmetics, etc. for more clarity and smooth functioning and implementation.
- **Drugs Technical Advisory Board (DTAB) and Medical Devices Technical Advisory Board (MDTAB):**
 - It proposes the constitution of a separate Drugs Technical Advisory Board (DTAB) and Medical Devices Technical Advisory Board (MDTAB), comprising experts from various associations to advise the central government in technical matters.
- **Central Licensing Authority:**
 - In the interest of public health or extreme urgency of drugs, the central government is empowered to make provisions for Central Licensing Authority to waive the requirement of conducting clinical trials for manufacture or import of new drugs or investigational new drugs in the country.

Drugs Controller General of India

- Drugs Controller General of India (DCGI) is the head of department of the Central Drugs Standard Control Organization of the Government of India
- It is responsible for approval of licences of specified categories of drugs such as blood and blood products, IV fluids, vaccines, and sera in India.
- Drugs Controller General of India, comes under the Ministry of Health & Family Welfare.
- DCGI also sets standards for manufacturing, sales, import, and distribution of drugs in India.

diates. Also, India is one of the major producers of Active Pharma Ingredients (API) or bulk drugs in the world.

- India exported Bulk Drugs/Drug Intermediates worth Rs 33,320 cr in the financial year 2021-22.

Imports:

- However, the country also imports various Bulk Drugs/ APIs for producing medicines from various countries.
- Most of the imports of the Bulk Drug/APIs being done in the country are because of economic considerations.

What is driving the growth?

Talent pool:

- India has a huge talent pool with trained pharmaceutical professionals having degrees in B Pharmacy, D Pharmacy, M Pharmacy.

Generic drugs:

- The ability of the pharmaceutical industry to develop generic drugs at a much-reduced price is mainly due to trained professionals in the industry.

Manufacturing:

- India has a huge manufacturing base of pharmaceutical products giving it way more flexibility in producing generic drugs.
- India is home to 3000 drug companies and more than 10,000 manufacturing units.

Potential of the Indian Pharmaceutical Industry

- According to the Indian Eco-

nomical Survey 2021, the pharmaceutical industry in India is expected to reach USD 120-130 Billion by 2030.

Industries related to the pharmaceutical sector:

- The other industries related to the pharmaceutical sector like biopharmaceuticals, bio-services, bio-agriculture, bio-industry, and bioinformatics are likely to reach USD 150 Billion in 2025 as compared to USD 70 Billion in 2020.
- According to EY and FICCI, Innovation and R&D, Healthcare Delivery, Manufacturing & Supply Chain, & Market Access are the opportunities that will drive growth in the years to come.

Digital Banking Units (DBU)

In News

- The Prime Minister recently dedicated 75 Digital Banking Units (DBU) across 75 districts to the nation.

About Digital Banking Units (DBU)

Background:

- It was part of the Union budget speech for 2022-23 where the Finance Minister announced setting up the 75 DBUs in 75 districts to commemorate our country's 75 years of independence.

Initiative:

- This is a joint initiative of the Government, the RBI, the Indian Banks Association and the participating banks.

- 11 Public Sector Banks, 12 Private Sector Banks and one Small Finance Bank are participating in the endeavour.

Meaning:

- The DBUs will enable those who do not have ICT infrastructure to access banking services digitally. They will also assist those who are not tech savvy to adopt digital banking.

Aim:

- In such a banking setup, the government aims to provide maximum services with minimum infrastructure, and all of this happens digitally without involving any paperwork.

Services:

- It includes banking facilities like opening of savings account, balance-check, print passbook, transfer of funds, investment in fixed deposits, loan applications, stop-payment instructions for cheques issued, application for credit / debit cards, view statement of account, pay taxes, pay bills, make nominations, etc.
- The DBUs will also facilitate onboarding to Government credit link schemes through the Jan Samarth portal and end-to-end digital processing of small ticket MSME/retail loans.
- **The products and services will be offered to customers in 2 modes:**
 - Self Service Mode
 - Digital Assistance Mode

DBUs will be different from traditional branch in following aspects:

- They will provide banking services including cash deposit & withdrawal 24 x 7.
- Services shall be provided digitally.
- People not having connectivity or computing devices can do banking transactions from DBU in a paperless mode.
- Bank staff will be available to help & guide users for banking transactions in assisted mode.
- Will help in providing digital financial literacy & create awareness for adopting digital banking.

Significance of the move**Financial inclusion:**

- It will further financial inclusion and enhance banking experience for citizens.

Ease of Living:

- It is a big step in the direction of Ease of Living for the common citizens.

Robust banking:

- It will also simplify the banking procedure while also providing a robust & secure banking system

Beneficial for rural India:

- People living in small towns and villages will find benefits like transferring money to availing loans.

Cost effective services:

- DBUs will enable customers to have cost-effective, convenient

access & enhanced digital experience of banking products and services throughout the year.

Digital Financial Literacy:

- It will spread Digital Financial Literacy and special emphasis will be given to customer education on cyber security awareness and safeguards.

Removing psychological distance

- It will not only remove the physical distance but will also remove the psychological distance as this step will reduce the distance between the poor & the banks.

Eliminating digital divide

- This combination of technology and economy is enhancing the dignity and affordability for the poor and empowering the middle class, while at the same time it is also eliminating the digital divide of the country.

Good Governance:

- This system has given rise to immense possibilities for growth for the private sector and small-scale industries as well.

Transparency in the identification of NPAs:

- The resolution of NPA-related issues is expedited with the help of IBC while promoting the use of technology and analytics for loans, for the creation of a transparent and scientific system.

Steps taken by the Government towards Digital Banking**Extensive Post Office network**

- Harnessed via India Post Banks

for providing the banking needs to the common citizens.

Jan Dhan Bank accounts:

- These accounts enabled the government to provide insurance to the vulnerable at a very low premium.
- This opened the way for loans for the poor without collateral and provided Direct Benefit Transfer to the accounts of the target beneficiaries.

UPI:

- It is the first technology of its kind in the world. It is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.

Rupay cards:

- Today 70 crore indigenous Rupay cards are in operation, a vast change from the days of foreign players and the elite nature of such products.

DBT:

- It eliminated corruption. More than 25 lakh crore rupees have been transferred in various schemes via DBT.

Digital currency:

- It is based on blockchain technology. Elimination of the hassle of physical currency and environmental benefits are its key advantages.

GEM:

- Today the small industries or

MSMEs are also participating in government tenders through a system like GEM. They are getting new business opportunities.

Way Forward

Empowering citizens:

- The aim of the government is to empower the common citizen and make them powerful and as a result policies are made keeping in mind the last person and the entire govern-

ment moving in the direction of their welfare.

Coverage:

- Today more than 99 percent of villages in India have a bank branch, banking outlet or a 'banking mitra' within 5 km radius.
- Today the number of branches per one lakh adult citizens in India is more than countries like Germany, China and South Africa.

Global institutions:

- The IMF has praised India's dig-

ital banking infrastructure. The credit for this goes to the poor farmers & labourers of India, who have adopted new technologies, made it a part of their lives

- The World Bank has even gone so far as to say that India has become a leader in ensuring social security through digitization.

Self-reliant India:

- Digital economy today is a great strength of our economy, of our startup world, of Make in India and of self-reliant India.

2. Socio-economic

Surrogacy in India

- **Context:** The recent announcement by Tamil film director Vignesh and his wife, actress Nayantara, that they had become parents to twin boys is building up into a controversy, with speculations that the couple opted for surrogacy.

Meaning of Surrogacy:

- Surrogacy is defined as a practice wherein one woman bears and gives birth to a child with the intention to thereafter hand it over to the intending couple.
- While commercial surrogacy is not allowed in India such procedures are allowed only for altruistic purposes with many restrictions on the person seeking to apply under the law.
- No other monetary consideration will be permitted.

The Surrogacy Laws in India:

- The parliament in 2021 passed two laws:

The Surrogacy (Regulation) Act

- It governs the practice and process of surrogacy in India.
- It provided a gestation period of ten months from the date of coming into force to existing surrogate mothers' to protect their wellbeing.

The Assisted Reproductive Technology (Regulation) Act:

- It was enacted for regulation and supervision of the assisted reproductive technology clinics and banks.
- Under the Act, the services can be made available to a woman above the age of 21 years and below the age of 50 years and to a man above the age of 21

years and below the age of 55 years.

- ART procedures include gamete donation, intrauterine insemination, and in-vitro fertilisation or IVF.

Major provisions of the Law:

- **Eligibility:** According to the Surrogacy (Regulation) Act, only a married couple who has a medical condition necessitating gestational surrogacy can avail it. They have to first obtain a certificate of recommendation from a District Medical Board.

Gestational surrogacy' means:

- She has no uterus or missing uterus or abnormal uterus or if the uterus is surgically removed due to any medical conditions such as gynaecological cancer.
- Intended parent or woman

who has repeatedly failed to conceive after multiple In vitro fertilization or Intracytoplasmic sperm injection attempts.

- Multiple pregnancy losses resulting from an unexplained medical reason, unexplained graft rejection due to exaggerated immune response;
- Any illness that makes it impossible for a woman to carry a pregnancy to viability or pregnancy that is life threatening.
- An intending woman who is a widow or divorcee between the age of 35 to 45 years- can also avail the surrogacy.
- The intending couple where the woman is of the age of 23 to 50 years and a man between 26 to 55 years- is eligible under the law.
- Only such intending couples can apply who have not had any surviving child biologically or through adoption or earlier surrogacy.
- An exception has been provided for the couples whose child is "mentally or physically challenged or suffers from life threatening disorder or fatal illness with no permanent cure".
- The intending couple or intending woman is not allowed to abandon the child, born out of a surrogacy procedure, for any reason whatsoever.
- A child born out of a surrogacy procedure is deemed to be a biological child of the intending couple or intending woman.

Eligibility to be a surrogate mother

- A married woman of the age of 25 to 35 years on the day of implantation, with a child of her own, can be a surrogate mother
- She can act as a surrogate mother only once in her lifetime and with only three attempts of procedure is allowed.
- The woman has to give a written informed consent for the purpose and also be medically and psychologically fit.
- No charges other than medical expenses can be given to the surrogate mother or her dependents or her representative by the intending couple or woman.

Abortion

- A surrogate mother can be allowed abortion during the process of surrogacy only in accordance with the Medical Termination of Pregnancy Act.
- She also cannot disclose the identity of the couple seeking the surrogacy.

Penalty

- Offences under the Act include commercial surrogacy, selling of embryos, exploiting, abandoning a surrogate child etc.
- These may invite up to 10 years of imprisonment and a fine of up to Rs. 10 lakh.

Regulation of Surrogacy Clinics

- No Surrogacy Clinic can conduct or associate with or help in any manner in conducting the sur-

rogacy procedure unless it is registered under the law.

Major Challenges:

- The two Acts have been described as discriminatory against the single man who may desire to become a father via surrogacy or the married woman who already has a child & is desirous of expanding her family through the procedure.
- Disqualifying other persons on basis of nationality, marital status, sexual orientation or age does not pass the test of equality.
- **Reproductive autonomy:** inclusive of the right to procreation and parenthood, is not within the domain of the State.
- Infertility cannot be compulsory to undertake surrogacy: the certificate to prove infertility is a violation of privacy as part of the right to life under Article 21 of the Constitution.
- India as Surrogacy hub: India has emerged as a hub for infertility treatment, attracting people from the world over with its state-of-the-art technology and competitive prices to treat infertility.

Way forward:

- Surrogacy is legal in India but making it commercial is illegal. It is a humanitarian act and is recognized by law.
- Surrogacy comes under the reproductive choices of women and it is included as a fundamental right under the purview

of Article 21 of the Indian Constitution.

- Prior to the coming into effect of the laws, the Indian Council of Medical Research had issued a 'Code of Practice, Ethical Consideration and Legal Issues' for clinics involved in such procedures.
- The guidelines said surrogacy by assisted conception should normally be considered only for patients for whom it would be physically or "medically impossible" to carry a baby to term & that a surrogate mother should not be over 45 years of age.

Stress in workplaces: WHO & ILO Report

- The World Health Organization (WHO) and the International Labour Organization (ILO) recently released guidelines to address mental health issues in the global workforce.

What exactly is work-related stress?

- Long hours, a heavy workload, job insecurity, and conflicts with coworkers or bosses are just a few of the many causes of work-related stress.
- Symptoms include decreased work performance, depression, anxiety, and difficulty sleeping.

WHO and ILO Major Highlights

Economic and workforce losses

- According to the WHO, depression and anxiety account for 12 billion lost workdays each year,

costing the global economy close to \$1 trillion.

Countries that have National Programmes

- Only 5% of the working-age population had mental illness, and only 35% of countries had national programmes in place to promote work-related mental health.

Anxiety & despair are on the rise

- COVID-19 increased anxiety and despair by 25%, demonstrating how poorly governments anticipated its effects on mental health.
- The pandemic highlighted a global shortage of mental health resources.
- In 2020, governments worldwide allocated only 2% of their health budgets to mental health, with lower-middle-income countries allocating less than 1%.

Challenges

Productivity decline

- Individual well-being is sufficient reason to act, but poor mental health can also have an impact on performance and productivity.

Socioeconomic issues

- An unhealthy work culture exacerbates broader socioeconomic issues such as inequality and discrimination, both of which have an impact on mental health.

Mobbing

- Bullying or psychological as-

sault, also known as mobbing, is a common form of workplace harassment.

Other significant challenges include:

- Pay is low.
- Workload overload
- There are few opportunities for advancement or growth.
- Work that is not interesting or challenging
- Inadequate social support
- Inadequate control over job-related decisions
- Competing demands or ambiguous performance expectations

Advantages of Stress Prevention in the Workplace

- Reduced symptoms of mental and physical illness
- Fewer injuries, illnesses, and time lost
- Reduced the use of sick leave, absences, and staff turnover; increased productivity
- Improved job satisfaction
- Increased employee engagement lowers employer costs
- Improved employee health and community well-being

Way forward

- Manager training has been recommended by WHO to avoid stressful work environments & to assist distressed employees.
- **Investments:** We must invest in reshaping the workplace to eliminate stigma and social exclusion and to ensure that

employees suffering from mental illnesses feel protected and supported.

- **Return to your workplace:** The guidelines also recommended better approaches to meeting the needs of workers suffering from mental illnesses, as well as interventions to encourage their return to work.
- **Mechanisms for paid employment:** It also provided paid employment opportunities for people suffering from severe mental illnesses. The guidelines emphasised the importance of safeguarding medical, humanitarian, & emergency personnel.
- **Workplace stress is a management problem:** Maintain a secure working environment. Ascertain that everyone is properly trained for their position.
- De-stigmatize work-related stress by openly admitting it to be a genuine issue.
- Discuss issues and grievances with employees &, when possible, take appropriate action.
- Create a stress management policy in collaboration with your employees.
- Encourage an environment in which employees have more say over their duties, advancement opportunities, and safety. Make arrangements for a human resources manager.
- Reduce the need for overtime by reorganising duties or hiring extra help.
- Consider the personal lives of your employees and recognise

that the demands of home will sometimes conflict with the demands of work.

- If necessary, seek the advice of a health professional.

Human Sacrifice' & Laws on Witchcraft

In News

- Recently, there was a strong demand for a new law to curb superstitious practices in Kerala following deaths related to witchcraft rituals.

Issue of superstitious practices in India

Kerala Issue:

- Two women were allegedly abducted, beheaded and buried as part of a "witchcraft ritual".

Incidences of witchcraft in India:

- According to the 2021 National Crime Records Bureau report, three states in India - Chhattis-

garh (20), Madhya Pradesh (18) & Telangana (11) - accounted for 49 out of the 68 registered cases of witchcraft in the country.

What do the laws against witchcraft target?

- Apart from curbing superstitious beliefs, such laws have been introduced mainly to protect women, who are identified as "witches" by local people.
- Many such incidents have been reported, usually after the spread of an illness or unusual circumstances in a community that spreads panic among people.

Legal safeguards against superstitious practices

- In India, there is no common central law that criminalises actions furthering the belief in witchcraft, but state laws do exist.

Bihar and Jharkhand:

- Bihar became the first state to

What is Witchcraft & Witch-hunting?

Witchcraft:

- Witchcraft is a practice of magic skills, spells, and abilities that are believed to influence a person's body, mind, or property.
- Females who practice this craft are often portrayed and attributed as ominous, wicked, and scary.

Witch-hunting:

- Witch-hunting was initiated due to the superstitious beliefs and customs for eliminating the so-called witches residing in the society.
- Even today it is continued and practiced as a custom in different parts of the world.
- Women are specifically targeted, tortured ruthlessly, and called a "Witch."

introduce a law on the matter in 1999.

- The state's Prevention Of Witch Practices Act, 1999, says it was intended to "provide for the effective measures to prevent the witch practices and identification of a woman as a witch and their oppression mostly prevalent in Tribal areas and elsewhere in the State of Bihar and to eliminate the woman's torture, humiliation and killing by the society".
- Along the lines of the Bihar law, the newly independent state of Jharkhand came up with its own law in 2001.

Chhattisgarh:

- The Tonahi Pratadna Nivaran Adhiniyam came into force in 2005, where 'Tonahi' is another word for witch.
- It was estimated that from 2001 to 2015, in the 1,500 police cases reported in the state, over 90 per cent of the women were either widows, or women separated from husbands, or women with no children.

Odisha, Rajasthan & Assam:

- Similar provisions also exist in states like Odisha, Rajasthan & Assam.
- Assam is the state that most recently came up with a law against witchcraft in 2018.

Maharashtra and Karnataka:

- Maharashtra and Karnataka

have Acts related to black magic and superstition, but they do not mention witchcraft in particular.

Other Safeguards:

Human sacrifice:

- Section 302 (punishment for murder) takes cognisance of human sacrifice, but only after the murder is committed.

Discouragement:

- Likewise, Section 295A (Deliberate and malicious acts, intended to outrage religious feelings of any class by insulting its religion or religious beliefs) works to discourage such practices.

Inculcating scientific temper:

- Furthermore, Article 51A (h) of the Indian Constitution makes it a fundamental duty for Indian citizens to develop the scientific temper, humanism and the spirit of inquiry and reform.

Magic drugs and remedies:

- Other provisions under the Drugs and Magic Remedies Act of 1954 also aim to tackle the debilitating impact of various superstitious activities prevalent in India.

The Prevention of Witch-hunting Bill, 2016:

- In 2016, The Prevention of Witch-hunting Bill, 2016, was introduced in the Lok Sabha.
- It had sections covering a range of issues – from the reasons a

woman may be deemed a witch by people to the rehabilitation & awareness programmes the government should carry out.

- However, it did not go through further stages of consideration in Parliament.

Way Ahead

Violation of fundamental rights:

- Allowing the unhindered continuance of such practices violates an individual's fundamental right to equality and right to life under Articles 14 and 21 of the Indian Constitution respectively.

Unscientific & irrational practices:

- In the absence of measures to tackle superstitions, unscientific and irrational practices such as faith healing, quackery, & misinformation regarding medical procedures can also balloon up,
- This can have severe detrimental effects on public order and health of citizens.

Awareness:

- However, it is pertinent to remember that bringing a legislation to deal with this social issue shall only mean half the battle won.
- Meaningful reforms will need to increase awareness among the masses through information campaigns, and by roping in community/religious leaders to debunk the myths surrounding such practices.

XI. Science and technology

Quantum Technology Revolution in India

In News

- Recently, there were reports that the Indian Army is developing cryptographic techniques to make its networks resistant to attacks by systems with quantum capabilities.

About Quantum Technology

- It is based on the principles of Quantum mechanics developed in the early 20th century to describe nature at the scale of atoms and elementary particles.
- It is manifested through applications in secure communication, disaster management through better prediction, computing, simulation, chemistry, healthcare, cryptography, imaging among others.
- Scientists have expanded quantum theory to understand biological phenomena such as smell, consciousness, enzyme catalysis, photosynthesis, avian navigation like that of the Robin, origin of life and effects on coronavirus.

Status In India

- India has been witnessing growing interest in quantum computing, with students, developers, and academia actively participating.

- Consequently, the country is emerging as a talent hub for quantum computing

Benefits

- Quantum computers tap into the quantum mechanical phenomenon to manipulate information and are expected to shed light on processes of molecular and chemical interactions, address difficult optimization problems, and boost the power of artificial intelligence.
- Advances like these could open the door to new scientific discoveries, life-saving drugs, and improvements in supply chains, logistics and the modelling of financial data.

Threats

- Quantum computing has the potential to break the encryption on which most enterprises, digital infrastructures and economies rely
 - Businesses and governments could be rendered unable to ensure the confidentiality, integrity and availability of the transactions and data
- The geopolitics of quantum technology could act as a barrier to unlocking its full value National security concerns over sovereignty, and maintaining control over strategic capability.

- It can game-changing the information race and there is a real risk that competition will interfere with international collaboration and widen asymmetries in security and industrial capability.
- China's quantum advances expand the spectre of quantum cyberattacks against India's digital infrastructure, which already faces a barrage of attacks from Chinese state-sponsored hackers.
 - India's dependence on foreign, particularly Chinese hardware, is an additional vulnerability.

Initiatives

- India is currently at the forefront of tapping the second quantum revolution through massive investments in the field.
- Union Budget 2020-21 proposed to spend ₹8,000 crore (\$ 1.2 billion) on the newly launched National Mission on Quantum Technologies and Applications (NMQTA) and ₹ 3660 Crore for National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS).
- Budget 2020 allocated Rs 8000 Crore to a National Mission on Quantum Technologies & Applications (NM-QTA) for a period of five years.
- The Union Cabinet approved

the launch of the National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS) to make India a leading player in the Cyber-Physical System.

- **Quantum Frontier under PM-STIAC Mission:** It aims to initiate work in the understanding and control of quantum mechanical systems with a large number of degrees of freedom as one of the great contemporary challenges in fundamental science and technology.
- In February 2022, a joint team of the Defence Research and Development Organisation and IIT-Delhi successfully demonstrated a QKD link between two cities in UP - Prayagraj and Vindhyachal - located 100 kilometres apart.
- Recently, The Army has collaborated with industry and academia to build secure communications and cryptography applications.

Suggestions

- India will have to proactively deal with cyber risks arising from quantum computing which are accentuated by the lead taken by some nations in this sector.
 - For example, the US National Quantum Initiative Act has already allocated \$1.2 billion for research in defence-related quantum technology.
- India must consider procuring the United States National

Security Agency's (NSA) Suite B Cryptography Quantum-Resistant Suite as its official encryption mechanism.

- The Indian defence establishment can consider emulating the cryptographic standards set by the US's National Institute of Standards and Technology (NIST) which has developed a series of encryption tools to handle quantum computer attacks.
- India should start implementing and developing capabilities in quantum-resistant communications, specifically for critical strategic sectors.
- Diplomatic partnerships with other "techno-democracies" — countries with top technology sectors, advanced economies, and a commitment to liberal democracy — can help India pool resources and mitigate emerging quantum cyber threats.
- The community has to act now to ultimately ensure security and strategic advantage issues don't become major barriers to fully realising the potential transformative value of quantum technology.
 - This requires upgrading current encryption standards that can be broken by quantum cryptography.

Conclusion

- The world is moving towards an era in which the applications of quantum physics in strategic domains will soon become a reality, increasing cybersecurity

risks. India needs a holistic approach to tackle these challenges.

- At the heart of this approach should be the focus on post-quantum cybersecurity.

5G Services Rollout in India

Context

- The Prime Minister of India has recently launched 5G services in India on the sidelines of the inaugural ceremony of India Mobile Congress 2022.

About

- **Evolution:** 5G is the 5th generation mobile network or wireless technology. It is a new global wireless standard after 1G, 2G, 3G, and 4G networks.
- **Network:** 5G enables a new kind of network designed to connect virtually everyone and everything together including machines, objects, and devices.
- **Objectives:** 5G will deliver higher multi-Gbps peak data speeds, ultra-low latency, more reliability, massive network capacity, increased availability, and a more uniform user experience to more users.
 - Higher performance and improved efficiency to empower new user experiences and connect new industries.

Benefits of the 5G launch in India

- **Affordability:** Telecom industry players like Reliance Industries Limited, Bharti Enterprises and Aditya Birla Group committed to a speedy roll-out of "affordable" 5G services in India.

- **Superior experience:** Indian mobile phone users will experience ultra-high Internet speeds via 5G wireless technology and bring a new digital era in the country.
 - **Socio-economic transformation:** 5G technology will bring transformation in crucial areas including agriculture, health, education, Transport, logistics, smart cities, Industry 4.0 and financial inclusion etc.
 - **Global position:** 5G technology will bolster tech revolution domestically and propel India's position as an economic and tech powerhouse globally.
 - **Newer opportunities:** will provide new opportunities for start-ups to come up with innovative solutions to solve existing challenges, create jobs and contribute to India's economic resilience.
 - For example, demonstrations of 5G solutions, chipsets, networking equipment etc. development by Indian telecom start-ups, MSMEs and large manufacturers
 - **Self-reliance:** India was dependent on other countries for 2G, 3G and 4G technologies. However, India has set a global standard in telecom technology for the first time with 5G.
 - Tech Developer, not consumer: Henceforth, India will play an active role in the development & implementation of 5G related technology rather than being a mere consumer of technology.
 - **More Users:** As per the recent Ericsson report, 5G technology might contribute to 39 % of mobile subscriptions in India by 2027 i.e. about 500 million estimated subscriptions.
 - **Foundation/Link Technology:** 5G technology will serve as a link to several science & technology driven application useful in daily lives such as-
 - Connected Ambulance (Emergency healthcare)
 - Community Clinic (Mass healthcare / treatment)
 - Remote Ultrasound Robot Demo (remote healthcare)
 - Fixed Wireless Access (FWA) for Rural Broadband Connectivity.
 - Indigenously developed 5G core for public networks
 - High Security Routers
 - AI based Cyber Threat Detection Platform
 - Smart-Agri Programme using IoTs, HD Cameras & Drones
 - **Hardware challenge:** Since India has banned some leading foreign telecom original equipment manufacturers (OEMs), deployment of 5G may face hurdles w.r.t. Indian hardware.
 - **Spectrum pricing:** 5G spectrum pricing in India is far costlier than the global average, raising valid concerns over affordability of services by customers eventually.
- ### Role of Digital India Mission in 5G launch
- **Affordable Devices:** With Atma Nirbhar Bharat the cost of devices were reduced to a large extent. India is now at second position in the world for manufacturing of mobile and is also a large exporter of mobiles.
 - For example, from 2 mobile manufacturing units in 2014, India presently has 200 manufacturing units promoting competition and cost-effectiveness.
- ### Digital Connectivity:
- **Broadband Users:** From 6 cr in 2014, India now has 80 crore Broadband users.
 - **Optical Fibre Cable(OFC):** Now, more than 1,70,000 Gram Panchayats (GPs) are connected with OFC from approx 100 GPs earlier in 2014.
 - Internet users in the rural areas of the country are growing at a faster rate than the urban area thereby bridging the digital divide.
 - **Cost of Data:** The cost of data has reduced from Rs. 300 per

GB in 2014 to Rs. 10 per GB in 2022. Average Data used per person is 14 GB per month, and reduction in cost of data has brought considerable savings per month for citizens.

- **Idea of Digital First:** There were apprehensions about adoption of the digital technology by the rural poor, however rural India is fast adopting the digital technologies and internet in their daily lives.

Way Forward

- 5G technology will bring harmony with the Prime Minister's vision to promote 'Atma Nirbhar Bharat', Jai Anusandhan and 'Sabka Saath, Sabka Vishwas'.
- It will pave the way for realization of a vision of bringing that technology to the common people which works for the people, works by connecting with the people.
- 5G should be integrated in the policy domains like Digital India mission to ensure transformational potential on the lives of citizens way beyond simple provision of higher internet speeds. E.g. Telemedicine during COVID-19.
- Promotion of digitalisation, indigenous technology (Make in India), industrial revolution 4.0 will certainly pave the way for Techade (technology decade) of India.

Lassa Fever

In News

- Recently published study has found that climate change will aid the spread of Lassa fever to

the central and eastern parts of the continent in the next 50 years.

About Lassa fever

- It is a zoonotic disease endemic to parts of west Africa.
- **Causes :** It is caused by the Lassa virus, a member of the Arenaviridae family.
- **Transmission :** It's transmitted through the urine and droppings of infected multimammate rats found in most tropical and subtropical countries in Africa.
 - They are able to contaminate anything they come in contact with.
 - The Lassa virus spreads through human to human contact with tissue, blood, body fluids, secretions or excretions.
- This includes coughing, sneezing, kissing, sexual intercourse and breastfeeding. In hospitals the disease is spread through contaminated equipment.
- **Fatality rate :** The fatality rate for hospitalised patients is generally high and can reach 80 per cent at times.
- **Vaccines and Treatment :** There is currently no vaccine approved to prevent the disease.
 - Antiviral drug ribavirin is often used to treat Lassa fever although the usage is not a licensed treatment.
 - Other procedures used are supportive care including hydration, oxygenation, and treatment of specific

complications arising due to the disease. Preventive vaccines are currently under research and development.

ISRO's Mangalyaan Mission

In News

- Recently, the ISRO confirmed that the Mars Orbiter craft has lost communication with ground station, it's non-recoverable and with this the Mangalyaan mission has attained end-of-life.

About Mangalyaan Mission

Background

- The Mars Orbiter Mission (MOM) or Mangalyaan is a space probe launched by the Indian Space Research Organization in 2013.

Features

- Mangalyaan was India's first interplanetary mission.
- The indigenously-built space probe has been in Martian orbit since 2014.
- The mission made India the first Asian country and the fourth in the world after Roscosmos, NASA, and the European Space Agency, to get to the planet.

Objective of Mangalyaan

- India's Mangalyaan mission is aimed at studying Martian atmosphere.
- Its objective is to explore Martian surface features, mineralogy, morphology and atmosphere using indigenous scientific instruments.

- A crucial objective of MOM was to develop technologies required in planning, designing, management and operations of an interplanetary mission.

Rocket used

- MOM was launched aboard PSLV C-25 (an XL version of the PSLV).

Cost of Mangalyaan

- ISRO spent \$75 million to launch the mission, making it the least-expensive Mars mission to date.

Genetically Modified Mosquitoes

In News

- Recently, scientists have genetically modified mosquitoes to slow the growth of malaria-causing parasites in their guts which can also help prevent transmission of the disease to humans.

About Malaria

Parasites

- Malaria is a life-threatening disease caused by parasites that are transmitted to people through the bites of infected female Anopheles mosquitoes.
- The parasite develops into its next stage in the mosquito's gut and travels to its salivary glands, ready to infect the next person it bites.
- Though only around 10 percent of mosquitoes live long enough for the infectious parasite to develop.

Symptoms

- People who have malaria usually feel very sick with a high fever and shaking chills.

Distribution

- While the disease is uncommon in temperate climates, malaria is still common in tropical and subtropical countries.

Vaccine

- It is preventable and curable.

Data on Malaria

- Malaria remains one of the most devastating diseases globally, putting at risk about half of the world's population.
- In 2021, it infected 241 million people and killed 627,000 people.

Genetic modification in Mosquitoes

- **Lab-bred mosquitoes:** GM mosquitoes are mass-produced in a laboratory to carry two types of genes:
 - A self-limiting gene that prevents female mosquito offspring from surviving to adulthood.
 - A fluorescent marker gene that glows under a special red light. This allows researchers to identify GM mosquitoes in the wild.
- New tools are increasingly needed as mosquitoes develop resistance to insecticides and treatments.
- **Shorter life span:** The peptides impair the malarial parasite's development and also cause

the mosquitoes to have a shorter life span.

- **Gene drive technology:** Gene drive is one such powerful weapon that in combination with drugs, vaccines and mosquito control can help stop the spread of malaria & save human lives.

Pros of Genetically Modified Mosquitoes

- GM mosquitoes have been successfully used in parts of Brazil, the Cayman Islands, Panama, and India to control Ae. aegypti mosquitoes.
- GM mosquitoes will only work to reduce numbers of target mosquito species and not other types of mosquitoes.
- There is no risk to people, animals, or the environment.
- Scientists say the introduction of GMO mosquitoes will lower the population of disease-carrying biting insects over time.
- Reviews suggest the loss of invasive mosquito species will have little to no effect on local environments since they didn't belong there to begin with.
- No pesticides are added to the environment when using GMO mosquitoes.
- Seeding areas with GMO male mosquitoes is relatively easy and a low-manpower activity.

Cons of Genetically Modified Mosquitoes

- GMO mosquitoes may carry or develop unknown pathogens that hurt humans.

- Critics say there has not been enough testing and observation of the GMO mosquitoes.
- Though the mosquito is an introduced species, native species are now reliant on these mosquitoes for their diet.
- GMO mosquitoes may mutate into a stronger mosquito that can reproduce, which poses a whole new threat.
- Fear that despite the gene modification, some of the hatched GMO mosquitoes will survive to adulthood and breed.
- The cost of producing GMO mosquitoes is too expensive and too time-consuming.

Way Forward/ Suggestions

- **Planning:** It would require extremely careful planning to minimise risks before any field trials.
- **Two separate strains:** there is a need of creating two separate but compatible strains of modified mosquitoes one with the anti-parasite modification and one with the gene drive.

Integrated mosquito management

- Educating the community about how they can control mosquitoes in and around their homes.
- Conducting mosquito surveillance (tracking and monitoring the number of mosquitoes, and types of mosquitoes in an area).
- Removing standing water where mosquitoes lay eggs.
- Using larvicides and insecticides to control mosquito larvae,

pupae, & adult mosquitoes.

- Monitoring how effective mosquito programs are at reducing numbers of mosquitoes.

Light Combat Helicopter (LCH): Prachanda

Why in News?

- Recently, the Indian Air Force formally inducted the indigenously developed multi-role Light Combat Helicopter (LCH), Prachanda which is suitable for operating in high-altitude battlefields.

What is a Light Combat Helicopter?

About:

- The LCH is the only attack helicopter in the world which can land and take off at an altitude of 5,000 meters with a considerable load of weapons and fuel.
- The helicopter uses radar-absorbing material to lower radar signature and has a significantly crash-proof structure and landing gear.
 - A pressurised cabin offers protection from Nuclear, Biological and Chemical (NBC) contingencies.
- The helicopter is equipped with a countermeasure dispensing system that protects it from enemy radars or infrared seekers of enemy missiles.
- LCH is powered by two French-origin Shakti engines manufactured by the HAL.

Genesis:

- It was during the 1999 Kargil war that the need was first felt for a homegrown lightweight assault helicopter that could hold precision strikes in all Indian battlefield scenarios.
- This meant a craft that could operate in very hot deserts and also in very cold high altitudes, in counter-insurgency scenarios to full-scale battle conditions.
- India has been operating sub 3 ton category French-origin legacy helicopters, Chetak and Cheetah, made in India by the Hindustan Aeronautics Limited (HAL).
- These single engine machines were, primarily, utility helicopters. Indian forces also operate the Lancer, an armed version of Cheetah.
- In addition, the Indian Air Force currently operates the Russian origin Mi-17 and its variants Mi-17 IV and Mi-17 V5, with maximum take-off weight of 13 tonnes, which are to be phased out starting 2028.
- The government sanctioned the LCH project in October 2006 & HAL was tasked to develop it.

Significance:

- The LCH has the capabilities of combat roles such as destruction of enemy air defence, counter insurgency warfare, combat search and rescue, anti-tank, and counter surface force operations.

ISRO's Next Generation Launch Vehicle

Why in News?

- Indian Space Research Organisation (ISRO) is developing a Next-Gen Launch Vehicle (NGLV) to replace operational systems like the Polar Satellite Launch Vehicle (PSLV).
- Launch Vehicles are used to carry spacecraft to space. India has two operational launchers, PSLV and Geosynchronous Satellite Launch Vehicle (GSLV).

What is NextGen Launch Vehicle?

About:

- In NGLV, ISRO is looking at a cost-efficient, three-stage to orbit, reusable heavy-lift vehicle with a payload capability of ten tonnes to Geostationary Transfer Orbit (GTO).
- Its robust design allows bulk manufacturing, modularity in systems, sub-systems and stages & minimal turnaround time.
- **Features:** It will feature semi-cryogenic propulsion (refined kerosene as fuel with liquid oxygen (LOX) as oxidiser) for the booster stages.

- **Use:** Potential uses will be in launching communication satellites, deep space missions, future human spaceflight and cargo missions.

What are other Launch Vehicles Developed by ISRO?

- **Satellite Launch Vehicle (SLV):** The first rocket developed by ISRO was simply called SLV, or Satellite Launch Vehicle.
 - It was followed by the Augmented Satellite Launch Vehicle or ASLV.
- **Augmented Satellite Launch Vehicle (ASLV):** SLV and ASLV both could carry small satellites, weighing up to 150 kg, to lower earth orbits.
 - ASLV operated till the early 1990s before PSLV came on the scene.
- **Polar Satellite Launch Vehicle (PSLV):** PSLV's first launch was in 1994, & it has been ISRO's main rocket ever since. Today's PSLV, however, is vastly improved & several times more powerful than the ones used in the 1990s
 - It is the first Indian launch vehicle to be equipped with liquid stages.

- PSLV is the most reliable rocket used by ISRO to date, with 52 of its 54 flights being successful.
 - It successfully launched two spacecraft - Chandrayaan-1 in 2008 and Mars Orbiter Spacecraft in 2013 - that later travelled to Moon and Mars respectively.
- **Geosynchronous Satellite Launch Vehicle (GSLV):** GSLV is a much more powerful rocket, meant to carry heavier satellites much deeper into space. To date, GSLV rockets have carried out 18 missions, of which four ended in failure.
 - It can take 10,000 kg of satellites to lower the earth's orbits.
 - The indigenously developed Cryogenic Upper Stage (CUS), forms the third stage of GSLV Mk II.
 - Mk-III versions have made ISRO entirely self-sufficient in launching its satellites.
 - Before this, it used to depend on the European Ariane launch vehicle to take its heavier satellites into space.



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XII. Miscellaneous

1. Index

Name	Released by	Content				
Global Innovation Index	World Intellectual property organisation	<ul style="list-style-type: none"> India ranked 40th position out of 132 in the Global innovation index. Switzerland is the most innovative economy. China is nearing the top 10 while Turkey and India enter the top 40 for the first time. <p>Performance of India</p> <ul style="list-style-type: none"> India continues to lead the world in ICT services exports. Holds the top ranking in capital receipt value, finance for startups and scale-ups, graduates in science and Engineering labour productivity growth and domestic industry diversification. India is the Innovation leader in the lower middle income group. GIT which is published annually, has been a leading reference for measuring an economy's innovation performance. <p>Theme for 2022 :</p> <ul style="list-style-type: none"> What is the future of innovation - driven growth. 				
Global hunger Index (GHI)	The GHI is published annually as part of a partnership between concern worldwide, Ireland's largest aid and humanitarian agency and welthungerhilfe.	<ul style="list-style-type: none"> India ranks 107 out of 121 countries. In 2021 India's rank was 101. India's score of 29.1 is in the serious category. India also ranks below Srilanka, Nepal, Bangladesh and Pakistan. Reasons for the fallout globally. <table border="1" data-bbox="550 1429 1401 1541"> <tr> <td>o Conflict</td> <td>o Climate change</td> </tr> <tr> <td>o Economic fallout of the covid-19 pandemic</td> <td>o Ukraine war.</td> </tr> </table> <p>Indicators of Global hunger index</p> <ul style="list-style-type: none"> Inadequate food supply (1/3) Child undernutrition (1/3) Child standing (1/6) Child wasting (1/6) Under 5 child mortality (1/3) GHI score is calculated on a 100 point scale reflecting the severity of hunger. Zero is the best score and 100 is the worst. Each set of GHI scores uses data from a 5 year period. 	o Conflict	o Climate change	o Economic fallout of the covid-19 pandemic	o Ukraine war.
o Conflict	o Climate change					
o Economic fallout of the covid-19 pandemic	o Ukraine war.					

<p>Global Multi-dimensional poverty index</p>	<p>United Nations development programme</p>	<ul style="list-style-type: none"> • 1.2 billion people are multidimensionally poor. <p>Key findings about India:</p> <ul style="list-style-type: none"> • India has by far the largest number of poor people worldwide at 22.8 score, followed by Nigeria at 9.6 Crore. • The incidence of poverty fell from 55.1% in 2005/06 to 16.4% in 2019/21 in the country. • The deprivations in all 10 MPI indicators saw significant reductions. • As many as 41.5 Crore people moved out of poverty in India during the 15 year period between 2005 - 06 and 2019 - 21 • Improvement in MPI for India has significantly contributed to the decline in poverty in South Asia. • Bihar, the poorest state in 2015-16, saw the fastest reduction in MPI value in absolute terms. • The MPI monitors deprivation in 10 indicators.
<p>32nd Global financial center's index</p>	<p>Z/Yen Group in london & the China development institute in Shenzhen.</p>	<ul style="list-style-type: none"> • The top three most favoured financial centres in the world are Newyork, London and Singapore. • In India New Delhi and Mumbai are ranked 68th and 70th ranks respectively. • Cities like scour, GIFT - city Gujarat and Kigali are expected to grow significantly in the next two years. • It is published twice a year.

2. Report

Name	Released by	Content
<p>Global forest sector outlook 2050</p>	<p>United Nations food and Agriculture organisations</p>	<ul style="list-style-type: none"> • The newly released report estimates an increased demand for wood products like mass timber and manmade cellulose fibre that are used as alternatives to non renewable materials. • Their demand may surge by upto to 272 million cubie metres by 2050. • This is expected to create over 1 million jobs in developing countries. • The report forecasts that the consumption of primary processed wood products will increase to 3.1 million cubic meters by 2050. • This estimation is based on the Global forest products model, which uses historical patterns of the production and trade of wood products.

<p>State of digital Trust Report 2022</p>	<p>Information systems Audit and control Association</p>	<ul style="list-style-type: none"> • The most significant obstacles to digital trust are <ul style="list-style-type: none"> ◦ lack of skills and training ◦ lack of leadership buy-in • lack of alignment of digital trust and enterprise goals. • lack of technological resources. • Insufficient processes and or governance practices. • In the coming five years, the digital trust requirement would be more critical that what it is today, but 579 of organisations still do not provide training in digital trust. <p>Benefits of digital trust :</p> <ul style="list-style-type: none"> • Positive reputation • Stronger customer loyalty • More reliable data on which to make decisions. • Fewer cybersecurity incidents • Fewer privacy breaches • Better ability to innovate faster • Higher revenue
<p>Renewable Energy and Jobs annual Review 2022</p>	<p>International Renewable energy Agency (IRENA) and the International labour organization</p>	<ul style="list-style-type: none"> • The report identified domestic market size, along with labour, as a major factor influencing job growth in the sector. • The Renewable energy sector employed 12.7 million people across the world in 2021, up from 12 million in 2020. • Southeast Asian countries are becoming major solar photovoltaic manufacturing hubs and biofuel producers. • India added more than 10GW of solar photovoltaic, generating many installation Jobs, but remains heavily depended on imported panels. • Solar energy remained the fastest growing sector. • The number of people directly employed in decentralised Renewable Energy in 2021 was more than 80,000 in India (mostly in Solar PV). • The Shale of women in the DRE workforce is still low, particularly for skilled jobs, the researcheres observed. • IRENA is an Intergovernmental organisation it was officially founded in Bonn, Germany in January 2009.
<p>India Tourism Statics 2022</p>	<p>Ministry of Tourism</p>	<ul style="list-style-type: none"> • As per the report, The Tajmahal, a UNESCO world heritage site was among the 10 most popular centrally protected ticketed monuments for domestic visitors in 2021-22. • The Redfort and the Qutubminar both UNESCO recognized sites in Delhi were the second and third most visited sites respectively for the period.

		<ul style="list-style-type: none"> Group of monuments at Mamallapuram in TamilNadu was the most visited centrally protected ticketed monument for foreign visitors during the same period. The top countries from which foreign tourists arrived in India included the US, the UK, Bangladesh, Canada, Nepal, Afghanistan and Australia. Number of Indian nationals departing the country saw a rise of 7.3% in 2021 The UAE was the top destination for Indians in 2021, followed by the US, Qatar, Oman and the UK. Only 1.64% of all tourists worldwide comes from India. Domestic tourism in India saw a minor revival with an increase of 11.05%
Trade and development Report 2022	UNCTAD (United Nations Conference on Trade And Development)	<ul style="list-style-type: none"> India economic growth is expected to decline to 5.7% this year from 8.7% in 2021. The country's growth will further drop to 4.7% in 2023. Reason being higher financing cost and weaker public expenditures. India experienced an expansion of 8.2% in 2021, the strongest among G20 countries. As supply chain disruptions eased, rising domestic demand turned the current account surplus into deficit and growth decelerated. <p>Forecast by other agencies :</p> <ul style="list-style-type: none"> Moody's forecast is 7.7% for the Calender 2022. Various other agencies have projected India's growth to be in the range of 6.7% to 7.4% in FY23. The RBI's real growth forecast for FY23 is 7%
Pov-erty and shared prosperity Report	World Bank	<ul style="list-style-type: none"> The world is unlikely to meet the goal of ending extreme poverty by 2030. The global poverty reduction has been slowing down since 2015 but the covid pandemic & the war in Ukraine have completely reversed the outcomes. <p>India's Poverty levels :</p> <ul style="list-style-type: none"> Poverty has gone up in India too. Previous estimates suggested a poverty headcount rate at the US \$1.90 poverty line of 10.4% in 2017. Global median income declined by 4% in 2020, the first decline since measurements of median income began in 1990.
World economic outlook	International Monetary Fund (IMF)	<ul style="list-style-type: none"> It cut its forecast for India's GDP growth in 2022 to 6.8% from 7.4% for India in the fiscal year that started in April 2022. For 2023, India has been projected to grow at 6.1% Global growth is forecast to slow from 6% in 2021 to 3.2% in 2022 and 2.7% in 2023.

		<ul style="list-style-type: none"> • The global growth is expected to slow further in 2023. The worst is yet to come and, for many people 2023 will feel like a recession. • Global inflation is forecast to rise from 4.7% in 2021 to 8.8% in 2022 but to decline to 6.5% in 2023 and to 4.1% by 2024. 						
<p>Living planet report</p>	<p>Worldwide fund for Nature</p>	<ul style="list-style-type: none"> • This report is released every two years. • There has been a 69% decline in the wildlife populations of mammals, birds, amphibians, reptiles and fish across the globe in the last 50 years. • The highest decline in the wildlife populations was in the latin America and the Caribbean region. • Freshwater species populations globally reduced by 83% • Living planet index showed that vertebrate wildlife populations are collapsing at a particularly staggering rate in tropical regions of the world. • Mangroves continue to be lost to aquaculture, agriculture and coastal development at a rate of 0.13% per year. • WWF identified six key threats to biodiversity to highlight threat hotspots for terrestrial vertebrates. <table border="1" data-bbox="579 1003 1096 1153"> <tr> <td>○ Agriculture</td> <td>○ Pollution</td> </tr> <tr> <td>○ Hunting</td> <td>○ Invasive species</td> </tr> <tr> <td>○ Logging</td> <td>○ Climate change</td> </tr> </table> 	○ Agriculture	○ Pollution	○ Hunting	○ Invasive species	○ Logging	○ Climate change
○ Agriculture	○ Pollution							
○ Hunting	○ Invasive species							
○ Logging	○ Climate change							
<p>Lead poisoning prevalence in India</p>	<p>NITI Aayog and the council of scientific and Industrial Research</p>	<ul style="list-style-type: none"> • Lead is a highly toxic metal and a very strong poison. • Lead poisoning is a serious and sometimes fatal condition. It occurs when lead builds up in the body. • It had found India to be home to a major chunk of children (27,55,61,163 of the 800 million) poisoned by lead globally. • Most affected states : Bihar, UP, MP, Jharkhand, Chhattisgarh & Andhra Pradesh deaths due to lead poisoning have continued to rise in India even though lead use in petrol a key source was phased out by 2000 in the country. <p>Lead Impact :</p> <ul style="list-style-type: none"> • Lead poisoning can cause severe mental and physical impairment. Young children are most vulnerable. • Exposure to high levels of lead may cause anemia, weakness, and kidney and brain damage. • Lead is more harmful to children because their brains and nervous system are still developing. <p>Treatment :</p> <ul style="list-style-type: none"> • Lead poisoning can be treated, but any damage caused cannot be reversed. 						

<p>Under utilization of India's Goal mines</p>	<p>Global Energy monitor</p>	<ul style="list-style-type: none"> Global Energy monitor is a firm that tracks utilization of the fuel source internationally. <p>Key findings :</p> <ul style="list-style-type: none"> Capacity under utilization : While some mines are utilizing only 2/3 of their capacity, some other larges ones are using only 1% 99% of India's coal mine projects under development which were expected to yield 427 million tonnes per annum are unnecessary. Opening new coal mines might not mitigate short term supply crunches. India experienced severe coal crises at least twice in 2021. More than 100 of 285 thermal power plants witnessed fall in coal stocks below the critical mark of 25% of the total stock and below 10% in over 50 plants. In India coal is found in a form of sedimentary rocks. Jharkhand has the largest reserves of coal (26% of the total) Chhattisgarh has the third largest coal reserves, but ranks first in the production of coal.
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3. Committee

Title	Headed by	Content
<p>A. Arumughaswamy Commission of INQUIRY (COI)</p>	<p>Retired Justice Arumugasamy</p>	<ul style="list-style-type: none"> The Commission was assigned to enquire into the circumstances, health condition and situation leading to the hospitalization of the late CM J. Jayalalitha on 22 Sep 2016 and subsequent treatment provided till her unfortunate demise on Dec 2016.
<p>Thoothukudi firing</p>	<p>Aruna Jagadeesan</p>	<ul style="list-style-type: none"> The view of this commission is that there is total inaction, lethargy, complacency and dereliction of duty on the part of district collector. The report observed a total lack of coordination between the District Administration and the police. There were no efforts to curb such miscreants is clearly a lapse on the part of the police compounded by a lethargy and indifference on the part of the district Administration.

4. Minutes : (News in Shorts)

Vadakkupattu Archeological site

- Archeological survey of India has discovered 12000 year old artifacts at the Vadakkupattu village in TamilNadu.

- ASI discovered signs of four civilizations at the Vadakkupattu Village in TN.
- With these discoveries, Vadakkupattu village site has now become a culturally and archaeologically important site.

developed by the ministry of Rural development and Panchayati Raj.

- This app will be used across the country to capture the water level of selected 2-3 wells in a village.
- The app will work in both online and offline mode. So water level can be captured even without internet connectivity and captured data will be stored in mobile and when mobile comes in the connectivity area, data will synchronize with the central server.
- The app will ease panchayats with robust information that can be later used for better planning of works.

Mesolithic Period	Sangam Era	Early & Later Pallavas
<ul style="list-style-type: none"> • ASI discovered hand axes, Scrappers, Cleavers, & Choppers from the Mesolithic Period. • They were recovered 75cm from beneath the surface. 	<p>They discovered Sangam era artifacts including rouletted pottery, Roman amphora sherds, & glass beads suggesting active commerce with Rome.</p>	<p>They discovered sculptures ranging from the early Pallava period to the late pallavas on the floor inside the surrounding space.</p>

Rohini Sounding Rockets :

- ISRO is planning the 200th successful launch of the Rohini RH - 200 sounding rocket in a row.
- Sounding rockets are one or two stage solid propellant rockets used for probing the upper atmospheric regions and for space research.
- RH - 200 is a two stage rocket capable of climbing to a height of 70km bearing scientific loads.
- The first & second stages of RH - 200 are powered by Solid motor.
- For years the RH - 200 rocket had used a polyvinyl Chloride (PVC) based propellant.

plication - based Indian sign language dictionary having 10,000 words.

- The application was launched by the minister of state for social justice and Empowerment Pratima Bhoumik.
- It was developed based on the Indian sign language dictionary of the Indian sign language Research and training Centre.
- In the application, all the words can be searched either in Hindi or English.
- The purpose of this mobile application is to make Indian sign language more accessible for the general public.

AVGAS 100 LL :

- The ministry of petroleum and Natural Gas has launched indigenously - developed AVGAS 100 LL.
- AVGAS 100 LL is a special aviation fuel meant for piston engine aircrafts and unmanned Aerial vehicles.
- Currently India is importing this product from European countries.
- Indian oil corporation has indigenously produced AVGAS 100 LL at its vadodara Refinery in Gujarat.

Sign learn :

- Sign learn is a mobile ap-

Jaldoot app :

- JALDOOT app has been jointly

Dibang hydel Project :

- Recently, the National Green tribunal has dismissed the case it took up suo motu on the grant of forest clearance for the 3000-MW Dibang hydel project without meeting the precondition of declaring a National park.
- It is a flood control cum hydro-electric power. Project planned to be developed on the Dibang river, a tributary of Brahmaputra River in Arunachal Pradesh.
- The dam site is located about 1.5km upstream of the confluence of Ashupani and dibang rivers and about 43km from Roing, district HQ.
- The dibang hydropower project is expected to generate up to 11,222 Million Units (MU) of electricity a year.

Kamikaze drones :

- Recently Russia attacked Kyiv with a Swarm of Iranian Kamikaze drones. It is also called Switch blade drones.
- These are small unmanned aircraft that are packed with explosives that can be flown directly at a tank or a group of troops that are destroyed when it hits the target and explodes.
- Although the Kamikaze might be the most advanced form of this genre of drones Russia, China, Israel, Iran, and Turkey all have some version of it.

World first compressed natural gas terminal :

- The world's first compressed

natural gas terminal will be set up close up Gujarat's Bhavnagar port.

- The large terminal can handle 1.5 million metric tonnes each year.
- The project will be supported by the Gujarat maritime Board, which is currently managing the Bhavnagar port.
- It is expected to be made operational by 2026.
- The proposed port terminal's capacity is 4.65 Million Tonnes Per Annum (MTPA) of which the capacity of the CNG terminal will be 0.3 MTPA.

UNESCO launches list documenting 50 iconic indian heritage textiles :

- UNESCO has released a list of 50 exclusive and iconic heritage textile crafts of India under the title "Handmade for the 21st century : Safeguarding Traditional Indian Textile".
- The UNESCO document list the histories and legends behind the textiles, describes the complicated and secret processes behind their making, mentions the causes for their dwindling popularity, and provides strategies for their preservation.

Significance :

- This list by UNESCO is significant as one of the major challenges to the safeguarding of Intangible cultural heritage in South Asia is the lack of proper inventory and documentation.

Card Tokenisation :

- Tokenisation is the process of replacing actual card information with a one of a kind alternate code called token which must be distinct for the card, token requester and device.
- The digital token is a 16 digit card number that is a randomly generated string of characters, usually alphanumeric.
- The rules and regulations for online payments for debit and credit cards have been changed.
- The RBI card on file tokenization norms came into effect on 1st October 2022.
- RBI's CoF tokenization aims to improve the payment experience of cardholders.

Pangasias Icaria :

- A newcat fish species has been discovered in the river Cauvery near Mettur dam.
- The edible species has been named Pangasius Icaria after Indian council of Agricultural Research that discovered the species.
- The species belongs to the Pangasius genus.
- The genus Pangasius is found in the Gangetic plains but not in Peninsular India.
- The new species is edible and the locals call it are Keluthi in tamic.

Fast melting Arctic ice is turning the ocean acidic :

- Rapid melting of Arctic ice is

contributing the fast - paced acidification of ocean.

- An International team of researchers have found that acidity levels in the Arctic ocean's western region are raising 3 to 4 times faster than any other oceans across the world.
- The research team has found a concrete link between the high rate of melting ice and the rate of ocean acidification.
- Ocean absorbs a third of all the atmospheric carbon dioxide.
- Acidification of ocean can threaten marine population and its dependents like polar bears.
- Normally, the seawater is alkaline with PH of around 8.1

Bharat Skills forum :

- A new feature called the Bharat skills forum has been added to the Bharat skills learning platform that allows sharing of books, notes, videos, question banks, etc and other relevant skill related content for learners.
- This platform launched in 2019.
- Launched by the directorate General of Training in the Ministry of skill development and Entrepreneurship.
- This platform presents unique access to a centralized, scalable and thriving support eco system through its industrial partners for the students and teachers who can now learn the new age skills to meet the demands of the Industry.

Vyom Mitra :

- Vyom Mitra, the humanoid designed and developed by the ISRO to fly abroad unmanned test missions ahead of the Gaganyaan human space flight mission, is undergoing pre-flight ground test at the ISRO Inertial Systems unit.
- ISRO Vyommitra is also being called a half - humanoid since she will only have a head, two hands and a torso and will not have lower limbs like any robot, a humanoid's functions are determined by the computer systems to which it is connected.
- ISRO plans to send a human in space for the first time by 2022.
- The humanoid is under development at a robotics laboratory at the Vikram Sarabhai Space Centre.

Rubber Board :

- Recently the 182nd meeting of the Rubber Board was held in Kottayam.
- The Rubber Board is a statutory body constituted under the Rubber Act 1947, for the overall development of the rubber industry in the country.
- The Board has a chairman appointed by the Central Government.
- The executive director who is the administrative head of the Board exercises control over all the departments / Divisions.

Parboiled Rice :

- Recently almost 1000 tonnes

of parboiled rice are reportedly help at the ports, in Tamil Nadu.

- Since last month following the Central Government order that levied 20% duty on raw rice exports and banned export of broken rice.
- Parboiled rice refers to rice that has been partially boiled at the paddy stage, before milling.
- However there is no specific definition of parboiled rice of the food corporation of India or the food ministry.
- Parboiling of rice is not a new practice, and has been followed in India since ancient times.

Chandrayan - 2 Gauges sodium content on moon's surface :

- Scientists from ISRO have mapped out the global distribution of Sodium on the moon's surface.
- Scientists used the CLASS instrument carried by the second Indian moon mission, Chandrayaan - 2.
- This is the first effort to provide a global scale measurement of sodium on the lunar surface using X-ray fluorescent Spectra.

SALT Project :

- Recently the World Bank extended an unconditional loan of \$250 million for the SALT project in Andhra Pradesh.
- Supporting Andhra's learning transformation (SALT) is a project undertaken by the Government of Andhra Pradesh with support from the World Bank.

- The SALT is the first project in the school education sector to be funded by the World Bank without any precondition.
- To transform the state's school education system by strengthening the quality of foundational learning through various pathways including improving teacher professional development, classroom based assessments and early childhood education.

Rythu Bharosa Kendras :

- Rythu Bharosa Kendras are first of its kind seed to sales, single window service centres set up by the State Government of Andhra Pradesh.
- An Ethiopian delegation is in Andhra Pradesh to study the first of its kind Rythu Bharosa Kendras which have been set up by the YS Jagan Mohan Reddy Government.
- They are a one-stop solution to all farmer's needs and grievances.
- The centre has recently nominated the RBK concept for the Food and Agriculture Organisation's Champion Award.
- They facilitate interaction between farmers, agriculture scientists and agriculture extension officers right at the village level.

INS Arihant :

- Recently INS Arihant carried out a successful launch of a submarine launched Ballistic Missile.
- INS Arihant was launched in

2009 & commissioned in 2016.

- It is India's first indigenous nuclear powered ballistic missile capable submarine built under secretive Advanced Technology Vessel project, which was initiated in the 1990s.
- The Second submarine in the Arihant class is SSBN Arihant.
 - It is reported to have been launched in 2017, and said to be undergoing sea trials at present.

Child marriage free India Campaign :

- Nobel peace laureate and child rights activist Kailash Satyarthi recently launched a nationwide campaign called child marriage free India to end the social evil of child marriage.
- Aims to reduce the number of child marriages by 10% from 23.3%
- The campaign is launched to ensure the strict implementation of the laws on the legal age of marriage and those protecting children against abuse.
- Enhance the social and economic participation of women and children and ensure their empowerment by giving them free education till the age of 18.
- Provide safety to children against sexual exploitations.

Emergency credit line Guarantee Scheme :

- The centre has announced raising the allocation under the Emergency credit line Guarantee

Scheme by Rs. 50,000 Crore to Rs. 5 lakh Crore.

- The additional amount has been earmarked exclusively for enterprises in hospitality and related sectors.
- The Scheme was launched as part of the Aatmanirbhar Bharat Abhiyan package announced in May 2020 to mitigate the distress caused by Corona virus - induced lockdown, by providing credit to different sectors, especially micro, small and medium Enterprises.
- To provide fully guaranteed and collateral free additional credit to MSMEs, business enterprises, MUDRA borrowers and individual loans for business purposes to the extent of 20% of their credit outstanding.

Plant based meat :

- Recently various plant - based meat start-ups have come up such as Shaka Hary, Beyond Meat and UnCrave.
- Plant based meat is a food product eaten as a replacement for meat.
- It bio-mimics or replicates meat, seafood, eggs, and milk derived from animals by looking, smelling, & tasting like them.
- It is made from vegetarian or vegan ingredients such as soy, wheat, gluten - pea protein or mycoprotein.

Revenue police system :

- The state cabinet of Uttarakhand has cleared a proposal

to replace the Revenue police system with the regular police.

- In Uttarakhand, Regular police force Jurisdiction does not extend to several hilly areas.
- Currently the revenue Police Jurisdiction covers over 50% of the state in terms of area and about 25% of the population.
- Under the system, civil officials of the revenue department have the powers and functions of the Regular police.
- The revenue police of the area file an FIR investigate the case, arrest the accused & also file a charge sheet in the local court.

NHAI's InVIT :

- The transport ministry recently said that the InVIT Bonds are offering a high effective return of 8.05% per annum.
- NHAI InVIT is the infrastructure investment trust sponsored by the NHAI to support the government National monetisation pipeline.
- It is a Trust established by NHAI under the Indian Trusts Act, 1882 and SEBI regulations.
- Infrastructure investment trusts are Institutions similar to mutual funds which pool investments from various categories of investors and invest them into completed and revenue generating infrastructure projects, thereby creating returns for the investor.

Best workplace in Asia 2022 :

- Federal bank was ranked 63rd

on the Best workplaces in Asia 2022 and becomes the only bank in India to be listed by great place to work, the global authority on workplace culture.

- The recognition is based on confidential survey data assessing employee experiences of trust, Innovation, company values and leadership.
- Companies are also evaluated on how well they are creating all workplace experiences, inclusive of all employees no matter who they are or what they do.

Amazon first solar project :

- Amazon announced that it will set up three solar farms in Rajasthan with a combined capacity of 420MW.
- This will be first time that the e-commerce major is planning UPG solar farm in India.
- Amazon is committed to supporting scale corporate renewable energy procurement options in the country, bringing associated green jobs & investments to more parts of India.

Odisha's Encyclopedia on Tribes

- The release of the five volumes of Encyclopedia of Tribes in Odisha, Odisha became the first state in India to start an encyclopedia on tribal communities and document their historic and unique traditions.
- The encyclopedia was published by SCSTRI and Odisha state Tribal museum.

- It has 418 research articles focusing on tribal communities including 13 PVTG.
- The purpose of this book is to preserve the rapidly changing cultural identity of tribal communities in the state.

Iron Sword at Konthagai :

- An iron sword measuring 40cm, the longest sword so far, was unearthed at Konthagai.
- It is a part of the Keeladi cluster near Madurai.
- It was found along with the grave goods, skeletal remains and black and red ware vessels in the urn.
- It was the first sword unearthed during the eighth phase of the excavation being carried out at Konthagai.

Pahari in J & K :

- Union home minister announces that Pahari community in J & K will get a ST status and political reservations before Assembly elections.
- The abolition of Articles 370 and 35A in August 2019 paved the way for providing Reservations to deprived sections of J & K.
- The ST quota in J & K carries 7% spots in government jobs and educational institutions.
- The Gujjars and Bakerwals community were getting ST benefits since 1991.
- The Paharis were given a 4% in the OBC category from January 2020.

- The centre formed the Justice Sharma Commission in march 2020, however it seemed to upset the Gujjars and Bakerwals.
- 40% of population in the border districts are Gujjar and Bakerwal and Paharia lives in a few numbers.

The merge of the Ethereum :

- Ethereum the world's second largest block chain has transitioned from the legacy proof of work to a proof of stake consensus mechanism.
- The Ethereum merge is an upgrade that changes how new crypto transactions take place on the blockchain.
- It will cast aside the need for crypto miners and gigantic mining farms, who had previously driven the blockchain under a mechanism called proof of work.
- Instead it has now shifted proof of stake mechanism that assigns validators randomly to approve transactions and earn a small reward.

Enceladus Ocean :

- Recently scientists discovered

evidence for life is one of the moons of Saturn.

- Enceladus is one of the moons of Saturn.
- It is discovered that beneath its icy surface are oceans.
- It is rich in dissolved phosphorous an essential ingredient for life.
- The space craft cassini which orbited Saturn for nearly 13 years, discovered Enceladus's subsurface liquid water.

Highest Child marriage :

- The survey was brought out by the office of the Registrar general and Census commissioner, ministry of home affairs.
- Despite being renowned for its mines reserves, the state of Jharkhand has earned the disrepute of having the highest percentage of under age girls getting married.
- The percentage of girls getting married before attaining majority is as high as 5.8 in Jharkhand.
- The percentage of females who got effectively married before reaching 18 years of age is 1.9 at the national level and varies

from 0.0 in Kerala to 5.8 in Jharkhand.

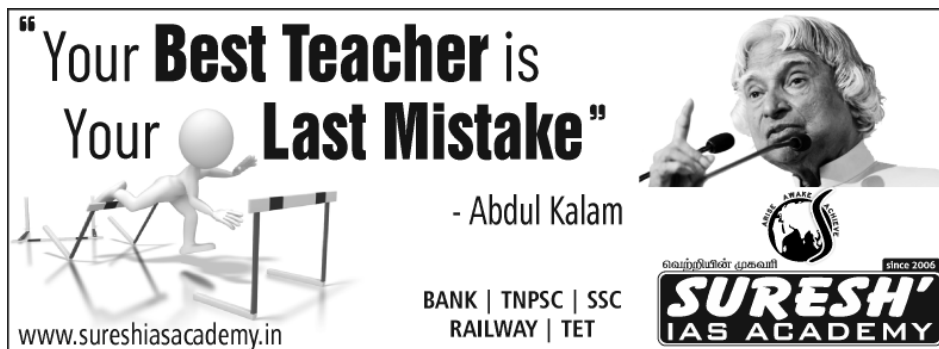
- The survey said that child marriages accounted for 7.3% of marriages in rural areas and 3% in urban areas in Jharkhand.

The world University Ranking 2023

- The times higher education rankings 2023 were released.
- The parameters based on which the Institutes are ranked are teaching, research, citation, International outlook, and industry outcome.
- In teaching and research 15% weightage each is based on a reputational survey.
- The University of oxford has emerged as the best institute among 1799 Universities from 104 countries.
- India is the 6th most represented country in the 2023 rankings with 75 ranked Universities.
- IISc is at the top position among Indian Institutes, for its performance score for teaching and research.
- Globally, the IISc is placed in the 251 - 300 band.

"Your Best Teacher is Your Last Mistake"

- Abdul Kalam



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முதன்மைத் தேர்வுக்கான உத்தி

1. முதன்மைத் தேர்வுக்குப் படிப்பதற்கு முறையானத் திட்டத்தை வகுத்து அதை முழுமையாகப் பின்பற்ற வேண்டும்.
2. நாட்டு நடப்புகள் குறித்த விவரங்களை தினமும் தயார் செய்ய வேண்டும். புதிய தகவல்களைத் தொடர்ந்து தெரிந்து கொள்ள வேண்டும்.
3. தேர்வுக்குத் தயாராவதில் உறுதியாக இருக்க வேண்டும்.
4. ஒவ்வொரு பாடத்திற்கும் ஒதுக்கப்பட்டுள்ள மதிப்பெண்களைக் கருத்தில் கொண்டு அனைத்துப் பாடங்களுக்கும் தயாராவதற்கு போதிய நேரத்தை ஒதுக்க வேண்டும்.
5. தேர்வுக்குத் தயாராவது அலுப்பூட்டும் வகையில் இல்லாமல் இருப்பதை உறுதி செய்யும் வகையில் கால அட்டவணை தயாரிக்கப்பட வேண்டும்.
6. திருப்புதலின் போது நேரத்தை மிச்சப்படுத்துவதற்காக, முதல் முறை அல்லது இரண்டாவது முறை பயிலும் போது முக்கிய அம்சங்களை அடிக்கோடிட்டு வைத்திருக்க வேண்டும் / முன்னிலைப்படுத்த வேண்டும். நாம் முதன்முறை படிப்பதன் நோக்கம் தேவையற்ற விசயங்களை விலக்கி, நாம் படிக்க வேண்டிய பாடங்களின் அளவைப் பாதியாகக் குறைப்பதுதான். இரண்டாவது முறை பயிலும் போது, நாம் படிக்க வேண்டிய பகுதிகளை, தேர்வுக்கு முன் உள்ள இரண்டு நாட்களில் திருப்புதல் செய்யும் வகையில், மேலும் குறைக்க வேண்டும்.
7. முந்தைய ஆண்டு வினாத்தாள்களின் அடிப்படையில் விடைகளை எழுதிப் பயிற்சி செய்ய வேண்டும்.
8. தேர்வை எதிர்கொள்வதற்கு ஒரு விண்ணப்பதாரர் எந்த அளவுக்குத் தயாராகியிருக்கிறார் என்பதைப் புரிந்துகொள்வதற்காக அடிக்கடி மாதிரித் தேர்வுகளை எதிர்கொள்ள வேண்டும்.
9. பயிற்சியே ஒருவனை முழுமையாக்குகிறது என்பதே முதன்மைத் தேர்வுக்கான மந்திரமாக இருக்க வேண்டும்.
10. எந்தவொரு பாடத்திற்குமான பயிற்சியில் சேரும் தேர்வர்கள், அதற்கான மாதிரித் தேர்வுகளில் முழு ஈடுபாட்டுடன் பங்கேற்க வேண்டும். முதன்மைத் தேர்வுக்கும், முதல்நிலைத் தேர்வுகளுக்கும் இடையிலான முக்கியமான வேறுபாடு என்னவென்றால், முதல்நிலை தேர்வுக்கான மாதிரித் தேர்வுகளை மூன்றாவது நபரின் துணை இல்லாமல் ஆன்லைனிலோ, ஆஃப்லைனிலோ தனித்தே எழுதலாம். ஆனால் முதன்மைத் தேர்வைப் பொறுத்தவரை மூன்றாவது நபரைக் கொண்டு மதிப்பீடு செய்வது மிகவும் அவசியமாகும். மதிப்பீடு செய்யும் மூன்றாவது நபர் ஒரு வல்லுநராகவோ, அல்லது சிறந்த ஒரு பயிற்சி நிறுவனமாகவோ இருக்கலாம்.
11. முதன்மைத் தேர்வு என்பது தேர்வர் அறிந்துள்ள தகவல்களையும் அவரது நினைவுத் திறனையும் மட்டுமே சோதிப்பதாக இல்லாமல், அவர்களின் புரிதலின் ஆழம், அறிவுசார் திறன்கள் ஆகியவற்றை மதிப்பிடுவதை நோக்கமாகக் கொண்டது ஆகும். பொதுபாடத் தாள்களில் அனைத்து வினாக்களுக்கும் விடை அளிக்க வேண்டும். வினாக்களின் தன்மை ஒவ்வொரு தாளுக்கும் மாறுபடும். ஆனால், அதிக வினாக்கள் இருக்கும் என்பதால் தேர்வர் விடைகளை வேகமாக எழுத வேண்டும். விடையளிக்க வேண்டிய வார்த்தைகளின் வரம்பும் அதிகமாக இருக்கக் கூடும்.
12. முதன்மைத் தேர்வைப் பொறுத்தவரை, வார்த்தைகளின் எண்ணிக்கையை கவனத்தில் கொள்ளப்பட வேண்டிய மிக முக்கியமான அம்சமாகும்.
13. முதன்மைத் தேர்வுகளை எழுதுவதற்கான அணுகுமுறையில் தேர்வர்கள் மிகவும் தெளிவாக இருக்க வேண்டும். தேர்வு அறையில், வினாத்தாளைப் பெற்ற பிறகு, விடைகளை வேகமாக எழுத வேண்டி இருக்கும் என்பதால், சிந்திப்பதற்கு நேரம் இருக்காது. எனவே, வினாக்களை புத்திசாலித்தனமாகத் தேர்வு செய்து விடை அளிக்க வேண்டும்.
14. வினாக்களில் தரப்பட்டுள்ள கருத்துரை கொடு, கருத்து தெரிவி, விரிவாகச் சொல், காட்சிப்படுத்து, தெளிவுப்படுத்து போன்ற வார்த்தைகளின் பொருளைப் புரிந்துகொண்டு, அதற்கேற்ற வகையில் உங்கள் எழுத்துத் திறனை வெளிப்படுத்த வேண்டும்.



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