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For HPAS & Other Competitive Exam in Himachal Pradesh

Mains

Contents

GENERAL STUDIES 1.

GEOGRAPHY

ERRA MATTI DIBBALU

- Citizens join hands to preserve the geological marvel of Erra Matti Dibbalu in Visakhapatnam.

About Erra Matti Dibbalu
- Erra Matti Dibbalu, a geological marvel unique to the coast of Visakhapatnam.
- Located between Visakhapatnam and Bheemunipatnam, the Erra Matti Dibbalu are rare red sand dunes that are a reminder of the million years of geological processes, and among the 34 notified National Geological Heritage Monument Sites of India by the Geological Survey of India.
- The width of the dunes, which runs for five kilometres along the coast, varies from 200 metres to two kilometres.
- Located at a distance of 16 kilometres from Visakhapatnam, the towering red sand dunes with patches of greenery is like a meandering maze, which takes one on a fascinating journey into one of the best kept secrets of the geological world, formed millions of years ago.
- The dunes comprise a light yellow sand dune at the top followed by a brick red sand unit, and a reddish brown concretion bearing sand unit with yellow sand at the bottom.
- Studies indicate that the area was tectonically active between 2.5 million years and 11,000 years ago and the sediments are mainly derived from the Khondalite rocks from the hinterland of the Eastern Ghats.
- Geologically these red sand dune sediments particularly hold significance as they are the result of the combined effect of numerous factors including global climatic changes, sea-level variations, monsoonal variability and as a result serve as valuable paleo-environment indicators.
- It is interesting to note that the region was also the home to the prehistoric man as the excavations dug at several places in the region revealed stone implements of three distinctive periods and also the pottery of the Neolithic man.

- Such sand deposits have been reported only from three low latitude tropical regions in South Asia — the Teri Sands of Tamil Nadu, the Erra Matti Dibbalu in Andhra Pradesh and Red Coastal Sands of Sri Lanka.

Geological Survey of India (GSI)
- The Geological Survey of India (GSI) was set up in 1851 primarily to find coal deposits for the Railways.
- Its main functions relate to creating and updating of national geoscientific information and mineral resource assessment.

- These objectives are achieved through ground surveys, air-borne and marine surveys, mineral prospecting and investigations, multi-disciplinary geoscientific, geo-technical etc.
- GSI uses latest computer-based technologies for dissemination of geoscientific information and spatial data, through cooperation and collaboration with other stakeholders in the Geo-informatics sector.
- Its headquarters is in Kolkata.
- GSI an attached office to the Ministry of Mines has regional offices in Lucknow, Jaipur, Nagpur, Hyderabad and Shillong.
- GSI also has unit offices in almost all States of the country.

> **Question:** Discuss the significance of Geological Survey of India.

CACTUS PLANTATION AND ITS ECONOMIC USAGE

- Union Minister of Rural Development and Panchayati Raj convened a consultation meeting on 'Cactus Plantation and its Economic Usage' today in New Delhi.
- India has approximately 30% of its geographical area under the category of degraded land.
- Department of Land Resources DoLR has been mandated to restore degraded lands through its Watershed Development Component of Pradhan Mantri Krishi Sinchayee Yojana (WDC-PMKSY).
- Plantations of various kinds constitute one of the activities which help in restoration of degraded lands.
- Various options for taking up Cactus plantation on degraded land should be explored for realising the benefits of its usage for bio-fuel, food, fodder and bio-fertiliser production for the larger benefit of the country.
- Bio-fuel production will reduce the fuel import burden of the country apart from contributing towards employment and income generation for the poor farmers of these areas.
- Indian Council of Agricultural Research (ICAR) and International Center for Agricultural Research in the Dry Land Areas (ICARDA) are being roped in for setting up a pilot project in Amlaha Farm of ICARDA in Madhya Pradesh.
- Ministry of Petroleum has been requested to provide necessary technical assistance in this venture.

About the Cactus
- Cactus is a Xerophytic Plant which though grows relatively at a slower pace has an immense potential as stated above.
- A cactus is a member of the plant family Cactaceae.
- Although some species live in quite humid environments, most cacti live in habitats subject to at least some drought.
- Many live in extremely dry environments, even being found in the Atacama Desert, one of the driest places on Earth.
- Because of this, cacti show many adaptations to conserve water.
- For example, almost all cacti are succulents, meaning they have thickened, fleshy parts adapted to store water.
- Unlike many other succulents, the stem is the only part of most cacti where this vital process takes place.
- Most species of cacti have only spines, which are highly modified leaves.
- Spines help prevent water loss by reducing air flow close to the cactus and providing some shade.
- In the absence of true leaves, cacti's enlarged stems carry out photosynthesis.
- Moreover, it will help in achieving Nationally Determined Contributions (NDC) and Sustainable Development Goals (SDGs) for the country as well.
- The Department is of the view that cactus plantation will be picked up by the farmers of degraded land areas, if the benefits outweigh their existing level of incomes.
- Experiences of countries like Chile, Mexico, Brazil, Morocco and various others are being explored which will be of great help for realisation of the objective.

Uses

- Cactuses are known for their nutrients as well as their medicinal value.
- Both cactus pads and cactus fruit can help fight infections and ease the symptoms of anything from hangovers to high cholesterol.
- Both the cactus pad and the cactus fruit are high in fiber, which can lower cholesterol levels in the blood.
- used as ornamental plants
- used for fodder or forage,
- Cactus fruits in particular are an excellent source of vitamin C, which is one of the best immune boosters.
- Regular doses of vitamin C increase the production of white blood cells, which can make us less likely to catch an illness — and help your body fight off viruses if infected.
- Nutrition: Cactus fruits and pads offer a dose of vitamins and nutrients that have anti-inflammatory properties and can help reduce the risk of serious health conditions like diabetes and heart disease.

> **Question:** Write a note on semi arid and arid vegetation of India.

AGRISTACK PROJECT

- The Department has commenced the work for creating Agristack in the country. In order to create Agristack, the department has finalized the core concept of "India Digital Ecosystem of Agriculture (IDEA)" which lays down a framework for Agristack. For this, a Task Force was constituted and in furtherance, a concept paper on IDEA was prepared and comments were invited from subject experts, farmers, Farmer Producer Organisations (FPOs) and general public.
- Agristack is a federated structure and ownership of data is with the States only.
- Access to federated Farmers' database is with Government only. No private company is involved in developing the federated Farmers' database.
- As of now, the federated database is being built by taking the publicly available data as existing in the Department and in various data silos in Government.

About Agristack
- The project will collect granular data to provide growers with a range of customized services. Like, what to plant, where to sell, market information on price movements, and linkages to formal credit arrangements.
- Each farmer will be provided a unique farmer's ID, which will be linked to her Aadhaar number.
- It will contain details related to land ownership, the crops she grows, soil health and the benefits available under government schemes such as direct cash transfers, crop insurance and subsidized credit.
- It is in line with the Centre's Digital India programme, aimed at providing a broader push to digitise data in India, from land titles to medical records.

Benefits
- Problems such as inadequate access to credit and information, pest infestation, crop wastage, can be addressed by use of digital technology
- It will increase innovation and investment towards the agricultural sector.

Significance of Agristack
- The stack will fuel innovation and support several value-added services as deduced by a consultation paper titled India Digital Ecosystem of Agriculture-IDEA.
- It would curtail information anomalies and allow farmers to effectively plan what and how much to produce.
- It would breed investment towards the agricultural sector and augment research towards more resilient crops.
- Agri-tech startups received over $1.5 billion of investment in the past 5-7 years and AgriStack can open the taps for more inflows.
- It would enable use of Artificial intelligence (AI) and machine learning (ML) on large datasets. This will not only support farm management but can also help develop and design new crop protection products.

- It would be used by insurance firms to do effective crop loss assessment. This would result in prudent settlement of claims and rationalisation of future premiums.

Concerns associated with Agristack

- Linking land ownership data with Aadhaar may hit a roadblock because the process of digitizing land records is still under progress in India. Further land disputes account for more than 60% of all civil litigation.
- A blind reliance on technology may lead to exclusion errors as observed in other welfare programmes like the food subsidy scheme.
- Accessibility of data is another issue as big players can easily access it while small farmers are excluded due to digital divide. Further, if the same data ends up solely in the hands of a set of large traders, it could help them manipulate markets.
- It can be used by large corporations to encourage unnecessary purchase by the farmers. They can then sell farmers everything from chemicals to credit and pare their own current marketing and human resource costs.
- Accuracy of data may be questionable as capturing high quality data on crops and soil conditions from India's 150 million land parcels is not an easy task.
- The revenue model of private firms working on pilot projects is still not clear. They may sell farmers data and breach their privacy.

> **Question:** What is the Agristack Project? List its benefits and limitations of the project.

HISTORY

DR. RAJENDRA PRASAD

Prime Minister paid tributes to India's first President Rajendra Prasad and lauded him as a legendary leader who epitomized courage and scholarly zeal.

About Dr. Rajendra Prasad
- Rajendra Prasad was born in Zeradai, District Siwan in Bihar on 3 December 1884.
- His father Mahadev Sahai was a scholar of Persian and Sanskrit. His mother Kamleshwari Devi was a pious lady.

Education
- He joined the famed Calcutta Presidency College in 1902.
- In 1915, Prasad appeared in the examination of master's in law from the Department of Law, University of Calcutta, passed the examination and won a gold medal.
- In 1916, he commenced his legal career in the Patna High Court. He completed his Doctorate in Law from Allahabad University in 1937.

Indian National Movement
- Prasad attended the 1906 Calcutta session of Indian National Congress.
- He joined the party in 1911 and later elected to the All-India Congress Committee after which he met Mahatma Gandhi.
- He was highly impressed by Mahatma Gandhi and he supported Gandhi during the Satyagraha Movement against Indigo Planters in Champaran, Bihar.
- He later quit his lucrative career as a lawyer in 1920 and jumped into Freedom Struggle Movement and participated in the Non-Cooperation Movement.
- He led the Non-Cooperation Movement in Bihar holding meetings, touring state and making speeches. He urged people to boycott government schools, colleges, jobs.
- Prasad was elected as the President of the Bombay Session of the Indian National Congress in October 1934.
- He was also elected as the President for second time in 1939 after Subhash Chandra Bose resigned from his post and third time President of INC in 1947 when J.B.Kripalani resigned from his post.
- Prasad was arrested several times during the national struggle and imprisoned by British authorities during the Salt Satyagraha of 1931 and the Quit India Movement of 1942.

Dr. Prasad & Constituent Assembly:
- In July 1946, when the Constituent Assembly was established to frame the Constitution of India, he was elected its President.
- Committees of Constituent Assembly under the chairmanship of Dr. Prasad includes:
- Ad hoc Committee on the National flag
- Committee on the Rules of Procedure
- Finance and Staff Committee
- Steering Committee
- Two and a half years after independence, on 26th January 1950, the Constitution of independent India was ratified and he was elected India's First President.

> **Question:** Write about the contribution of Dr. Rajendra Prasad in the India independence and constitution making.

MAHAPARINIRVAN DIWAS

- Nation pays homage to Bharat Ratna Dr BR Ambedkar on his 67th Mahaparinirvan Diwas.
- Lakhs of followers from all over the country gathered at Chaityabhoomi in Dadar in Mumbai to pay tribute to the great leader.
- This year, a large number of people are expected to visit the Chaityabhoomi and other places associated with Dr. Ambedkar as the followers could not visit these places for the past two years due to the global pandemic.

About Dr. B.R.Ambedkar
- Dr. B.R. Ambedkar was born on 14 April 1891 in Mhow, Central Province (now Madhya Pradesh).
- He was India's first Law Minister and was Chairman of the Drafting Committee for the new Constitution.
- Dr Ambedkar was a jurist, economist, politician and a social reformer who campaigned against social discrimination of downtrodden, women and labourers.
- Known as The Father of the Indian Constitution
- He was conferred the Bharat Ratna posthumously in 1990.

Education:
- He completed his matriculation in from Elphinstone High School.
- He completed his Post Graduation in Economics.
- He completed another doctorate from the London School of Economics – thesis "The problem of the rupee: Its origin and its solution".
- He completed his Ph.D. degree in Economics from the University of Columbia.

Contributions
- **Mahad Satyagraha:** It was led by B. R Ambedkar in 1927 to allow the untouchables to use water in a public tank in Mahad,Maharashtra.
- He participated in all three round-table conferences.
- **Poona Pact:** In 1932, Ambedkar agreed on Poona pact with Mahatma Gandhi and an agreement was signed between Ambedkar and Madan Mohan Malviya which abandoned the idea of separate electorates for the depressed classes(Communal Award).
- **Organisations:** Bahishkrit Hitkarini Sabha (1923), Independent Labor Party (1936), Scheduled Castes Federation (1942).
- **Books:** Annihilation of Caste, Buddha Or Karl Marx, Buddha and His Dhamma, Who were the Shudras, The Rise and Fall of Hindu Women among others.
- **Journals:** Mooknayak, Bahishkrit Bharat, Samatha, Equality Janata among others.

MEITEI SCRIPT

- The script, once patronised by Meitei rulers but which fell into disuse with the advent of Hinduism and eventually disappeared, is now enjoying a new lease of life after a decades-old movement for its revival.

About the Meitei Script
- Meitei script or Meetei Mayek is an abugida (pseudo-alphabet system) used for the Meitei language, one of the official languages of Manipur.
- The earliest epigraphic record of the script is a stone inscription from Khoibu village which was erected on the orders of Meidingu Kiyamba (1467-1508).
- 'Meidingu' are kings who belong to the Ningthouja clan whose rule extends from 33 AD to 1949 AD.
- The Meitei Mayek or Meitei script evolved with time and this led to conflict between various proponents.
- According to the Sahitya Akademi, the history of the Meetei Mayek script dates back to at least the 6th century and was in use till the 18th century.
- **Decline of Meitei script:** In 1709, a Hindu missionary named Shantidas Gosai came to Kangleipak — the ancient name for the independent kingdom of Manipur — to spread Vaishnavism.

- He mesmerized the kings and the high officials of the palace, and on royal orders, all religious and other precious books in Meitei Mayek were incinerated, and new ones were written in the Bengali script.
- **Revival of Meitei script:** The Manipuri language was included in the Eighth Schedule of the Constitution in 1992 but in Bengali script.
- However, Meetei Mayek has seen a revival in the 21st century, with an initial shift to the Manipuri script in educational institutions and an amendment of the Manipur Official Language Act in 2021 to mandate the phasing out of Bengali script over the next ten years.

THE 1925 KAKORI TRAIN ACTION

- Four revolutionaries of the Indian independence movement were hanged on December 17 (Rajendranath Lahiri) and December 19 (Ashfaqullah Khan, Ram Prasad Bismil, Thakur Roshan Singh) in 1927. This came two years after the Kakori Train Robbery, in which members of the Hindustan Republican Association (HRA) had looted a train transporting money to the British treasury.

The Kakori Train Action Incident
- The train robbery at Kakori was the HRA's first major action, in August 1925.
- The Number 8 Down Train ran between Shahjahanpur and Lucknow.
- On a fateful day, it carried treasury bags meant to be deposited in the British treasury in Lucknow.
- The revolutionaries planned to rob this money, which they believed legitimately belonged to Indians anyway.
- Their objective was both to fund the HRA and garner public attention for their work and mission.
- On August 9, 1925, as the train was passing the Kakori station, about 15 km from Lucknow, Rajendranath Lahiri, a member of the HRA who was already seated inside, pulled the chain and stopped the train.
- Subsequently, around ten revolutionaries, including Ram Prasad Bismil and Ashfaqullah Khan, entered the train and overpowered the guard.
- They looted the treasury bags and escaped to Lucknow.
- Due to a misfiring Mauser gun, one passenger (a lawyer named Ahmad Ali) was killed during the robbery, harming the revolutionaries' intentions to elicit a positive public reaction.

The founding of the Hindustan Republican Association
- In 1920, Mahatma Gandhi declared the launch of the Non-Cooperation Movement.
- Gandhi had envisioned this movement to be non-violent, using his methods of satyagraha to eventually attain self-governance.
- However, an incident changed the movement's trajectory in 1922.
- The HRA was thus founded by a group of young men who were disillusioned by Gandhi's tactics and what they felt was zealous preaching of "non-violence."
- Ram Prasad Bismil and Ashfaqulla Khan, both of whom had a flair for poetry, were among the group's founders.
- Others included Sachindra Nath Bakshi and trade unionist Jogesh Chandra Chatterjee.
- Figures such as Chandra Shekhar Azad and Bhagat Singh would also join the HRA.
- Their manifesto released on January 1, 1925, was titled Krantikari (Revolutionary).

- It proclaimed, "The immediate object of the revolutionary party in the domain of politics is to establish a federal Republic of United States of India by an organized and armed revolution."
- The manifesto looked at these revolutionaries as "neither terrorists nor anarchists… they do not want terrorism for terrorism's sake although they may at times resort to this method as a very effective means of retaliation."
- Their envisioned republic would be based on universal suffrage and socialist principles, importantly, the "abolition of all systems which make the exploitation of man by man possible."

Objective
- The Objective of the HRA was to establish "Federated Republic of the United States of India" through an organized armed revolution"
- The tactics of HRA were killing the officials; organize political dacoities to raise funds, terrorism among the British and British loyalists and strikes against the raj.
- Despite being a revolutionary terrorist organization, the perspective of the HRA was socialistic and it wanted to establish a United States of India by deposing the British.
- Many other revolutionaries soon joined the HRA including Chandrashekhar Azad, Ashfaqullah Khan, Ram Prasad Bismil etc.
- Bhagat Singh later established Hindustan Socialist Republican Army (HSRA).

> **Question**: What was the major objective of the Kakori Train Action of 1925? Explain.

CULTURE OF INDIA

THE MALAMPANDARAM TRIBE

- The pilgrimage season at Sabarimala also marks a crunch time for the forests around the hillock. Pilgrims keep moving along the roads here without a break, the impact of which can be far from ethereal.
- But thanks to a community initiative by the Forest department, an indigenous community collective is helping the authorities keep the forest roads here clean.
- The collective, called eco-guards, comprises about 25 members including women from the Malampandaram tribe, a nomadic community living inside the Sabarimala forests.
- Deployed between Laha and Chalakkayam along the main trunk road to Sabarimala, they keep walking constantly along the route throughout the day and collect plastic waste littered on both sides of the road.
- The eco-guards also assist the elephant squads of the Forest department to prevent the wild elephants from entering the road here and block traffic.

The Malampandaram Tribe

- This is the name of a small, nomadic community living in the remote forest.
- Fishing and collecting fruits and other edibles from the forest are the main occupations of this community that depends on the forest for all their needs.
- The Malai Pandaram or otherwise termed as Hill Pandaram is a scheduled tribe.
- They are mainly distributed in the high range areas of Kollam and Pathanamthitta Districts. The 2011 Census recorded their population as 2,422.
- In the Travancore region they have a patios referred by others as Pandaram Basha. With others they converse in Malayalam and educated use the Malayalam script for writing.
- The major traditional occupation is hunting and gathering.
- They continue to be engaged in their traditional occupation of making and selling of rudrakshamala, tulasimala, glass beads necklace and bangles.
- Some of them have traditional knowledge in herbal medicines.
- The medicinal herbs are collected from forests of Sabarimalai, Irali (Idukki) and Wayanad.

> **Question:** Write a note on the Programme on Integrated Tribal Development Projects (ITDP).

LAW ON ACID ATTACKS IN INDIA

Why in News?

- Recently, **a girl was attacked with an acid-like substance in Delhi by three assailants.** The incident has brought back to focus the **heinous crime of acid attacks and the easy availability of corrosive substances.**

Acid Attacks in India: What's the Scenario?

- According to the data of the **National Crime Records Bureau (NCRB)**, there were 150 such cases recorded in 2019, 105 in 2020 and 102 in 2021.
- **West Bengal and Uttar Pradesh consistently record the highest number of such cases** generally accounting for nearly 50% of all cases in the country year on year.
- The **charge sheeting rate of acid attacks stood at 83%** and the conviction rate at 54% in 2019.
  - In 2020, the figures stood at 86% and 72% respectively. **In 2021, the figures were recorded to be 89% and 20% respectively.**
- In 2015, the **Ministry of Home Affairs (MHA) issued an advisory to all states to ensure speedy justice in cases** of acid attacks by expediting prosecution.

What is the Law on Acid Attacks in India?

- **Indian Penal Code:** Until 2013, acid attacks were not treated as separate crimes. However, **following amendments carried out in the <u>Indian Penal Code (IPC)</u>, acid attacks were put under a separate section (326A) of the IPC** and made punishable with a **minimum imprisonment of 10 years** which is extendable to life along with a fine.
- **Denial of Treatment:** The law also has provisions for punishment for denial of treatment to victims or **police officers refusing to register an FIR or record any piece of evidence.**
  - Denial of treatment (by both public and private hospitals) can lead to imprisonment of up to one year and dereliction of duty by a police officer is **punishable by imprisonment of up to two years.**

What is the Law on the Regulation of Acid Sales?
- **The Poisons Act, 1919:** In 2013, the Supreme Court took cognizance of acid attacks and **passed an order on the regulation of sales of corrosive substances.**
  - Based on the order, the MHA issued an advisory to all states on how to regulate acid sales and **framed the Model Poisons Possession and Sale Rules, 2013 under The Poisons Act, 1919.**
  - As a result, **states were asked to frame their own rules based on model rules**, as the matter fell under the purview of states.
- **Maintenance of the Data:** Over-the-counter sale (without a valid prescription) of acid **was not allowed unless the seller maintains a logbook/register** recording the sale of acid.
  - This logbook was to also **contain the details of the person to whom acid is sold,** the quantity sold, the address of the person, and also specify the reason for procuring acid.
- **Age Restriction & Documentation:** The sale is also to be **made only upon presentation of a photo ID containing his address** issued by the government. The buyer must also prove he/she is **above 18 years of age.**
- **Confiscation of Acid Stocks**: Sellers are also required to **declare all stocks of acid with the concerned Sub-Divisional Magistrate (SDM) within 15 days** and in case of undeclared stock of acid. The SDM **can confiscate the stock and suitably impose a fine of up to Rs 50,000** for a breach of any of the directions.
- **A Record-Keeping Requirement:** As per the rules, educational institutions, research laboratories, hospitals, government departments and the departments of Public Sector Undertakings, **which are required to keep and store acid, to maintain a register of usage of acid** and file the same with the concerned SDM.
- **Accountability:** As per the rules, a **person shall be made accountable for the possession and safe keeping of acid in their premises**. The acid shall be stored under the supervision of this person and there shall be **compulsory checking** of the students/ personnel leaving the laboratories/place of storage where acid is used.

What is the Compensation and Care for the Acid-attack Victims?
- **Compensation**: Acid attack **victims are paid compensation of at least Rs. 3 lakhs** by the concerned State Government/Union Territory as the aftercare and rehabilitation cost.
- **Free of Cost Treatment:** States are supposed to ensure that treatment provided to acid attack victims in any hospital, public or private, is free of cost. The **cost incurred on treatment is not to be included in the Rs 1 lakh compensation** given to the victim.
- **Reservation of Beds:** Acid attack victims need to undergo a series of plastic surgeries and hence **1-2 beds at private hospitals could be reserved** for the treatment of acid attack victims.
- **Social Integration Programs:** States should also extend social integration programs to the victims for which **Non-Governmental Organisations (NGOs) could be funded** to exclusively look after their rehabilitative requirements.

What can be the Way Forward?
- **A Promise to Leave No One Behind**: Violence against women continues to be an obstacle to achieving equality, development, peace as well as to the fulfillment of women and girls' human rights.
  - All in all, the promise of the **Sustainable Development Goals (SDGs)** - to leave no one behind - **cannot be fulfilled without putting an end to violence against women and girls.**

- **Holistic Approach:** Crime against women cannot be resolved in a court of law alone. A holistic approach & **changing the entire ecosystem is what is required.**
- **Participation:** All the stakeholders **need to get their act together,** including Law makers, police officers, forensic dept, prosecutors, judiciary, medical & health dept, NGOs, rehabilitation centers.

RISE IN ORGAN DONATION

Why in News?
- After a fall during the first year of the **Covid-19 pandemic,** organ donation numbers increased back in 2021.
- In India, **Transplantation of Human Organs Act, 1994** provides various regulations for the removal of human organs and its storage. It also regulates the transplantation of human organs for therapeutic **purposes and for the prevention of commercial dealings in human organs.**

What is the Status of Organ Donation in India?
- India has an **organ donation rate of about 0.52 per million population.** In comparison, the organ donation rate in Spain, **the highest in the world, is 49.6 per million population.**
  - o Unlike India where a person has to register to be an organ donor — and the family has to consent to it after death — **Spain has an opt-out system where a person is presumed to be a donor unless otherwise specified.**
- Although organ donation has increased, however, **the number of deceased donations has remained lower** than the number of donations from living persons.
  - o Deceased Donation is the **organs donated by the kin of those who suffered brain death or cardiac death.**
- Only 14.07% of the total organs harvested in 2021 were from deceased donors, much less than the 16.77% of 2019.
- Of the 12,387 organs **harvested in 2021,** only 1,743 — a little more than 14% — were from deceased donors. The numbers harvested in 2021 were close to the highest in the last five years (12,746, in 2019).
- There is also a **geographical skew in deceased donations.** All but two deceased organ donations in 2021 were in 15 states, with **the top five — Telangana, Tamil Nadu, Maharashtra, Gujarat, and Karnataka — accounting for more than 85% of the total.** Two organs were harvested from a deceased donor in Goa.
  - o One reason for the geographical skew could be that most organ transplant and harvesting centres are concentrated in these geographies.

What is the Need for Increasing Deceased Donations?
- **Gap in the Number of Organs Needed:**
  - o The first reason is the gap in the number of organs **needed and the number of transplants that happen in the country.**
  - o In absolute numbers, India conducts the third highest number of transplants in the world.
  - o Yet, of the estimated 1.5-2 lakh persons who need a kidney transplant every year, only **around 8,000 get one.**
  - o Of the 80,000 persons who require a liver transplant, **only 1,800 get one.** And of the 10,000 who need a heart transplant, only 200 get it.
- **Prevalence of Lifestyle Diseases:**
  - o Demand is on the rise **because of the increasing prevalence of lifestyle diseases**.
  - o Besides, organs like heart and lungs can be retrieved only from deceased donors.
- **Only Harvested from Brain Dead Persons:**
  - o The second reason is that without deceased donations, **a precious resource is wasted.**
  - o Nearly 1.5 lakh persons die in road traffic accidents every year in India, many of whom **can ideally donate organs.**
  - o Although donations are possible after the heart stops working, **almost all organs are currently harvested from brain dead persons.**

Way Forward

- For increasing accessibility of donated organs to weaker sections, **the public hospitals need to increase the infrastructural capacity** to carry out transplantation and provide affordable proper treatment to the poor.
- It is suggested that **cross-subsidization will increase accessibility to the weaker section .** For every 3 or 4 transplants, the private hospitals should carry out free of cost transplantation to the section of the population that donates a majority of organs.
- The Transplantation of **Human Organs Act, 1994, need to be amended to substitute the rigid bureaucratic procedure of hospitals** by self-declaration and mandatory verification involving civil society.

DEMOCRATIC VISION OF AMBEDKAR

Why in News?

- **Several** studies have examined Dr B.R. Ambedkar's concept of democracy, primarily through the lens of social, political, and economic philosophy.

What Constitutes Democracy in Ambedkar's Opinion?

- **Morality:**

  o A look at the **Buddha** and his Dhamma sheds light on how **Ambedkar viewed <u>democracy</u> as an approach that affected every aspect of human existence.**
    - Buddha, **Kabir** and **Mahatma Phule's** philosophies played an important role in Ambedkar's own engagement with democracy.
  o According to him, **democracy must also be viewed morally** despite its pillars of equality, liberty, and fraternity.
  o **Use of Morality in Caste System:**
    - **Ambedkar used the lens of morality in investigating the caste system**, the Hindu social system, the nature of religion and Indian history.
    - Since Ambedkar brought the most marginalized communities into democracy, it was difficult to place his framework of democracy within these rigid religious structures and socio-political systems.
    - Thus, Ambedkar attempts to construct a new structure based on the principles of Buddhism.

- **Balancing Individualism and Fraternity:**

  o He was **critical of extreme individualism that was a possible outcome of <u>Buddhism</u>**, as such characteristics failed to engage in activism that challenged social order.
    - Thus, he believed that **there needed to be a balance between individualism and fraternity for a harmonious society.**

- **Importance to Practicality:**

  o Ambedkar gave **utmost importance to practicality.**
  o For him, **concepts and theories needed to be tested** as they were supposed to be practised in society.
  o He used **rationality and critical reasoning to analyse any subject matter,** because he believed that a subject must first pass the test of rationality, failing which, it must be rejected, altered or modified.

What is Ambedkar's view of Indian society?

- **Caste System:**

  o According to his analysis of Indian society, the **caste system is a particularistic value in Hinduism.**
    - Particularism is a **political theory where one group promotes its own interests** without regard to the interests of larger groups.
  o The upper castes, according to Ambedkar, **universalise the negative particularity** (their dominance over the other groups) and particularise the negative universal morality (wherein the caste system and the subsequent alienation of certain groups is justified).
  o This negative social relation is essentially 'undemocratic'.

- o It is to fight such separation that Ambedkar attempted to bring the democratic processes of Buddhism into the discourse of modern democracy.
- **Role of Religion in Democracy:**

  - o In Ambedkar's view, **democracy was born from religion**, without which associated living was impossible.
  - o Thus, **instead of removing aspects of religion completely,** he attempts to reconstruct a new version of democracy that accepts the democratic aspects of religions like Buddhism.
  - o Finally, **Ambedkar realises that in order to conceptualise democracy as a way of life**, it was important to distinguish principles and rules in society.
  - o In the Buddha and His Dhamma, Ambedkar elaborates how the concepts of Dhamma, which includes Prajna or thinking and understanding, Sila or good action and finally Karuna or kindness, emerge as a **'morally transformative' concept that dismantles regressive social relations.**

What are the Conditions put forward by Ambedkar for Democracy to Function?
- **Tackling Inequalities in Society:**

  - o There must not be any glaring inequalities in society and there must not be an oppressed class.
  - o There must not be a class that has got all the privileges and a class that has got all the burdens to carry.
- **Strong Opposition:**

  - o He emphasized on the **existence of a strong opposition.**
  - o Democracy means veto power. Democracy is a contradiction of hereditary authority or autocratic authority, where elections act as a periodic veto in which people vote out a government and opposition in parliament act as an immediate veto that curbs the autocratic tendencies of the government in power.
- **Liberty:**

  - o Additionally, he argued that **parliamentary democracy instills a passion for freedom;**freedom to express thoughts and opinions, freedom to live a respectful life, freedom to do what one values.
  - o But we can see a **parallel fall of India in the Human Freedom Index along with a weakened opposition** and consequently falling democratic credentials.
- **Equality in Law and Administration:**

  - o Ambedkar also upheld equality in law and administration.
  - o **Likes should be treated likely and there should be no discrimination** based on class, caste, gender, race and so on.
  - o He brought forward the idea of constitutional Morality.
    - For him, the constitution contains only the legal skeleton, but the flesh is what he calls constitutional morality.

Question for practice
Question. Mahatma Gandhi and Dr. B.R. Ambedkar, despite having divergent approaches and strategies, had a common goal of amelioration of the downtrodden. Elucidate.
Question. Constitutional Morality' is rooted in the Constitution itself and is founded on its essential facets. Explain the doctrine of 'Constitutional Morality' with the help of relevant judicial decisions.

INDIA TO BECOME LARGEST POPULATED COUNTRY

Why in News?
- It is estimated that around April 2023, India's 1.43 billion people will exceed **China's population.**

- In 2022, China will for the first **time register an absolute decline in its population.**

What are the Drivers of these Shifts?
- **Mortality and Fertility:**

- o **Crude Death Rate (CDR):** The CDR — the number of persons dying per year per 1,000 population — was 23.2 for China and 22.2 for India in 1950.
    - It fell to single digits for China first in 1974 (to 9.5) and for India in 1994 (9.8), and further to 7.3-7.4 for both in 2020.
- o **Life Expectancy at Birth:** Another mortality indicator is **life expectancy at birth.** Between 1950 and 2020, it went up from 43.7 to 78.1 years for China and from 41.7 to 70.1 years for India.
- o **Total Fertility Rate:** The total fertility rate (TFR) — the number of babies an average woman bears over her lifetime — was as high as 5.8 for China and 5.7 for India in 1950.
    - India's TFR fell to 2 in 2019-2021, from 3.4 in 1992-93.
- **Sustained Lows in TFR:**

    - o Populations can keep growing even with TFRs falling. De-growth **requires TFRs to remain below replacement levels** for extended periods.
    - o The effects of that — fewer children today becoming parents tomorrow and procreating just as much or less — may reflect only after a couple of generations.
    - o China's **TFR dipped below replacement first in 1991,** which was almost 30 years before India's.

What are the Challenges and Opportunities?
- **Challenges:**

    - o Having the most people on the planet could prove to be a **big negative for India unless it can provide food**, education, housing, health services and jobs to its people.
    - o The scale of this challenge is gigantic.
    - o Across India, water scarcity is a chronic issue. All these **needs are crucial but by far the single most important thing for India to do is to generate jobs.** The scale of this particular challenge is truly daunting.
        - In 2020, India has 900 million people (67% of the total population) in the working age group of 15-64.
        - This is expected to expand by another 100 million by 2030.
- **Opportunity:**

    - o **Claim for permanent member at UNSC:** If India becomes the largest country, it will give Indians a claim to be the permanent member of the Security Council.
        - New population will push its existing demand for a permanent seat on the UN Security Council.
        - The geopolitical reality has changed and new powers have emerged which deserve a place alongside the old – **Russia, the UK, China, France and the United States.**
    - o **Increase in Fiscal Space:** Fiscal resources can be diverted **from spending on children to investing in modern physical and human infrastructure** that will increase economic sustainability of India.
    - o **Rise in Workforce:** With more than **65% of the working age population,** India can rise as an economic superpower, supplying more than half of Asia's potential workforce over the coming decades.
        - **Increase in the Labour Force** that enhances the productivity of the economy.
        - **Rise in Women's Workforce** that naturally accompanies a **decline in fertility,** and which can be a new source of growth.

What should be the Strategy of India?
- **Mass Prosperity Strategy:**

    - o India's large remittances from a small population overseas reinforce that our **mass prosperity strategy should be human capital and formal jobs.**
    - o 0.8 % of software employment workers generate 8 % of GDP.
    - o This case is **reinforced by remittances from the overseas population of less than 2 % of our resident population crossing** USD 100 billion last year.
- **Qualitative Shift in Employment:**

o The qualitative shift during the previous five years from low-skilled, informal employment in Gulf countries to high-skilled formal jobs in high-income countries is significant.
  ▪ In 2021, the US replaced the UAE as the single biggest source country with 23 % of remittances. Our rich forex remittance harvest — roughly 25 % higher than FDI and 25 % less than software exports — **is fruit from the tree of human capital and formal jobs.**

- **Additional Jobs:**

  o To absorb the influx of young people into the workplace, **India would need to create close to 12 million additional, non-farm jobs every year**, starting in 2023.
  o This was triple the four million non-farm jobs created annually **between 2012 and 2018.**
  o India would need a growth rate of 10% per annum to be able to invest in industry so that this army of young people can be absorbed.

- **Investments in Education:**

  o While India is expected to have a **demographic dividend** from this large workforce, reaping its potential benefits requires significant investments in education.

VOKKALIGAS, LINGAYAT'S SHARE IN RESERVATION

Why in News?
- Recently, Karnataka has categorized the two dominant communities, **Vokkaligas and Lingayats, as "moderately backward" from the "backward" category** in a move that could increase their share in reservation for **Other Backward Classes (OBC)**.

What are the Key Points of the Move?
- Karnataka currently has **32% quota for OBC, and 17% and 7% quota for Scheduled Castes and Scheduled Tribes,** respectively, taking the **total to 56%**.
- The **Panchamasali sub-sect of Veerashaiva Lingayats** has demanded inclusion in the 2A category which has 15% quota from their current 3B category which has 5% quota.
- The Cabinet's decision is based on the **recommendations of the Karnataka State Commission for Backward Classes**.
- The Vokkaliga community, which is currently in the 3A category, will be moved to a **newly-created 2C category with 4% reservation**. And the Lingayat community, which is in the 3B category, will now be in **a new 2D category with 5% reservation**.
- The Cabinet decision ensures that there is no sub-categorisation of the Lingayat community.
- The Lingayats are a **dominant community who make up nearly 17% of Karnataka's six crore population**-followed by Vokkaligas. The new categories will not affect the existing reservation provided to other communities.
- The reservation will be applicable only in education and jobs, and "not political reservation.

Who are Lingayats?
- **About:**
  o The term **Lingayat denotes a person who wears a personal linga, an iconic form of god Shiva,** on the body which is **received during the initiation ceremony**.
  o Lingayats are the followers of the **12th-century social reformer-philosopher poet, Basaveshwara**.
  o Basaveshwara was **against the caste system and Vedic rituals**.
  o The Lingayats are **strict monotheists**. They enjoin the worship of only one God, **namely, Linga (Shiva)**.
  o Lingayats had been classified as a **Hindu subcaste called "Veerashaiva Lingayats"** and they are considered to be Shaivites.
- **Separate Religion for Lingayats:**
  o Lingayats had distanced themselves **from Hindu Veerashaivas because the latter followed the Vedas** and supported the caste system, to which Basaveshwara was against.

o   Veerashaivas are the **followers of the five peethas (religious centers)**, called Pancha Peethas. These peethas are set up on similar lines to the four peethas set up by Adi Shankara.

Who are Vokkaligas?

- It is even believed that the **Rashtrakutas and Western Gangas were of Vokkaliga origin**.
- Vokkaliga is a category defined in **terms of occupation, and to that extent could be an ethnic category; these are largely farmers by origin**.
- The Vokkaliga caste originates in the Indian state of Karnataka. In the former princely state of Mysore, the Vokkaligas were the largest community.
- As a community of warriors and cultivators, they have historically wielded **tremendous demographic, political, and economic dominance in Old Mysore**.

How has the Status of OBC Reservation Emerged Over Time?

- The **Kalelkar Commission, set up in 1953,** was the **first to identify backward classes other than** the **Scheduled Castes (SCs)** and Scheduled Tribes (STs) at the national level.
- The **Mandal Commission Report, 1980** estimated the **OBC population at 52% and classified 1,257 communities** as backward.
  o   It recommended increasing the existing quotas, which were only for SC/ST, from 22.5% to 49.5% to include the OBCs.
- **The central government reserved 27%** of seats in union civil posts and services for OBCs [Article 16(4)]. The quotas were subsequently enforced in central government educational institutions [Article 15 (4)].
  o   In 2008, the **Supreme Court** directed the central government to **exclude the creamy layer (advanced sections) among the OBCs**.
- The **102ⁿᵈ Constitution Amendment Act, 2018** provided constitutional status to the National Commission for Backward Classes (NCBC), which was previously a statutory body under the Ministry of Social Justice and Empowerment.

Questions For Practice

Question. Do government's schemes for up-lifting vulnerable and backward communities by protecting required social resources for them, lead to their exclusion in establishing businesses in urban economies?

Question. Discuss the role of the National Commission for Backward Classes in the wake of its transformation from a statutory body to a constitutional body.

GENERAL STUDIES 2.

POLITY

REVIEW PETITION

- The Supreme Court has dismissed a petition filed by 2002 Gujarat riots victim Bilkis Bano, seeking review of its May 2022 order which said the Gujarat government was the appropriate government to decide the prayer for remission by one of the 11 convicts handed life terms in her case, and let the state's 1992 remission policy apply in the matter.

Plea for review
- According to the Constitution, any ruling by the Supreme Court is in the normal course final and binding, and it becomes the law of the land. It is considered final because it provides certainty for deciding future cases.
- However, the Constitution also gives, under Article 137, the Supreme Court the power to review its judgments or orders.
- This provision forms the legal basis for the filing of a "review petition".

Procedure for review
- A review petition must be filed within 30 days of pronouncement of the judgment.
- Except in cases of death penalty, review petitions are heard through "circulation" by judges in their chambers. They are usually not heard in open court.
- Lawyers in review petitions usually make their case through written submissions, and not oral arguments. The same judges who passed the original verdict usually also hear the review petition.
- It is not necessary that only parties to a case can seek a review of the judgment on it.
- As per the Civil Procedure Code and the Supreme Court Rules, any person aggrieved by a ruling can seek a review.
- However, the court does not entertain every review petition filed.

Grounds for review
- There are narrow, specific grounds on which a review petition can be entertained. Therefore, the court has the power to review its rulings to correct a "patent error" — but not "minor mistakes of inconsequential import".
- In a 1975 ruling, Justice Krishna Iyer said a review can be accepted "only where a glaring omission or patent mistake or like grave error has crept in earlier by judicial fallibility".
- In a 2013 ruling, the Supreme Court laid down three grounds for seeking a review of a verdict it has delivered:
- The discovery of new and important matter or evidence which, after the exercise of due diligence, was not within the knowledge of the petitioner or could not be produced by him;
- A mistake or error apparent on the face of the record; or
- Any other sufficient reason. In subsequent rulings, the court specified that "any sufficient reason" means a reason that is analogous to the other two grounds.
- In another 2013 ruling (Union of India v. Sandur Manganese & Iron Ores Ltd), the court laid down nine principles on when a review is maintainable. "A review is by no means an appeal in disguise whereby an erroneous decision is reheard and corrected but lies only for patent error," the court said. It added that the mere possibility of two views on the subject cannot be a ground for review.
- As the court of last resort, the Supreme Court's verdict cannot result in a miscarriage of justice. So, in Roopa Hurra v Ashok Hurra (2002), the court itself evolved the concept of a curative petition, which can be heard after a review is dismissed to prevent abuse of its process. A curative petition is also entertained on very

narrow grounds like a review petition, and is generally not granted an oral hearing. It is yet to be seen if Bilkis Bano will take this route.

> **Question**: What is the review petition? Highlight the procedure and ground of the review petition.

COURT VACATIONS

Why in News?

- Recently, the **Chief Justice of India (CJI)** has said that the Supreme Court will not have a vacation bench when it breaks for its annual winter vacation.
- While this judicial schedule has its origins in colonial practices, it has come **under criticism for quite some time now.**

What are Court Vacations?

- **About:**
  - The **Supreme Court** has **193 working days a year for its judicial functioning**, while the **High Court's function for approximately 210 days,** and **trial courts for 245 days.**
  - High Courts have the **power to structure their calendars according to the service rules.**
  - The Supreme Court takes two long vacations each year, the summer and winter breaks, but is **technically not fully closed during these periods.**
- **Vacation Bench:**
  - A Vacation Bench of the Supreme Court is a **special bench constituted by the CJI.**
  - Litigants can still approach the Supreme Court and, if the court decides that the plea is an **"urgent matter", the Vacation Bench hears the case on its merits.**
  - Cases such as bail, eviction, etc. **often find precedence in listing before vacation benches.**
    - It is **not uncommon for courts to hear important cases during vacation.**
    - **In 2015**, a five-judge Bench of the Supreme Court heard the challenge to the constitutional amendment setting up the **National Judicial Appointments Commission (NJAC)** during the summer vacation.
    - **In 2017,** a Constitution Bench held a six-day hearing in the case challenging the practice of triple talaq during summer vacation.
- **Legal Provisions:**
  - **Under Rule 6 of Order II of The Supreme Court rules, 2013**, the CJI has nominated the **Division Benches for hearing of urgent miscellaneous matters** and regular hearing matters during the summer vacation for the period.
  - The rule reads that **CJI may appoint one or more Judges to hear during summer vacation or winter holidays all matters** of an urgent nature which under these rules may be heard by a Judge sitting singly.
  - And, whenever necessary, he **may likewise appoint a Division Court for the hearing of urgent cases** during the vacation which require to be heard by a Bench of Judges.

What are the Issues with Court Vacations?

- **Not Convenient for Justice Seekers:**
  - The long vacation which the courts obtain is not very convenient for justice-seekers.
- **Not good Optics in Light of Pendency:**
  - Extended frequent vacations are not good optics, especially in the light of mounting pendency of cases and the **slow pace of judicial proceedings.**
  - For an ordinary litigant, the **vacation means further unavoidable delays** in listing cases.
- **Incongruous with European Practices:**

o The summer break perhaps began because **European judges of the Federal Court of India found Indian summers too hot** — and took the winter break for Christmas.

Way Forward

- The issue cannot be resolved **until a "new system" on the appointment of judges is evolved**
- In 2000, the Justice Malimath Committee, set up to recommend reforms in the criminal justice system, suggested that the **period of vacation should be reduced by 21 days,** keeping in mind the long pendency of cases. It suggested that the Supreme Court work for 206 days, and High Courts for 231 days every year.
- In its 230th report, the **Law Commission of India** in 2009 called for reform in this system, considering the staggering arrears, vacations in the higher judiciary **must be curtailed by at least 10 to 15 days** and the court working hours should be extended by at least half an hour.
- In 2014, when the Supreme Court notified its new Rules, it said that the period of **summer vacation shall not exceed seven weeks** from the earlier 10-week period.

KERELA UNIVERSITY LAWS (AMENDMENT) BILLS

Why in News?

- Recently, Kerala Assembly passes University Laws (amendment) Bills to amend laws relating to the **governance of State universities and remove the <u>Governor</u>** as the Chancellor of State universities.

What is the Background?

- The Governor and the State Government of Kerala had been at loggerheads for months now.
- It got worse when the Governor **denied assent to the controversial Lok Ayukta (Amendment) and University Laws (Amendment) Bills** earlier passed by the State Assembly.
- The worsening relationship between the State Government and governor reached a tipping point with the **Supreme Court** order invalidating APJ Abdul Kalam Technological University (KTU) Vice-Chancellor's (VC) appointment on the grounds **that it violated <u>University Grants Commission (UGC)</u> regulations.**
- Following this, the governor had **sought the resignations of 11 other VCs on the ground that the government had appointed them through the same process** deemed unlawful by the Supreme Court.

What are the University Laws (Amendment) Bills?

- The proposed legislation will **amend the statutes of 14 universities established by legislative Acts in Kerala and remove the Governor as the Chancellor** of those universities.
- The Bills will supplant the **Governor and give the government power to appoint eminent academicians as Chancellors** of various universities, thus ending the Governor's watchdog role in university administration.
- The Bills also provide **provision to limit the term of the appointed chancellor to five years .** However , it also says that the **serving chancellor can be reappointed for another term.**

What stands in Favour and Against the Proposition?

- **Favour**
  - o Earlier UGC Guidelines used to be mandatory for Central universities and "partially mandatory and partially directive" for State universities, had been **made legally binding for all universities by way of recent rulings** by the Supreme Court.
  - o Such precedence pointed towards a **scenario in which the legislative powers of the Assembly on all subjects on the Concurrent List (of the Constitution) could be undermined** through a subordinate legislation or an executive order issued by the Centre.
  - o It is said that the bill was brought in order to avoid legal tangles in future.
- **Against:**
  - o If Chancellors were appointed by the Government, they would be indebted to the ruling front, thus leading to the erosion of Universities' autonomy.
  - o It may facilitate appointment of people **close to the ruling front.**
    - ▪ This will lead to a scenario in which the **governor can appoint only those who are close** to the government.

What is the Procedure for Appointing a Vice-Chancellor under UGC rules?

- According to the UGC Regulations, 2018, the VC of a university, in general, is appointed by the **Visitor/Chancellor, from a panel of three to five names** recommended by the duly constituted Search cum Selection Committee.
- A visitor is empowered to call for a set of fresh names in case of dissatisfaction with the given panel.
- In Indian universities, the **President of India is the ex-officio Visitor of all the Central Universities** and the **Governor of the respective states is the Chancellor of all the state universities.**
- Necessarily this system is not uniform in all the universities. As far as the procedures adopted by different states are concerned, they vary.

What are the Governor's and President's Powers related Universities?

State Universities:

- While as Governor he functions with the aid and advice of the Council of Ministers, as Chancellor he acts independently of the Council of Ministers and takes his own decisions on all University matters.

Central Universities:

- Under the Central Universities Act, 2009, and other statutes, the President of India shall be the Visitor of a central university.
- With their role limited to presiding over convocations, Chancellors in central universities are titular heads, who are appointed by the President in his capacity as Visitor.
- The Vice Chancellor too are appointed by the Visitor from panels of names picked by search and selection committees formed by the Union government.
- The Act adds that the President, as Visitor, shall have the right to authorise inspections of academic and non-academic aspects of the universities and also to institute inquiries.

Way Forward

- M. Anandakrishnan Committee, set up by the Kerala State Higher Education Council in 2009, recommended that **universities should have complete autonomy in academic and administrative matters.**
- It is advisable to create statutory structures **that would distance the Governor and Minister for Higher Education from the day-to-day administration** of the universities.
- It is also recommended to immediately **incorporate UGC Regulations, 2010 in the**
- As recommended by the **Punchhi Commission on Centre-State Relations,** the Governor should not be burdened with positions and powers that are not specified in the Constitution and may cause controversy or public criticism.
- Governments should devise alternative **means of protecting university autonomy** so that ruling parties do not exercise undue influence on the functioning of universities.

> **Question For Practice**
> Discuss the essential conditions for exercise of the legislative powers by the Governor. Discuss the legality of re-promulgation of ordinances by the Governor without placing them before the Legislature.

RECUSAL OF JUDGES

Why in News?

- Recently, a **Supreme Court (SC)** judge recused herself from hearing a **writ petition** filed by Bilkis Bano against a Gujarat government decision to prematurely release 11 men sentenced to life imprisonment for gang-raping her during the 2002 riots.

What is Recusal?

- **About:**
  - It is the **act of abstaining from participation in an official action** such as a legal proceeding due to a conflict of interest of the presiding court official or administrative officer.

- **Rule for Recusal:**
  - There are **no formal rules governing recusals**, although several SC judgments have dealt with the issue.
    - In **_Ranjit Thakur v Union of India (1987),_** the SC held that the test of the likelihood of bias is the reasonableness of the apprehension in the mind of the party.
    - The judge needs to look at the mind of the party before him, and decide that he is biased or not.
- **Reason for Recusal:**

  - When there is a **conflict of interest, a judge can withdraw from hearing a case** to prevent creating a perception that he carried a bias while deciding the case.
  - The conflict of interest can be in many ways such as:
    - Having a prior or personal association with a party involved in the case.
    - Appeared for one of the parties involved in a case.
    - Ex parte communications with lawyers or non-lawyers.
    - An appeal is filed in the SC against a judgement of a High Court (HC) that may have been delivered by the SC judge when he was in the HC.
    - In a matter of a company in which he holds shares unless he has disclosed his interest and there is no objection to it.
  - The practice stems from the cardinal principle of **due process of law t**hat nobody can be a judge in her own case.
    - Any interest or conflict of interest would be a ground to withdraw from a case since a judge has a duty to act fair.

What is the Process of Recusal?
- The decision to recuse **generally comes from the judge himself** as it rests on the conscience and discretion of the judge to disclose any potential conflict of interest.

  - Some judges orally convey to the lawyers involved in the case their reasons for recusal, many do not. Some explain the reasons in their order.
- In some circumstances, **lawyers or parties in the case bring it up before the judge.** Once a request is made for recusal, the decision to recuse or not rests with the judge.

  - While there are some instances where judges have recused even if they do not see a conflict but only because such an apprehension was cast, there have also been several cases where judges have refused to withdraw from a case.
- If a judge recuses, the **case is listed before the Chief Justice for allotment to a fresh Bench.**

What are the Concerns related to Recusal?
- **Undermining Judicial Independence:**

  - It **allows litigants to cherry-pick a bench of their choice**, which impairs judicial fairness.
  - Also, the purpose of recusal in these cases undermines both independence and impartiality of the judges.
- **Different Interpretations:**

  - As there are no rules to determine when the judges could recuse themselves in these cases, there are different interpretations of the same situation.
- **Delays the Process:**

  - Some **requests for recusal are made with the intent to intimidate the court or to get better of an 'inconvenient' judge** or to obfuscate the issues or to cause obstruction and delay the proceedings or in any other way frustrate or obstruct the course of justice.

Way Forward

- Recusals should **not be used as a tool to manoeuvre justice,** as a means to pick benches of a party's choice, and as an instrument to evade judicial work.
- Judicial officers must **resist all manner of pressure,** regardless of where it comes from and if they deviate, the independence of the judiciary would be undermined, and in turn, the Constitution itself.
- Therefore, **a rule that determines the procedure for recusal on part of judges** should be made at the earliest.

APPROPRIATION BILL

Why in News?

- Recently, the Union Finance Minister moved the Appropriation (No.5) Bill, 2022, and Appropriation (No.4) Bill, 2022, in the Rajya Sabha.
- The bill **authorized payment and appropriation of certain further sums from and out of the Consolidated Fund of India** for the services of the financial year 2022-2023 for consideration and return.

What is an Appropriation Bill?

- **About:**
  - The Appropriation Bill **gives power to the government to withdraw funds from the Consolidated Fund of India** for meeting the expenditure during the financial year.
    - As per **Article 114 of the Constitution**, the government can withdraw money from the Consolidated Fund only after receiving approval from Parliament.
    - The amount withdrawn is used to meet the current expenditure during the financial year.
- **Procedure Followed:**
  - The Appropriation Bill is **introduced in the Lok Sabha** after discussions on Budget proposals and Voting on Demand for Grants.
    - The defeat of an Appropriation Bill in a parliamentary vote would lead to the resignation of a government or a general election.
  - Once it is passed by the Lok Sabha it is sent to the Rajya Sabha.
    - **Rajya Sabha** has the **power to recommend any amendments in this Bill.** However, it is the prerogative of the Lok Sabha to either accept or reject the recommendations made by the Rajya Sabha.
  - After the bill receives assent from the president it becomes an Appropriation act.
    - The unique feature of the Appropriation Bill is its automatic repeal clause, whereby the Act gets repealed by itself after it meets its statutory purpose.
  - The government **cannot withdraw money from the Consolidated Fund of India till the enactment of the appropriation bill.** However, this takes time and the government needs money to carry on its normal activities. To meet the immediate expenses the **Constitution has authorised the Lok Sabha to make any grant in advance for a part of the financial year.** This provision is known as the 'Vote on Account'.
    - **A vote on account is defined in Article 116 of the Indian Constitution**.
    - During an election year the Government either opts for 'interim Budget' or for 'Vote on Account' as after the election the Ruling Government may change and so the policies.
- **Amendment:**
  - No amendment can be proposed to an Appropriation Bill which will have the effect of varying the amount or altering the destination of any grant so made or of varying the amount of any expenditure charged on the Consolidated Fund of India, and the decision of the **Lok Sabha Speaker** as to whether such an amendment is admissible is final.

What is the Difference between Appropriation Bill and Finance Bill?

- While the **Finance Bill contains provisions on financing the expenditure of the government ,**an Appropriation Bill specifies the quantum and purpose for withdrawing money.

- Both appropriation and finance bills are **classified as money bills** which do not require the explicit consent of the Rajya Sabha. The Rajya Sabha only discusses them and returns the bills.

What is the Consolidated Fund of India?

- It was **constituted under Article 266 (1) of the Constitution of India.**
  It is made up of:
- All revenues received by the Centre by way of taxes (Income Tax, Central Excise, Customs and other receipts) and all non-tax revenues.
- All loans raised by the Centre by issue of Public notifications, treasury bills (internal debt) and from foreign governments and international institutions (external debt).
- All government expenditures are incurred from this fund (except exceptional items which are met from the Contingency Fund or the Public Account) and no amount can be withdrawn from the Fund without authorization from the Parliament.
- The **Comptroller and Auditor-General of India (CAG)** audits the fund and reports to the relevant legislatures on the management.

What are the Stages of Stages of Budget in Parliament?

- Presentation of Budget.
- General discussion.
- Scrutiny by Departmental Committees.
- Voting on Demands for Grants.

MAHARASHTRA-KARNATAKA BORDER DISPUTE

Why in News?

- The border dispute between Maharashtra and Karnataka is intensifying, with both states passing a unanimous resolution **to support a legal battle to resolve the dispute.**

What is Maharashtra-Karnataka Border Dispute?

- **About:**
  - The border dispute over Belagavi, Karwar and Nipani in North Karnataka is long-standing.
  - When state boundaries were redrawn on linguistic lines as per the **States Reorganisation Act of 1956, Belagavi became part of the erstwhile Mysore state.**
    - The Act was based on the findings of the Justice Fazal Ali Commission which was appointed in 1953 and submitted its report two years later.
  - Maharashtra claims that parts of Belagavi, where **Marathi is the dominant language, should remain in Maharashtra.**
  - In October 1966, the **Centre set up the Mahajan Commission, led by former Chief Justice of India Mehr Chand Mahajan,** to resolve the border dispute in Maharashtra, Karnataka and Kerala.
  - The Commission recommended that Belgaum and 247 villages remain with Karnataka. Maharashtra rejected the report, and in 2004, moved the Supreme Court.
- **Basis of Maharashtra's Claim:**
  - Maharashtra's claim to **seek the readjustment of its border was on the basis of contiguity,** relative linguistic majority and wishes of the people. If the claim over Belagavi and surrounding areas was based on **Marathi-speaking people and linguistic homogeneity, it laid its claim over Karwar** and Supa where Konkani is spoken by citing Konkani as a dialect of Marathi.
  - Its argument was based on the **theory of villages being the unit for calculation and enumerated linguistic population** in each village. Maharashtra also points out the historical fact that the revenue records in these Marathi-speaking areas are also kept in Marathi.
- **Karnataka's Position:**
  - Karnataka has argued that the settlement of **boundaries as per the States Reorganisation Act is final.**

o The boundary of the State was neither tentative nor flexible. **The State argues that the issue would reopen border issues** that have not been contemplated under the Act, and that such a demand should not be permitted.

How is the Issue Being Resolved?

- Attempts are often made to resolve inter-state disputes with the cooperation of both sides, with the Centre working as a facilitator or a neutral mediator.

- If issues are resolved amicably, **Parliament can bring a law to alter state boundaries,** such as the **Bihar-Uttar Pradesh (Alteration of Boundaries) Act of 1968** and the **Haryana-Uttar Pradesh (Alteration of Boundaries) Act of 1979.**

- In the Belagavi issue, Union Home Minister Amit Shah met Chief Ministers of both states and asked them **to form a six-member team, comprising three ministers from each side,** to address all boundary issues.

What are the other Methods Available?

- **Judicial Redressal:**
  - o The **Supreme Court in its original jurisdiction** decides disputes **between states**.
  - o **As per Article 131 of the Constitution reads,** the Supreme Court have original jurisdiction in any dispute **between the Government of India and one or more States or** between the Government of India and any State or **between two or more states.**

- **Inter-state Council:**
  - o Article 263 of the Constitution gives **powers to the <u>President</u> to set up an Inter-state Council** for resolution of disputes between states.
  - o The Council is envisaged as a forum for discussion between the states and the Centre.
    - ▪ In 1988, the <u>**Sarkaria Commission**</u> **suggested that the Council should exist as a permanent body,** and in 1990 it came into existence through a Presidential Order.

What are Some of the other Inter-State Disputes in India?

Assam-Arunachal Pradesh:	▪ Assam shares an 804.10 km inter-state boundary with Arunachal Pradesh. ▪ The state of Arunachal Pradesh, created in 1987, claims some land that traditionally belonged to its residents has been given to Assam. ▪ A tripartite committee had recommended that certain territories be transferred from Assam to Arunachal. The two states have since been battling it out in the court over the issue.
Assam-Mizoram:	▪ Mizoram used to be a district of Assam before being carved out as a separate union territory and later, becoming another state. ▪ Mizoram shares a border with the districts Cachar, Hailakandi and Karimganj of Assam. ▪ Over time, the two states started having different perceptions about where the demarcation should be. ▪ While Mizoram wants it to be along an inner line notified in 1875 to protect tribals from outside influence, which Mizos feel is part of their historical homeland, Assam wants it to be demarcated according to district boundaries drawn up much later.
Assam-Nagaland:	▪ The border dispute between the two states has been going on since the formation of Nagaland in 1963. ▪ The two states lay claim to Merapani, a small village next to the plains of Assam's Golaghat district. ▪ There have been reports of violent clashes in the region since the 1960s.

Assam-Meghalaya:	▪ Meghalaya has identified close to a dozen areas on which it has a dispute with Assam about the state's borders.
Haryana-Himachal Pradesh:	▪ The two northern states have a border dispute over the Parwanoo region, which lies next to the Panchkula district of Haryana. ▪ Haryana has laid a claim to a large part of the land in the area and has accused the hill state of encroaching on some of its area.
Ladakh-Himachal Pradesh:	▪ The union territory of Ladakh and Himachal both claim Sarchu, a major halt point for those travelling through Leh-Manali highway. ▪ The region is located between Himachal Pradesh's Lahaul and Spiti district and Ladakh's Leh district.

Way Forward

- Boundary disputes between the states can be settled by using satellite mapping of the actual border locations.
- Reviving the Inter-state council can be an option for resolution of an Inter-state dispute.
  - Under Article 263 of the Constitution, the Inter-state council is expected to inquire and advise on disputes, discuss subjects common to all states and make recommendations for better policy coordination.
- Similarly, **Zonal councils** need to be revived to discuss the matters of common concern to states in each zone—matters relating to social and economic planning, border disputes, inter-state transport, etc.
- India is the epitome of unity in diversity. However, to strengthen this unity furthermore, both the centre and state governments need to imbibe the ethos of **cooperative federalism**.

GOVERNANCE

PROJECT GREAT INDIAN BUSTARD

- Coming to the rescue of the critically endangered Great Indian Bustard (GIB), the Supreme Court mooted the idea of launching 'Project GIB' on the lines of 'Project Tiger', which was started in 1973 to save the big cats, and sought the government's view on the proposal.

About The Great Indian Bustard
- It is one of the heaviest flying birds (weighing up to 15kgs).
- They inhabit dry grasslands and scrublands on the Indian subcontinent.

Conservation Status
- **IUCN Red List:** It is a Critically Endangered species with less than 150 birds left in the wild.
- **CITES:** Appendix I
- **Wildlife (Protection) Act,1972:** Schedule I

Habitat:
- It is endemic to the Indian subcontinent. It is found in Rajasthan (Desert National park), Gujarat, Madhya Pradesh, Karnataka, and Andhra Pradesh in India and parts of Pakistan.

Characteristics
- Great Indian Bustards are tall birds with long legs and long necks; the tallest individuals may stand up to 1.2 metres (4 feet) high.
- Both the male and female are roughly the same size, with the largest individuals weighing 15 kg (33 pounds).
- Males and females are distinguished by the colour of their feathers.
- **Food Habits:** Great Indian Bustards are omnivores. They prey on various arthropods, worms, small mammals, and small reptiles.

Threats
- Death by collision with infrastructure, particularly power lines and wind turbines
- Depletion of grasslands
- Hunting
- Development of mines and human habitation in and around their habitats among others.

Conservation Initiatives:

Project Great Indian Bustard
- It was launched by Rajasthan Government with the objective of conservation of the remaining population of critically endangered Great Indian Bustard(Ardeotis nigriceps) locally called Godawan.

World Wildlife Fund (WWF)
- WWF-India has provided inputs in developing the 'Guidelines for the State Action Plan for Resident Bustard Recovery Programme'.
- It has played an important role in raising awareness about the declining populations and highlighting the importance of implementing a focused bustard conservation programme at the national level.
- WWF-India, is undertaking initiatives towards conservation of GIB in and around Desert National Park.

> **Question:** Discuss the efforts and steps taken by government to save tiger under Project Tiger.

DigiYatra

- The government has introduced paperless entry at select airports to make air travel hassle-free. Under this initiative, airports will use a facial recognition software called 'DigiYatra' for entry. This means, passengers won't need to carry their ID card and boarding pass.

What is DigiYatra and how will it work?
- DigiYatra envisages that travellers pass through various checkpoints at the airport through paperless and contactless processing, using facial features to establish their identity, which would be linked to the boarding pass.
- With this technology, the entry of passengers would be automatically processed based on the facial recognition system at all checkpoints – including entry into the airport, security check areas, aircraft boarding, etc.

Which airports/airlines offer the facial recognition technology?
- The facility will be available for passengers taking domestic flights at Delhi's Terminal 3, Bengaluru and Varanasi airports.
- DigiYatra will be launched at four more airports — Hyderabad, Pune, Vijaywada and Kolkata — by next March.
- Later, DigiYatra will be rapidly rolled out across all other airports.
- Among airlines, passengers travelling Air India, Vistara and IndiGo on their domestic network can avail this facility at the three airports.

How can people avail the DigiYatra facility?
- For availing the service, a passenger has to register their details on the DigiYatra app using Aadhaar-based validation and a self image capture.
- In the next step, the boarding pass has to be scanned, and the credentials are shared with airport authorities.
- At the airport e-gate, the passenger has to first scan the bar coded boarding pass and the facial recognition system installed at the e-gate will validate the passenger's identity and travel document.
- Once this process is done, the passenger can enter the airport through the e-gate.

How is DigiYatra being implemented?
- The project is being implemented by the DigiYatra Foundation — a joint-venture company whose shareholders are the Airports Authority of India (26% stake) and Bengaluru Airport, Delhi Airport, Hyderabad Airport, Mumbai Airport and Cochin International Airport. These five shareholders equally hold the remaining 74% of the shares.

> **Question:** What are prospects and challenges of aviation sector in India? Also mention steps taken by the government to promote it.

National Commission for Minorities

- The National Commission for Minorities today held a meeting with the Sikh Intelligentsia for inviting suggestions and advice to make the commemoration of the Veer Bal Diwas more meaningful.
- The Prime Minister had announced the 26th of December to be observed as Veer Bal Diwas to mark the martyrdom of Sahibzada Zorawar Singh Ji and Sahibzada Fateh Singh Ji.
- They were martyred in Sirhind after being sealed alive in a wall on the 26th of December, 1704. Thereafter, the Central Government decided to commemorate the day as Veer Bal Diwas.

About National Commission of Minorities(NCM):
- National Commission for Minorities (NCM) is a statutory body set up in 1993 under the National Commission for Minorities(NCM) Act, 1992.
- Section 2 of the NCM Act stipulates that 'Minority' for the purposes of the Act means a community notified as such by the Central Government.
- Initially, five religious communities namely Muslims, Christians, Sikhs, Buddhists, and Zoroastrians(Parsis) were notified as minority communities. In 2014, Jains were also notified as another minority community.

Composition:
- The Commission consists of: Chairperson, Vice- Chairperson, and five Members.
- Hence, a total of 7 persons are to be nominated by the Central Government from amongst persons of eminence, ability, and integrity.
- Each Member holds office for a period of three years from the date of assumption of office.

Functions of NCM:
- Evaluate the progress of the development of minorities under the Union and States;
- Monitor the working of the safeguards provided in the Constitution and in laws enacted by Parliament and the State Legislatures;
- Make recommendations for the effective implementation of safeguards for the protection of the interests of minorities by the Central Government or the State Governments;
- Look into specific complaints regarding deprivation of rights and safeguards of the minorities
- Recommend measures for the removal of problems arising out of any discrimination against minorities;
- Conduct studies, research, and analysis on the issues relating to the socio-economic and educational development of minorities;
- Suggest appropriate measures in respect of any minority to be undertaken by the Central Government or the State Governments;
- Make periodical or special reports to the Central Government on any matter pertaining to minorities and in particular difficulties confronted by them; and
- Any other matter which may be referred to it by the Central Government.

> **Question:** Discuss the composition and powers of the National Commission for Minorities.

NATIONAL CRISIS MANAGEMENT COMMITTEE (NCMC)

- The National Crisis Management Committee (NCMC) under the Chairmanship of Cabinet Secretary met today and reviewed preparedness of Central Ministries/Agencies, and State/Union Territory Governments to review preparedness for the possible cyclonic storm over the Bay of Bengal.

About NCMC:
- Government of India had set up a Standing National Crisis Management Committee for effective implementation of relief measures in the wake of natural calamities.
- The committee is headed by Cabinet Secretary.It also includes Secretaries of Ministries / Departments and agencies with specific Disaster management responsibilities.
- The key functions of the committee include (a)oversee the Command, Control and Coordination of the disaster response and (b)give direction to the Crisis Management Group(CMG) as deemed necessary.

Composition
- Cabinet Secretary (Chairperson).
- Secretaries of Ministries / Departments and agencies with specific Disaster management responsibilities.

PRIME MINISTER'S AWARDS FOR EXCELLENCE IN PUBLIC ADMINISTRATION, 2022

- The Government of India has approved the Scheme for the Prime Minister's Awards for Excellence in Public Administration, 2022. The Prime Minister's Awards for Excellence in Public Administration has been designed to acknowledge, recognize and reward exemplary work done by civil servants across the country.
- For the year 2022, the Scheme for Prime Minister's Awards for Excellence in Public Administration aims to recognize the contribution of civil servants in the following areas:
- Promoting Swachh Jal (Clean Jal) through Har Ghar Jal Yojana
- Promoting Swasth Bharat (Healthy Bharat) through Health & Wellness Centres
- Promoting quality education with an equitable and inclusive classroom environment through Samagra Shiksha.
- Holistic Development through Aspirational District Program – overall progress with special focus on saturation approach.
- Innovations.

National Civil Service Day

- 21st April is celebrated as the National Civil Service Day as it marks the anniversary (21st April 1947) of the historic address given by the country's 1st home minister Sardar Vallabhbhai Patel to the newly appointed administrative services officers.
- During the Speech, Sardar Patel had referred to the newly-appointed civil servants as the "steel frame of India".
- Sardar Vallabhbhai Patel is regarded as the 'Father of all-India Services'.
- The country's first National Civil Service Day event was organised on 21st April 2006 in New Delhi's Vigyan Bhawan. Since then, this function has become an annual affair that celebrates the contributions of civil servants to the country's development.
- On this day, Prime Minister's Awards for Excellence in Public Administration are awarded "to acknowledge, recognize and reward the extraordinary and innovative work done by Districts/ Organizations of the Central and State Governments".

KRISHI UDAN SCHEME 2.0

- Krishi Udan Scheme 2.0 was announced on 27 October 2021 enhancing the existing provisions, mainly focusing on transporting perishable food products from the hilly areas, North-Eastern States and tribal areas.
- For facilitating and incentivising movement of agri-produce by air transportation, Airports Authority of India (AAI) provides full waiver of Landing, Parking, Terminal Navigational Landing Charges (TNLC) and Route Navigation Facility Charges (RNFC) for Indian freighters and P2C (Passenger-to-Cargo) Aircraft.
- The scheme primarily covers around 25 airports focusing on North Eastern, Hilly and Tribal region besides 28 airports in other regions/areas.
- After evaluation of Krishi Udan 2.0, five more airports have been included making it to total 58 airports.
- Krishi Udan Scheme is a convergence scheme where eight Ministries/Departments namely Ministry of Civil Aviation, Department of Agriculture & Farmers' Welfare, Department of Animal Husbandry and Dairying, Department of Fisheries, Ministry of Food Processing Industries, Department of Commerce, Ministry of Tribal Affairs, Ministry of Development of North-Eastern Region would leverage their existing schemes to strengthen the logistics for transportation of Agri-produce.

The main objective of the Krishi Udan Scheme 2.0 is

- To increase share of air carriage in the modal mix for transportation of Agri-produce, which includes horticulture, fishery, livestock and processed products.
- The scheme assists farmers in transporting agriculture products so that it improves their value realisation.

- The Scheme aims to ensure seamless, cost-effective, time bound, air transportation and associated logistics for all Agri-produce originating especially from North-East, hilly and tribal regions of the country.
- **Facilitating and incentivizing movement of Agri-produce by air transportation:** The scheme will provide a full waiver of landing, parking, Terminal Navigation and Landing Charges and Route Navigation Facilities Charges for domestic airlines.
- **Strengthening cargo-related infrastructure at airports and off airports:** The Ministry will facilitate the development of a hub and spoke model and freight to transport perishable products.
- **Concessions sought from other bodies:** The Ministry has asked states to reduce sales tax on Aviation Turbine Fuel (ATF) to 1 percent for airlines under Krishi UDAN 2.0.
- **Resources-Pooling through establishing convergence mechanism:** Collaboration with other government departments and regulatory bodies.
- **Focus Routes:** Seven focus routes and the agro products to be flown from there have been identified under the scheme.

Implementing Agency
- The enhanced version of the Krishi UDAN scheme was formulated with support from AAI Cargo Logistics and Allied Services Company Limited (AAICLAS) – a 100% subsidiary of the Airports Authority of India and Invest India, India's national Investment Promotion & Facilitation Agency, under the Ministry of Commerce and Industry.

> **Question:** Explain Krishi Udan Scheme and also highlights its major objectives.

PM SVANIDHI SCHEME

- The Government of India has extended the PM Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi) Scheme beyond March, 2022 with the following provisions:
- Extension of lending period till December 2024;
- Introduction of 3rd loan of upto ₹50,000 in addition to 1st & 2nd loans of ₹10,000 and ₹20,000 respectively.
- To extend 'SVANidhi Se Samriddhi' component for all beneficiaries of PM SVANidhi scheme across the country.

About the PM SVANidhi
- The Ministry of Housing and Urban Affairs has launched the PM Street Vendor's AtmaNirbhar Nidhi(PM SVANidhi).
- To provide a user-friendly digital interface for lending institutions (LIs) and their field functionaries for sourcing and processing loan applications of street vendors under the PM SVANidhi scheme.
- It is a Central Sector Scheme to facilitate street vendors to access affordable working capital loan for resuming their livelihoods activities after easing of lockdown.

Eligibility Criteria
- Initial working capital of up to 10,000/.
- Interest subsidy on timely/ early repayment @ 7%.
- Higher loan eligibility on timely repayment of the first loan.

Beneficiaries:
- Street vendors/ hawkers vending in urban areas as on or before March 24,2020 including the vendors of surrounding peri-urban and rural areas.
- Street vendors in possession of Certificate of Vending/Identity Card issued by Urban Local Bodies (ULBs).
- The vendors, who have been identified in the survey but have not been issued Certificate of Vending/Identity Card; Provisional Certificate of Vending would be generated for such vendors through an IT based Platform.

Lending Institutions:

- Scheduled Commercial Banks, Regional Rural Banks, Small Finance Banks, Cooperative Banks, Non-Banking Financial Companies, Micro-Finance Institutions and SHG Banks.

> **Question:** What are the objectives of the PM Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi) Scheme?

ATAL VAYO ABHYUDAY YOJANA

- To improve the quality of life of the Senior Citizens by providing basic amenities like shelter, food, medical care and entertainment opportunities and by encouraging productive and active ageing through providing support.
- Nodal Ministry: Ministry of Social Justice & Empowerment
- Type: Central Sector Scheme

Objectives

- To improve the quality of life of the Senior Citizens by providing basic amenities like shelter, food, medical care and entertainment opportunities, free of cost to indigent senior citizens.
- Provision of financial security, healthcare, nutrition, shelter, welfare etc. for senior citizens.
- Encouraging productive and active ageing through providing support for capacity building of State/ UT Governments/Non-Governmental Organizations (NGOs)/Panchayati Raj Institutions (PRIs) / local bodies and the community at large.

Integrated Programme for Senior Citizens(IPSrC):

- It is a component of AVYAY
- Functions: Senior citizen homes (old age homes) are provided in gap districts, i.e. districts not having senior citizen homes which includes senior citizen homes not being maintained even by the State Government.
- Applications are invited from eligible organisations on e-Anudaan portal only.
- Organisations are then selected on the basis of documents provided by them, and also the recommendation of the respective State/ UT Government.

RASHTRIYA GRAM SWARAJ ABHIYAN

- Panchayat being a State subject, their modernization, upgradation by providing infrastructure facilities to Gram Panchayat (GPs) is primarily the responsibility of the concerned State Government. However, under the scheme of Rashtriya Gram Swaraj Abhiyan (RGSA), the Ministry of Panchayati Raj has been supplementing and complementing the efforts of State governments by providing financial support to States for certain infrastructural facilities such as Gram Panchayat Bhawans, computers and peripherals for GPs on a limited scale on demand from the states along with funding the capacity building of Panchayati Raj Institutions.
- Under RGSA scheme, funds to the tune of Rs. 1,538.32 crore has been released to States/ UTs during the last three years which includes construction of 7,972 Panchayat Bhawans and procurement of 16,407 number of computers and peripherals.

Rashtriya Gram Swaraj Abhiyan (RGSA)

- The scheme was first approved in 2018 for implementation from 2018-19 to 2021-22.
- Nodal Ministry: Ministry of Panchayati Raj
- Centrally Sponsored Scheme
- To improve the governance capabilities of Panchayati Raj Institutions.

- It will comprise Central and State components. The Central Components will be fully funded by the Government of India. The funding pattern for State Components will be in the ratio of 60:40 for Center and States respectively, 90:10 for NE, Hilly States and Union Territory (UT) of J&K and 100% for UTs.
- The scheme will extend to all States and UTs of the country and will also include institutions of rural local government in non-Part IX areas, where Panchayats do not exist.
- Ministry of Panchayati Raj is implementing e-Panchayat Mission Mode Project (MMP) to provide digital solutions such as e-GramSwaraj application that addresses planning, budgeting, accounting, monitoring, payments by the Panchayats with a view to bring in transparency, accountability and efficiency in local governance.
- The application of Audit Online for auditing the Panchayat accounts on utilization of Finance Commission Funds has been put in place.

> **Question:** Examine the role of local self-governments to implement the democracy at grass root level?

INDIAN FOOTWEAR AND LEATHER DEVELOPMENT PROGRAMME

Why in News?
- Recently, the Union Government has approved the continuation of the Scheme **'Indian Footwear and Leather Development Programme (IFLDP)'** till 31st March 2026 or till further review.
- IFLDP was approved as continuation of the erstwhile IFLADP **(Indian Footwear Leather and Accessories Development Programme).**

What is IFLDP Scheme?
- **About:**
  - It is a **Central Sector Scheme**, which aims at **development of infrastructure** for the leather sector, address **environmental concerns** specific to the leather sector, facilitate **additional investments, employment generation and increase in production.**
  - It was launched by **Department for Promotion of Industry and Internal Trade** under the **Ministry of Commerce and Industry.**
- **Sub-Schemes:**
  - Sustainable Technology and Environmental Promotion (STEP)
  - Integrated Development of Leather Sector (IDLS)
  - Mega Leather Footwear and Accessories Cluster Development (MLFACD)
  - Establishment of Institutional Facilities (EIF)
  - Brand Promotion of Indian Brands in Footwear and Leather Sector
  - Development of Design Studios in Footwear and Leather Sector

What is the Impact of erstwhile IFLADP?
- The programme has a direct benefit towards **quality employment** generation especially for women, **skill development**, decent work, making the industry more **environment friendly** and prompting a **sustainable production system.**
- The leather clusters located in different parts of the country have accrued benefit in terms of **reduction of poverty,** gender equality, **sector specific skill/education,** etc., thus touching many of the **Sustainable Development Goals (SDGs).**
- Other **National Development Plans (NDPs)** such as economic growth, generation of employment, good health and well-being, infrastructure development, affordable and **clean energy** and other environmental benefits are well-served by the IFLAD Programme.

What is the Current Status of India's Leather Industry?

- The Leather industry in India accounts for around **13% of the world's leather production** of hides/skins and handles a robust **annual production of about 3 bn sq. ft. of leather.**
- The industry is known for its consistency in high export earnings and it is among the **top 10 <u>foreign exchange</u> earners for the country.**
- India has an abundance of raw materials with **access to 20% of the world's cattle and buffalo** and **11% of the world's goat and sheep population.**
- The Leather industry is an employment intensive industry providing **jobs to more than 4 million people,** mostly from the **weaker sections of the society.**
  - o Women employment is predominant in Leather products industry with about 30% share.
  - o The Leather industry in India has one of the youngest workforces with 55% of the workforce below 35 years of age.
- As of 2022, India is the **second largest producer of footwear and leather garments,** second largest exporter of leather garments and fifth largest exporter of leather goods & accessories in the world.
- The **major production centres of leather and footwear products** in India are located in Tamil Nadu, Andhra Pradesh, West Bengal, Uttar Pradesh, Maharashtra, Punjab, Haryana and Delhi.
- The **major markets** for Indian Leather & Footwear Products are USA, Germany, U.K, Italy, France, Spain, Netherlands, U.A.E, China, Hong Kong, Belgium, and Poland.
  - o USA is the **largest importer of leather and leather products from India** and accounted for 25.19% of the country's total leather exports during April-August 2022.

PRADHAN MANTRI KAUSHAL KO KAAM KARYAKRAM

- **Pradhan Mantri Kaushal Ko Kaam Karyakram (PMKKK)** has been named as Pradhan Mantri Virasat Ka Samvardhan (PM VIKAS) Scheme by the **Ministry of Minority Affairs.**
- What are the Key Points of the Scheme?
- **About:**
  - o It is a **Central-Sector Scheme,** which focuses on the skilling, entrepreneurship and leadership training requirements of the minority and artisan communities across the country.
  - o This is an integrated scheme that converges **five erstwhile schemes of the Ministry of Minority Affairs** viz,
    - **Seekho aur Kamao:**
      This is a **placement linked skill development scheme** for minorities aiming to upgrade the skills of minority youth in various modern/traditional skills **depending upon their qualification, present economic trends and market potential**
    - **USTTAD (Upgrading the Skills & Training in Traditional Arts/Crafts for Development):**It **aims to promote and preserve the rich heritage of the traditional arts & crafts** of the minority communities.
    - **Hamari Dharohar:** It has been formulated to preserve rich heritage of minority communities of India.
    - **Nai Roshni:** It is a **Leadership Development Programme for** women belonging to minority communities in the age group of 18 to 65 years. It was started in 2012-13.
    - **Nai Manzil:** The scheme aims to benefit the youth (both men & women) belonging to **six notified minority communities of 17-35 years of age,** who do not have formal school leaving certificate.
  - o The scheme has been approved by the Cabinet for the period of **15th Finance Commission.**
- **Components:**
  - o Skill and Training
  - o Leadership and Entrepreneurship
  - o Education
  - o Infrastructure Development
- **Objectives:**

o PM VIKAS aims to improve the **livelihoods of the minorities, particularly the artisan communities,** using the components of skill development, education, women leadership & entrepreneurship.
o These components complement each other **in the ultimate objective of the scheme to increase the incomes of the beneficiaries and provide support** by facilitating credit and market linkages.

What are the Other Schemes Related to the Minority?
- **Pradhan mantri Jan Vikas Karykram :** The programme aims to **develop socio-economic and basic amenities assets like school, college, polytechnic,** girls' hostel, ITI, skill development centre etc for the minority communities.
- **Begum Hazrat Mahal Girls Scholarships :** Scholarships for **economically backward girls** belonging to the six notified Minority communities.
- **Gharib Nawaz Employment Scheme :** It was launched so that **short-term job-oriented skill development courses may be provided to minorities' youth** in order to enable them for skill based employment.
- **Hunar Haat :** Launched to provide market and employment and employment opportunities to **master artisans, craftsmen and traditional culinary experts.**

YEAR-END-REVIEW OF THE DEPARTMENT OF CONSUMER AFFAIRS 2022

Why in News?
- Recently, the year-end-review of the **Department of Consumer Affairs** under the **Ministry of Consumer Affairs, Food and Public Distribution** for the year 2022 was released.

What are the Key Achievements of the Department?
- **Scheme for strengthening of Price Monitoring Mechanism:**
  o **Price Monitor Cell** monitors **wholesale and retail prices** of twenty-two essential commodities including Rice, Wheat, Atta, Gram Dal etc. based on data collected from 179 market centres spread across the country representing North, West, East, South and North-eastern regions of the country.
  o During the year, **57 price reporting centers were added.** Number of price reporting centers increased from 122 on 1st January 2021 to **179 till December 2022.**
- **Price Stabilization Fund (PSF):**
  o PSF is a **central sector scheme** for providing working capital and other incidental expenses for **procurement and distribution** of agri-horticultural commodities.
  o During 2022, **12.83 Lakh Metric Tonnes (LMT)** of pulses has been Transferred from Price Support Scheme (PSS), Department of Agriculture Cooperation & Farmers Welfare (DACFW) to PSF, Department of Consumer Affairs (DoCA) /Procured/Import under PSF.
- **Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY):**
  o During 2022, Rs. 35.59 crore were released to States/Union Territories as reimbursement for expenditure on intra-State movement & handling, fair price shop dealer's margin and Additional Margin Distribution through Point of Sale (PoS) Device for distribution of pulses under **PMGKAY** and **Atma Nirbhar Bharat Scheme.**
- **Consumer Awareness:**
  o The new mascot of the DoCA **"Jagriti"** was launched to strengthen the campaign titled **"Jago Grahak Jago"** to reinforce top-of-mind awareness with all the consumers.
- **Bureau Of Indian Standards (BIS):**
  o **BIS Act 2016** came into force with effect from 12th October 2017, subsequently Governing Council was reconstituted.
    ▪ The total number of standards in force, as on 25th November 2022 is 21,833.
  o BIS (India) is holding the chairship of the **South Asian Regional Standards Organization (SARSO)** Technical Management Board for a **three-year term from Oct 2020 to Oct 2023** and Board of Conformity Assessment (BCA).

- o **Management System Certification:**
  - BIS operates 20 Management Systems Certification Schemes, In 2021-22, two new more schemes i.e., **Occupational Health & Safety Management System** and **Energy Management System** have been accredited by **National Accreditation Board for Certification Bodies** (NABCB).

Consumer Protection:
- o **World Consumer Rights Day**:
  - The **World Consumer Rights Day** was celebrated on 15th March 2022 at Vigyan Bhawan, New Delhi.
  - The theme of the event was **"Fair Digital Finance".**
- o **Settlement of cases through National Lok Adalat:**
  - **National Legal Service Authority (NALSA)** along with other Legal Service institutions conducts **Lok Adalats.**
  - DoCA wrote to all State/UT Govts. for referring pending consumer cases to be taken up through National Lok Adalat.
    - As a result, 5,930 cases were settled on a single day on 12th December, 2022 through Lok Adalat across the Country.
- o **Consumer Protection Act, 2019:**
  - **Guidelines for Prevention of Misleading Advertisements and Endorsements for Misleading Advertisements, 2022** were notified under the **Consumer Protection Act, 2019**
  - **E-Filing:**
    - A Consumer Commission online application portal named "**edaakhil.nic.in**" has been developed to facilitate the consumers/advocates to file the consumer complaint online through the e-Daakhil portal from home or anywhere at their own comfort.
  - **Fake Reviews:**
    - **BIS** launched the framework titled Indian Standard (IS) 19000:2022 **'Online Consumer Reviews — Principles and Requirements for their Collection, Moderation and Publication.**
    - The standards will be applicable to every online platform which publishes consumer reviews.
    - The standard **provides for responsibilities of organization** including developing a code of practice, and necessary stipulations for terms and conditions like accessibility, criteria, and ensuring content does not contain financial information etc.

Legal Metrology:
- o **Amendment to Rules:**
  - **The Legal Metrology (Packaged Commodities) Rules, 2011** were amended to allow the electronic products industries to **declare certain mandatory declarations in the digital form through the QR Code f**or a period of one year, if not declared in the package itself.
  - This permission is to enable greater use of technology in this digital era to declare the mandatory declaration through the QR Code which can be scanned to view the declarations.

ANTI - MARITIME PIRACY BILL

Why in News?
- Recently, **Rajya Sabha** passed the **Anti-Maritime Piracy Bill** which the government said would provide an effective legal instrument to combat **Maritime Piracy.**
- The **security of sea lanes of communication** is critical as more than 90% of India's trade takes place by sea routes and more than 80% of the country's **hydrocarbon requirements** was sea-borne.

What are the Key Features of the Bill?
- **About:**
  - o The Bill provides for **prevention of maritime piracy and prosecution of persons** for such piracy-related crimes.

- It will apply to all parts of the sea adjacent to and beyond the limits of the **Exclusive Economic Zone** of India, i.e., beyond 200 nautical miles from the coastline.
  - The Bill brings into law the **United Nations Convention on the Law of the Sea (UNCLOS).**

Definition of Piracy:
  - **It defines piracy** as any illegal act of violence, detention, or destruction committed against a ship, aircraft, person or property, for private purposes, by the crew or passengers of a private ship or aircraft. Such acts may be carried out in the **high seas** (beyond the Exclusive Economic Zone of India) or **any place outside the jurisdiction of India.**
    - **Inciting or intentionally facilitating** such acts would also qualify as piracy.
    - It includes any other act that is considered as **piratical under international law.**
  - Piracy also includes **voluntary participation** in the operations of a pirate ship or aircraft used for piracy.

Penalties:
  - An act of piracy will be punishable with:
    - **Imprisonment for life;** or
    - **Death**, if the act of piracy causes or attempts to cause death.
  - An attempt to commit, aid, support, or counsel an act of piracy will be **punishable with up to 14 years of imprisonment,** and a fine.
  - Participating, organising, or directing others to participate in an act of piracy will also be **punishable with up to 14 years of imprisonment,** and a fine.
  - Offences will be considered **extraditable.** This means that the accused can be **transferred to any country for prosecution** with which India has signed an **extradition treaty.**
    - In the absence of such treaties, offences will be extraditable on the basis of reciprocity between the countries.

Jurisdiction of the Courts:
  - The central government, in consultation with the Chief Justice of the concerned **High Court**, may notify **Sessions Courts** as the Designated Courts under this Bill.
  - The Designated Court will try offences committed by:
    - A person in the **custody of the Indian Navy or Coast Guard**, regardless of his nationality.
    - A citizen of India, a resident foreign national in India, or a stateless person.
  - The Court will **not have jurisdiction over offences committed on a foreign ship** unless an intervention is requested by:
    - The country of origin of the ship.
    - The ship-owner.
    - Any other person on the ship.
  - Warships and government-owned ships employed for non-commercial purposes will **not be under the jurisdiction of the Court.**

What are the Key Challenges in the Bill?
- Under the Bill, if a person, while committing an act of piracy causes or seeks to cause death, **he will be punished with death.**
  - This implies a **mandatory death penalty** for such offences.
  - The **Supreme Court** has held that mandatory death penalty for any offence is unconstitutional as it violates **Articles 14 and 21 of the Constitution.**
    - However, **Parliament** has passed laws providing for mandatory death penalty for some offences. **Example:** Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989 (SC/ST Act).
  - The Bill provides for imprisonment of up to 14 years if a person participates in an act of piracy. Committing an act of piracy (which includes voluntarily participating in the operation of a pirate ship or aircraft) is punishable with life imprisonment.
    - As these **circumstances may overlap**, it is unclear how the punishment would be determined in such cases.

- The Bill will apply to all parts of the sea adjacent to and **beyond the limits of the Exclusive Economic Zone (EEZ)** of India, i.e., beyond 200 nautical miles from the coastline.
  - The question is whether the Bill should cover the EEZ also, that is the **area between 12 nautical miles and 200 nautical miles** (from the coastline of India).

What is the UN Convention on the Law of the Sea?

- **The UNCLOS**, 1982 is an international agreement that establishes the **legal framework for marine and maritime activities.**
- It is also known as **Law of the Sea.** It divides **marine areas into five main zones** namely- Internal Waters, Territorial Sea, Contiguous Zone, Exclusive Economic Zone (EEZ) and the High Seas.
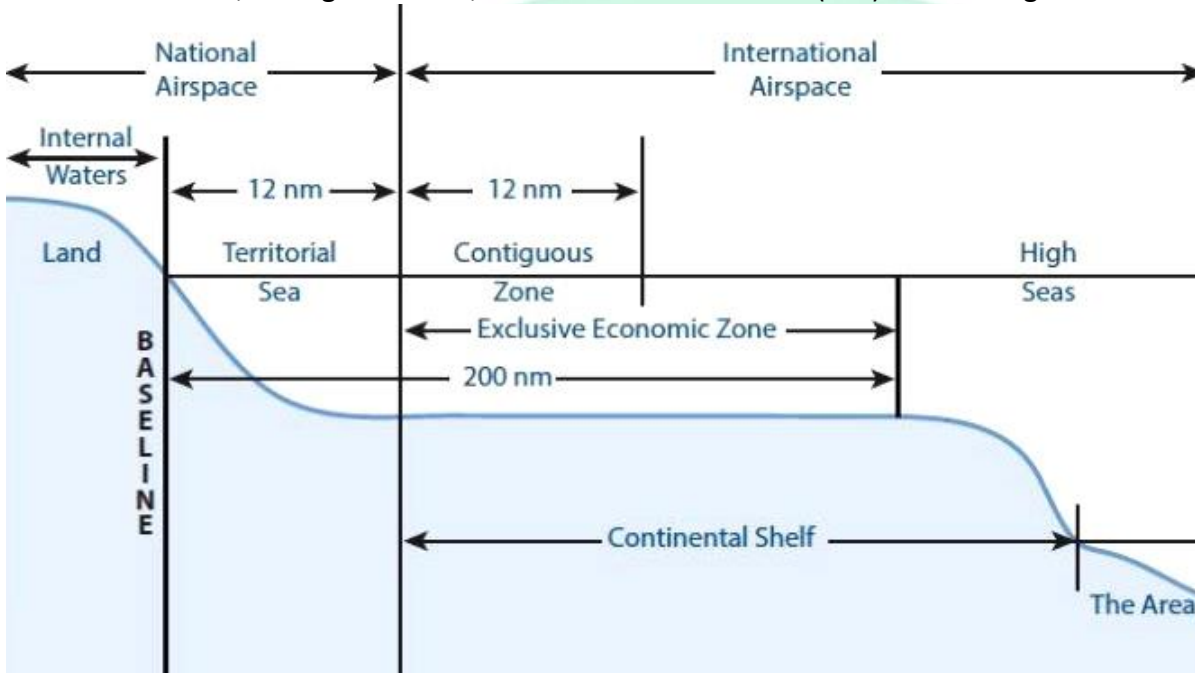
- It is the only international convention which stipulates a **framework for state jurisdiction in maritime spaces.** It provides a **different legal status** to different maritime zones.
- It provides the **backbone for offshore governance** by coastal states and those navigating the oceans.
- It not only zones coastal states' offshore areas but also provides **specific guidance for states' rights and responsibilities** in the five concentric zones.
- In 1995, **India ratified the UNCLOS.**

RASHTRIYA GOKUL MISSION

Why in News?

Recently, Ministry of Fisheries, Animal Husbandry and Dairying announced that **employment will be given to more than 50 lakh farmers.**

- Under **Rashtriya Gokul Mission (RGM)** there is a scheme to **provide subsidy on cow/buffalo/pig/chicken/goat breeding farms and silage making units** of which 50% subsidy will be given by the Government of India. Also, **3% interest subvention on the loan amount** can also be taken **under the Animal Husbandry Infrastructure Development Fund (AHIDF) scheme.**

What is Rashtriya Gokul Mission?

- **About:**
  - It is being implemented for **development and conservation of indigenous bovine breeds since December 2014.**
  - The scheme is also continued **under umbrella scheme Rashtriya Pashudhan Vikas Yojna from 2021 to 2026** with a budget outlay of Rs.2400 crore.
- **Nodal Ministry:**
  - Ministry of Fisheries, Animal Husbandry and Dairying
- **Objectives:**

- o To enhance productivity of bovines and increasing milk production in a sustainable manner using advance technologies.
- o To propagate use of high genetic merit bulls for breeding purposes.
- o To enhance Artificial insemination coverage through strengthening breeding network and delivery of Artificial insemination services at farmers doorstep.
- o To promote indigenous cattle & buffalo rearing and conservation in a scientific and holistic manner.

- ▪ **Significance:**
  - o The RGM will result in enhanced productivity and benefit of the programme, **percolating to all cattle and buffaloes of India especially with small and marginal farmers.**
  - o This programme will **also benefit women in particular since over 70% of the work** involved in livestock farming is **undertaken by women.**

- ▪ **Components:**
  - o Availability of High genetic Merit Germplasm
  - o Extension of Artificial Insemination Network
  - o Development and Conservation of indigenous Breeds
  - o Skill Development
  - o Farmers Awareness
  - o Research Development and Innovation in Bovine Breeding

- ▪ **Implementing Agency:**
  - o Rashtriya Gokul Mission will be implemented through the "State Implementing Agency (SIA viz Livestock Development Boards).

- ▪ **Significant Initiatives:**
  - o **Gopal Ratna Awards:**
    - • For farmers maintaining the best herd of Indigenous Breed and practicing best management practices.
  - o **Kamdhenu Awards:**
    - • For best-managed Indigenous herd by Institutions/Trusts/ NGOs/ Gaushalas or best-managed Breeders' societies.
  - o **Gokul Grams:**
    - • RGM envisages the establishment of integrated cattle development centers, **'Gokul Grams' to develop indigenous breeds including up to 40% nondescript breeds**(belonging or appearing to belong to no particular class or kind) with objectives to:
      - ✓ Promote indigenous cattle rearing and conservation in a scientific manner.
      - ✓ Propagate high genetic merit bulls of indigenous breeds.
      - ✓ Optimize modern Farm Management practices and promote Common Resource Management.
      - ✓ Utilize animal waste in an economical way i.e., Cow Dung, Cow Urine.
    - • Recently, **funds have been released for setting up of 16 Gokul Grams.**
  - o **National Kamdhenu Breeding Centre (NKBC):**
    - • It is being established as a Centre of Excellence to develop and conserve Indigenous Breeds in a holistic and scientific manner.
  - o **E-Pashu Haat**:
    - • It is a web portal which provides information on pet cattle, trading of bovine animals that were not offered on any other platform in the country.
  - o **Nakul Prajnan Bazaar**:
    - • An e-market portal connecting breeders and farmers, for quality- disease-free bovine germplasm.
  - o **Pashu Sanjivni:**
    - • An animal wellness program encompassing the provision of animal health cards ('Nakul Swasthya Patra') along with unique identification and uploading data on National Database.

- o **Advanced Reproductive Technology (ART):**
  - Including Assisted Reproductive Technique- IVF/Multiple Ovulation Embryo Transfer (MOET) and sex-sorted semen technique to improve the availability of disease-free female bovines.
- o **National Bovine Genomic Center for Indigenous Breeds (NBGC-IB):**
  - It will be established for selection of breeding bulls of high genetic merit at a young age using highly precise gene-based technology.
- o **AHIDF Scheme:**
  - AHIDF of Rs.15000 crore has been set up **under Atma Nirbhar Bharat Abhiyan stimulus package** for incentivizing investments by individual entrepreneurs, private companies, MSME, **Farmers Producers Organizations (FPOs)** and Section 8 companies to establish:
    - ✓ the **dairy processing and value addition infrastructure,**
    - ✓ **meat processing** and value addition infrastructure and
    - ✓ **Animal Feed Plant.**

AMENDMENTS TO THE CO-OPERATIVE SOCIETIES ACT

Why in News?
- Recently, responding to the demands by the Opposition, the Lok Sabha has referred the **Multi-State Co-operative Societies (Amendment) Bill 2022** to a joint **committee of Parliament.**

- The Bill is aimed at **overhauling the Multi-State Cooperative Societies Act, 2002**, which was enacted 20 years ago.

What is a Cooperative Society?
- **About:**

  - o Cooperatives are organizations **formed at the grassroots level by people to harness the power of collective bargaining** in the marketplace.
    - This can mea**n different kinds of arrangements, such as using a common resource or sharing capital, to derive a common gain** that would otherwise be difficult for an individual producer to get.
  - o In agriculture, cooperative dairies, sugar mills, spinning mills etc. are formed with the **pooled resources of farmers who wish to process their produce.**
    - Amul is perhaps the **best-known cooperative society in India.**
- **Jurisdiction:**

  - o Cooperatives are **a state subject under the Constitution,** meaning they come under the state governments' jurisdiction, but there are **many societies whose members and areas of operation are spread across** more than one state.
    - For example, most sugar mills along the districts on the **Karnataka-Maharashtra border procure cane from both states.**
  - o Cooperatives of more than one state are registered under the **Multi-State Co-operative Societies Act (MSCS) of 2002 Act.**
    - Their board of directors has **representation from all states** they operate in.
    - Administrative and financial control of these societies **is with the central registrar, with the law making it clear that no state government official** can wield any control over them.

What is the Need for Amendment?
- Since 2002, many **changes have taken place** in the field of cooperatives. At that time, Cooperation was a department under the Ministry of Agriculture. However, in July 2021, the government carved out **a separate Cooperation Ministry.**

- **Part IXB** was inserted in the **Constitution via 97th Constitutional Amendment Act 2011.** In view of the insertion of Part IXB, it has become imperative to amend the Act.

- o **Under 97ᵗʰ Amendment:**
    - The right to form cooperative societies was included as **Right to Freedom (Article 19 (1)).**
    - **Promotion of Cooperation societies** was inserted as one of the DPSPs **(Article 43-B).**
- Further, developments over the years also necessitated changes in the Act so as to strengthen the co-operative movement in the multi-State co-operative societies.

What are the Proposed Amendments?
- **Merger of Cooperatives:**
    - o The Bill provides for the **merger of "any co-operative society"** into an existing MSCS by a resolution passed by **majority (at least 2/3rd) of the members present and voting** at a general meeting of such society.
    - o **At present, only MSCS can amalgamate** themselves and form a new MSCS.
- **Co-operative Election Authority:**
    - o The Bill seeks to establish a **"Co-operative Election Authority"**, with a view to bring **"electoral reforms" in the co-operative sector.**
    - o The Authority shall consist of a Chairperson, a Vice-Chairperson and a maximum of 3 more members to be appointed by the Centre.
        - All the members **will hold office for 3 years or until they attain the age of 65 years**(whichever is earlier) and **shall be eligible for re-appointment.**
- **Stricter Punishments:**
    - o **The Bill seeks to increase the amount of penalty** for certain offences.
    - o If the board of directors or officers receive any unlawful gains while transacting matters related to such society, they will be punishable with imprisonment for a **term which shall not be less than one month but which may extend to one year or with fine.**
- **Cooperative Ombudsman:**
    - o The government has proposed to appoint **one or more "Co-operative Ombudsman"** with a territorial jurisdiction for inquiring into the complaints made by the members.
    - o The **Co-operative Ombudsman will have the powers of civil court** in summoning and examination.
- **Rehabilitation and Development Fund:**
    - o The Bill also seeks the **"establishment of the Co-operative Rehabilitation, Reconstruction and Development Fund"** for revival of "sick MSCS".
    - o It also proposes to insert a new section **70A relating to "concurrent audit" for MSCS s**having an annual turnover or deposit of more than the amount as determined by the Central Government.

What are the Criticisms of the Proposed Bill?
- The Opposition members in the Lok Sabha have argued that the bill seeks to **"take away" state governments' rights.**

- Some of the objections are based on the fact that cooperative societies are a state subject. **Entry 43 of the Union List (7ᵗʰ Schedule) makes it clear that co-operative societies do not come in the Centre's domain.**
    - o **Entry 43 says** - "Incorporation, regulation and winding up of trading corporations, including banking, insurance and financial corporations, **but not including co-operative societies".**

Question for practice
Question. "In the villages itself no form of credit organization will be suitable except the cooperative society." – All India Rural Credit Survey.
Question. Discuss this statement in the background of agricultural finance in India. What constraints and challenges do financial institutions supplying agricultural finance face? How can technology be used to better reach and serve rural clients?

J&K LAND GRANT RULES 2022

Why in News?

- **Recently**, the **Jammu and Kashmir administration** has notified "**J&K Land Grant Rules 2022**" which has **ended the owners right to hold on to properties on lease** in the **Union Territory (U.T.)** and plans to **outsource these properties** afresh online.

What are the Key Features of J&K Land Grant Rules 2022?

- The new laws replaced "**J&K Land Grants Rules 1960**", which had liberal lease policy such as **99-year lease period and extendable.**

    o Most **hotels at famous tourist places** in the Valley and **prime commercial structures** in twin capitals of Jammu and Srinagar are on lease land.

- The new laws state that **all leases**, except the subsisting or expired residential leases, including lease granted under the J&K Land Grants Rules 1960, notified area (All Development Authorities set in tourism sector) Land Grants Rules, 2007 and leases expired or determined prior to the coming into force of these rules or issued under these rules **shall not be renewed and shall stand determined.**

    o The **Lieutenant Governor** administration plans to hold a **fresh online auction** to outsource these lease properties.

- All the outgoing lessees would **immediately hand over the possession of the land taken on lease** to the government, failing which the outgoing lessee shall be evicted.

- J&K's land laws were regressive.

Why are the Rules being Opposed?

- Few Political Parties have argued that the newly-introduced Land Grant Rules-2022 will **push six to seven lakh people into the** unemployment bracket and will only pave the **way for millionaires and capitalists** from outside to buy hotels and commercial establishments in J&K.

    o The fresh Land Grant Rules-2022 will end the rights of present owners and sell it at market price. No local businessman has purchasing power compared to millionaires and billionaires from the rest of the country.

- The present **owners with bank loans will be forced to sell their houses** to repay their loans.

    o The current bank borrowing from the J&K Bank stands at ₹60,000 crore, an indicator of the loans raised by locals to survive the turbulent times since 1990s.

What are Administrations' Claims for the Rules?

- The J&K Administration has claimed that **no poor will be impacted by the amendments** to the land laws. Rule of law outside has to be implemented here too.

- There were properties worth ₹100 crore, which were being leased for ₹ 5 as payment. Only such people are worried by the amendments. New rules are to bring J&K at par with the rest of the country.

- Lieutenant Governor claimed that the land laws in J&K were regressive and were not framed keeping in view the interests of the common masses. Around 40% - 45% cases in various courts are due to land disputes only.

MINISTRY OF PANCHAYATI RAJ YEAR END REVIEW 2022

Why in News?

- Recently, the year-end-review of the **Ministry of Panchayati Raj for the year 2022** was released.

What are the Key Achievements of the Ministry?

- **SVAMITVA Scheme:**

    o **About:**

        ▪ **Survey of Villages and Mapping with Improvised Technology in Village Areas (SVAMITVA)** scheme was launched by the Prime Minister on **National Panchayati Raj**

Day 2020 to enable economic progress of Rural India by providing **"Record of Rights"** to every rural household owner.

- o **Achievements:**
  - As on December 2022, drone flying has been completed in around 2 lakh villages.
  - **Drone flying** has been saturated in Dadra and Nagar Haveli and Daman and Diu, Delhi, Haryana, Lakshadweep Islands, Puducherry, Uttarakhand, Goa, Andaman and Nicobar Islands.
  - **Property cards** have been prepared for all the Inhabited villages of Haryana and Uttarakhand.

- **e-Gram Swaraj e-Financial Management System:**

  - o **e-Gram Swaraj** is a Simplified Work Based **Accounting Application for** <u>Panchayati Raj.</u>
  - o It assists in enhancing the **credibility of Panchayat** through inducing greater **devolution of funds to Panchayati Raj Institutions.** It brings better transparency through decentralized planning, progress reporting and work-based accounting.

- **Geo-Tagging of Assets:**

  - o Ministry has developed **"mActionSoft",** a mobile based solution to help in capturing photos with **Geo-Tags** (i.e., GPS Coordinates) for the works which have assets as an output.
  - o As of December 2022, 2.05 lakh photographs of the assets have been uploaded by the Gram Panchayats for the activities taken under **Fifteen Finance Commission** in 2022.

- **Citizen Charter:**

  - o In order to focus on the commitment of the Panchayati Raj Institutions (PRIs) towards its Citizens in respects of Standard of Services, the Ministry has provided platform to upload Citizen Charter document with the slogan **"Meri Panchayat Mera Adhikaar – Jan Sevaayein Hamaare Dwaar".**
  - o Till December 2022, 2.15 lakh Gram Panchayats have uploaded their approved Citizen Charter and offering 952 services to citizen out of which 268 services are delivered through online mode.

- **Audit Online:**

  - o In order to provide **audited reports of Panchayat accounts in the public domain**, the Ministry had conceptualized the application **"AuditOnline"** for carrying out **online audits of Panchayat accounts** pertaining to Central Finance Commission Grants.
  - o It not only facilitates the auditing of accounts but also provisions for maintaining digital audit records pertaining to audits that have been carried out.

- **Gram Urja Swaraj:**

  - o The Ministry has started the **Gram Urja Swaraj initiative,** with an aim to promote adoption of **renewable energy** at Gram Panchayat level.
  - o The Ministry has also launched the **Gram Urja Swaraj Portal in May 2022,** to capture the inclination of Panchayati Raj Institutions (PRIs) towards adoption of renewable energy.

- **Revamped Rashtriya Gram Swaraj Abhiyan** (2022-23 to 2025-26):

  - o The focus of the scheme of **Revamped RGSA** is on **re-imagining Panchayati Raj Institutions** as vibrant centers of local self-governance with special focus on **Localization of Sustainable Development Goals (LSDGs)** at grassroot level adopting **thematic approach through concerted and collaborative efforts** of Central Ministries and State Line departments and other Stakeholders with **'Whole of Government and Whole of Society'** approach.
  - o The Revamped RGSA will extend to all States and Union Territories (UTs) of the country.

- As of December 2022, an amount of Rs.435.34 crore has been released to 11 State and other implementing agencies and **more than 13 lakh Elected Representatives, Functionaries** and & other stakeholders of Panchayats were **provided various and multiple trainings** for which details have been uploaded on Training Management Portal.

GOOD GOVERNANCE DAY

Why in News?

- Good Governance Day (25th December) is being celebrated on the birth anniversary of former Prime Minister **Atal Bihari Vajpayee.**

What is Good Governance?

- **About:**
  - Governance is the **process of decision-making and the process by which decisions are implemented (or not implemented).**
    - Governance can be used in several contexts such as corporate governance, international governance, national governance and local governance.
  - Good Governance is defined as **"the manner in which power is exercised in the management of a country's economic and social resources for development"**
  - The concept of good governance existed even during the days of Chanakya. He had mentioned it elaborately in **Arthashastra.**
  - Citizens centric administration lies on the foundation of good governance.

- **8 Principles of Good Governance:**
  - **Participation:**
    - **People should be able to voice their own opinions** through legitimate immediate organizations or representatives.
    - This includes men and women, vulnerable sections of society, backward classes, minorities, etc.
    - Participation also **implies freedom of association and expression.**
  - **Rule of Law:**
    - **Legal framework should be enforced impartially,** especially on human rights laws.
    - Without rule of law, politics will follow the principle of matsya nyaya i.e. the law of fish which means the strong will prevail over the weak.
  - **Consensus Oriented:**
    - **Consensus oriented decision-making ensures that even if everyone does not achieve what they want to the fullest, a common minimum can be achieved by everyone which will not be detrimental to anyone.**
    - It mediates differing interests to meet the broad consensus on the best interests of a community.
  - **Equity and Inclusiveness:**
    - **Good governance assures an equitable society.**
    - **People should have opportunities to improve or maintain their well-being.**
  - **Effectiveness and Efficiency:**
    - **Processes and institutions should be able to produce results that meet the needs of their community.**
    - Resources of the community should be used effectively for the maximum output.
  - **Accountability:**
    - Good governance aims towards betterment of people, and this cannot take place without the **government being accountable** to the people.
    - Governmental institutions, private sectors, and civil society organizations should be held accountable to the public and institutional stakeholders.
  - **Transparency:**
    - **Information should be accessible to the public and should be understandable and monitored.**
    - It also means free media and access to information.
  - **Responsiveness:**

▪ Institutions and processes should serve all stakeholders in a reasonable period of time.

What are the Challenges to Good Governance in India?

- **Women Empowerment:**
  o Women are not adequately represented in government institutions, and other allied sectors.
- **Corruption:**
  o The high level of corruption in India has been widely perceived as a major obstacle in improving the quality of governance.
- **Delay in Justice:**
  o A citizen has the right to avail timely justice, but there are several factors, because of which a common man doesn't get timely justice. One such factor is lack of personnel and logistics under disposal of court.
- **Centralisation of Administrative System:**
  o Governments at lower levels can only function efficiently if they are empowered to do so. This is particularly relevant for the **Panchayati Raj Institutions (PRIs)**, which currently suffer from inadequate devolution of funds as well as functionaries to carry out the functions constitutionally assigned to them.
- **Criminalisation of Politics:**
  o The criminalisation of the political process and the unholy nexus between politicians, civil servants, and business houses are having a baneful influence on public policy formulation and governance.
- **Other Challenges:**
  o Environmental security, sustainable development and challenges of globalization, liberalisation and market economy.

What are the Indian Initiatives to improve Good Governance?

- **Good Governance Index (GGI):**
  o GGI has been launched by the **Ministry of Personnel, Public Grievances & Pensions to determine the status of governance in the country.**
  o It assesses the impact of various interventions taken up by the State Government and UTs.
- **National e-Governance Plan:**
  o It has the vision to **"make all government services accessible to the common man in his locality**, through common service delivery outlets and ensure efficiency, transparency & reliability of such services at affordable costs to realise the basic needs of the common man."
- **Right to Information Act, 2005:**
  o It plays an effective role in ensuring transparency in governance.
- **Other Initiatives:** Setting up of **NITI Aayog, Make in India programme**, Lokpal, etc.

BAN ON LIQUOR

Why in News?

- A recent hooch tragedy in Bihar claimed many lives and left several others critically ill and blind.

What is the Background of Liquor Ban in India?

- In India, **attempts at prohibition have been influenced by the thinking of Mahatma Gandhi**, who viewed alcohol consumption more as a disease than a vice.
- Following India's independence, **Gandhians continued to push for a liquor ban.**
  o These efforts led to the inclusion of **Article 47 in the Constitution.**
- Several Indian states have enacted bans on alcoholic beverages.
  o For example, **Haryana made several attempts at prohibition but was forced to abandon the policy** due to the inability to control illicit distillation and bootlegging, which also resulted in many deaths.

- **Prohibition has been in effect in Gujarat since 1ˢᵗ May 1960,** but the liquor trade persists through the black market.
- Bihar's prohibition, imposed in April 2016, which initially appeared to succeed and yield certain social gains.
  - However, following several deaths from consuming illicit liquor, the policy is increasingly coming under attack.
- Currently, there are **five states (Bihar, Gujarat, Lakshadweep, Nagaland, and Mizoram) with total prohibition** and some more with partial prohibition.

What is the Indian Constitution's View of Alcohol?
- **Directive Principles of State Policy (DPSP) (Article 47):**
  - It mentions that "in particular, the State shall endeavour to bring about prohibition of the consumption except for medicinal purposes of intoxicating drinks and of drugs which are injurious to health."
  - **While DPSPs are not in themselves legally enforceable,** they set goals that the state should aspire towards to establish conditions under which citizens can lead a good life.
  - Thus, **alcohol is seen by the Constitution and by extension**, the Indian state, as an undesirable evil that needs to be regulated.
- **Seventh Schedule:**
  - According to the **Seventh Schedule of the Constitution**, alcohol is a state subject, i.e., state legislatures have the right and responsibility to draft laws regarding it, including "the production, manufacture, possession, transport, purchase and sale of intoxicating liquors."
  - Thus, laws regarding alcohol differ from state to state, falling in the whole spectrum between prohibition and private sale.

What is the Reason that Not all States have Banned Alcohol?
- While the Constitution sets prohibition on alcohol as a goal, for most states, it is very difficult to declare a ban on alcohol.
- This is primarily because **liquor revenues are not easy to ignore and have consistently contributed a large share of state governments' revenue.**
  - For instance, in Maharashtra, state liquor revenues amounted to Rs 11,000 crore in April 2020 (during the nationwide Covid lockdown), compared with Rs 17,000 crore in March.

What are the Pros and Cons of Prohibition?
- **Pros:**
  - Various studies have provided **evidence linking alcohol with domestic abuse or domestic violence.**
    - Case of Bihar: Crimes against women have **clearly declined both in terms of rate** (per 100,000 female population) and incidence (absolute numbers).
- **Cons:**
  - **Strengthen Organised Crime Groups:**
    - Prohibition **creates opportunities for a thriving underground economy** that distributes liquor, outside the regulatory framework of the state.
    - This **creates its own problems, from strengthening organised crime groups (or mafias)** to the distribution of spurious liquor.
    - In the case of Bihar, it was reported that a year after prohibition was enforced, **there was a spike in substance abuse.**
    - While the government made liquor more inaccessible, it is impossible to take it out of circulation completely.
  - **Affects Poorer Sections of Society:**
    - Prohibition **disproportionately affects poorer sections of society with upper classes still being able to procure expensive** (and safe) alcohol.
      - ✓ In Bihar, most of the cases registered under its prohibition laws are related to **illicit or low-quality liquor consumption.**
  - **Burden on Judiciary:**

- Bihar introduced complete prohibition in April 2016. While it certainly has led to reduction in alcohol consumption, the related social, economic, and administrative costs have been far too much to justify gains. Prohibition crippled the judicial administration.
  - ✓ The former NV CJI Ramana had stated that decisions like the liquor ban in Bihar put a huge burden on courts. As of 2021, there are three lakh cases pending in the courts related to liquor ban.

Way Forward
- **A Nuanced Approach is Needed:**
  - o There is a **need for a nuanced approach that integrates the regulation of alcohol production and sale** without compromising the requirements of public health.
  - o The goal of an **effective and sustainable alcohol policy can only be achieved through coordinated action between multiple stakeholders,** such as women's groups and vendors.
- **Regulating Liquor:**
  - o On the regulation side, **the rules on drunken driving and liquor advertisements can be tightened,** and compulsory labelling on the dangers of excessive drinking can be mandated.
    - On the advisory side, developed nations have adopted behavioural counselling, educating their people on the consequences of excessive liquor intake. Such campaigns help people make educated choices about their lifestyles.

OFFICIAL RECOGNITION TO E-SPORTS

Why in News?
- Recently, the **President of India** amended the regulations governing eSports and requested that the Sports Ministry and the Ministry of Electronics and Information Technology include "eSports in multi-sport events."
- The President is empowered under **Article 77 (3) of the Constitution** to make rules for the more convenient transaction of the business of the Government of India, and for the allocation among Ministers of the said business.
- According to a gazette notification, **E-Sports will now be a part of the "multisports event" category in India.**

What is E-Sports?

About:
- Esports (Electronic Sports) is a **competitive sport where gamers use their physical and mental abilities** to compete in various games in a virtual, electronic environment.**Example:** Counter Strike, League of Legends, Overwatch, Fortnite, DOTA 2.
- There had been a growing demand for **Esports to be included in the curriculum of multi-discipline events after it was included in the 2018 Jakarta Asian Games.**
- This, however, boosted E-sport enthusiasts and has come as a shot in the arm for Esports enthusiasts in India.
- India won **a bronze medal in 2018 Asian Games, where esports was included as a demonstration title.**
- It has received its **sporting recognition from the International Olympic Committee (IOC)**, which is the apex body of sports along with Olympic Council of Asia (OCA), Commonwealth Games etc.
- IOC organised Virtual Olympic Series (Esports Tournament), before the Tokyo Olympics 2020;
- Esports has been included in OCA events since 2007. Esports is a medal sports in Asian Games 2022.
- In a similar effort to popularise e-Sport, the **International Olympic Committee (IOC)** has announced that Singapore will host the inaugural Olympic Esports Week in June, 2023.

Nodal Ministry:
- E-Sports will be taken care of by the **Department of Sports under the Ministry of Youth Affairs and Sports.**
- While **'Online Gaming'** will be overseen by **MEITY (Ministry of Electronics and Information Technology).**

Recognition of E-Sport as a Sport:

- By now, **countries such as the US, Finland, and even the somewhat reticent Germany** have acknowledged esports as a sport.
- The very first few nations **(along with South Korea) to recognise esports as a sport were China and South Africa.** Russia, Italy, Denmark, and Nepal have also joined.
- Ukraine officially recognized esports as a sport in September of 2020.
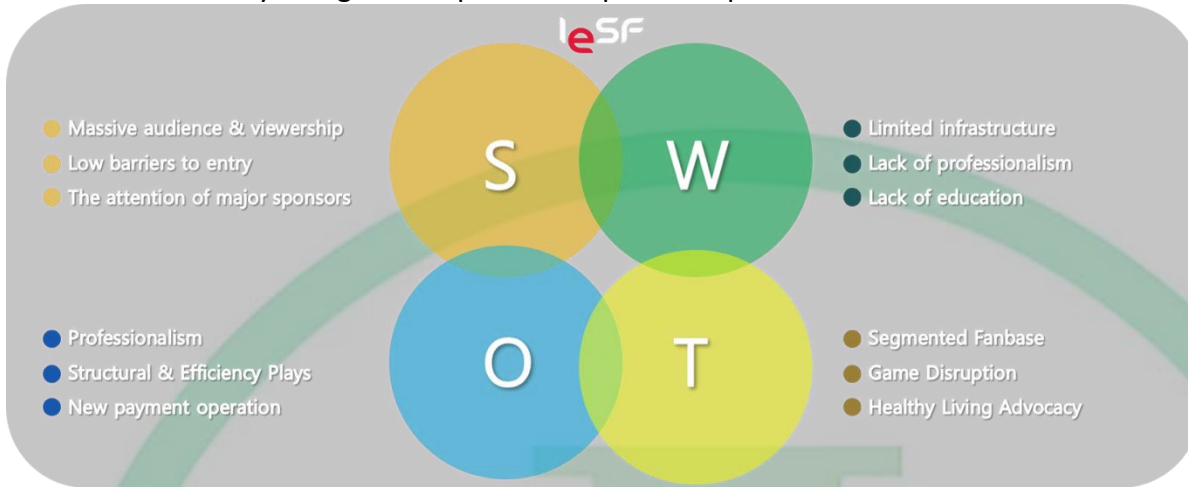
DEPARTMENT OF DRINKING WATER AND SANITATION YEAR END REVIEW 2022

Why in News?

- Recently, the year-end-review of the **Department of Drinking Water and Sanitation under the Ministry of Jal Shakti, Jal Jeevan Mission (JJM) & Swachh Bharat Mission - Grameen (SBM - G)** for the year 2022 was released.

What are the Key Achievements of the JJM?

- **Coverage Under Jal Jeevan Mission:**
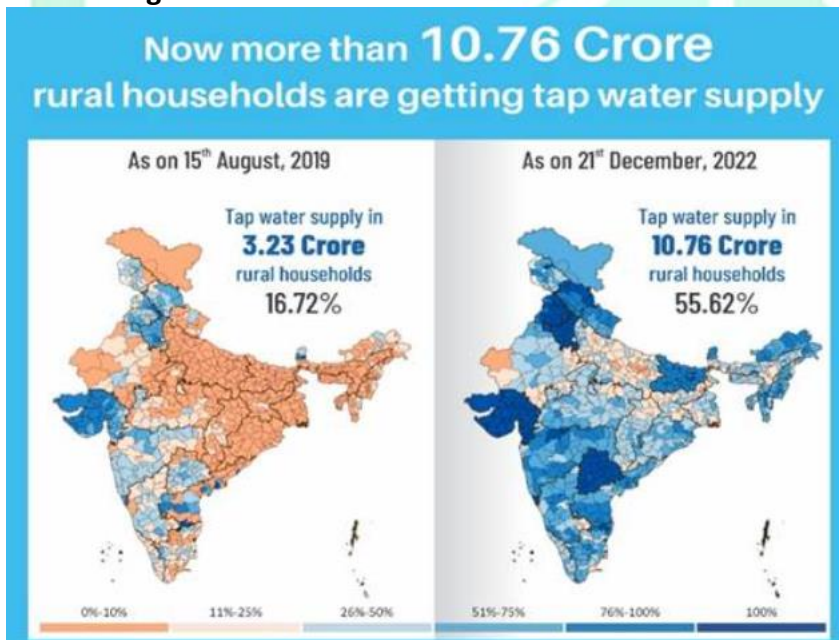
- As on 21st December 2022, under the Jal Jeevan Mission, **more than 10.76 Crore (55.62 %) of rural households** are being provided with tap water connection in adequate quantity, of prescribed quality on a regular basis.
- Four States namely **Goa, Telangana, Gujarat, and Haryana** and 3 Union Territories of **Puducherry, Daman & Diu and Dadra & Nagar Haveli and Andaman & Nicobar Islands**, reported as **"Har Ghar Jal"**, i.e. Every rural household has provision of tap water supply.
- Goa becomes the **First 'Har Ghar Jal' Certified State** & Dadra & Nagar Haveli and Daman & Diu becomes the **First 'Har Ghar Jal' Certified Union Territory (UT)** in India in August, 2022.

- **Burhanpur District of Madhya Pradesh** becomes the first **'Har Ghar Jal' certified district** in India in July, 2022.
- **Har Ghar Jal Certification:**

Har Ghar Jal* Status

| Certified States/ UTs : Goa, A & N Islands, Puducherry, D&NH and D&D, Haryana |
| Reported States/ UTs : Telangana, Gujarat |

Districts		Blocks		Panchayats		Villages	
Reported	Certified	Reported	Certified	Reported	Certified	Reported	Certified
125	56	1,353	413	77,260	34,452	1,61,704	49,928

* Har Ghar Jal means all households in that unit are provided with tap water supply

- Once a village is declared as **"Har Ghar Jal"**, the **Gram Panchayat** of that village conducts a special Gram Sabha and passes a resolution with the concurrence of all the village members that all the households, schools, Anganwadi, and public institutions in their village have functional tap connection and thus declare themselves as **"Har Ghar Jal Certified".**
- Coverage **of Potable Tap Water to JE-AES Affected Districts:**
- The government of India accords priority to **Japanese Encephalitis (JE)-Acute Encephalitis Syndrome (AES)** affected Districts to ensure potable tap water supply in all the households under Jal Jeevan Mission.
- In 61 districts affected with JE/AES across 5 states, tap water connection **increased from 8 lakh (2.69%) to 147.14 lakh (49.29%) households,** resulting in improvement in the health profile of the rural population of these areas.

Status of Water Quality Monitoring and Surveillance:
- There are a total of **2,074 water testing laboratories** in the country. Of these, 1,005 are **National Accreditation Board for Testing and Calibration Laboratories (NABL)** accredited.

Implementation Support Agencies (ISAs):
- The States/ UTs are extending support to the Panchayats by engaging **Implementation Support Agencies (ISAs)** to facilitate constitution of **Village Water Sanitation Committee (VWSC),** under participatory rural appraisal for community mobilization, support in preparing Village Action Plan and carry out activities post infrastructure construction.
- About 14 thousand ISAs have been engaged, which are actively working in the field.

National WASH Expert:
- **National Centre for Drinking Water, Sanitation, and Quality** has been entrusted with the task of empanelment and deployment of **National WASH Experts** for ground truthing and technical assistance to States in the implementation of the **Jal Jeevan Mission (JJM).**
- During 2022, 62 teams have visited around 1,035 villages for ground truthing of the implementation work done under JJM.

Use of Technologies for Drinking Water Supply and Water Quality:
- JJM focuses on various technologies for the community-led implementation of:
- **Source sustainability measures** such as aquifer recharge, **rainwater harvesting**, increased storage capacity of water bodies, reservoirs, desilting, etc. to improve the lifespan of water supply systems.
- Technologies like **Internet of Things (IoT)** for **Supervisory Control and Data Acquisition (SCADA),** remote sensing, and design software have been used in building **climate resilience through water accounting**, water quality control, water use efficiency, water resource planning, and impact assessment.
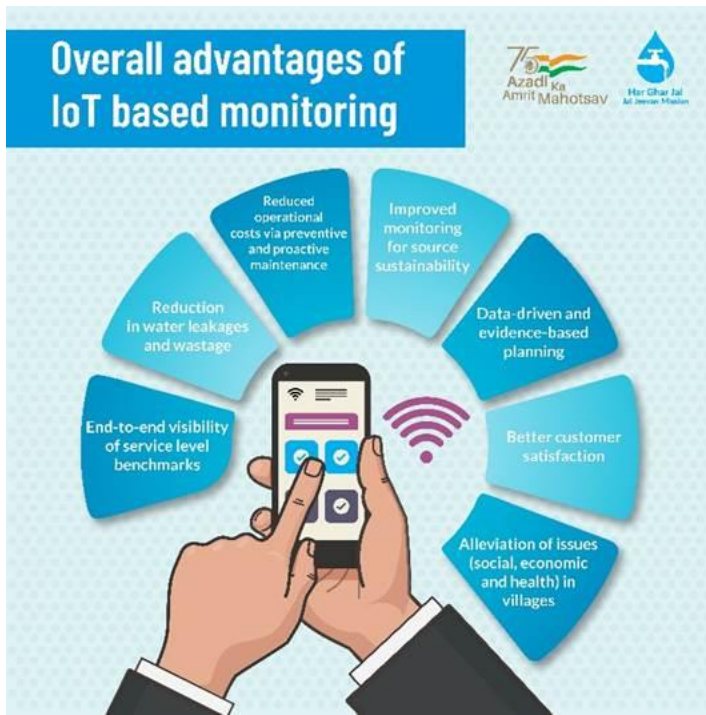
Grievance Redressal Mechanism:

- Grievance Redressal Cell has been constituted in the Department to address the grievances related to the water supply. People are lodging their complaint through the **Centralized Public grievances Redress and Monitoring System (CPGRAMS).**

Jeevan Survekshan (JJS) Toolkit:

- The **Vice President of India** launched **'Jal Jeevan Survekshan'** toolkit and dashboard on 21st October, 2022.
- The purpose of Jal Jeevan Survekshan 2023 is to incentivize States/ Districts functionaries to strive for better performances and improved water service delivery in rural areas.

What are the Key Achievements of Swachh Bharat Mission (Grameen)?

About SBM (G):

- **Swachh Bharat Mission (Grameen)**, a **Centrally Sponsored Scheme**, was launched by Prime Minister 2nd October, 2014, with the main aim to make the country **Open Defecation Free (ODF)** by 2nd October, 2019, the 150th birth anniversary of **Mahatma Gandhi,** by providing access to toilets to all the rural households in the country.
- All the villages in the country had declared themselves ODF by 2nd October, 2019.

Achievements:

- Around **1.25 lakhs villages declared Open Defecation Free (ODF)** Plus between 1st January, 2022 to 20th December, 2022.
- To prioritize **Liquid Waste Management** "Sujlam" campaign was launched.
- Under Sujlam 1.0 and Sujlam 2.0 campaigns, more than 23 lakh soak pits were constructed.
- Under the **"GOBARdhan"** initiative of SBM(G), 96 community/cluster level Biogas Plants have been established since January 2022.
- GOBARdhan's objective is to ensure cleanliness in villages and generate wealth and energy by converting bio-waste including animal waste, agri-residue into bio-slurry and biogas and to improve the lives of villagers.
- The Department of Drinking Water and Sanitation (DDWS) is also coordinating the implementation of GOBARdhan: Waste to Wealth initiative involving various Departments/ Ministries to provide an enabling environment for the Biogas/Compressed Biogas (CBG) sector.

Retrofit to Twin Pit Abhiyan:

- Retrofit to Twin Pit Abhiyan was launched by Union Minister of Jal Shakti on 2nd October 2022.
- The campaign will promote the safe disposal of faecal sludge through a simple on-site methodology of retrofitting single pit toilet to twin pit toilet.
- During the first phase of the Campaign from 2nd October - 19th November 2022, States have completed the baseline assessment of 97% villages.

Swachh Survekshan Grameen 2023 (SSG 2023):
- DDWS has launched **Swachh Survekshan Grameen (SSG) 2023** on 2nd November 2022 with an objective to create **healthy competition amongst States, Districts and Gram Panchayats** and to ascertain progress of SBM-G Phase II.
- Under SSG 2023, assessment will be undertaken at Gram Panchayat and District level.
- To make SSG 2023 more participatory, Gram Panchayats will undertake village self-assessment on ODF Plus parameters

Question For Practice
Question. "To ensure effective implementation of policies addressing the water, sanitation and hygiene needs the identification of the beneficiary segments is to be synchronized with anticipated outcomes." Examine the statement in the context of the WASH scheme. (150 words)

STATE OF FOOD INSECURITY IN 2022

Why in News?
- Hunger has remained grisly in several parts of the world including India in 2022, so much so that the **United Nations World Food Programme (WFP) called 2022 'The year of Unprecedented Hunger'.**
- According to the **Food and Agriculture Organization (FAO)**, about 307 crore people worldwide could not afford a healthy diet in 2020. India is home to almost a third of this global population.

What are the Highlights from Various Reports?
World Food Programme:
- The number of people facing acute food insecurity has **almost tripled since 2019 and as many as 828 million people go to bed hungry every night**, according to **WFP (World Food Programme).**
- Food security shot past pre-pandemic levels, especially in war-torn places and those wrecked by climate disasters.

The Future of Food and Agriculture by FAO:
- According to FAO's report **Future of Food and Agriculture — Drivers and triggers for transformation,** the world will witness persistent **food insecurity** if agrifood systems remain the same.
- The world will witness persistent food insecurity, degrading resources and unsustainable economic growth in the future if agrifood systems remain the same.
- The world was **"tremendously off track" to meet the Sustainable Development Goals (SDG),** including agrifood targets.
- By 2050, there will be 10 billion people in the world to feed and this will be an unprecedented challenge if significant attempts are not made to reverse current trends.

Global Hunger Index (GHI):
- India ranked an abysmal 107 out of 121 countries on the **Global Hunger Index (GHI) 2022.**
- Among the South Asian countries, India (107) is ranked below Sri Lanka (64), Nepal (81), Bangladesh (84), and Pakistan (99).
- **Globally, the progress against hunger has largely stagnated** in recent years, with a global score of 18.2 in 2022 as compared to 19.1 in 2014, there is only a slight improvement. However, the **2022 GHI score is still considered "moderate".**

State Food Security Index (SFSI) by FSSAI:
- **Tamil Nadu scored the highest among major states** on all indicators, followed by **Gujarat and Maharashtra.**
- **Tamil Nadu scored a total of 82.5 points** on a scale of 100 where the indicators included human resource and institutional data, compliance, food testing infrastructure and surveillance, training and capacity building and lastly, consumer empowerment.
- **Among Union Territories (UT), Jammu and Kashmir topped** the list, performing better than the national capital with a score of 68.5, followed by National Capital Territory of Delhi (66) and Chandigarh (58).

Promises and Reality Report:
- More than 90 million eligible people have been **excluded from legal entitlements under the Targeted Public Distribution System (TDPS),** India's tool to combat food insecurity.
- The Census of India 2011 remains the source of data for arriving at the number of people to be covered by the scheme. As a consequence, **subsequent years have seen the exclusion of a large chunk of the population.**
- This in-built fallacy in the legal framework led to exclusion of at least 12% of the population from the legal entitlements in the most legitimised way.

What are the Suggestions given by the Various Reports?
Systemic Policy Changes:
- Systemic policy changes and global concerted efforts are **necessary to alleviate the condition of these people and meet the UN-mandated Sustainable Development Goal of 'Zero Hunger' by 2030.**

Sustainable Agricultural Systems:
- With the rapid growth of the human population, our demand for food has also risen.
- Agricultural systems **will need to produce more food in a sustainable manner in the future to cope with this.**

Population Decline of Insects:
- Without an abundance of insect pollinators, humans face the mind-boggling challenge of growing food and other agricultural products at scale.
- Insects are **important because of their diversity, ecological role and influence** on **agriculture**, human health and natural resources.
- They create the biological foundation for all terrestrial ecosystems, further, they cycle nutrients, pollinate plants, disperse seeds, maintain soil structure and fertility, control populations of other organisms and provide a major food source for other taxa.

Think Beyond Short Term Needs:
- Decision makers need to think beyond short-term needs. A lack of vision, piecemeal approaches and **quick fixes will come at a high cost for everyone**
- There is an urgent need to change **course so that a more sustainable and resilient future for agrifood systems** is created.

Viewing Nutrition Through Different Lenses:
- Better nutrition involves more than just food, it includes health, water, sanitation, gender perspectives, and social norms. Therefore, **there is a need to look forward to comprehensive policy to fill the nutritional gap.**

Bringing Social Audit Mechanism:
- States and Union Territories **should compulsorily carry out the social audit of the mid-day meal scheme in every district**, with the help of local authorities and simultaneously work on nutritional awareness.
- Use of **information technology** to improve program monitoring can be thought of too.

Re-orienting PDS:

- There is a need to be re-orient and an up-scale **Public Distribution System** to make it more transparent and reliable and ensure availability, accessibility and **affordability of nutritious food, also making a positive impact on the purchasing power of the lower socio-economic** segment of the population

Women-led SDG Mission:
- There is a need to redesign existing direct nutrition programs and linking it with **women's self-help groups can make India realise the Sustainable Development Goal- 2** to end hunger and all forms of malnutrition by 2030.

Reducing Waste, Reducing Hunger:
- India wastes about 7% of its total annual food production and almost 30% of the fruits and vegetables **because of inadequate warehousing facilities and cold storages.**
- According to the **International Institute of Refrigeration**, if developing countries had the same level of refrigeration infrastructure as developed countries, they would save 200 million tonnes of food or around 14% of their food supply, which can help in tackling hunger and malnutrition.

What are India's Initiatives to Eradicate Hunger/Malnutrition?
- Eat Right India Movement
- POSHAN Abhiyan
- Pradhan Mantri Matru Vandana Yojana
- Food Fortification
- National Food Security Act, 2013
- Mission Indradhanush
- Integrated Child Development Services (ICDS) Scheme
- Amendments in the Essential Commodities Act, 1955
- Make India Trans Fat free.
- International Year of Millets.
- Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY).

Question For Practice
Question.1 In what way could replacement of price subsidy with Direct Benefit Transfer (DBT) change the scenario of subsidies in India? Discuss.
Question.2 What are the salient features of the National Food Security Act, 2013? How has the Food Security Bill helped in eliminating hunger and malnutrition in India?
Question.3 What are the major challenges of Public Distribution System (PDS) in India? How can it be made effective and transparent?

YEAR-END- REVIEW OF CSIR

Why in News?
- Recently, the year-end-review of the **Council of Scientific & Industrial Research (CSIR)** under the Ministry of Science & Technology was released.

What are the Key Achievements of CSIR?
First-Ever Biofuel-Powered Flight:
- CSIR facilitated India's **First-Ever Biofuel-Powered Flight** paving the way for sustainable and alternative fuels when the first biofuel-powered **flight was flagged off from Dehradun to Delhi.**
- The bio-aviation fuel was **produced indigenously by the CSIR-Indian Institute of Petroleum (IIP)** from Jatropha oil and was based on the patented technology of the institute.

Aroma Mission:

- CSIR launched the **CSIR-Aroma Mission** in 2016 which **seeks to bring about transformative change in the aroma sector** through interventions in agriculture, processing and product development for fuelling the growth of the aroma industry and **boosting rural employment.**

Indigenous Autoclave Technology:

- CSIR-National Aerospace Laboratories (NAL) has successfully developed **state-of-art Indigenous Autoclave Technology** for processing advanced lightweight composites that are **integral to modern-day civil and military airframes.**

Conversion of Plastic into Diesel:

- CSIR-IIP and GAIL (Petroleum Business Company) have **developed a technology that can convert 1 tonne of plastic waste** and other Polyolefin products **into 850 litres of the cleanest grade of diesel.**

Anaerobic Gas Lift Reactor (AGR):

- CSIR- Indian Institute of Chemical Technology (IICT) has developed and patented a **high-rate biomethanation technology known as AGR** for the generation of biogas and bio manure from organic solid waste like poultry litter, food waste, press mud, cattle manure, **Organic fraction of municipal solid waste (OFMSW),** sewage sludge etc.

RENEU Technology:

- CSIR- National Environmental Engineering Research Institute (NEERI) has **developed this technology for the construction of wetlands** that are sustainable wastewater treatment processes. Restoration of Nallah with Ecological Units (RENEU) was successfully implemented as a part of the **National Mission to keep the Ganges clean** for the pilgrims during the holy festival.

Drishti Transmissometer:

- CSIR-NAL has developed and transferred the technology of **Drishti Transmissometer** that has been deployed in many airports in India. The transmissometer is a **visibility measuring system, useful for safe airport operations and landings.**

Head-Up Display:

- A transfer agreement for the manufacturing of a **new variant of Head-Up Display (HUD) for the Tejas Fighter Aircraft for commercial production** has been signed between CSIR-Central Scientific Instruments Organisation (CSIO), Chandigarh and Bharat Electronics Limited (BEL).

Bharatiya Nirdeshak Dravya:

- **Bharatiya Nirdeshak Dravya (BND 420) is India's first home-grown high purity gold reference standard** developed through a collaboration among the India Government Mint (IGM), **Bhabha Atomic Research Centre (BARC)**, CSIR-NPL and National Centre for Compositional Characterisation of Materials.

Shale Gas:

- CSIR-CIMFR has discovered **shale gas in two areas in the Gondwana basin in Central India and Godavari basin.** The total shale gas discovered so far in the country in these two basins is estimated to be about 63 trillion Cubic Feet (TCF).
- It is **considered as one of the best sources of non-conventional natural gas.**

Portable Reading Machine (PRM):

- A reading device developed by CSIR-CSIO **helps the visually impaired by reading the text aloud.** The advanced reading machine named **"Divya Nayan"** is a stand-alone, PRM.

Dimethyl Ether:

- CSIR-NCL has set-up an indigenous process technology to create **Dimethyl Ether (DME)** from **methanol.**
- DME is a **clean fuel with potential to replace diesel and will be a non-fossil additive to LPG gas.** This will also help the **Pradhan Mantri Ujjwala Yojana program**, by reducing LPG imports.

Earthquake Warning System:
- A **first-of-its-kind earthquake warning system** has been developed by CSIR-CSIO. The system **can sense tremors, record them and generate an SMS** to the concerned action points, in real-time.

Sindhu Sadhana:
- The first indigenously built research vessel **Sindhu Sadhana** to gather samples for **genome mapping of microorganisms in the Indian Ocean.**
- To understand the biochemistry and the response of the ocean to **climate change**, nutrient stress and **increasing pollution.**

Green Crackers:
- CSIR-NEERI developed **Green Crackers in a bid to curb air pollution.** A green logo and QR coding system **were also launched to track manufacture & sale of counterfeit crackers.**

Heeng Cultivation:
- For the first time, CSIR- Institute of Himalayan Bioresource Technology (IHBT) introduced **asafoetida (Heeng) cultivation in the Indian Himalayan region.**

Kisan Sabha App:
- **Kisan Sabha App** has been developed by CSIR- Central Road Research Institute (CRRI) **to connect farmers to the supply chain and freight transportation management system.**
- This portal acts as a **one-stop solution for farmers, transporters, and other entities** engaged in the **agriculture Industry.**

Ksheer Scanner:
- CSIR has developed a low-cost and portable **Ksheer Scanner, a technology to detect adulterated milk.**

Rice Variety:
- CSIR-Centre for Cellular and Molecular Biology (CCMB) in collaboration with the Indian Institute of Rice Research at Hyderabad has **released a new variety of rice that resists pests and is also beneficial for those with diabetes.**
- The new Improved **Samba Masuri (ISM) rice variety is resistant to Bacterial Blight (BB).**

JIGYASA:
- It is **one of the major initiatives taken up by CSIR at national level** to widen and deepen CSIR's **Scientific Social Responsibility (SSR)** by connecting school students to scientists at CSIR.

Purple Revolution:
- CSIR enabled the famed **Purple Revolution by introducing Lavender Cultivation in J&K** benefiting farming families. India from being one of the importers of Lemongrass essential oil a few years back, now **becomes one of the largest exporters in the world.**
- Indigenous development of Tulip bulb production under the **Floriculture mission helped reduce the import of planting material.**

Gaon Ka Pani Gaon Mein:
- CSIR has led a Mission mode project for developing **Village Level Water Management (VLWM) Plans** for augmenting water resources in selected villages.

- Mission on **High-Resolution Aquifer Mapping & Management in Arid Regions of North-Western India** has also been launched and implemented in association **with the Ministry of Jal Shakti under Jal Jeevan Mission.**

India's First Indigenously Developed Hydrogen Fuel Cell Bus:
- The bus uses hydrogen fuel cells and air to generate electricity for power and can run for 600 km without stopping. **The only emission from the bus is water, thus making it the most environment friendly mode of transportation.**

Traditional Knowledge Digital Library (TKDL):
- Recently, the Cabinet approved widening access of the TKDL database to users, besides patent offices, The opening up of the TKDL database to users **will drive research & development, and innovation based on India's valued heritage across diverse fields.**

Steel Slag Roads:
- CSIR developed the **steel slag valorisation technology to convert waste steel slag as road-making aggregates.** Processed steel slag aggregates as developed through waste steel slag have been successfully utilized in the construction of **India's First Steel Slag Road in Surat.**

Maiden Flight of HANSA NG:
- CSIR-NAL designed and developed **Hansa NG aircraft** which is an all composite two seat light trainer aircraft to be used as an ab-initio flying training aircraft for the flying clubs in India, with significant modifications on Hansa 3 aircraft to make it more useful as a trainer aircraft.
- HANSA-NG **is an upgraded version of HANSA, which saw the first flight in 1993, and was certified in 2000.**

3D-Printed Patient-Specific Medical Implants:
- CSIR-CSIO developed a technology for manufacturing patient-specific medical implants **for several human body parts.** The technology has been transferred to industry **for commercial production and marketing of the product.**

Connect Global Indian Scientific Community on Digital Mode:
- CSIR has developed a virtual platform - **PRABHASS** (Pravasi Bharatiya Academic and Scientific Sampark) Portal **to connect with the global Indian S&T Diaspora** for jointly addressing societal challenges/ problems.

CSIR 'Skill India Initiative':
- This initiative **aims to equip young minds with the necessary technological skills through exposure to CSIR labs.** More than 2 lakh people have been trained under the initiative.

CAG AUDIT REPORT ON ASSAM'S NRC

Why in News?
- Recently, the **Comptroller and Auditor General of India (CAG)** has detected large-scale anomalies in the updating of the **National Register of Citizens (NRC)** in Assam.

What are the CAG's Concerns?
Irregularities in the Utilisation of Funds:
- At the time, **the process to update the NRC was started in December 2014 with a deadline for completion in February 2015** and the project cost was pegged at Rs. 288.18 crores.
- There was, however, a **five-fold increase in the cost by March 2022** due to additional time to complete it and changes in the update software.
- As for irregularities, the **CAG found that the number of wages paid to the outsourced staff was 45.59%-64.27% less** than what was approved by the NRC coordination committee.

Lack of Secure and Reliable Software:

- In the NRC update process, a **highly secure and reliable software was required to be developed,** however, lack of proper planning was observed in this regard to the extent of 215 software utilities were added in a haphazard manner to the core software.

What has the CAG Recommended?

- The **country's top auditor sought penal measures against Wipro Limited** for violating the provisions of the **Minimum Wages Act, 1948** and for paying data operators less than minimum wages.
- Information technology firm Wipro Limited was entrusted with **one of the prime software installation companies** by the NRC Directorate.
- Secondly, the report **recommended action against the State Coordinator of National Registration (SCNR)** for "excess, irregular and inadmissible payments".
- The **CAG also recommended fixing accountability of the SCNR** as the principal employer for "not ensuring compliance with the Minimum Wage Act".

What is the NRC Exercise?

- An NRC was **first created in 1951 in Assam** to identify those born in India and migrants from erstwhile East Pakistan, now Bangladesh.
- In 2013, the **Supreme Court issued directions to the Centre and State to initiate an exercise in Assam** to update the 1951 register.
- The order was based on a petition filed by an NGO named Assam Public Works.
- The first draft was released in 2018.
- The final list, published in 2019, included those **who could establish their Indian citizenship by being residents or descendants of people** living in Assam before March 25, 1971 (the cut-off date for deportation of foreigners as per the **Assam Accord** of August 1985).
- As many as 19.06 lakh people out of 3.3 crore applicants were excluded due to a lack of adequate documents to prove their citizenship. Several parties dismissed the final list as "faulty".
- Three years later, the process is on pause as the **Registrar General of India (RGI)** is yet to notify the final list.

Question For Practice

Question. Exercise of CAG's powers in relation to the accounts of the Union and the States is derived from Article 149 of the Indian Constitution. Discuss whether audit of the Government's policy implementation could amount to overstepping its own (CAG) jurisdiction.

CORPORATE GOVERNANCE

Why in News?

- Chanda Kochhar (Ex-ICICI Bank CEO) **serves as a cautionary tale of the dangers of greed** in the corporate world.
- The **Central Bureau of Investigation (CBI)** has alleged that ICICI Bank had sanctioned credit of Rs 3,250 crore to the companies of the Videocon Group promoted by Dhoot in violation of the **Banking Regulation Act, RBI guidelines**, and credit policy of the bank.

What is Corporate Governance?

- **About:**
    - o Corporate governance, **which refers to the system of rules, practices, and processes** by which a company is directed and controlled, plays a crucial role in ensuring that businesses are run ethically and in the best interests of their stakeholders.
    - o One of the key responsibilities of corporate governance is to **prevent corporate greed and ensure that businesses are operated in a responsible and transparent manner.**

- By enforcing strong ethical standards and holding individuals accountable for their actions, corporate governance can **help to curb greed and protect the interests of shareholders, customers, and the broader community.**

Principles of Corporate Governance
- **Fairness:**
  - The board of directors **must treat shareholders, employees, vendors, and communities fairly** and with equal consideration.
- **Transparency:**
  - The board **should provide timely, accurate, and clear information** about such things as financial performance, conflicts of interest, and risks to shareholders and other stakeholders.
- **Risk Management:**
  - The board and management **must determine risks of all kinds and how best to control them.** They must act on those recommendations to manage them. They must inform all relevant parties about the existence and status of risks.
- **Responsibility:**
  - The board is **responsible for the oversight of corporate matters** and management activities.
  - It must be aware of and support the successful, ongoing performance of the company. Part of its responsibility is to recruit and hire a CEO. It must act in the best interests of a company and its investors.
- **Accountability:**
  - The board must **explain the purpose of a company's activities and the results of its conduct.** It and company leadership are accountable for the assessment of a company's capacity, potential, and performance. It must communicate issues of importance to shareholders.

What are the Ethical Issues with Corporate Governance in India?
- **Conflict of Interest:**
  - The challenge of managers potentially enriching themselves at the cost of shareholders e.g., the recent case of former ICICI bank head Chanda Kochar approved a loan to Videocon for a quid pro quo deal for her husband.
- **Weak Board:**
  - Lack of diversity of experience and background represents a major area of weakness for these boards. There have been questions about the board performing in the larger interests of the shareholders.
- **Separation of Ownership and Management:**
  - In case of family-run companies, the separation of ownership and management remains a key challenge in the majority of companies including some of India's top ones.
- **Independent Directors:**
  - Independent directors are partisan and are not able to check promoters unethical practices.

What are the Related Initiatives?
- The Ministry of Corporate Affairs (MCA) and **Securities and Exchange Board of India (SEBI)** is responsible for corporate governance initiatives in India. The corporate sector of India faced major changes in the 1990s after liberalization.
  - SEBI monitors and regulates corporate governance of listed companies in India through Clause 49.
- **The Companies Act, 2013** provides a formal structure for corporate governance by enhancing disclosures, reporting and transparency through enhanced as well as new compliance norms.

How Corporate Governance in India can be Improved?
- **Diverse Boards are better Boards:**
  - In this context, 'diverse' is all-encompassing, including gender, ethnicity, skills and experience.

- **Robust Risk Management Policies:**
  - Adoption of effective and robust risk management policies for better decision making as it develops a deeper insight into the risk-reward trade-offs that all Corporations face.
- **Effective Governance Infrastructure:**
  - Since the board is ultimately responsible for all the actions and decisions of an organisation, it will need to have in place specific policies to guide organisational behaviour.
  - To ensure that the **line of responsibility between board and management is clearly delineated**, it is particularly important for the board to develop policies in relation to delegations.
- **Evaluation of the Board's Performance:**
  - Boards should improve their **governance processes by addressing weaknesses revealed in board evaluations.**
- **Communication:**
  - Facilitating shareholder communication with the board is key. There is a need to provide a contact person with whom shareholders may discuss any issue.

Questions For Practice

Question 1. In the light of the Satyam Scandal (2009), discuss the changes brought in corporate governance to ensure transparency and accountability.

Question 2. What do you understand by the terms 'governance', 'good governance' and 'ethical governance'?

PROHIBITION ON THE SALE OF SINGLE CIGARETTES

Why in News?
- Recently, the **Parliamentary Standing Committee** on Health and Family Welfare has recommended a ban on the sale of single sticks of cigarettes, in its report about Cancer **Management, Prevention and Diagnosis.**

What is the Need for Imposing a Ban?
- **Cancerous:**
  - Oral <u>cancer</u> **accounts for the highest proportion of cancer cases** in the country.
  - Tobacco consumption accounts for **nearly 50% of all cancers, collectively referred to as tobacco-related cancers.**
- **Singles Stick are more Alluring:**
  - Single sticks are more economical to **acquire than a full pack of cigarettes.**
  - A ban on single-stick sales will compel **a potential consumer to buy the entire pack which may not be particularly economical, thus curbing potential experimentation** and the scope for regular intake.
  - Moreover, a potential ban will also mean that the **consumer would have to carry around the packet.**
- **Some Reports concern over Usage:**
  - The **World Health Organisation (WHO)** has observed that all forms of tobacco are harmful, and there is no safe level of exposure to tobacco.
    - It also states that **smoking cigarettes is the most common way of tobacco** use worldwide.
  - The medical journal, **Lancet** noted in June 2020, that by 2030, 7 million of annual deaths from smoking are expected **to be from low and middle-income countries.**
- **Highly Addictive:**

  - Nicotine in tobacco products is highly addictive, and without cessation support only 4% of users who attempt to quit tobacco consumption will succeed, according to the WHO.

What are the Key Recommendations?

- **Containing the Sale of Tobacco:**
  - National Health Policy (2017) endeavours a **relative reduction in current tobacco use by 30% in 2025,** making it imperative that the **government take effective measures to contain the sale of tobacco** products.
  - To this effect, it recommends that the government prohibit the sale of single sticks of cigarettes and lay stringent penalties and fines on offenders.
- **Abolishment of Smoking Areas:**
  - The government should abolish all **designated smoking areas in airports, hotels and restaurants** in addition to encouraging a smoke-free policy in organizations.
- **Revive Tax Increases:**
  - India has the lowest prices for tobacco products and thus making them more accessible and it must be looked at to increase **taxes on them.**
  - The revenue acquired from additional taxation can be **used for cancer prevention and awareness.**
- **Prohibition on Gutka:**
  - Sought a ban on gutka and pan masala alongside **a prohibition on their direct and indirect advertisement.**
  - This is based on the observation that, in India, **more than 80% of tobacco consumption is in the form of chewing tobacco** with or without areca nut, aggressively marketed as a mouth freshener.

How Efficacious Can a Ban Be?

- **Not Feasible Pan India Ban:**
  - It is not practical to enforce a pan-India ban on the sale of loose cigarettes. It's not feasible at all **because of the scale of such small shops and stalls that sell cigarettes and tobacco products.**
- **May Create Routes for Illegal Cigarettes:**
  - Only 8 % of the total tobacco is consumed as legal cigarettes. The remaining is consumed through **29 tax evasion-prone products such as bidis, chewing tobacco, khaini and illegal cigarettes.**
    - According to Euromonitor International, the volume of illegal cigarettes in India was **estimated to be at 26.8 billion sticks in 2021.** In fact, India is the **4th largest illicit cigarette market** in the world.
  - Banning things **only leads to taking the illegal route to acquiring them.** And some of the cigarettes in the illegal market may be of even inferior quality thereby **causing more damage to the well-being of an individual.**
- **Absence of vendor Licensing Regime:**
  - Nonetheless, the proposed move will reduce consumption and sales, but the ban will not be very effective if the vendor licensing regime is not instituted.
  - The government must also **consider instituting vendor licensing.**
  - Because cigarettes would not be available everywhere, **the potential for recurrence of the consumption would be reduced.**

What are the Tobacco Control Measures in India?

- **International Convention:**
  - Governments adopt and implement the tobacco control provisions of the WHO Framework Convention on Tobacco Control (WHO FCTC).
  - It is the first international treaty negotiated under the auspices of the WHO.
  - It was adopted by the World Health Assembly on 21 May 2003 and entered into force on 27 February 2005.
- **Cigarettes and Other Tobacco Products Act (COTPA), 2003:**
  - Replaced the Cigarettes Act of 1975 (largely limited to statutory warnings- 'Cigarette Smoking is Injurious to Health' to be displayed on cigarette packs and advertisements. It did not include non-cigarettes).

- o The 2003 Act also included cigars, bidis, cheroots, pipe tobacco, hookah, chewing tobacco, pan masala, and gutka.
- **National Tobacco Control Programme (NTCP), 2008:**
  - o Objective: To control tobacco consumption and minimize tobacco consumption related deaths
  - o Activities: Training and capacity building; information, education, and communication (IEC) activities; tobacco control laws; reporting survey and surveillance and tobacco cessation
- **Cigarettes and other Tobacco Products (Packaging and Labelling) Amendment Rules, 2020:**
  - o It was mandated that the specified health warning shall cover at least 85% of the principal display area of the package.
  - o Of this, 60% shall cover pictorial health warning and 25% shall cover textual health warning.
- **mCessation Programme:**
  - o It is an initiative using mobile technology for tobacco cessation.
  - o India launched mCessation using text messages in 2016 as part of the government's **Digital India initiative.**
    - ▪ It uses two-way messaging between the individual seeking to quit tobacco use and programme specialists providing them dynamic support.
- **Prevention and Control of Pollution Act of 1981**- Recognized smoking as an air pollutant.
- **Cable Television Networks Amendment Act of 2000**- Prohibited the transmission of advertisements on tobacco and liquor in India.
- **The Government of India has issued regulations under the** <u>Food Safety and Standards Act 2006</u> which lay down that tobacco or nicotine cannot be used as ingredients in food products.
- 31st May is observed as **'World No Tobacco Day'** every year to spread awareness about the deadly effects of tobacco consumption.

Way Forward
- There is a need for comprehensive tobacco control policy, accessible and affordable **cessation services strengthening the implementation of COTPA**, alternative opportunities for people engaged in tobacco cultivator, processing and manufacturing.
- The proportion of buying loose cigarettes decreased with increased levels of education and awareness. Enhancing public awareness through campaigns, educational programs in schools, strong and prominent graphic health warnings.

MARITAL RAPE IN INDIA
Why in News?
- Out of 185 countries in the world, **77 have laws that clearly criminalise marital rape** while there are **34 countries that explicitly decriminalise marital rape,** or in essence, offer immunity to men who perpetrate rape against their wives.
- **India**, is one of the 34 countries that have **decriminalised marital rape.**

What is Indian Law on Marital Rape?
- **Section 375 of the Indian Penal Code (IPC):**
  - o Section 375 of the **IPC** defines the acts that constitute rape by a man.
  - o The provision, however, lays down **two exceptions** as well.
    - ▪ Apart from decriminalising marital rape, it mentions that **medical procedures or interventions shall not constitute rape.**
    - ▪ **Exception 2 of Section 375** of the Indian Penal Code states that "sexual intercourse by a **man with his wife**, and if the wife **not being under fifteen years of age, is not rape".**
- **Domestic Violence Act, 2005:**
  - o It hints at marital rape by **any form of sexual abuse** in a live-in or marriage relationship.
  - o However, it only provides for **civil remedies**. There is no way for marital rape victims in India to initiate **criminal proceedings** against their perpetrator.

What is the History of the Marital Rape Law in India?

- **Judiciary:**

2015
Petitions to criminalise marital rape filed in Delhi HC

AUGUST 2017
Central govt says criminalising marital rape may destabilise the institution of marriage

JANUARY 7, 2022
Delhi HC begins hearings in the case

JANUARY 13
Centre tells HC it is in talks with stakeholders

JANUARY 17
HC asks Centre to clarify its position

FEBRUARY 1
"Relooking" at the earlier stand: Centre tells HC

FEBRUARY 21
HC refuses to grant more time to Centre, reserves verdict on petitions

MAY 11
HC delivers split verdict

- The Delhi **High Court** has been hearing arguments in the case since 2015.
- In January 2022, two judges of the Delhi High Court started to hear petitions filed by individuals and civil society organisations challenging the exemption.
- By May 2022, **they had arrived at a controversial split verdict.** One judge was in **favour of criminalising marital rape** as it violated a woman's right to consent, while the **other was against it,** saying marriage "necessarily" implied consent.
- The matter was pushed to the **Supreme Court.**

  o **Supreme Court:**
  - In September 2022, a Supreme Court ruling on **women's right to safe abortions** regardless of marital status held that for the purposes of the **Medical Termination of Pregnancy Act,** the definition of rape should include marital rape.

  o **Law Commission of India:**
  - The need to remove the marital rape exception was rejected by the **Law Commission of India** in 2000, while considering several proposals to reform India's laws on sexual violence.

  o **Justice JS Verma Committee:**
  - In 2012, the **Justice JS Verma Committee** was tasked with proposing amendments to India's rape laws.
  - While some of its recommendations helped shape the **Criminal Law (Amendment) Act passed in 2013**, some suggestions, including that on marital rape, were not acted on.

- **Parliament:**
  o The issue has been brought up in **Parliament** as well.
  o Upon being questioned in a Parliament session in 2015, the idea of criminalising marital rape was dismissed with the view that "marital rape cannot be applied in the country since marriage was treated as a sacrament or sacred in the Indian society".

- **Government's Stand:**

- o The Central Government **initially defended the rape exception** and later changed its stand and told the court that **it was reviewing the law,** and that "wider deliberations are required on the issue".
- o The Delhi government **argued in favour of retaining the marital rape exception.**
  - ▪ The government's arguments spanned from protecting men from possible misuse of the law by wives, to protecting the institution of marriage.

What are the Issues with Marital Rape Exception?

- **Against Basic Rights of Women:**
  - o This exception clause violates the women's **fundamental right to equality, freedom of speech and expression,** and most of all the **right to life and personal liberty.**
    - ▪ It also denies the agency over their own bodies to women.
- **Dismal State of Judicial System:**
  - o Some of the reasons for low rates of prosecution in the cases of marital rape in India include:
    - ▪ Low reporting of crimes due to **societal conditioning and low legal awareness.**
    - ▪ Inaccurate method of collection of **National Crime Records Bureau (NCRB)** data.
    - ▪ **Out of court settlements** due to the lengthy process of justice/lack of admissible proof.

How did the Exception on Marital Rape find its way into the IPC?

- **British Colonial Rule:**
  - o The IPC was implemented in India during **British colonial rule in 1860.**
    - ▪ Under the first version of the rules, the marital rape exception was applicable to **women over 10 years of age** which was raised to 15 in 1940.
- **1847 Draft of Lord Macaulay:**
  - o In January 2022, it was argued by **amicus curiae** (friend of the court) that the IPC is based on the **1847 draft of Lord Macaulay**, the chairman of the **First Law Commission** established in colonial-era India.
    - ▪ The exception in the draft **decriminalised marital rape** without any age limit.
  - o The provision is an age-old idea that implies consent by married women and protects the conjugal rights of the husband.
  - o The idea of implied consent comes from the **Doctrine of Hale,** given by Matthew Hale, the then **British Chief Justice**, in 1736.
    - ▪ It states that a **husband cannot be guilty of rape**, since "by their mutual matrimonial consent and contract the **wife has given up herself in this kind to the husband".**
- **Doctrine of Coverture:**
  - o According to the Doctrine of Coverture, a woman has **no individual legal identity after marriage.**
  - o Notably, the Doctrine of Coverture found a mention during the hearing when the **Supreme Court of India struck down adultery as a criminal offence** in 2018.
    - ▪ It was held that **Section 497,** that classified adultery as a crime, is based on the **Doctrine of Coverture.**
  - o This doctrine, although not recognised by the Constitution, holds that a **woman loses her identity and legal rights with marriage**, is violative of her fundamental rights.

How is Marital Rape Treated around the World?

- **About:**
  - o The **United Nations** has urged countries to end marital rape by closing legal loopholes, saying that **"the home is one of the most dangerous places for women".**
- **Countries that Criminalises Marital Rape:**
  - o **United States–** From 1993, Marital Rape was criminalised in all 50 states of the US but laws differ from state to state.
  - o **United Kingdom–** Marital rape has also been criminalised in the UK and those found guilty could be sentenced to life imprisonment.
  - o **South Africa-** Marital rape has been illegal since 1993 in South Africa.
  - o **Canada–** Marital Rape is punishable in Canada.

- **Countries that Decriminalises Marital Rape:**
  - o Ghana, India, Indonesia, Jordan, Lesotho, Nigeria, Oman, Singapore, Sri Lanka and Tanzania expressly decriminalises marital rape of a woman or a girl by her husband.

What should be the Approach Moving Forward?
- Indian law now **affords husbands and wives separate and independent legal identities,** and much jurisprudence in the modern era is explicitly concerned with the protection of women.
  - o Therefore, it is high time that the **legislature should take cognisance of this legal infirmity** and bring marital rape within the purview of rape laws by **eliminating Section 375 (Exception 2) of IPC.**
- There is a need for laws that **clarify boundaries in how we relate to one another** and uphold constitutional ideas of **equality, dignity and bodily autonomy**, alongside the unpleasant social realities about their limited use in practice.

Question For Practice
Question. We are witnessing increasing instances of sexual violence against women in the country. Despite existing legal provisions against it, the number of such incidences is on the rise. Suggest some innovative measures to tackle this menace.

NATIONAL TOURISM POLICY

Why in News?
- **Parliamentary committees have concluded that drafting a National Tourism Policy** will not lead to the development of the tourism industry in the country.
- The committee has **suggested fast-tracking the creation of a National Tourism Council on the lines of the GST council** to directly make recommendations to the Central and State governments on various issues of the tourism sector and its stakeholders.

What are the Concerns raised by the Committee?
- **Inclusion in the Concurrent List:**
  - o The committee also sought to know the steps taken by the Tourism Ministry regarding its earlier recommendation of including tourism in the **concurrent list.**
    - ▪ The committee is of the view that **inclusion of tourism in the concurrent list will help in simplifying the issues of the pandemic-hit Indian tourism sector** since tourism is a multi-sectoral activity.
- **Industry Status to Hospitality Projects:**
  - o It also **sought to know why some 20 States were yet to accord industry status to hospitality projects** and asked the Ministry whether anything in this regard has been conveyed by these States to the Centre.
    - ▪ As of now eight States **(Maharashtra, Gujarat, Madhya Pradesh, Kerala, Karnataka, Punjab, Rajasthan and Uttarakhand)** have accorded industry status to hospitality projects.
- **Regarding Sanctioned Projects:**
  - o It expressed concern that in **projects sanctioned five years ago or before 2017-18, the progress rates achieved have been less than expected.**
    - ▪ **Projects Sanctioned:** 'Development at Hazratbal' in Jammu and Kashmir and 'Infrastructure Development at Puri, **Shree Jagannath Dham –** Ramachandi- Prachi River front at Deuli under Mega Circuit' in Odisha.
    - ▪ The committee is of the view that **projects taking longer than five years may incur high cost and schedule or time overruns,** which will put extra financial burden and resource crunch on the Ministry and implementing agencies involved.

What are the Highlights of the Draft National Tourism Policy?
- **Industry Status to Sector:**

- o It mentions **granting industry status to the tourism sector,** as well as granting infrastructure status to hotels, in an effort to attract investment.
- **Five Key Areas:**
  - o Five key areas **would be given significant focus in the next 10 years** — green tourism, digital tourism, destination management, skilling the hospitality sector and supporting tourism-related to **Micro, Small and Medium Enterprises (MSMEs).**
- **Advocacy for Appropriate Taxation and Subsidy Policies:**
  - o The Mission will advocate appropriate taxation and subsidy policies to encourage investment in sustainable tourism activities and discourage unsustainable tourism.
- **Offers Framework Conditions:**
  - o The draft policy doesn't deal with specific operational issues, but offers framework conditions to help the sector, especially in the wake of the pandemic.
  - o The overall mission and vision are being laid out to improve the experience of tourists, foreign as well as local.

What is the Status of the Tourism Sector in India?

- **About:**
  - o India ranks **6th according to World Travel and Tourism Council** in terms of Travel & Tourism total contribution to **GDP** in 2021.
  - o India is currently **ranked 54th in World Economic Forum's Travel & Tourism Development Index (2021).**
  - o India has 40 sites listed on the **UNESCO World Heritage List** (32 cultural, 7 natural, and 1 mixed) as of 2021.
    - **Dholavira and Ramappa Temple** are the latest ones.
  - o A total of 39 million jobs were created in the tourism sector in FY20, which represented 8% of the country's employment. By 2029, it will account for 53 million jobs.

Recent Initiatives:
  - o **Swadesh Darshan Scheme**
  - o **Dekho Apna Desh Initiative**
  - o National Green Tourism Mission
  - o **PRASAD scheme**
  - o **Buddhist Conclave**

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

- **Lacking in Infrastructure:**
  - o Tourists in India still face many infrastructure related problems like inadequate roads, water, sewer, hotels and telecommunications etc.
- **Safety and security:**
  - o Safety and security of tourists, especially of the foreign tourists, is a major hurdle to tourism development. Attacks on foreign nationals raise questions about India's ability to welcome tourists from far away countries.
- **Lack of skilled manpower:**
  - o Lack of skilled manpower is another challenge to the Tourism Industry in India.
- **Absence of basic amenities:**
  - o Absence of basic amenities like drinking water, well maintained toilets, first aid, cafeteria etc. at tourist places.
- **Seasonality:**
  - o Seasonality in Tourism, with the busy season being limited to six months from October to March and heavy rush in November and December.

Way Forward

- Considering India's rich heritage and culture, an unmatched variety of cuisine tourism can be a vehicle for enhancing **India's soft power** and attracting foreign revenue.

- o India's philosophy of 'Vasudhaiva Kutumbakam' sees the world as one family. It gives India an unwavering belief in multilateralism.
- There is a **need to focus on inclusive growth of tourism** by creating opportunities for marginalised sections of society including people living in remote areas.
- An **extensive market research and evaluation exercise can be undertaken** in order to identify desired tourist destinations across the country and major markets and segments.

Question For Practice

Question.1 How can the mountain ecosystem be restored from the negative impact of development initiatives and tourism?

Question.2 The states of Jammu and Kashmir, Himachal Pradesh and Uttarakhand are reaching the limits of their ecological carrying capacity due to tourism. Critically evaluate.

JAN VISHWAS (AMENDMENT OF PROVISIONS) BILL, 2022

Why in News?

- Recently, the Union Government tabled the **Jan Vishwas (Amendment of Provisions) Bill**, 2022 in **Parliament.**
- **The objective is to "decriminalize" 183 offences** across 42 legislations and enhance the **ease of living and doing business in India.**
- Some Acts that are amended by the Bill include: the **Indian Post Office Act, 1898,** the **Environment (Protection) Act, 1986,** the **Public Liability Insurance Act, 1991,** and **the Information Technology Act, 2000.**

What are the Highlights of the Bill?

- **Decriminalizing Certain Offences:**
  - o Under the Bill, several offences with an imprisonment term in certain Acts have been decriminalised by imposing only a monetary penalty.
  - o **For example:**
    - Under the **Agricultural Produce (Grading and Marking) Act, 1937, counterfeiting grade designation marks is punishable with imprisonment** of up to three years and a fine of up to five thousand rupees. Grade designation mark indicates the quality of an article under the 1937 Act.
      - The Bill replaces this with a penalty of eight lakh rupees.
    - Under the Information Technology Act, 2000, **disclosing personal information in breach of a lawful contract is punishable** with imprisonment of up to three years, or a fine of up to five lakh rupees, or both.
      - The Bill replaces this with a penalty of up to 25 lakh rupees.
  - o In certain Acts, **offences have been decriminalised by imposing a penalty instead of a fine.**
    - For instance, under the Patents Act, 1970, a person selling a falsely represented article as patented in India is subject to a fine of up to one lakh rupees.
      - The Bill **replaces the fine with a penalty, which may be up to ten lakh rupees.** In case of a continuing claim, there shall be an additional penalty of one thousand rupees per day.
- **Revision of Fines and Penalties:**
  - o The Bill **increases the fines and penalties for various offences in the specified Acts**.
    - Further, **these fines and penalties will be increased by 10%** of the minimum amount every three years.
- **Appointing Adjudicating Officers**:
  - o As per the Bill, the **central government may appoint one or more adjudicating officers** for the purpose of determining penalties. The adjudicating officers may: (i) summon individuals for evidence, and (ii) conduct inquiries into violations of the respected Acts.

- **Appellate Mechanisms:**
    - The Bill also **specifies the appellate mechanisms for any person aggrieved by the order** passed by an adjudicating officer.
        - For instance, in the Environment (Protection) Act, 1986, appeals may be filed with the National Green Tribunal within 60 days from the order.

Why has the Bill been Introduced?

- **Rise in Criminal Cases:**
    - For decades, scholars of law have been concerned that criminal law has grown unprincipledly.
    - As per the National Judicial Data Grid, of the 4.3 crore pending cases, nearly 3.2 crore cases are in relation to criminal proceedings.
- **Political Motives:**
    - As opposed to punishing wrongful conduct, **criminalization often becomes a tool for governments to project a strong image.**
    - Governments offer little in the way of justifications to support such decisions. This phenomenon has been termed "overcriminalisation" by scholars.
- **Overcrowding of Prisons:**
    - As per the **National Crime Records Bureau's** Prison Statistics of 2021, a total of 5.54 lakh prisoners were confined in prisons against a capacity of 4.25 lakh.

What is the Scope of the Bill?

- The Bill might undertake **'quasi-decriminalisation'.**
- The Observer Research Foundation's report titled Jailed for Doing Business found that there are more than 26,134 imprisonment clauses in a total of 843 economic legislations, rules and regulations which seek to regulate businesses and economic activities in India.
    - In this light, the number of offences deregulated under the Bill seems to be a mere drop in India's regulatory framework.
- The **regulatory offences to be considered for 'decriminalisation' need to be prioritised** not only from the point of view of the ease of doing business but also from the points of view of the ills that plague our criminal justice system itself.
- The bill conforms to the understanding of the government that decriminalization should be limited to regulatory domains.

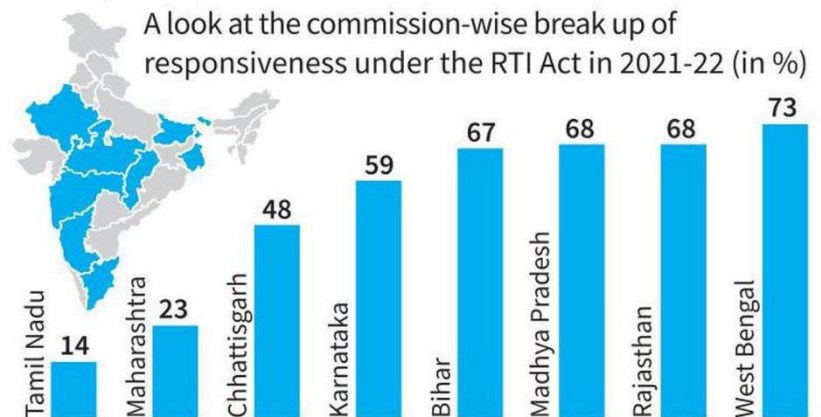## REPORT CARD OF RTI RESPONSIVENESS

Why in News?

- Recently, **Satark Nagrik Sangathan (SNS)** has released a report card of Responsiveness under <u>**RTI (Right to Information) Act**</u> **2021-22,** which shows that **Tamil Nadu has been the worst performing RTI responsiveness**, furnishing only 14% of the information sought.

What are the Key Highlights of the Report Card?

- Maharashtra was second-worst, sharing 23% of the information asked for.
- Only 10 ICs provided full information in response to the RTI applications filed as part of this assessment. These included **Andhra Pradesh, Haryana, Jharkhand and north eastern States of Sikkim, Nagaland and Tripura.**
- The SIC of Bihar, which had failed to provide any information under the RTI Act for the assessments published in 2020 and 2021, **significantly improved its performance and furnished 67% of the information sought.**
- A large number of **ICs across the country were returning cases** without passing orders.
    - Uttar Pradesh and Andhra Pradesh returned around 40% of the appeals or complaints received by them.

- o Of the 18 Information Commissioners the assessment found that 11 had returned appeals or complaints without passing any orders.
- Several **ICs have an extremely low rate of disposal per commissioner.**
    - o For instance, the SIC of West Bengal had an annual average disposal rate of 222 cases per commissioner - each commissioner effectively disposing of less than one case a day - even though more than 10,000 cases were pending.
- Of all the 29 ICs, only the CIC has adopted a norm regarding the number of appeals or complaints to be disposed of by each commissioner in one year.

Report card

A look at the commission-wise break up of responsiveness under the RTI Act in 2021-22 (in %)

Tamil Nadu	Maharashtra	Chhattisgarh	Karnataka	Bihar	Madhya Pradesh	Rajasthan	West Bengal
14	23	48	59	67	68	68	73

What is the Right to Information (RTI) Act?

- **About:**
    - o The **Right to Information Act 2005** mandates timely response to citizen requests for government information.
    - o The basic object of the Right to Information Act is **to empower the citizens, promote transparency and accountability** in the working of the Government, contain corruption, and make our democracy work for the people in a real sense.
- **Right to Information (Amendment) Act, 2019:**
    - o It provided that the **Chief Information Commissioner and an Information Commissioner (of Centre as well as States)** shall hold office for such term as prescribed by the Central Government. Before this amendment, their term was fixed for 5 years.
    - o It provided that the **salary, allowances and other service conditions of the Chief Information Commissioner and an Information Commissioner** (of Centre as well as States) shall be such as **prescribed by the Central Government.**
        - ▪ Before this amendment, the salary, allowances and other service conditions of the Chief Information Commissioner were similar to those of the Chief Election Commissioner and that of an Information Commissioner were similar to those of an Election Commissioner (State Election Commissioners in case of States).
    - o It removed the **provisions regarding deductions in salary of the Chief Information Commissioner,** an Information Commissioner, the State Chief Information Commissioner and a State Information Commissioner due to pension or any other retirement benefits received by them for their previous government service.
    - o The **RTI (Amendment) Act, 2019** was **criticized on grounds of diluting the law and giving more powers to the central government.**
- **Issues in the Implementation:**
    - o Non-compliance in proactive disclosure by public authorities
    - o Hostile approach of Public Information Officers (PIOs) towards citizens and misinterpreting provisions of the Right to Information (RTI) Act to conceal information.
    - o Lack of clarity on what public interest is and right to privacy
    - o Lack of political will and poor infrastructure
    - o Rejection of information requests made by active citizens on important matters of public importance
    - o Covert means of attacks and threats against RTI activists and applicants to suppress their voices

What is the Central Information Commission?

- **Established:** The Central Information Commission was established by the Central Government in 2005, under the provisions of the Right to Information Act (2005). It is not a constitutional body.
- **Members:** The Commission consists of a Chief Information Commissioner and not more than ten Information Commissioners.
- **Appointment:** They are appointed by the President on the recommendation of a committee consisting of the Prime Minister as Chairperson, the Leader of Opposition in the Lok Sabha and a Union Cabinet Minister nominated by the Prime Minister.
- **Tenure:** The Chief Information Commissioner and an Information Commissioner shall hold office for such term as prescribed by the Central Government or until they attain the age of 65 years, whichever is earlier.
  - They are not eligible for reappointment.
- **Power and Functions of CIC:**
  - It is the duty of the Commission to receive and inquire into a complaint from any person regarding information requested under RTI, 2005.
  - The Commission can order an inquiry into any matter if there are reasonable grounds (suo-moto power).
  - While inquiring, the Commission has the powers of a civil court in respect of summoning, requiring documents etc.

Way Forward

- Proper functioning of information commissions is **crucial for people to realise their right to information.**
  - Under the RTI law, **information commissions are the final appellate authority** and are mandated to safeguard and facilitate people's fundamental right to information.
- There is an urgent **need for the transparency watchdogs to function in a more effective** and transparent manner.
- The digital RTI portal (website or mobile app) can deliver more efficient and citizen-friendly services which are not possible through conventional mode.
  - This will be beneficial for **both transparency seekers and the government.**

Question for Practice

Question. The Right to Information Act is not all about citizens' empowerment alone, it essentially redefines the concept of accountability." Discuss.

CROWD MANAGEMENT

Why in News?

- The recent tragedies in Seoul, South Korea, and Morbi in Gujarat have once again put crowds and their management under the spotlight.
- **National Disaster Management Authority (NDMA)** has been mandated, under the provisions of **Disaster Management Act 2005** to, inter alia, issue guidelines for the management of disasters that periodically affect the normal life and well-being of the people.

What is Crowd Management?

- Crowd management is defined as the **systematic planning for, and supervision of, the orderly movement** and assembly of people.
- Crowd management involves the assessment of the people handling capabilities of a space prior to use.
- It includes **evaluation of projected levels of occupancy, adequacy of means of ingress and egress,** processing procedures such as ticket collection, and expected types of activities and group behaviour.

What are the Causes of Crowd Disaster/Stampede?

- **Structural Failures:**

- o Demolition of interim facilities, vertical stairs, narrow buildings due to illegal structures, hawkers, and parking.
- **Electric/Fire Disasters:**
  - o A common cause is **improper use of firecrackers or incorrect wiring** during the celebrations in makeshift kitchens.
  - o Electricity supply failure creating panic and triggering sudden exodus.
- **Crowd Behaviour:**
  - o Minimizing the size of the mass, lack of coordination with management, overselling of the tickets, mass panicking by sudden rush or rumours to get celebrity autographs or freebies.
    - ▪ People need at least 1 square yard of space each to control their movements. Most people who die in crowds die from asphyxiation while standing upright, not from trampling.
    - ▪ Humans lose consciousness after being compressed for just 30 seconds, they can be brain dead within 6 minutes.
- **Inadequate Security:**
  - o Taking drastic measures such as firing teargas due to insufficient deployment of safety teams.
- **Lack of Coordination among Administrative Agencies:**
  - o Inadequate coordination between the fire service, the police, the shrine management, etc.

What are the NDMA Guidelines on Crowd Management?
- The first step is to **regulate traffic in areas surrounding the pandals and Dussehra grounds.**
  - o For pedestrians, **route maps for reaching the venue and emergency exit route should be put up at strategic points.** Barricading to ensure the movement of people in a queue is key to control a burgeoning crowd.
- **CCTV cameras to monitor movement and police presence to reduce the risk of snatching** and other petty crimes should also be on the organisers' agenda.
- **Medical emergencies can occur in claustrophobic spaces.** An ambulance and health care professionals on stand-by can save lives in exigencies.
- On the part of revellers, **familiarising people with exit routes, staying calm and following instructions will help prevent stampede-like situations.**
- In case a stampede breaks out, protect the chest by placing hands like a boxer and keep moving in the direction of the crowd.
- **Organisers should ensure authorised use of electricity,** fire safety extinguishers and other arrangements meeting safety guidelines.
- A list of neighbourhood hospitals would come in handy. Simple precautions like wearing light, cotton clothes and knowledge of basic tricks like rolling on the ground to douse off fire are a must.

Conclusion
- In today's world, crowd management should be the top priority, especially in India.
- A large number of catastrophic events involving large crowds are caused by human error. By planning and implementing proactive measures, these catastrophes can be avoided. Apart from that, it is important to analyse and gain knowledge from previous errors.
- Crowd disasters are a concern for everyone in society. Despite the Government's responsibility in leading the way, the general public also has a major role to play in preventing such disasters in the future.

FREE FOODGRAINS SCHEME
Why in News?

- Recently, the Union Ministry of Consumer Affairs, Food and Public Distribution **issued a notification to provide free foodgrains (rice, wheat and coarse grains) to all eligible households** under the **National Food Security Act, 2013, for one year from January 1, 2023**.
- The government, **however, discontinued the Pradhan Mantri Garib Kalyan Anna Yojana**.

What are Coarse Cereals?
- Coarse cereals **are traditionally grown in resource-poor agro-climatic regions of the country**.
  - Agro-climatic zone is a **land unit in terms of major climates suitable for a certain range of crops** and cultivars.
- Sorghum, pearl millet, maize, barley, finger millet and several small millets such as kodo millet, little millet, foxtail millet, proso millet and barnyard millet **together called coarse cereals**.
  - Sorghum, pearl millet, finger millet, maize and small millet (barnyard millet, proso millet, kodo millet and foxtail millet) **are also called nutri-cereals**.
- **Coarse cereals are known for their nutri-rich content** and having characteristics like drought tolerance, photo-insensitivity and resilient to **climate change** etc.

What is NFSA?
- **Notified On:**
  - 10th September, 2013.
- **Objective:**
  - To provide **for food and nutritional security** in the human life cycle approach, **by ensuring access to adequate quantities of quality food at affordable prices to people** to live a life with dignity.
- **Coverage:**
  - 75% of the rural population and upto 50% of the urban population for **receiving subsidised foodgrains under the Targeted Public Distribution System (TPDS)**.
  - Overall, **NFSA covers about 81.35 crore citizens**.
- **Eligibility:**
  - Priority Households are to be covered under TPDS, **according to guidelines by the State government**.
  - Households are covered under the **Antyodaya Anna Yojana**.
- **Provisions:**
  - 5 Kgs of foodgrains per person per month at Rs. 3/2/1 per Kg for rice/wheat/coarse grains.
  - The existing AAY household will continue to **receive 35 Kgs of foodgrains per household per month**.
  - **Meal and maternity benefits** of not less than Rs. 6,000 to pregnant women and lactating mothers during pregnancy and six months after child birth.
  - **Meals for children** upto 14 years of age.
  - **Food security allowance** to beneficiaries in case of non-supply of entitled foodgrains or meals.
  - **Setting up grievance redressal mechanisms** at the district and state level.

What are Government Initiatives in this Regard?
- **National Food Security Mission**
- **Rashtriya Krishi Vikas Yojana (RKVY)**
- **Integrated Schemes on Oilseeds, Pulses, Palm oil and Maize (ISOPOM)**
- **eNAM Portal**

Questions For Practice
Question. Hunger and Poverty are the biggest challenges for good governance in India still today. Evaluate how far successive governments have progressed in dealing with these humongous problems. Suggest measures for improvement.

Question. What are the reformative steps taken by the Government to make the food grain distribution system more effective?

Question. What are the major challenges of Public Distribution System (PDS) in India? How can it be made effective and transparent?

INTERNATION RELATIONS

WASSENAAR ARRANGEMENT

- India to assume chairmanship of Wassenaar arrangement on 1 Jan 2023. India has also assumed the presidency of the UNSC.

About Wassenaar Arrangement
- The Wassenaar Arrangement was founded in 1996, and is clubbed with mechanisms such as the Nuclear Suppliers Group (NSG), the Missile Technology Control Regime (MTCR) and the Australia Group
- Its stated aim is "to contribute to regional and international security and stability, by promoting transparency and greater responsibility in transfers of conventional arms and dual-use goods and technologies, thus preventing destabilising accumulations."

Procedure
- Wassenaar members lack veto authority over other member's proposed exports.
- Its predecessor was the Cold War-era Coordinating Committee for Multilateral Export Controls (COCOM), which was created to restrict exports to the former Soviet Union and Eastern bloc.
- The plenary comprising all 42 countries of the group, is the primary decision-making body and is chaired on a rotation basis annually.
- The decisions of the plenary are taken by consensus.

Significance
- India will get access to high technology, which will help address the demands of Indian space and defence sectors
- It help India to raise its stature in the field of non-proliferation, even though it is not a signatory to the Non-Proliferation Treaty, or NPT
- It will also boost New Delhi's chances of joining the Nuclear Suppliers Group (NSG)
- It will facilitate high technology tie-ups with Indian industry and ease access to high-tech items for our defence and space programmes
- While membership of the Arrangement would not automatically entail any preferential treatment from other WA members, it would create the grounds for realignment of India in the export control policy framework of other WA members, including eligibility for certain licensing exceptions
- The Wassenaar Arrangement will embed India deeper in the global non-proliferation architecture and enable access to critical technologies in the defence and space sectors.

> **Question:** What is nuclear doctrine of India? Discuss its advantages and disadvantages.

INDIA-NEPAL RELATIONS

Why in News?
- Pushpa Kamal Dahal "Prachanda" was sworn in as Nepal's new Prime Minister.
- It is believed that **Deuba's predecessor - KP Sharma Oli was pro-China,** and the coming together of Communist forces is a turning back of the clock for India.
- After the bitterness in ties during Oli's terms in office from 2015-2016 and 2018-2021, **India-Nepal relations had improved after Deuba became PM in 2021.**

What are the Areas of Cooperation Between the Two Countries?
Trade and Economy:
- India remains **Nepal's largest trade partner,** with bilateral trade crossing USD 7 billion in FY 2019-20.
- India provides transit for almost the entire third country trade of Nepal.

- Indian firms are among the largest investors in Nepal, accounting for **more than 33% of the total Foreign Direct Investment (FDI) stock in Nepal,** worth nearly USD 500 million.

Connectivity:
- Nepal **being a landlocked country is surrounded by India from three sides** and one side is open towards Tibet which has very limited vehicular access.
- India-Nepal has undertaken various connectivity programs to enhance people-to-people linkages and promote economic growth and development.
- India is looking to develop the inland waterways for the movement of cargo, within the framework of trade and transit arrangements, providing additional access to sea for Nepal calling it linking **Sagarmatha (Mt. Everest)** with **Sagar (Indian Ocean).**

Defence Cooperation:
- Bilateral defence cooperation includes assistance to the Nepalese Army in its modernisation through the provision of equipment and training.
- The **Gorkha Regiments of the Indian Army** are raised partly by recruitment from hill districts of Nepal.
- India from 2011, every year undertakes a joint military exercise with Nepal known as **Surya Kiran.**

Humanitarian Assistance:
- Nepal lies in the sensitive ecological fragile zone which is prone to **earthquakes and floods** causing massive damage to both life and money, whereby it remains the biggest recipient of India's humanitarian assistance.

Multilateral Partnership:
- India and Nepal share multiple multilateral forums such as BBIN (Bangladesh, Bhutan, India, and Nepal), **BIMSTEC** (Bay of Bengal Initiative for Multi Sectoral Technical and Economic Cooperation), **Non Aligned Movement, and SAARC** (South Asian Association for Regional Cooperation) etc.

What are the Challenges?
Territorial Disputes:
- One of the main challenges in the Indo-Nepal ties is the **Kalapani boundary issue.** These boundaries had been fixed in 1816 by the British, and India inherited the areas over which the British had exercised territorial control in 1947.

Issues with Peace and Friendship Treaty:
- The 1950 Treaty of Peace and Friendship was sought by the Nepali authorities in 1949 to continue the special links they had with British India and to provide them an open border and the right to work in India.
- But today, it is viewed as a sign of an unequal relationship, and an Indian imposition.

China's Intervention:
- In recent years, Nepal has drifted away from India's influence, and China has gradually filled the space with investments, aid and loans.
- China considers Nepal a key partner in its **Belt and Road Initiative (BRI),** and wants to invest in Nepal's infrastructure as part of its grand plans to boost global trade

Internal Security:
- It is a major concern for India as the Indo-Nepal border is virtually open and lightly policed which is exploited by terrorist outfits and insurgent groups from North Eastern part of India e.g., supply of trained cadres, fake Indian currency.

Way Forward

- The **need today is to avoid rhetoric on territorial nationalism** and lay the groundwork for quiet dialogue where both sides display sensitivity as they explore what is feasible. India needs to be a sensitive and generous partner for the **neighbourhood first policy** to take root.
- **India should engage more proactively with Nepal** in terms of people-to-people engagement, bureaucratic engagement as well as political interactions.
- The **Bilateral Investment Promotion and Protection Agreement (BIPPA)** signed between India and Nepal needs more attention from Nepal's side.

GEOPOLITICAL CHALLENGES AND OPPORTUNITIES FOR INDIA IN 2023

Why in News?
- India is entering 2023 with challenges and opportunities staring at it on the diplomatic and military fronts with the **Russia-Ukraine** war and **China's belligerence** at India's doorstep.
- With a highly infectious **Covid-19 variant** spreading across China, a level of uncertainty has again gripped the world. And an economic downturn looms large on the horizon.
- As the **G20** Chair, India is looking forward to shaping conversations **on issues confronting the world.**
- As **UN Security Council'**s non-permanent member for 2 years, India sought to project its views and **contribute to the global conversations.**

What were the Major Concerns in 2022?
- **Russia-Ukraine War:**
  - The Russian invasion of Ukraine has **upended the global order in place since World War II**, impacted the world's **food and energy security,** and is pushing the global economy towards a **recession.**
  - The nuclear rhetoric from Russian leaders has caused anxiety, while the strategic embrace of **Russia and China is another worry.**
- **China's Aggression:**
  - The Ukraine war has also made the world sit up and look at China's aggression in the Indo-Pacific.
  - India too is facing that aggression on its border, with a **skirmish in Arunachal Pradesh after the 2020 Galwan clashes** that killed 20 Indian soldiers.
  - China's belligerence can be seen in its recent activities in the **South China Sea**, where it has been observed to carry out construction on an island.
- **Taliban Engagement:**
  - Less than a year after Taliban's recapturing of Afghanistan, India reopened its **operations in the Indian embassy in Kabul** and began the **process of re-engaging by sending humanitarian aid** in the form of food grains, vaccines, and essential medicines.
  - While India has made its red lines clear on the **Menace of Extremism and Rights of Minorities** and women, **it has also signalled a long-term commitment to Afghanistan's future.**
    - **India** has made a commitment of USD 80 million — over and above its USD 3 billion commitment in the last two decades — for improving the lives of Afghans.
  - This means India is looking at the Taliban as a political actor, although it is **influenced and even controlled by Pakistan's military establishment.**
- **Neighbourhood in Crisis:**
  - The **Lankan economic and political crisis** was a major challenge in the neighbourhood. India provided **humanitarian aid, fuel, medicines, more than any other country** in such a short period of time.
    - India is also helping Lanka negotiate an economic debt relief package from the **International Monetary Fund (IMF).**
    - With China as a rival in Sri Lanka, India wants a **government that understands India's security and strategic interests.**
  - **Engagement with Myanmar** has continued in **low-key visits and assistance to the military junta regime.**

- The key impact has been the **influx of refugees from Myanmar** to the north-eastern states through the porous borders and concern about non-state actors fomenting trouble in the north-east.

What are the Challenges and Opportunities Ahead?

- **Handling China:**
  - The recent **Tawang Clash** has shown that China is **challenging the status quo, not just in eastern Ladakh but in other sectors.**
  - It is clear that China is the biggest adversary unlike in the past where some gave them the benefit of doubt.
  - India's **strategic response has been guided** by a thinking that one has to stand up to the bully, but that has come at a cost, with **soldiers braving the harsh winter in eastern Ladakh** for the third year in a row.
  - As China sees itself as a superpower and whose time has come, more clashes and competing interests with India are likely, which will have to be resolved through negotiations.

- **Engaging with Russia:**
  - Russia has been a reliable supplier of defence equipment for the past seven decades, and despite diversification to the US, France and Israel among others, **it still dominates the field.**
  - But it has been complicated by the Russia-Ukraine war, where the reliability of Russian equipment is **being questioned and the supply chain is under strain.**
  - For India, China has been the biggest worry and what concerns India is that **Russia's ties with China influences some of its decisions.**
    - In the post **Cold War-era**, economic relations have formed the **"new strategic basis" for Sino-Russian relations.**
    - China is Russia's biggest trading partner and the **largest Asian investor in Russia.**
    - The West's approach towards Russia after the war has brought Moscow much closer to China. Delhi's effort will be to engage with both Russia and the West, and put its strategic defence and national security interests first.

- **G20 as a Global Stage:**
  - The hosting of the **G20 summit will be one of the biggest portrayals of India's rise** at the global stage months ahead of the General Elections in 2024.
  - India has already positioned itself as the **"voice of the Global South"**— a reference to the developing and the less-developed countries — and will seek to put its priorities on the global forum.
  - In this context, India will also **seek to bring Russian and Western interlocutors and leaders together** and end the conflict in Europe.
  - If India manages to do so, it will **claim a diplomatic win, which will go down well with its domestic constituency.**

- **Ties with the West:**
  - With India buying cheap oil and not joining the West against Russia, India will have to work **to assuage the concerns of European and American partners.** In fact, the G20 preparations will give some opportunity to do that.

Challenge in the Neighbourhood:

  - **Sri Lanka and Maldives:**
    - While Sri Lanka will continue to demand India's humanitarian, financial and political attention in the new year, **India will also be part of political conversation in Maldives.**
      - The Maldives is going to polls in September 2023, and an "India Out" campaign is likely to fire up the political debate. Delhi will be watching closely as political parties try to project India as the bully and a big brother.
  - **Bangladesh:**
    - **Bangladesh** also goes into election mode in 2023, with polls scheduled for January 2024 after an iron-fisted reign of Sheikh Hasina.

- India will be looking at her prospects **after a long and uninterrupted political journey that has brought security in India's eastern states.**
  o **Nepal:**
    - Nepal witnessed a dramatic turn of events, with rebel-turned-politician **Pushpa Kamal Dahal 'Prachanda' becoming the Prime Minister and former PM K P Oli** — a known India-baiter in recent years — holding the keys to the government.
    - This will pose a significant challenge for India, which has seen Beijing's influence grow in Kathmandu in recent years.
- **Pakistan's Crucial Year:**
  o Elections in Pakistan are scheduled for later in 2023. This will again be a contest to observe how the new civilian government and the Army chief will shape their attitude towards India.
  o In India, with Lok Sabha polls due in 2024, how the Pakistan puzzle is raked up and managed might hold the key to the next steps in the relationship.

Way Forward

- India's domestic efforts will need to be **bolstered by smart partnerships with others.**
- While building new friends, India needs to **keep old partners like Russia by its side,** engage all countries **including China, and resolve outstanding matters with smaller neighbours** which have hobbled foreign policy for decades.

Questions For Practice

Question 1. In respect of India-Sri Lanka relations, discuss how domestic factors influence foreign policy.

Question 2. At the international level, bilateral relations between most nations are governed on the policy of promoting one's own national interest without any regard for the interest of other nations. This leads to conflicts and tension between nations. How can ethical consideration help resolve such tensions? Discuss with specific examples.

Question 3. 'The long-sustained image of India as a leader of the oppressed and marginalised nations has disappeared on account of its new found role in the emerging global order.' Elaborate.

UKRAINE PEACE FORMULA

Why in News?

- Recently, the Prime Minister of India spoke to the Ukrainian President to discuss India's ongoing **G-20 Presidency,** and Ukraine's **"10-point Peace Plan".**
- In early December 2022, Ukraine **urged the leaders of the Group of Seven nations** to support its **Global Peace Summit** idea in winter that would focus on the peace plan "as a whole or some specific points in particular".

What is Ukraine's 10-Point Peace Plan?

- Ukraine first announced its peace formula at a November 2022 summit of the Group of 20 major economies. The plan calls for:
  o Radiation and **nuclear safety,** focusing on restoring safety around Europe's largest nuclear power plant, Zaporizhzhia in Ukraine, which is now-Russian occupied.
  o **Food security**, including protecting and ensuring Ukraine's grain exports to the world's poorest nations.
  o Energy security, with focus on **price restrictions on Russian energy resources,** as well as aiding Ukraine with **restoring its power infrastructure,** half of which has been damaged by **Russian attacks.**
  o Release of all prisoners and deportees, including war prisoners and children deported to Russia.
  o Restoring Ukraine's **territorial integrity** and Russia reaffirming it according to the **United Nations** Charter.
  o Withdrawal of Russian troops and cessation of hostilities, restoration of Ukraine's state borders with Russia.

- o Justice, including the establishment of a special tribunal to prosecute Russian war crimes.
- o Protection of environment with focus on demining and restoring water treatment facilities.
- o Prevention of escalation of conflict, and building security architecture in the Euro-Atlantic space, including guarantees for Ukraine.
- o **Confirmation of the war's end**, including a document signed by the involved parties.

What has been the World's Response to Peace Formula?
- **Russia rejected Ukraine's peace proposal** and Moscow reiterated that it would not give up any territory it has taken by force, around a fifth of Ukraine, which Russia has annexed.
- The Western world's support for Ukraine's military has run into billions of dollars, led by Washington, and nations have rushed to help Kyiv with demining and fixing power infrastructure.
  - o But r**esponse to Ukraine's peace plan** and its **proposed peace summit** has been more cautious.
- The **G7 leaders said they were committed to bringing peace** to Ukraine "in line with its rights enshrined in the U.N. Charter."

INDIA-ARMENIA RELATIONS

Why in News?
- Armenia and India celebrated 30 years of bilateral diplomatic relations in 2022.

How have Historical Ties been?
- Armenia and India **maintain active political ties.** Effective cooperation exists between the two nations within international bodies.
- After Armenia's independence in 1991, **Armenian-Indian relations were re-established.**
- Diplomatic relations were established between the Republic of Armenia and India in 1992.
- In 1999, the Indian Embassy in Yerevan began operations.
- If the Armenian-Indian political relations can be evaluated as "excellent", **Armenia is the only Commonwealth of Independent States (CIS) country with which India had diplomatic relations in 1995 (other than Russia).**

  - o The CIS was founded in 1991 **after the dissolution of the Soviet Union.**
  - o At present the CIS unites: Azerbaijan, Armenia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Uzbekistan and Ukraine.
- India and Armenia signed a **Treaty on Friendship and Cooperation in 1995.**
- But the trade and economic cooperation between the two countries cannot be deemed adequate.

What are the Areas of Cooperation Between the Two Countries?
- **Defence Relations:**
  - o Armenia had already shown interest in Indian military hardware before the 2020 war.
  - o In 2020, Armenia signed a USD 40 million arms deal with India for the supply of four SWATHI radars to detect the location of weapons.
  - o In October 2022, India signed an agreement with Armenia to export missiles, rockets & ammunition.
    - ▪ The missiles will also include Indigenous **Pinaka Multi-Barrel Rocket** Launcher.
    - ▪ India may also export its **Man Portable Anti-Tank Guided Missile (MPATGM)** to Armenia.
- **Supply Chain and Economy:**

- o In the contest over global supply chains, **Armenia provides a potential outpost for New Delhi in the Eurasian corridor** which extends from the **Persian Gulf** to Russia and Europe.
- o Armenia can also **prove a worthy developmental partner to India in domains such as agriculture**, pharmaceuticals, manufacturing, and technology.
- o The collaboration can provide an outstanding substitute for the debt-fuelled Chinese **Belt and Road Initiative** model.
- o Finally, it **goes without saying that Armenia growing purchases of Indian defence hardware would provide an impetus** to both public and private sector defence manufacturing in India.

What is the Significance of Armenia for India?

- **Countering Pan-Turkism:**
  - o **Turkey's imperial ambition of establishing a pan-Turkic empire,** administered from Ankara, is identifiable in the present-day Caucasus and other parts of Eurasia.
  - o The **racist doctrine envisions an empire comprising all nations and regions that speak a Turkic-type language,** disregarding the extent of difference between those languages and that spoken in Turkey as well as the approval of the regions' respective populaces.
  - o With recent exports of military hardware to Armenia, **New Delhi has openly positioned itself on Armenian side in the Nagorno-Karabakh conflict** and has therefore chosen to counter Azerbaijan and its supporters including Turkey and Pakistan as well as Ankara's expansionist pan-Turkic ambitions.
- **Geo-Strategic Benefits:**
  - o As an ally of Azerbaijan, **Pakistan has been supplying men and military hardware to assist the former** in its conflicts.
  - o Azerbaijan has **returned the favour by offering geopolitical, geoeconomics, and geostrategic benefits** to its partners in Islamabad.
  - o **Azerbaijan's success in Armenia would significantly energize Pakistan**, with perilous consequences.
  - o The purpose of seizing Armenian territory forcibly is to gain unhindered access to Turkey, Azerbaijan, Pakistan, and the entire Turkic-oriented axis of nations, up to China.
    - ▪ Munitions and military hardware could utilise this route to arrive at the doorstep of Kashmir.
  - o To prevent this, **New Delhi can utilize its military skills and capabilities to assist Armenia** in securing itself against Azerbaijan's energy-funded superior military strength.
- **Economic Cooperation:**
  - o Armenia can play an important role in the **Indian-backed International North-South Transport Corridor (INSTC)** and the Iranian-backed **Black Sea-Persian Gulf Transport Corridor.**

Way Forward

- Armenian-Indian cooperation **can become an integral part of broader contacts for Armenia with developed democracies**. For these ends, **high-quality and subtle diplomacy is imperative.**
- The structure of international relations are also changing, creating both potential threats and opportunities.
- In these shifting global relations, Armenia requires a deep diversification of foreign relations.
- The countries of the Global West may become the most auspicious directions.
- By sharing common values, **Armenia and the Community of States will be able to work closely together.**
  - o It is the exact area of cooperation that will ensure the active implementation of the modernization theory, institutionalization, and, possibly, strengthen national defence.

GENERAL STUDIES 3.

INDIAN ECONOMY

REMISSION OF DUTIES AND TAXES ON EXPORTED PRODUCTS (RoDTEP) SCHEME

- Taking a major step to boost exports, Centre today further expanded the scope of RoDTEP **Scheme** (Remission of Duties and Taxes on Exported Products) by including the exports made from the Chemical sector, Pharmaceuticals sector and exports of articles of iron & steel under chapters 28, 29, 30 and 73 of ITC(HS) schedule of items.

About RoDTEP Scheme
- **Launched by:** Ministry of Commerce & Industry
- The RoDTEP scheme is replacing the earlier Merchandise and Services Export Incentive Schemes (MEIS and SEIS) that were in violation of WTO norms.
- It aims to reimburse all the taxes/duties/levies being charged at the Central/State/Local level which are not currently refunded under any of the existing schemes but are incurred at the manufacturing and distribution process.
- The refund under the scheme shall not be available in respect of duties and taxes already exempted or remitted or credited.
- The scheme seeks to rebate sales tax, excise duty, electricity duty, stamp duty etc.
- The rebate will be in the form of a transferable duty credit/electronic scrip (e-scrip) that will be maintained in an electronic ledger by the Customs.

Key Features of the RoDTEP Scheme
- The scheme covers over 8,555 tariff products, accounting for about 75% of traded items and 65% of India's exports.
- The tax refund rates will vary between 0.5% and 4.3% of the export value of goods.
- The lowest rate is offered on items like chocolates, toffees and sugar confectionery.
- Yarns and fibres have been granted the highest rate.
- The scheme covers sectors such as marine, agriculture, leather, gems and jewellery automobile, plastics, textiles, electronics among others.

> **Question:** What are the key features of the Remission of Duties and Taxes on Exported Products (RoDTEP) Scheme?

PHARMACEUTICAL TECHNOLOGY UPGRADATION ASSISTANCE SCHEME FOR MSMES

- MSMEs have availed the benefit under erstwhile PTUAS scheme. However, the PTUAS has been incorporated as a sub-scheme under the Scheme - Strengthening of Pharmaceutical Industry (SPI), which was launched in July 2022.
- Three components, to provide infrastructure support for pharma MSMEs in clusters and to address the issues of technology upgradation of individual pharma MSMEs :-
- Assistance to Pharmaceutical Industry for Common Facilities (API-CF)
- Pharmaceutical Technology Upgradation Assistance Scheme (PTUAS
- Pharmaceutical & Medical Devices Promotion and Development Scheme (PMPDS)

About the PTUAS Scheme
- PTUAS is a credit linked scheme and under this, applications are invited from eligible Pharma MSME units since 01.08.2022.

- For registration of application, online portal has been developed by SIDBI, the Project Management Consultant (PMC) of the scheme and details are available at https://spi.udyamimitra.in.
- The sub-scheme PTUAS is aimed to facilitate Micro, Small and Medium Pharma Enterprises (MSMEs) of proven track record to meet national and international regulatory standards (WHO-GMP or Schedule-M), interest subvention or capital subsidy on their capital loans will be provided, which will further facilitate the growth in volumes as well as in quality and it is ensivaged to support about 400 Pharma MSME units under this sub-scheme during the scheme tenure.
- SIDBI is the Project Management Consultant (PMC) of the scheme.

> **Question:** Identify the factors responsible for the location of pharmaceutical industry.

INDIAN FOOTWEAR AND LEATHER DEVELOPMENT PROGRAMME (IFLDP)

- Central Government has approved the continuation of Central Sector Scheme 'Indian Footwear and Leather Development Programme (IFLDP)' till 31.03.2026.

Indian Footwear and Leather Development Programme
- To develop infrastructure for the leather sector.
- Address environmental concerns specific to the leather sector.
- Facilitate additional investments.
- Employment generation
- Increase in production.
- **Nodal Ministry:** Ministry of Commerce and Industry.

Sub-Schemes under the Programme
- Sustainable technology and environmental promotion.
- Integrated development of leather sector(IDLS).
- Establishment of institutional facilities.
- Mega Leather Footwear and Accessories Cluster Development.
- Brand promotion and development of design studios.

Significance
- The programme has a direct benefit towards quality employment generation especially for women.
- Skill development
- Decent work
- Making the industry more environment friendly
- Prompting a sustainable production system.

Leather Industry in India
- India is the second largest producer of footwear and leather garments after China in the world
- It is the second largest exporter (after China) of leather garments in the world.
- The industry is known for its consistency in high export earnings and it is among the top ten foreign exchange earners for the country.
- India has an abundance of raw materials with access to 20% of world's cattle and buffalo and 11% of the world's goat and sheep population.
- The Leather industry is an employment-intensive industry providing job to more than 4 mn people, mostly from the weaker sections of the society.
- With 30% share, women employment is predominant in Leather products industry
- Has one of the youngest work forces with 55% of the workforce below 35 years of age.
- **Major Markets:** USA, Germany, UK, Italy, France, Spain, Netherlands, UAE, etc.

> **Question:** Discuss the distribution of leather industry in India.

OPEN NETWORK FOR DIGITAL COMMERCE

Why in News?
- Open Network for Digital Commerce (ONDC) will charge a **"small fee" from platforms that will contribute towards "maintenance and development"** of the network.
- The network **will seek to reduce the compulsory commissions charged from sellers and logistics partners** on the network by private e-commerce firms such as US-based Amazon and homegrown Flipkart — the two largest e-commerce firms in the country.

What is ONDC?
- **About:**
  o It is an **open e-commerce protocol** set up by the Ministry of Commerce's **Department of Promotion of Industry and Internal Trade (DPIIT).**
  o Under ONDC, it is **envisaged that a buyer registered on one participating e-commerce site** (for example, Amazon) may purchase goods from a seller on another participating e-commerce site (for example, Flipkart).
  o Presently, **buyers and sellers have to be on the same app for a transaction** which happens through the same platform. For example, a buyer needs to go to Amazon, to buy a product from a seller on Amazon.
- **Objectives:**
  o Democratisation and decentralization of eCommerce
  o Inclusivity and access for sellers, especially small and medium enterprises as well as local businesses
  o Increased choices and independency for consumers

What Benefits Does the ONDC Offer?
- **Level Playing Field:** ONDC is keen to level the playing field for e-commerce operators and widen the digital market access for **Micro, Small and Medium Enterprises (MSMEs)** and small traders in the country.
- **Competitive and Innovative Ecosystem:** ONDC will empower suppliers and consumers by breaking the monopoly of giant platforms to drive innovation and transform businesses in sectors like retail, food, and mobility.
- **Freedom of Choice for Consumers:** Consumers can potentially discover any seller, product or service in a common platform, thus increasing freedom of choice for consumers.
- **Neutral and Regulated Platform**: ONDC aims at fostering open networks developed on **open-sourced methodology**, using open specifications and network protocols, and independent of any specific platform.
  o It will set protocols for cataloguing, vendor match, and price discovery on an open source-basis, like the **Unified Payments Interface (UPI).**

What are the Issues with ONDC?
- ONDC is a **complex ecosystem to implement,** unlike UPI.
- **Switching customers from the incumbents**, which are offering a satisfactory service, will be difficult.
- Network participants **may not make significant market development investments** initially.
- Growth in the seller base will not necessarily improve buyer experience on the network.
- Monetisation on the network is **not very clear.**
- **Attaining critical mass will be difficult** as buyer and seller sides are disconnected.
- **Lack of clarity on accountability,** especially in addressing customer complaints and returns.

Way Forward
- A **better digital space for e-commerce must be built by the government** in order to compete with the dominant e-commerce platforms.

- o Along with this, **it's important to create a proper digital education policy** that takes into account various languages and user-friendly interface for the benefit of the consumers as well as sellers.
- A **massive, well-funded adoption campaign will be needed** to bring over tens of millions of kirana stores to the platform.
- The **demand and supply sides should be able to access a secured single window** to resolve issues such as information asymmetry, opaque pricing, quality concerns, and buyer-seller disputes.

GLOBAL MINIMUM TAX

Why in News?
- **Recently**, EU members have agreed to implement a minimum tax rate of 15% on big businesses in accordance with **Pillar 2 of the global tax agreement framed by the Organisation for Economic Cooperation and Development (OECD)** in 2021.
- In 2021, **136 countries including India** had agreed on a plan to redistribute tax rights across jurisdictions and enforce a minimum tax rate of 15% on large multinational corporations.

What is Global Minimum Tax?
- A **Global Minimum Tax (GMT)** applies **a standard minimum tax rate to a defined corporate income base** worldwide.
- The OECD developed a proposal **featuring a corporate minimum tax of 15% on foreign profits of large multinationals,** which would give countries new annual tax revenues of USD 150 billion.
- The framework of GMT aims **to discourage nations from tax competition through lower tax rates** that result in corporate profit **shifting and tax base erosion.**

What are the Key Points of the Plan?
- **Two Pillar Plan:**
  - o **Pillar 1:**
    - 25% of profits of the **largest and most profitable Multinational Enterprise (MNEs) above a set profit margin would be reallocated** to the market jurisdictions **where the MNE's users and customers are located.**
    - It also provides for a simplified and streamlined approach to the application of the arm's length principle to in-country baseline **marketing and distribution activities.**
    - It includes **features to ensure dispute prevention and dispute resolution in order to address any risk of double taxation,** but with an elective mechanism for some low-capacity countries.
    - It also **entails the removal and standstill of Digital Services Taxes (DST)** and similar relevant measures, to prevent harmful trade disputes.
  - o **Pillar 2:**
    - It provides a **minimum 15% tax on corporate profit,** putting a floor on tax competition.
    - This will apply to multinational groups with annual global revenues of over **750 million euros.** Governments across the world will impose additional taxes on the foreign profits of MNEs headquartered in their jurisdiction at least to the agreed minimum rate.
      - ✓ This means that if a company's earnings go untaxed or lightly taxed in one of the tax havens, their home country would impose a top-up tax that would bring the effective rate to 15%.
- **Objectives:**
  - o It aims to ensure that **big businesses with global operations do not benefit by domiciling themselves in tax havens** in order to save on taxes.
  - o The minimum tax and other provisions **aim to put an end to decades of tax competition between governments** to attract foreign investment.

What is the Significance of the Move?
- **End of Race to the Bottom:**

- o It tries to **put an end to the "race to the bottom" which has made it harder for governments to shore up the revenues required** to fund their rising spending budgets.
  - ▪ **A race to the bottom** refers to **heightened competition between nations, states, or companies,** where product quality or rational economic decisions are sacrificed in order to gain a competitive advantage or reduction in product manufacturing costs.
- **Stopping Financial Diversion to Tax Havens:**
  - o Increasingly, income from intangible sources such as drug patents, software and royalties on intellectual property has migrated to Tax Havens, **allowing companies to avoid paying higher taxes in their traditional home countries.**
- **Mobilising Financial Resources:**
  - o With budgets strained after the Covid-19 crisis, **many governments want more than ever to discourage multinationals** from shifting profits – and tax revenues – to low-tax countries regardless of where their sales are made.
- **Global Tax Reforms:** Since the inception of the **Base Erosion and Profit Shifting (BEPS) programme,** the proposal for GMT is another positive step towards global taxation reforms.
  - o BEPS refers to tax avoidance strategies that exploit gaps and mismatches in tax rules to artificially shift profits to low or no-tax locations. OECD has issued 15 Action Items to address this.
- **Counters Global Inequality:**
  - o The minimum tax proposal is particularly **relevant at a time when the fiscal state of governments across the world has deteriorated** as seen in the worsening of public debt metrics.
- It is believed that the plan will also help **counter rising global inequality by making it tougher for large businesses** to pay low taxes by availing the services of tax havens.

What are the Issues?
- **Threat of tax Competition:**
  - o It is considered the threat of tax competition **that keeps a check on governments which would otherwise tax their citizens heavily** to fund profligate spending programs.
- **Impending Sovereignty:**
  - o It impinges on the **right of the sovereign to decide a nation's tax policy.**
  - o A global minimum rate would essentially **take away a tool country use to push policies that suit them.**
- **Question of Efficacy:**
  - o The deal has also been criticized for **lacking teeth: Groups such as Oxfam said the deal would not put an end to tax havens.**

What is the Organization for Economic Cooperation and Development?
- The OECD is an **intergovernmental economic organisation,** founded to stimulate economic progress and world trade.
- **Founded:** 1961.
- Headquarters: Paris, France.
- Total Members: 36.
- India is not a member, but a key economic partner.

Way Forward
- Since the OECD's plan essentially tries to form a global tax cartel, **it will always face the risk of losing out to low-tax jurisdictions outside the cartel** and cheating by members within the cartel.
- After all, countries both within and outside the cartel **will have the incentive to boost investments and economic growth within their respective jurisdictions** by offering lower tax rates to businesses.
- This is a structural problem that will persist as long as the global tax cartel continues to exist.

INDIA'S OIL DEPENDENCE

Why in News?
- **Russia has for the second month in a row remained India's top oil supplier** in November 2022 surpassing traditional sellers Iraq and Saudi Arabia.
- Russia now makes up for 22% of India's total crude imports, ahead of Iraq's 20.5% and Saudi Arabia's 16%.
- The **European Union** ban on imports of Russia's seaborne oil from 5th December has driven Russia to seek alternative markets, mainly in Asia, for about 1 million barrels per day.

What is the Current Scenario of India's Oil Import/Consumption?
- **India is the world's third-largest oil consumer** at around 5 million barrels a day, behind the US and China. The oil demand is growing at 3-4% a year in the country.
  - By this estimate, in a decade, India could be consuming about 7 million barrels a day.
- According to the Petroleum Planning and Analysis Cell (PPAC), **India imported 212.2 million tonnes of crude oil in 2021-22,** up from 196.5 million tonnes in the previous year.
  - For April 2022-23, the oil import dependence was around 86.4% against 85.9% in the corresponding year-ago period.
- It has been **argued that due to increasing demand,** the consumption of oil has gone up, which has marginalised the efforts being made to increase output.
  - Higher crude oil import bill is expected to dent the macroeconomic parameters.

What Initiatives have been taken to Cut down Crude Oil Imports?
- In March 2015, the Prime Minister of India inaugurated the '**Urja Sangam 2015'** — India's **then biggest global hydrocarbon meet** aimed at shaping India's energy security.
  - All the stakeholders were urged to **increase the domestic production of oil** and gas to **reduce import dependence from 77% to 67% by 2022** and further to **50% by 2030.**
- The government has also introduced various policies for increasing domestic production of oil and natural gas under the **Production Sharing Contract (PSC) Regime, Discovered Small Field Policy, Hydrocarbon Exploration and Licensing Policy (HELP), New Exploration Licensing Policy (NELP),** etc.
  - However, an underlying issue with domestic oil production is that oil and gas projects — from exploration to production — **have a long gestation period.**
  - Besides, **pricing and tax policies are not stable** and the oil and gas business **requires huge capital**, so **investors are often wary of taking risks.**
- The Government of India promotes the **Ethanol Blending Programme (EBP)** with the aim of reducing the country's dependence on crude oil imports, cutting carbon emissions and boosting farmers' incomes.
  - The Government has advanced the **target for 20% ethanol blending in petrol** (also called **E20**) to 2025 from 2030.

What can be Done to Reduce India's Oil Import Dependence?
- **Encouraging Domestic Production:** It must be kept in mind that India's demand for oil is only going to go up as we go for 10% GDP growth and that India will continue to be an oil economy for many more years to come.
  - The only way India can reduce its dependence on imports is to increase the size of India-owned exploration and production assets overseas. That is what China has done.
  - The public sector oil giant **Oil and Natural Gas Corporation (ONGC)** is also taking various steps to increase the production by redevelopment of existing matured fields and development of new/marginal fields.
- **Alternate Green Sources:** Another way out for India is to expand its basket and focus on **green energy.** With the economy gaining momentum, demand for power is on the upswing. With the **CoP26 commitments** in place, the demand for **Renewable Energy** is at an all-time high, which calls for substantial capacity addition.
  - The wind sector gained momentum, thanks to private investments and government initiatives coupled with regulatory support.
  - However, backed by global supply of solar cells and modules and favourable policies, solar power emerged more competitive than wind power.

SAMARTH SCHEME

- Under the SAMARTH Scheme of Textile Ministry, more than **13,235 artisans have been trained in the last three years.**

What is the Samarth Scheme all about?

- **About:**
    - Samarth (Scheme for Capacity Building In Textile Sector) is a **flagship skill development scheme** approved in continuation to the **Integrated Skill Development Scheme** for 12th Five Year Plan (FYP), Cabinet Committee of Economic Affairs.
    - The **office of the Development Commissioner (Handicrafts) is implementing the SAMARTH** to provide skill training to handicraft artisans under the component 'Skill Development in Handicrafts Sector' of **National Handicrafts Development Programme (NHDP).**
- **Objectives:**
    - To **provide demand-driven, placement-oriented skilling programmes** to incentivize the efforts of the industry in creating jobs in the organized textile and related sectors to promote skilling and skill up-gradation in the traditional sectors through respective sectoral divisions/organizations of the **Ministry of Textile.**
    - To **provide livelihood to all sections of the society** across the country.

What is the Status of the Textile Sector in India?

- **About:**
    - Textiles & garments industry is a **labour intensive sector that employs 45 millions people in India and is second only to the agriculture sector in terms of employment.**
    - India's textiles sector is **one of the oldest industries in the Indian economy,** and is a storehouse and carrier of traditional skills, heritage and culture.
    - It can be divided into two segments:
        - The unorganised sector is small scale and uses traditional tools and methods. It consists of **handloom, handicrafts and sericulture (Production of silk).**
        - The organised sector uses modern machinery and techniques and consists of the spinning, apparel and garments segment.
- **Other Schemes of the Textile Sector:**
    - **Scheme for Integrated Textile Park (SITP):** Launched in 2005, it **aims to provide the industry with world-class state of the art infrastructure facilities** for setting up their textile units.
    - **Power-Tex India:** It is an all-inclusive scheme that's made for the **development of the power loom sector** which further addresses the unheard needs of the power loom sector.
    - **Silk Samagra Scheme:** It focuses on improving the quality and productivity of domestic silk thereby reducing the country's dependence on imported silk.
    - **Amended Technology Upgradation Fund Scheme (ATUFS): It is a** credit linked Capital Investment Subsidy (CIS) scheme **to catalyze capital investments for technology upgradation and modernization of the textile industry.**
    - **National Handloom Day:** National Handloom Day is **observed every year on 7th August** to mark the importance of the handloom weaving community in India.
    - **National Technical Textile Mission:** The mission aims to position India as a **global leader in Technical Textiles by increasing the domestic market size** from USD 40 billion to USD 50 billion by 2024.

STATE OF ECONOMY REPORT: RBI

Why in News?

Recently, the **Reserve Bank of India (RBI)** has released a report titled- **"State of the Economy",** which warns of a **darkening global outlook.**

What are the Highlights of the Report?

- **Darkening Global Outlook:**
  - The **balance of risks gets increasingly tilted towards a darkening global outlook for 2023,** the year that will bear the brunt of monetary policy actions of this year.
- **Emerging Market Economies:**
  - Emerging market economies (EMEs) appear precarious, having **battled currency depreciations and capital outflows in addition to slowing growth** and high **inflation.**
- **Energy Prices:**
  - An **unease hangs over energy prices,** for now, **Organisation of the Petroleum Exporting Countries (OPEC) plus** stayed its hand in cutting production, but **an oil price cap threatens to unleash disruptive financial forces,** with hedge funds already cutting net long positions in crude contracts.
  - Despite moderation in global commodity markets, climate change and the war in Ukraine are set to keep food prices at higher than pre-pandemic levels.
- **Debt:**
  - **Debt** distress is rising, with **a surge in default rates and an appreciating US dollar** – the principal currency in which debt is denominated – although more recently it has tumbled down from 20-year highs.
- **Indian Growth Outlook:**
  - **Inflation:**
    - Inflation may be slightly down, but it is certainly not out.
    - Inflation is likely to moderate in 2023 from current levels, but it would remain well above targets in most economies.
      - ✓ The easing of inflation is primarily driven by the **sharp moderation in food inflation**. The index declined by 11 bps month-on-month (m-o-m), which along with a favorable **Base Effect.**
  - **Domestic Drivers:**
    - The near-term growth outlook for the **Indian economy is supported by domestic drivers.**
      - ✓ Domestic economic activity remained resilient in November and early December of 2022.
    - The **outlook for private consumption and investment is looking** up, although relatively higher inflation in rural areas is muting spending in those regions.
    - Headline inflation moderated by 90 basis points to 5.9 % in November 2022 driven by **a fall in vegetables prices** even as **core inflation** remained steady at 6 %.
  - **Equity Inflow:**
    - **Equity markets** touched a string of new highs during November **buoyed by strong portfolio flows to India.**
    - Waning input cost pressures, still buoyant corporate sales and turn-up in investments in fixed assets are **heralding the beginning of an upturn in the capex cycle in India** which will contribute to a **speeding up of growth momentum in the Indian economy.**
  - **Future Prospects:**
    - In December 2022, as India engages in setting out its priorities and deliverables under its **G20 Presidency, there is a sense that perhaps it's time for India in the centre of the world's stage has arrived.**
    - As the **third largest economy in PPP (Purchasing power parities)** terms, and the **5th largest in terms of market exchange rates,** India accounts for 3.6 % of G20 GDP while its share in real (PPP) terms is much higher at 8.2 %.

- In 2023, India is projected to be among the fastest growing economies within G20.
- India's priorities under the G20 Presidency **encapsulate a vision of unity and interconnectedness.** They will also reflect **the priorities of the global South: One Earth, One Family, One Future.**

PURSE SEINE FISHING

Why in News?

- The Centre has told the **Supreme Court** that a ban imposed by certain coastal States on purse seine fishing, which is known to disadvantage endangered species, is not justified.

What are the Issues?

- Currently, bans on purse seine fishing are implemented in the **territorial waters** of Tamil Nadu, Kerala, Puducherry, Odisha, Dadra and Nagar Haveli and Daman and Diu, and the Andaman and Nicobar Islands **up to 12 nautical miles.**
- While States such as Gujarat, Andhra Pradesh, Goa, Karnataka, West Bengal have not imposed any such ban.

What is Purse Seine Fishing?

- **About:**
  - A purse seine is made of a **long wall of netting framed with floating and leadline and having purse rings hanging from the lower edge** of the gear, through which runs a purse line made from steel wire or rope which allow the pursing of the net.
  - The technique has been widely deployed on India's western coasts.
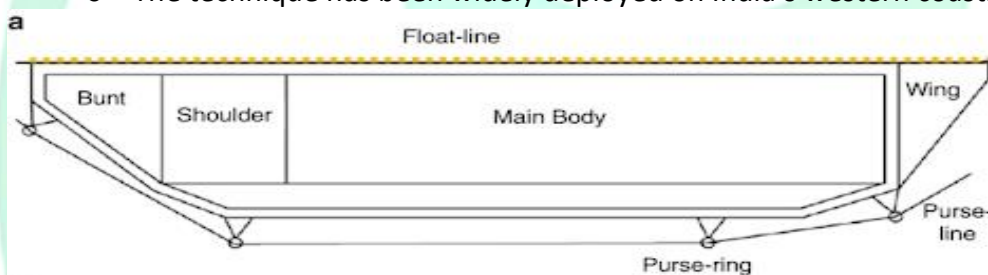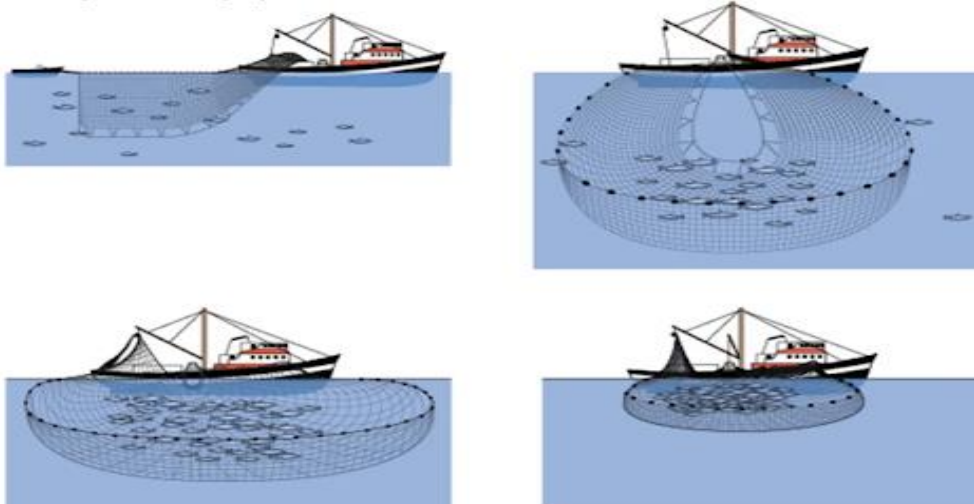
- **Advantages:**

  - Purse-seine fishing in open water is considered to be **an efficient form of fishing.**
  - It has **no contact with the seabed** and can have low levels of by catch.
  - It can also be **used to catch fish congregating around fish aggregating** devices
  - It is used in the open ocean to target dense schools of single-species pelagic (midwater) fish like tuna and mackerel.

What are the Concerns?
- In some States, this technique **linked to concerns about the decreasing stock of small,** pelagic shoaling fish such as sardines, mackerel, anchovies and trevally on the **western coasts.**
- The scientific community argues tha**t climatic conditions, including the El Nino phenomenon, are responsible for the declining catch** of such fish in the last ten years.
- However, fishermen using traditional methods have placed the blame squarely on the rise of purse seine fishing, and fear a further fall in the availability of these small fish if the ban is lifted.
  - They have also demanded that, **as the Centre has supported the lifting of the ban, it should publish the expert committee report** it has based its stance on.
- A major concern is the **dwindling availability of oil sardines, a favourite of Kerala fish eaters.**
  - In 2021, Kerala recorded a catch of just 3,297 tonnes of sardine, a sharp decrease from the haul of 3.9 lakh tonnes in 2012.
- Purse seine is a non-targeted fishing gear and catches all sorts of fishes which **come in the way of the net, including juveniles.** Hence, they are very much **detrimental to marine resources.**

What is the Union Government's Argument Against Ban?
- The Union Ministry of Fisheries, Animal Husbandry and Dairying has **recommended the lifting of the ban on purse seine fishing** on a report submitted by an expert committee.
- The expert panel has said that **this mode of fishing "per se has not resulted in any serious resource depletion** so far, given the available evidence".
- The expert panel has **recommended purse seiners to fish in territorial waters and the Indian Exclusive Indian Exclusive Economic Zone (EEZ)** subject to certain conditions.
- The committee has also suggested the framing of a "national management plan on purse seine fisheries.

What is the Jurisdiction of Fishing?
- **Fishing is a state subject** and the management plan for marine fisheries in territorial waters is the job of the State.
- State subject consists of **61 subjects (originally 66 subjects).**
  - These are of **local importance such as, local government, public order and police**, agriculture, forest, public health and sanitation, **fisheries,** education, State taxes and duties. The states under normal circumstances have exclusive power to make laws on subjects mentioned in the State List.

PROSPECT OF INDIAN ECONOMY IN 2023

Why in News?
- The Indian economy is projected to record relatively healthy **Gross Domestic Product (GDP) growth** of 6.9% in 2022-23 and **inflation** has started moderating.
- In 2020, the main event was the nationwide lockdown in the wake of the **first wave of the Covid-19 pandemic** that determined the shape of India's economy.
- In 2021, it was the **vicious second wave of Covid** that shaped our economy and recovery.
- In 2022, it was **Russia's invasion of Ukraine that largely determined the fate of India's economy.**
- As a result, issues such as inflation, rupee's exchange rate and India's forex reserves dominated more than the **routine concerns about GDP growth.**

What are the Recap Highlights?
Inflation:
- Headline Retail inflation was already above 6% when 2022 started.
- The **inflation situation flared up after Russia's invasion** of Ukraine.
- In April 2022, retail inflation **hit an eight-year high.** By the time RBI decided to **raise Repo Rates in a hurriedly convened MPC (Monetary Policy Committee)** meeting in May 2022.
- The **US and the actions of the US Federal Reserve** were cited as prime factors for global inflation.

Rupee's Exchange Rate and Forex Reserves:

- Many of India's macroeconomic indicators started getting adversely affected because of **higher crude oil prices.**
- Trade deficits started rising as the financial year started and there were concerns **about India's Current Account Deficit (CAD), Forex Reserves and Balance of Payment.**
- Eventually, the rupee hit the politically sensitive 80-to-a-dollar mark. But the rupee was not the **only currency losing ground against** the dollar. Dollar had risen against the **euro to achieve parity.**

All-round Monetary Tightening:
- By the middle of the year, central banks across the world started **raising interest rates** in order to reduce liquidity and contain inflation.

GDP Growth Slides:
- **India had grown by almost 9% in the previous financial year (2021-22)** that ended in March 2022.
- In September 2022 India had overtaken the **UK to become the world's 5th largest economy.**
- India's growth rate is expected to slow down from almost 9% last financial year (2021-22) to under 7% in the current year (2022-23) and further to around **6% (or possibly lower) in the next financial year (2023-24).**

Budget, Unemployment and Poverty:
- In the run-up to the **Union Budget**, the key concern was to figure out **whether the government can come up with a plan to boost employment** in the country. That's because India **had historically high levels of labour market stress even before Covid and the pandemic** had just made matters worse.
- In the Budget 2022-23, Indian bet on significantly ramping up **capital expenditure to start a virtuous cycle of growth.**
- But experts argued that while this strategy had obvious benefits in normal times, **India's economy was still scarred by Covid** and it was unclear if the Budget will do enough to boost employment.

How is the Global Economic Outlook for 2023?
Growth Forecast:
- In its **'State of the Economy'** update, the Reserve Bank of India warned of "a **darkening global outlook",** and emerging market economies (EMEs) appear to be **"more vulnerable".**
- The expectation that **global growth could average around 3% in 2022** seems to be a **commendable achievement.**

Inflation:
- Global food, energy and other commodity prices may have eased moderately over the past few months, **but inflation continues to stay high.**
- Global inflation, according to the **IMF (International Monetary Fund),** is forecast to decline from 8.8% in 2022 to 6.5% in 2023 to 4.1% by 2024 — still high by most yardsticks.
- The problem going into 2023 is the implications of **stubbornly high inflation for the US Federal Reserve,** especially the fact that the American labour market remains red hot, defying the impact of the Fed's monetary tightening.

Impact of US Fed Rate Hikes:
- The difference between interest rates in the US and countries such as India **widens every time the Fed raises policy rates,** thus making the latter less attractive for the currency carry trade;
- Higher returns in **US debt markets could trigger a churn in emerging market equities**, tempering foreign investor enthusiasm.
- Currency markets would be potentially impacted **by the outflow of funds to the US**; sustained rate hikes by the Fed would also mean a lower impetus to growth in the US, which could be bad news for global growth, especially when China is facing a new Covid outbreak.

What are the Prospects of the Indian Economy 2023?

Positives:

- The near-term growth outlook for the Indian economy is **supported by domestic drivers**, some of which are reflected in the buoyant trends in high frequency indicators.
- There has been significant deleveraging over the last five years, with the **corporate debt-to-GDP at its lowest in nearly a decade and a half,** and bank books have shed much of the legacy bad loans.
- The lower the debt-to-GDP ratio, the more likely the country will pay back its debt and the lower its risk of default, which could cause financial stability in the domestic and international markets.
- Waning input cost pressures, surging corporate sales, and a turn-up in investments in fixed assets **seem to be heralding the beginning of an upturn in the Capex Cycle,** which could potentially contribute to a **reboot of India's growth momentum.**
- Bank credit has been growing in **double digits for eight months now, reflecting in part an uptick in investment appetite.**
- The **China-plus-one strategy** being adopted by most multinational companies could be an opportunity, given that China is **vacating large amounts of space in low-skilled, unskilled labour intensive manufacturing** such as textiles, shoes, leather, and ceramics, and India has a chance to fill part of this vacuum.
- Agriculture has been a **sustained driver for overall GDP growth, with the rabi** outlook showing good prospects for wheat production with higher support prices, adequate reservoir levels, and climatic factors supporting higher acreage.

Negatives:

- The Ukraine war drags on, threatening an energy-linked downturn in the European Union, **India's biggest export market.**
- The US continues to grapple with cooling inflation pressure, and a let-up in the Fed's rate hikes is **unlikely until well into the second half of the year.**
- 2023 will see **higher protectionism worldwide,** greater fervour for de-globalisation, and more economic balkanisation: a worrying prospect for countries such as India that are keen to tap exports as a driver for growth.
- Given that no country in the world has grown at over 7% for a decade without strong export growth, the **protectionist mood around the world is a major dampener for emerging economies.**
- In India, **manufacturing continues to be wobbly.** Factory output, as measured by the **Index of Industrial Production (IIP)**, slumped to a 26-month low in the festive month of October, 2022. Core sector growth for October was just 0.1%, the lowest for 20 months. **That has led to a rapid downward revision of India's growth projections** by analysts for the next fiscal.
- Capacity utilisation — the ratio of actual output to the potential output that can be produced under normal conditions — has shown a minor uptick but continues to hover around the 75% mark.
- Unless this goes up on a **sustained basis, private investments are unlikely to pick up perceptibly.**
- There is continuing **distress** among the **Micro, Small and Medium Enterprises (MSME)** firms, reflecting the deep cleavages in industrial recovery where the bigger companies are doing far better than the smaller firms.
- Capital expenditure of the **states has remained weak.** Investments by states typically tend to have a higher multiplier effect.
- India's significant dependence on imported energy, at 4% of the country's GDP, is a **challenge that shows up on the balance of payments side.** A current account deficit of well over 3% is projected for FY23.
- The buoyancy in farm output notwithstanding, rural wages contracted for the ninth consecutive month in September, pointing to **continuing distress in the hinterland.**

Question For Practice

Question. Do you agree with the view that steady GDP growth and low inflation have left the Indian economy in good shape? Give reasons in support of your arguments.

Question. Do you agree that the Indian economy has recently experienced V-shaped recovery? Give reasons in support of your answer.

INDIA'S STARTUP BOOM

Why in News?

- According to figures presented in Parliament in December 2022, over the last five years, the number of registered **startups** in India have grown from 452 in 2016 to 84,012.
- Many of them are located in the cloud, **which refers to the servers and data storage that are accessible through the internet,** and storage companies are offering a variety of incentives to lure and retain them.

What is the Role of AWS Cloud Services in India's Start-up Boom?

- **About:**
  - AWS, or Amazon Web Services, **one of India's largest providers of cloud-based services, has provided start up credits that allow aspirant startups** to use a suite of services from computing, storage and hosting for free.
  - AWS has **helped "compress" the lifecycle of a startup,** allowing them to become more innovative.
  - Cloud services **mean that they can simulate experiments on the cloud,** run tests, fail, and learn from it.
  - India has the **world's third-largest startup ecosystem** after United States (US) and China and therefore, **one of the biggest markets for such cloud services**.
    - Some of the companies supported by AWS included: **HealthifyME, which developed an app called 'Vaccinate Me,'** which allowed feature phones to book close to 50 million vaccination-appointments.
  - AWS also powered the **Ayushman Bharat Digital mission** as well as the Cowin system for **Covid-19** vaccinations.
- **India's Cloud Computing Market:**
  - India's cloud computing market was expected to **grow at 28.1% during the forecast period until 2027**.
  - The high concentration and increasing number of **small and medium-sized businesses in India that are rapidly shifting towards cloud computing** is emerging as the major driving factor for the market.
  - Furthermore, **growing investment towards the construction of cloud data centres** is expected to boost the India cloud computing market.

What is the State of Start-ups in India?

- **About:**
  - 49% of start-ups are from tier-2 and tier-3 cities.
  - As of September 2022, India is home to **107 unicorns with a total valuation of USD 340.79 Billion**.
  - According to the India **Venture Capital** Report 2021 published by Bain and Company, **the number of cumulative start-ups has grown at a CAGR of 17% since 2012 and crossed 1,12,000**.
- **Major Challenges Related to Start-ups in India:**
  - **Lack of Forward Thrust to Innovation:** India's education system lacks **vocational training** and industry exposure that keeps students deprived of pursuing innovation. As a result, this makes the Indian higher education system lags behind in terms of research and development.
  - **Lack of Recognition:** Since nearly 70% of the Indian population lives in rural areas that are still deprived from **reliable internet access**. Consequently, many village-based start-up go unrecognised and are deprived of government funding initiatives.
  - **Bootstrapped Nature:** For running a start-up, a significant amount of working capital is required. Many start-ups in India, especially at early stages, are bootstrapped, i.e., self-funded through the founders' own savings, since domestic financing is limited.
  - **Scalability Concern:** Small start-ups in India have limited understanding of customers and are confined to only certain regions, where they know the local language and local people.
  - **Marginal Penetration in Space Sector:** Indian startups in fintech and e-commerce are doing exceptionally well, but space startups remain outliers.

- Globally, the space economy is valued at USD 440 billion, with India holding less than 2% of the market.

What are the Government's Initiatives for Startups?
- **Startup India Seed Fund Scheme (SISFS):** It aims to provide financial assistance to startups for proof of concept, prototype development, product trials, market entry and commercialization.
- **National Startup Awards:** It seeks to recognize and reward outstanding startups and ecosystem enablers that are contributing to economic dynamism by spurring innovation and injecting competition.
- **SCO Startup Forum:** The first-ever **Shanghai Cooperation Organisation (SCO)** Startup Forum was launched in October 2020 to develop and improve startup ecosystems collectively.
- **Prarambh:** The 'Prarambh' Summit aims to provide a platform to startups and young minds from around the world to come up with new ideas, innovation and invention.

AGRICULTURE

INNOVATION IN AGRICULTURE

Why in News?

Recently, the government of India has taken various initiatives related to Agriculture by using **Internet of Things (IoT)** and **Artificial Intelligence (AI).**

- **IoT** is a **computing concept** that describes the idea of everyday physical objects being connected to the internet and being **able to identify themselves to other devices.**

What is the Need for IoT and AI in the Agriculture Sector?

- Even as agriculture remains a priority sector accounting for the livelihoods of around 58 % of the country's population, **adoption of technology in the sector is at a transitory juncture and faces several challenges across the value chain.**
- These challenges require **disruptive interferences which can be provided by technological solutions such as the** IoT and AI etc.
- Adoption of AI technologies can **pave the way for higher production with the optimum utilization of available resources** and facilitate predictive analysis, crop health management, enhance quality and traceability among others.
- The adoption of innovative and transformative smart farming practices in **the country is gradually becoming a major trend.**
- Globally technology advancements in recent years are **re-engineering both the upstream and downstream segments of the agri value chain,** which makes it **important to adapt innovation in Agriculture.**
- Cutting-edge technologies in AI such as IoT, **ML (Machine Learning)**, **cloud computing**, statistical computing, deep learning, Virtual Reality (VR) and Augmented Reality (AR) can enable the Agriculture Sector to **overcome the challenges of productivity, quality, traceability and carbon emission with enhanced profitability.**

What is the Usage of AI in Agriculture?

- **Analyzing Farm Data:**
  o Farms produce hundreds of thousands of data points on the ground daily. With the help of AI, **farmers can now analyze a variety of things in real-time such as weather conditions ,**temperature, water usage or soil conditions collected from their farm to better inform their decisions.
  o Farmers are also using AI to create seasonal forecasting models to improve agricultural accuracy and increase productivity.

- **Precision Agriculture:**
  o Precision agriculture uses AI technology to aid in **detecting diseases in plants, pests, and poor plant nutrition on farms.**
  o AI sensors can detect and target weeds and then decide which herbicides to apply within the right buffer zone.
  o This helps to **prevent over-application of herbicides and excessive toxins** that find their way in our food.
  o It would **increase productivity by introducing precision agriculture.**

- **Tackling the Labour Challenge:**
  o With fewer people entering the farming profession, **most farms are facing the challenge of a workforce shortage.**
  o One solution to help with this shortage of workers is AI agriculture bots. These **bots augment the human labour workforce and are used in various forms.** For example:
    - These bots can **harvest crops at a higher volume and faster pace** than human labourers, more accurately identify and eliminate weeds, and reduce costs for farms by having around the clock labour force.

- Additionally, farmers are beginning to turn to chatbots for assistance. Chatbots **help answer a variety of questions and provide advice** and recommendations on specific farm problems.

What are the Related Initiatives taken?

- **National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS):**
  - It was launched in **2018 by the Ministry of Science and Technology** with an outlay of Rs. 3,660.00 crore for a period of five years to encourage innovation in new age technologies.
  - Under the Mission, 25 Technology Innovation Hubs (TIHs) have been set up in premier institutes of **national importance across the country in advanced technology verticals.**
  - The Mission can act as an engine of growth that would benefit national initiatives in health, education, energy, environment, agriculture, strategic cum security, and industrial sectors, **Industry 4.0**, **SMART Cities**, **Sustainable Development Goals (SDGs) etc.**

- **Digital India initiatives**:
  - Under the Digital India initiatives government has set up Centres of Excellence on Internet of Things with the objective to enable **India to emerge as an innovation hub in IoT through democratization of innovation and realization of prototypes.**
  - One of the focus areas of Centres of Excellence on IoT is on **Agri-tech and it connects various entities** such as startups, enterprises, venture capitalists, government and academia.

- **National e-Governance Plan in Agriculture:**
  - Funding is given to **State Governments for Digital Agriculture projects** using emerging technologies like Artificial Intelligence and Machine Learning (AI/ML), IoT, Block chain etc.

- **Innovation and Agri-Entrepreneurship Development:**
  - This programme is operational under **Rashtriya Krishi Vikas Yojana (RKVY)** from 2018-19 with the objective to **promote innovation and entrepreneurship** by providing financial support and nurturing the incubation ecosystem.
  - In this connection, **five Knowledge Partners (KPs)** and 24 Agribusiness Incubators (R-ABIs) have been appointed across the country. The **five KPs are:**
    - National Institute of Agricultural Extension Management (MANAGE), Hyderabad.
    - National Institute of Agricultural Marketing (NIAM) Jaipur.
    - Indian Agricultural Research Institute (IARI) Pusa, New Delhi.
    - University of Agriculture Science, Dharwad, Karnataka.
    - Assam Agriculture University, Jorhat, Assam.

Way Forward

- With the recent reforms in the agriculture sector, there is a likelihood of increased investments in contract farming and **infusion of technology for better yields and productivity.**
- This will further **push the adoption of AI in agriculture.** Further, in order to help these AI solutions, scale increased investments needed, both from the public and private sector.
- A huge surge in the emergence of agritech start-ups is **being witnessed in India, driven by advanced technology penetration** coupled with a conducive policy environment.
- This can only be seen as a starting point for the penetration of advanced technologies like AI, ML, IoT and Blockchain in the agriculture ecosystem.
- These collective technologies **come as a great boon to the agricultural sector which is heavily reliant on unpredictable climatic conditions.**

KISAN DIWAS

Why in News?

- As many as 13 farmers known for innovative farming were felicitated to mark **Kisan Diwas or National Farmers Day** on 23rd December, 2022.

- The **Kisan Diwas** is observed across the country to **celebrate the birth anniversary of Chaudhary Charan Singh,** the former Prime Minister of India.

What are the Key Facts about Chaudhary Charan Singh?

- He was born in 1902 at Noorpur in Meerut district of Uttar Pradesh and **was the Prime Minister of India from 28th July 1979 to 14th January 1980.**
- Being a proponent of rural and agricultural development, he made continuous efforts for keeping agriculture at the centre of planning for India.
- He was given the nickname **'Champion of India's Peasants'** for his work towards upliftment of farmers and development of agriculture throughout the country.
- He took a **leading part in formulation and finalisation of the Debt Redemption Bill 1939,** in order to give relief to the peasantry from moneylenders.
- He was instrumental in bringing about the **Land Holding Act, 1960** which was aimed at lowering the ceiling on land holdings to make it uniform throughout the Uttar Pradesh.
- He **left Congress in 1967** and formed his independent party known as the **Bharatiya Lok Dal.**
- He served **twice as Chief Minister of Uttar Pradesh.** He became **Prime Minister of India in 1979.**
- He was the author of **several books and pamphlets,** including **'Abolition of Zamindari', 'Co-operative Farming X-rayed', 'India's Poverty and its Solution',** 'Peasant Proprietorship or Land to the Workers' and 'Prevention of Division of Holdings Below a Certain Minimum'.

What are the Related Initiatives for Farmers?

- **PM-KISAN:** Under the scheme, the Centre transfers an amount of Rs 6,000 per year, in three equal instalments, directly into the bank accounts of all landholding farmers irrespective of the size of their land holdings.
- **National Mission for Sustainable Agriculture:** It aims at promoting sustainable agriculture practices best suitable to the specific agro-ecology.
- **Pradhan Mantri Krishi Sinchayee Yojana:** It has three main components namely Accelerated Irrigation Benefit Programme (AIBP), Har Khet ko Pani (HKKP), and watershed development components.
- **Rashtriya Krishi Vikas Yojana (RKVY):** It was initiated in 2007, and allowed states to choose their own agriculture and allied sector development activities as per the district/state agriculture plan.
- **Nutrient Based Subsidy (NBS) Programme:** Under this programme, fertilizers are provided to the farmers at the subsidized rates based on the nutrients (N, P, K & S) contained in these fertilizers.
- **Rashtriya Gokul Mission:** It is being implemented for development and conservation of indigenous bovine breeds since December 2014.
- **Pradhan Mantri Fasal Bima Yojana:** It provides a comprehensive insurance cover against failure of the crop thus helping in stabilising the income of the farmers.
- **Paramparagat Krishi Vikas Yojana:** Launched in 2015, it is an elaborated component of Soil Health Management (SHM) of major project National Mission of Sustainable Agriculture (NMSA).
- **Kisan Credit Card** : The scheme was introduced in 1998 for providing adequate and timely credit support from the banking system, under a single window with flexible and simplified procedure to the farmers.

SECURITY ISSUES

PEACE IN NORTH EAST INDIA

Why in News?

- Recently, the Union Government has reported that there has been an **80% decline in civilian deaths and 6,000 militants have surrendered** in North East India since 2014.

What are the Key Peace Developments in North East India?

- **Important Agreements:**
  - **Assam-Meghalaya Inter State Boundary Agreement, 2022:**
    - The agreement is for a **closure in six disputed sectors** that were taken up for resolution in the first phase.
    - While **Assam will get 18.51 sq. km** of the disputed areas, **Meghalaya will get the remaining 18.28 sq.km.**
  - **Karbi Anglong Agreement, 2021:**
    - **Karbi Anglong Agreement** is a tripartite agreement among five insurgent groups of **Assam,** the **Centre** and the **state government.**
    - 5 militant organizations **(KLNLF, PDCK, UPLA, KPLT and KLF)** laid down arms and more than 1000 of their armed cadres have given up violence and joined the mainstream of society.
  - **Bodo Accord, 2020:**
    - The **central government,** the **Assam government** and the **Bodo groups,** including all factions of the militant **National Democratic Front of Bodoland (NDFB)**, signed the **Bodo Accord** to redraw and rename the Bodoland Territorial Area District (BTAD) as the **Bodoland Territorial Region (BTR),** in Assam.
  - **Bru-Reang Agreement, 2020:**
    - Bru or Reang is a community **indigenous to Northeast India,** living mostly in Tripura, Mizoram and Assam. In Tripura, they are recognised as a **Particularly Vulnerable Tribal Group.**
    - The **Centre,** the **governments of Mizoram** and **Tripura** and leaders of **Bru organisations** signed the quadripartite agreement, **Bru-Reang Agreement** in January (2020).
    - Under the pact, the Home Ministry has committed to **incur the whole expenditure** of settlement in Tripura.
  - **NLFT-Tripura Agreement, 2019:**
    - **National Liberation Front of Tripura (NLFT)** has been banned under the **Unlawful Activities (Prevention) Act, 1967** since 1997 and has been involved in violence, operating from their camps across the international border.
    - **NLFT Agreement 2019** resulted in the surrender of 88 cadres with 44 weapons.
  - **Roll Back of Armed Forces Special Powers Act (AFSPA):**
    - Government withdrew AFSPA from a large part of the Northeast, including the whole of Tripura and Meghalaya.
    - In Arunachal Pradesh, **AFSPA** remains in force in only 3 districts.

What is the Significance of North East for India?

- **Strategic Significance:**
  - North-East India is the gateway to **South-East Asia** and beyond. It is India's **land-bridge to Myanmar.**

- India's **Act East Policy** places the north eastern states on the **territorial frontier** of India's eastward engagement.
- **Cultural Significance:**
  o North East India is one of the most culturally diverse areas of the world. It is **home to over 200 tribes**. Popular festivals include the **Hornbill Festival of Nagaland, Pang Lhabsol of Sikkim**, etc.
  o North-east India is a **Dowry-Free Zone.**
  o The **rich tapestry of cultures of Northeast** is reflected in its highly developed Folk dance forms like **Bihu** (Assam).
  o Manipur has a tradition of **worshipping nature in sacred groves,** called **UmangLai.**
- **Economic Significance:**
  o Economically, the Region is **rich in natural resources of "TOT"** (Tea, Oil, and Timber).
  o It is a veritable powerhouse with a potential of 50000 MW of **hydroelectric power** and an abundant **reserve of fossil fuels.**
- **Ecological Significance:**
  o North East is a part of **Indo-Burma biodiversity hotspot.** It represents one of the highest avian and plant biodiversity of the Indian subcontinent.
  o This area has the prestige of having all the bear species present in India.

What are the Government's Other Initiatives for the North East?
- **Infrastructure:**
  o **Bharatmala Pariyojana**
  o **Regional Connectivity Scheme (RCS)-UDAN**
- **Connectivity:**
  o **Kaladan Multi-Modal Transit Project**
  o **India-Myanmar-Thailand Trilateral Highway**
- **Tourism:**
  o **Swadesh Darshan Scheme**
- **Other:**
  o **Digital North East Vision 2022**
  o **National Bamboo Mission**

> **Question For practice**
> The North-East region of India has been infested with insurgency for a very long time. Analyze the major reasons for the survival of armed insurgency in this region.

SCIENCE AND TECHNOLOGY

MONKEYPOX/MPOX

- The World Health Organisation (WHO) announced that it would start using the term "mpox" for monkeypox, which has infected about 80,000 people in the first major outbreak of the viral disease outside Africa that began early this summer.
- The change of name, announced after a series of consultations with global experts, has been provoked by the racist connotations that "monkeypox" sometimes carries.
- Monkeypox, which was named in 1970 because the virus that causes the disease was first discovered in captive monkeys in 1958, does not have much to do with monkeys.

Monkeypox
- Monkeypox is a viral zoonotic disease (a disease that is transmitted from infected animals to humans) that occurs primarily in tropical rainforest areas of Central and West Africa and is occasionally exported to other regions.
- Monkeypox belongs to the orthopoxvirus, which is a genus of viruses that also includes the variola virus which causes smallpox.

Symptoms
- It begins with a fever, headache, muscle aches, backache, and exhaustion.
- It also causes the lymph nodes to swell (lymphadenopathy), which smallpox does not.

Source of Transmission:
- Human-to-human transmission is very limited. However, transmission, when it occurs, can be through contact with bodily fluids, lesions on the skin or on internal mucosal surfaces, such as in the mouth or throat, respiratory droplets and contaminated objects.

Outbreaks
- The first case of monkeypox was reported in 1958 in monkeys and in humans in 1970 in the western Africa.
- Nigeria witnessed the biggest outbreak of the disease in 2017.
- Thereafter, the disease has been reported in many countries including the USA, Singapore, UK.

Incubation Period
- The incubation period (time from infection to symptoms) for monkeypox is usually 7-14 days but can range from 5-21 days.

Treatment
- There is no safe, proven treatment for monkeypox yet. The WHO recommends supportive treatment depending on the symptoms. Awareness is important for the prevention and control of the infection.

Difference from smallpox
- The main difference between symptoms of smallpox and monkeypox is that the latter causes lymph nodes to swell (lymphadenopathy) while smallpox does not.

Present Cases
- The majority of reported cases of monkeypox currently are in males, and most of these cases occur among males who identified themselves as gay, bisexual and other men who have sex with men (MSM), in urban areas, and are clustered in social and sexual networks.

> **Question:** What are the symptoms of monkeypox? How does it different from smallpox.

TIDAL DISRUPTION EVENT (TDE)

- A mysterious and intensely bright flash of light coming from halfway across the universe earlier this year had stunned astronomers worldwide. The source of the intense beam has now been identified — a supermassive black hole ripping apart a star, pointing directly at Earth.

Tidal Disruption Event (TDE)
- The jet of light was brighter than 1,000 trillion suns.
- Scientists from multiple institutions, including India, helped trace the activity powered by the black hole, 8.5 billion light years away from Earth.
- The activity is called a tidal disruption event (TDE), which happens when a black hole shreds a nearby star as it feeds on it.
- As this happens, the supermassive black hole spews a jet of particles moving close to the speed of light.
- This signal was detected in February 2022. Soon, astronomers turned multiple telescopes, scanning the light in various wavelengths: X-ray, ultraviolet, optical and radio bands.
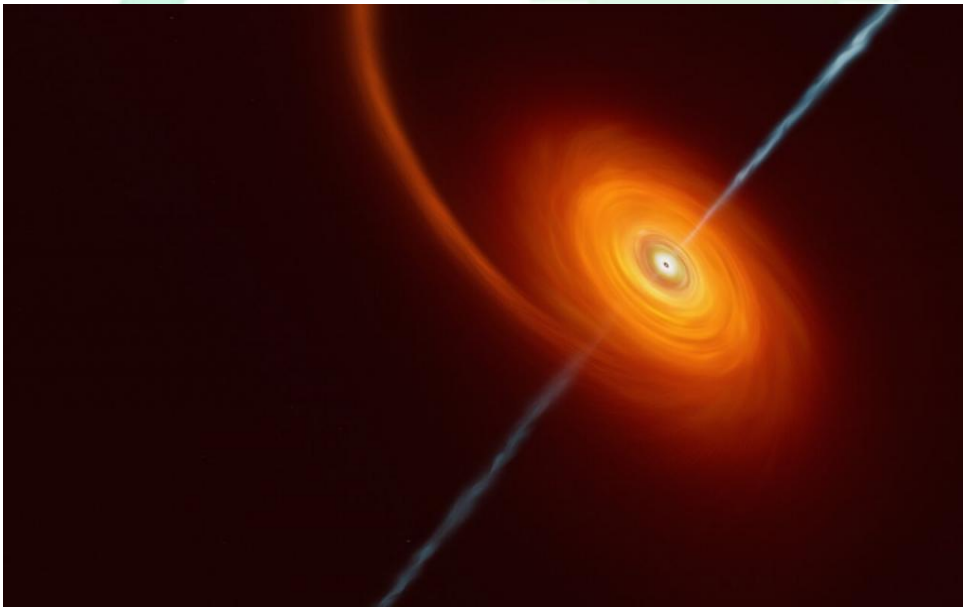
About Blackholes
- A black hole is a place in space where gravity pulls so much that even light cannot escape.
- The gravity is so strong because matter has been squeezed into a tiny space. This can happen when a star is dying.

Visibility:
- Because no light can get out, they are invisible.
- Space telescopes with special tools can help find black holes.
- The gasses swirling around actually help in getting their images.

- **Example:** The supermassive black hole at the centre of the Milky Way galaxy is called Sagittarius A.
- It has a mass equal to about 4 million suns and would fit inside a very large ball that could hold a few million Earths.

INDIA'S FIRST PRIVATE ROCKET "VIKRAM S ROCKET"

- Hyderabad-based Skyroot Aerospace scripted history by becoming the first private Indian organisation to launch a rocket from Indian Space Research Organisation (ISRO)'s launchpad in Sriharikota.

Vikram S rocket:
- It is a part of Mission Prarambh, which means the beginning.
- Prarambh is a Sanskrit word, which means the beginning. So we wanted to call this mission the beginning of a new era or dawn in India's space industry.
- Vikram-S was the first launch.
- It is a sub-orbital rocket, which reached outer space and then splashed into the sea.
- Next launch will be Vikram-1, an orbital vehicle that puts satellites into orbit.

Mechanism of Vikram S
- There are four spin thrusters, which will generate the rocket's spin. This gives stability so that it doesn't deviate much from the trajectory.
- It experiences Max-Q during the lift-off, which is the maximum stress on the rocket.
- Many rockets get broken at this point that is 15 seconds down the flight.
- At around 23 seconds, the rocket motor or the engine burns out. During this time, it just lofts to space and achieves five times the speed of sound or Mach 5.
- It descends after reaching the maximum point called 'Apogee' and then it falls back and splashes down into the sea.
- So, it takes around two and a half minutes to reach the Apogee and another two and a half minutes to splash down.

Technologies used
- Carbon composites: porous structure made of carbon and carbon fibre and four times lighter and has higher strength than steel.
- The lighter the rocket, the more payload we can use.
- 3D printing: reduces the cycle time by 90 per cent compared with traditional methods and allows to build complex shapes.
- Cycle time is the time required to manufacture a component.
- Cost-effectiveness
- Efficient technology
- Utilising existing govt infrastructure
- Operating out of India

About Skyroot Aerospace
- It is an Indian private aerospace manufacturer and commercial launch service provider headquartered in Hyderabad.
- Mandates: cutting-edge innovation and cost-effectiveness
- Next launch will be Vikram-1, an orbital vehicle that puts satellites into orbit.
- Vikram-2 will have a higher capacity than Vikram-1.
- Skyroot Aerospace focuses on reusability of rockets.

OPEN STANDARD DIGITAL TRUNKING RADIO SYSTEM' (OS-DTRS)
- The Delhi Police will soon move to a more efficient internal communication system, aimed at faster exchange of information and bigger networks.
- The force is set to design, install and supply the 'Open Standard Digital Trunking Radio System' (OS-DTRS) and will phase out the current tetranet wireless network services.
- The project will cost close to Rs 100 crore.

About Trunking System

- The trunking system provides multiple channels and common groups for policemen.
- This way, they are communicating with more personnel using fewer groups.
- Groups are formed based on geographical area and function.
- It will also have a voice logger system, which can be used to describe a crime scene, interrogation details and evidence.
- The logs are saved in the system.
- It is an internal communication system of Delhi Police
- It is more efficient and aims at faster exchange of information.
- The project's master site will be at the Delhi Police HQ. Police are looking for private companies to run the system on 800 MHz frequency band and microwave links.
- There will be a tower that can withstand wind speeds of up to 160 kmph.
- Around 15,000 concurrent radio sets will be made first and later expanded to 30,000 over time.
- The master site will have OS-DTRS control and switching equipment, a network management system, 90 IP-based logger systems, 50-inch or bigger LED monitors, an antenna system and maintenance systems.
- Equipment and services are expected to run for at least 10 years and fix network issues faced by personnel on the ground.
- The system should be equipped to support multi-channel operation for meeting current traffic requirements and should be expandable by 100% in future
- The system will have talk groups, in which members have the same functions/role, and each radio system will have a unique ID.

> **Question:** What are the features Open Standard Digital Trunking Radio System' (OS-DTRS) recently adopted the Delhi Police?

NEURALINK

- Neuralink, the Elon Musk company that is the target of a federal investigation over its animal trial program, has been trying to develop a brain chip that would enable the paralyzed to walk and the blind to see.

NEURALINK

- Founded in 2016 by Musk and a group of engineers, Neuralink is building a brain chip interface that can be implanted within the skull, which it says could eventually help disabled patients to move and communicate again, and also restore vision.
- Neuralink's device has a chip that processes and transmits neural signals that could be transmitted to devices like a computer or a phone.
- Neuralink also believes its device will eventually be able to restore neural activity inside the body, allowing those with spinal cord injuries to move limbs.

Application

- The company hopes that a person would potentially be able to control a mouse, keyboard or other computer functions like text messaging with their thoughts.
- Neuralink also believes its device will eventually be able to restore neural activity inside the body, allowing those with spinal cord injuries to move limbs.
- The San Francisco and Austin-based company also aspires to cure neurological conditions such as Alzheimer's and dementia.

OPENAI'S CHATGPT CHATBOT

- Last week, OpenAI, the company best known for Dall-E — the AI-based text-to-image generator — introduced a new chatbot called ChatGPT. ChatGPT is a 'conversational' AI and will answer queries just like a human would– well, at least that's the promise and premise.

About ChatGPT:
- ChatGPT is a 'conversational' AI.
- It is based on the company's GPT 3.5 series of language learning models (LLM).
- GPT stands for Generative Pre-trained Transformer 3
- This is a kind of computer language model that relies on deep learning techniques to produce human-like text based on inputs.
- It has gone viral is because of the kind of responses it gives, being seen as a replacement for much of the daily mundane writing, from an email to even college-style essays.
- The model is trained to predict what will come next, and that's why one can technically have a 'conversation' with ChatGPT.
- It is trained using "Reinforcement Learning from Human Feedback (RLHF)."
- OpenAI uses Microsoft Azure's cloud infrastructure to run these models.
- Users have the option of downvoting or upvoting a response.

How to access
- Currently, it is open in beta to all users.
- One can go to the OpenAI website and sign up to try out ChatGPT by creating an account.
- The chatbot has already crossed one million users, and you might get a message that the beta is full.

Application
- It will answer queries just like a human would.
- Such as tips on how to set up a birthday party, write an essay on why parliamentary democracy is better, and even a fictional meeting between two well-known personalities.
- It can answer follow-up questions and can also admit its mistakes, challenge incorrect premises, and reject inappropriate requests.
- It is being seen as a replacement for the basic emails, party planning lists, CVs, and even college essays and homework.
- It can also be used to write code, solve math equations, and even spot errors in code.
- It can write fiction but not at the level of a humans.

Limitations
- It may generate incorrect information, and create "biased"
- Its knowledge of the world and events after 2021 is limited
- It could give "plausible-sounding but incorrect or nonsensical"
- It can sometimes overuse certain phrases
- The chatbot displayed clear racial and sexist biases
- The chatbot gives answers which are grammatically correct and read well– though some have pointed out that these lack context and substance, which is largely true.

About Open AI
- ChatGPT is a start-up of Open AI focused on artificial intelligence and its potential use cases.
- OpenAI's notable investors include Microsoft, Khosla Ventures and Reid Hoffman's charitable foundation. Greg Brockman is the company's chairman and president, while Sam Altman is the CEO. Ilya Sutskever is Open AI's chief scientist.
- The company is best known for Dall-E — the AI-based text-to-image generator

SPACETECH INNOVATION NETWORK
- The Indian Space Research Organisation (ISRO) has signed an MoU with Social Alpha, a multistage innovation curation and venture development platform for science and technology start-ups, to launch SpaceTech Innovation Network (SpIN).

About the SpaceTech Innovation Network (SpIN)

- SpIN is India's first dedicated platform for innovation, curation, and venture development for the burgeoning space entrepreneurial ecosystem.
- The space agency said that the tie-up is a one-of-a-kind public-private collaboration for start-ups and SMEs in the space industry.
- This novel partnership is a significant step forward in providing further stimulus to India's recent space reform policies and will work towards identifying and unleashing the market potential of the most promising space tech innovators and entrepreneurs in India
- SpIN will primarily focus on facilitating space tech entrepreneurs in three distinct innovation categories:
- Geospatial Technologies and Downstream Applications
- Enabling Technologies for Space & Mobility
- Aerospace Materials, Sensors, and Avionics.

Significance of the programme

- Space applications cut across various domains from earth to sky. Innovative technologies are expected to bring a paradigm shift in utilising the space applications to maximise the economic, social, and environmental benefits for the larger society.
- SpIN has launched its first innovation challenge.
- Early-stage start-ups for developing solutions in areas of maritime and land transportation, urbanisation, mapping, and surveying, disaster management, food security, sustainable agriculture, environmental monitoring, and natural resources management, among others are encouraged to apply.
- The selected start-ups and innovators will be able to access both Social Alpha's and ISRO's infrastructure and resources as per the prevailing guidelines.
- They will be provided active hand-holding in critical areas, including access to product design, testing and validation infrastructure, intellectual property management, go-to-market strategy, and access to long-term patient capital, among other technical and business inputs.

> **Question:** What are the major objectives of the SpaceTech Innovation Network (SpIN) launched by ISRO and Social Alpha?

ARTEMIS 1 MISSION

- NASA's Orion capsule splashed down back to Earth on Sunday, December 11. The Orion's landing in the Pacific Ocean marked the end of the inaugural Artemis 1 lunar mission exactly 50 years after Apollo's final moon landing.

- The gumdrop-shaped Orion capsule, carrying a simulated crew of three mannequins wired with sensors", landed in the Pacific Ocean, off Mexico's Baja California peninsula.
- It also performed a new landing technique called 'skip entry', designed to help the spacecraft accurately splash down at the landing site.
- Orion entered the Earth's upper atmosphere and used the atmosphere and its lift to "skip" back outside the atmosphere only to re-enter once again.

What is the Artemis 1 Mission?

- Artemis 1 was essentially an experimental mission, to check if the capsule can be trusted to ferry humans to the moon and back in future missions. Thus, safe re-entry was critical to the success of the whole initiative.
- Named after the sister of Apollo in Greek mythology, it is NASA's successor to the Apollo lunar missions from fifty years ago.

- Artemis I is the first in a series of increasingly complex missions to build a long-term human presence at the Moon for decades to come.
- The primary goals for Artemis I are to demonstrate Orion's systems in a spaceflight environment and ensure a safe re-entry, descent, splashdown, and recovery prior to the first flight with crew on Artemis II.
- It is only a lunar Orbiter mission even though, unlike most Orbiter missions, it has a return-to-Earth target.
- Artemis I is the first step into that new space age of achieving the promise of transporting humans to new worlds, of landing and living on other planets, or maybe meeting aliens.
- As it hurtled towards Earth, Orion experienced such friction and pressure that its forward-facing surface could have generated temperatures likely to reach around 3,000C.
- It's essentially like throwing a football 300 yards and hitting a penny Eric Coffman, Orion propulsion senior manager at Lockheed Martin Corp, which built Orion under contract with NASA.
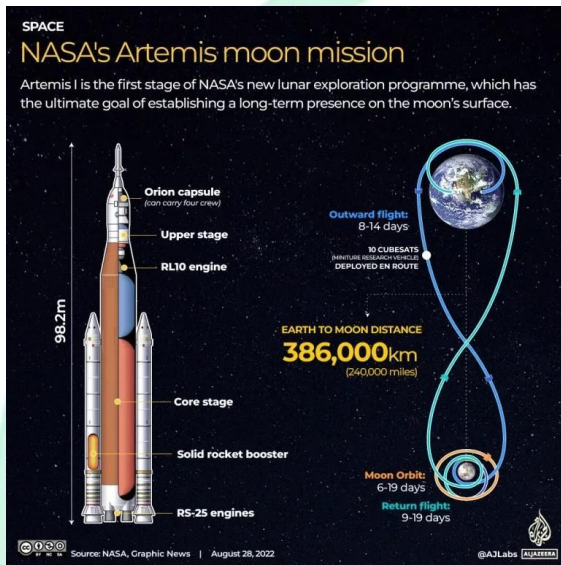
Aims of Artemis 1
- Artemis 1 is being seen by NASA as a stepping stone to much greater things.
- It is the first in a series of missions that are planned to not only take humans back to the Moon, but to also explore the possibilities of extended stay there, and to investigate the potential to use the Moon as a launch pad for deep space explorations.

Artemis II
- It will take off in 2024.
- Artemis II will have a crew aboard Orion and will be a test mission to confirm that all of the spacecraft's systems will operate as designed when it has humans on board.
- But the Artemis II launch will be similar to that of Artemis I. A crew of four astronauts will be aboard Orion as it and ICPS orbit the Earth twice before moving to the direction of the Moon.

Artemis III
- It is scheduled for 2025, and is expected to ferry astronauts to the moon for the first time since the apollo missions.

Question: What is the Artemis Mission? How it will help human in space exploration.

NavIC, India's version of GPS

- To promote the use of 'NAVigation with the Indian Constellation' (NavIC), the Indian version of GPS, the Indian Space Research Organisation (ISRO) will introduce the L1 frequency in all its future satellites.
- The next satellites, starting from NVS-01 onwards, will have an L1 band for civilian navigational use.

What is NavIC?

- NavIC is India's homegrown alternative to GPS. Developed by ISRO, the navigation satellite system was first approved in 2006 at a cost of $174 million, but became operational only by 2018.
- At present, it consists of eight satellites, covering the whole of India and up to 1,500 km from its boundaries.
- The government has said NavIC is as accurate as GPS. The "performance of NavIC system is on par with the other positioning systems".
- The seven satellites in the NavIC constellation so far use two frequencies for providing positioning data — the L5 and S bands.
- The new satellites NVS-01 onwards, meant to replace these satellites, will also have L1 frequency.
- The L1 is the oldest and most established GPS signals, which even the less sophisticated, civilian-use devices such as smartwatches are capable of receiving.
- Thus, with this band, the use of NavIC in civilian-use gadgets can go up.
- GPS satellites generally transmit on two frequencies—L1 (42 MHz) and L2 (1227.60 MHz).

Use of NavIC

- NavIC is mainly being used in public vehicle tracking, to provide emergency warning alerts to fishermen venturing into the deep sea, and for tracking data related to natural disasters.
- The government is also pushing for its increased use in smartphones.

Advantages of NavIC

- NavIC, since it is homegrown, will be more accurate than other systems.
- With a fully operational constellation and ground stations outside of India — ISRO plans to set up ground stations in Japan and France to better triangulate the entire area under NavIC coverage –
- The system is likely to become more accurate than GPS.
- The satellites placed directly over India also ensure better availability of signals in varied geographical regions compared to GPS, which India receives at an angle, making it difficult to access in dense forests or valleys.

Other navigation systems:

- Galileo – European Union
- GLONASS – Russia
- China's – Beidou
- QZSS – Japan

> **Question:** Discuss the features of NavIC, India's version of GPS. What are its advantages?

BASE EDITING

- Described by scientists as "the most sophisticated cell engineering to date," an experimental treatment would provide the teenager Alysaa a new lease of life, defeating her seemingly incurable cancer.

About T-Cell blood cancer

- T-cell acute lymphoblastic leukaemia (T-ALL).
- T-ALL affects the stem cells in the bone marrow that produce a particular kind of white blood cells (WBC) called T lymphocytes (T cells).
- These cells provide a person immunity by killing cells carrying infections, activating other immune cells, and regulating the immune response.
- At least 20% of these WBC are atypical– as they accumulate in the bone marrow, they crowd out "good" WBCs and hence weaken the immune system.
- These unhealthy cells can also accumulate in other parts of the body like the liver, spleen and lymph nodes.

- While found in both children and adults, T-ALL's incidence decreases with age.

How is T-ALL typically treated?
- Similar to any leukaemia– chemotherapy and stem cell/bone marrow transplant.
- Chemotherapy – either kills the cancerous cells or stops them from further dividing.
- It may also wreck immunity system along with it.
- If chemotherapy fails, bone marrow transplant is done.
- Patients receive an infusion of healthy bone marrow cells that will hopefully multiply and restore immunity.
- Overall treatment for T-ALL is pretty effective– children have a survival rate of over 85 per cent after five years of receiving this treatment.

What is the experimental treatment Alyssa received?
- In May, Alyssa, from Leicester in UK, began a trial where she received a dose of healthy T-cells from a donor that would hopefully attack her cancerous cells without destroying each other.
- Known as CAR-T therapy, this principle has been around for a while, but Alyssa's case was different.
- Traditionally, CAR-T therapy involves adding a gene to T-cells that causes them to seek out and destroy cancerous cells.
- The modified cells are known as CAR-T cells. First, an individual's own T-cells are removed, which are then modified and reintroduced to the individual.
- The problem with such an approach (besides the expense) is that very often, when an individual is really sick, it is simply impossible to obtain enough healthy T-cells to create CAR-T cells.
- While donors can provide healthy T-cells to an individual, these T-cells from a foreign body are going to attack every single cell in that patient's body, making the treatment counterproductive.
- Thus, scientists have resorted to what is known as base editing– through this technique of genetic editing, they make it possible for one donor to supply T-cells to multiple recipients, without the traditional risks associated with it.
- Thus, Alyssa received genetically modified cells that were programmed to specifically attack her cancer while leaving the rest of her body alone.

What is base editing?
- Bases are the language of life. Just as letters in the alphabet spell out words that carry meaning, the billions of bases in our DNA spell out the instruction manual for our body.
- With advances in genetic technology, scientists have been able to zoom into a precise part of the genetic code to alter the molecular structure of just one base, effectively changing its genetic instructions.
- A team at the Great Ormond Street Hospital managed to use base-editing to create a new type of T-cell from a healthy donor that would not attack other cells in Alyssa's body, not kill each other, survive chemotherapy and finally, hunt down all other T-cells in Alyssa's body (healthy and cancerous).

> **Question:** What is base editing technique? How it helps to treat T-Cell blood cancer.

FUSION ENERGY
- Scientists in the United States have, for the first time, achieved a net gain in energy from a nuclear fusion reaction, seen as a big step forward in the decades-old endeavour to master a technology that is considered the most dependable source of energy in future.
- Fusion is a different, but more powerful, way of harnessing the immense energy trapped in the nucleus of an atom.
- This is the process that makes the Sun and all other stars shine and radiate energy.
- Attempts to master the fusion process have been going on at least since the 1950s, but it is incredibly difficult and is still at an experimental stage.

- The nuclear energy currently in use across the world comes from the fission process, in which the nucleus of a heavier element is split into those of lighter elements in a controlled manner.
- In fusion, nuclei of two lighter elements are made to fuse together to form the nucleus of a heavier atom.
- A large amount of energy is released in both these processes, but substantially more in fusion than fission.
- For example, the fusion of two nuclei of a heavier isotope of hydrogen, called tritium, produces at least four times as much energy as the fission of a uranium atom which is the normal process of generating electricity in a nuclear reactor.
- Besides greater energy yield, fusion is also a carbon-free source of energy, and has negligible radiation risks.
- But fusion reactions happen only at very high temperatures, 10 times the temperature that exists at the core of the Sun, and creating such an extreme environment in a laboratory requires huge amounts of energy.
- So far, the energy released in such experimental fusion reactions have been lower than what is consumed to create the enabling high temperatures.
- At best, some of these reactions have produced 'near break-even' energies. That is why the latest experiment conducted at the Lawrence Livermore National Laboratory in California is being considered a big deal.

GEMINIDS METEOR SHOWER

- This year, the Geminids will peak around December 13-14, when, with a clear sky and away from bright city lights, you can watch scores of meteors streak across the sky.

What causes meteor showers?
- Meteors are usually fragments of comets.
- As they enter the Earth's atmosphere at high speed, they burn up, creating a spectacular "shower".
- Meteors come from leftover comet particles and bits from asteroids.
- When these objects come around the Sun, they leave a dusty trail behind them.
- Every year Earth passes through these debris trails, which allows the bits to collide with our atmosphere where they disintegrate to create fiery and colorful streaks in the sky.

What makes the Geminids unique?
- NASA describes the Geminids as "one of the best and most reliable annual meteor showers".
- If their peak coincides with the new moon, and if the weather is clear, the Geminids can produce approximately 100-150 meteors per hour for viewing.
- This year however, the moon is bright, and so only 30-40 meteors per hour will be visible in the Northern Hemisphere. "But the Geminids are so bright that this should still be a good show.
- The Geminids are unique because unlike most meteor showers, they originate not from a comet, but from an asteroid, the 3200 Phaethon.
- The 3200 Phaethon was discovered on October 11, 1983.
- It is named after the Greek mythology character Phaethon, son of the Sun God Helios.
- It takes 1.4 years to complete one round of the Sun.
- As the 3200 Phaethon moves close to the Sun while orbiting it, the rocks on its surface heat up and break off.
- When the Earth passes through the trail of this debris, the Geminids are caused.

Why are they called Geminids?
- That comes from the constellation Gemini, from whose location in the sky the meteor shower appears to originate.
- The constellation for which a meteor shower is named only serves to aid viewers in determining which shower they are viewing on a given night.
- The constellation is not the source of the meteors. Also, you should not look only to the constellation of Gemini to view the Geminids – they are visible throughout the night sky.

How to view

- Chances of a successful viewing are higher from locations far away from the lights of cities.
- Generally, pollution makes viewing meteor showers from India difficult.
- But in areas where there is no light or air pollution, viewers do not need to use any special equipment to view the showers.
- Make sure to give your eyes enough time to adjust to the darkness, which can take about 30 minutes.
- Additionally, viewers should try to stay away from their phones, as looking at bright screens affects night vision.

> **Question:** Differentiate between an asteroid and meteor.

STIFF-PERSON SYNDROME

- French-Canadian singer Celine Dion has opened up about being diagnosed with Stiff-Person Syndrome (SPS), a rare neurological condition that makes the muscles spasm uncontrollably. The disorder has left her with difficulties in walking and singing.

What is Stiff-Person Syndrome?

- It is a syndrome of fluctuating but progressive muscle stiffness and spasm that preferentially affects axial (back and abdominal) muscles, neurological experts noted.
- It is a central nervous system disorder, meaning encephalomyelopathy, in which myelopathic features predominate in most patients.
- It frequently affects women with a median onset of 35 to 40 years of age.

What are its causes?

- There have been reports that spasms occur at any random time and can be triggered by loud noises, touch, and emotional distress.
- This autoimmune disease is caused by antibodies to proteins, resulting in impaired GABAergic (Gamma amino butyric acid) inhibition of the motor nerves in the brain and spinal cord. "
- It is associated with GAD65 (Glutamic acid decarboxylase) and amphiphysin antibodies.
- 70 per cent of patients with GAD antibodies have diabetes mellitus as a comorbidity.
- It is associated with other autoimmune diseases like cerebellitis, myasthenia gravis, hypo/hyperthyroidism, rheumatoid arthritis, systemic lupus erythematosus.
- People with amphiphysin antibodies can have SPS as a paraneoplastic (a symptom of underlying malignancy) manifestation with predominant upper limbs or cranial nerve involvement.
- The malignancies associated with stiff-person syndrome are breast cancer, ovarian cancer, and small cell carcinoma of the lung.

Common Symptoms

- SPS is known to affect the body posture of a person due to severe pain and stiffness in muscles in the trunk (torso), arms and legs.
- But symptoms can also include a person having greater sensitivity to noise, touch, and emotional distress

Treatment

- Since it is a rare disease with heterogenous clinical manifestations, the diagnosis may be delayed by an average of six years following symptom onset
- Treatment involves the use of both symptomatic agents to enhance GABAergic influences and Immuno modulating treatment aimed at the autoimmune basis of the disease.
- In patients with paraneoplastic Stiff Person Syndrome, identification and eradication of the underlying malignancy can alleviate symptoms

THORACIC AORTIC ANEURYSM

- The American football writer Grant Wahl died last week after a catastrophic tear in a major blood vessel leading out of his heart. The autopsy found that Wahl had an "ascending thoracic aortic aneurysm", a weakening of the blood vessel that often goes undetected.

About Thoracic Aortic Aneurysm
- As the aneurysm grows, it may produce a cough, shortness of breath or chest pain.
- An aneurysm is a localised weakening of the wall of a blood vessel, which causes the vessel to bulge in that area — as a result of which the vessel may widen to more than 50 per cent of its usual diameter. Aneurysms are more commonly seen in arteries than in veins.
- The aorta is the main artery that carries oxygenated blood from the heart to the rest of the body; it is also the body's largest blood vessel.
- An aortic aneurysm is a weakening and bulging in a portion of the aorta; "thoracic" refers to that section of the blood vessel that passes through the chest.
- According to a note by Johns Hopkins Medicine, aneurysms occur more often in the portion of the aorta that runs through the abdomen rather than the chest (causing what is called "abdominal aortic aneurysm").
- An aneurysm increases in size over time, and the wall of the blood vessel gets progressively weaker in that area.
- The vessel may ultimately burst or separate, triggering a bleeding rush that can be life-threatening, and potentially lethal.

Causes and symptoms
- Among the possible causes of thoracic aortic aneurysm, the Johns Hopkins note lists
- Degenerative disease that causes breakdown of the aortic wall tissue;
- Genetic disorders
- Family history
- Vasculitis, or inflammation of the arteries
- Atherosclerosis, or the build-up of plaque on the walls of the artery. In rare cases, an infection can also trigger an aneurysm.
- Wahl had Marfan syndrome, a genetic disorder that increases the risk of this type of aneurysm.
- He was tall and thin and had long arms, all of which can be signs of the syndrome.
- The US Centers for Disease Control and Prevention (CDC) page on Marfan syndrome describes it as a genetic condition that affects connective tissue and can damage the blood vessels and cause aneurysms of the aorta.
- The syndrome presents in around 1 in 5,000 individuals and is caused by a mutation in the FBN1 gene that limits the body's ability to make the proteins needed to build connective tissue, according to the CDC.

Treatment
- Treatment may include monitoring the size and rate of growth of the bulge through an MRI or CT, and managing risk factors or a surgery.

> **Question:** What is the Thoracic Aortic Aneurysm? What are its symptoms and causes.

DNA FINGERPRINTING

- Delhi Police recovered bones from the Mehrauli forest area in connection with the Shraddha Walkar murder investigation. DNA testing conducted on the bones — parts of the jaw, pelvis and lower limb — has now confirmed a positive match with Shraddha's father.

The origin of DNA Fingerprinting
- DNA fingerprinting was first developed in 1984 by Alec Jeffreys in the UK, after Jeffreys discovered that no two people could have the same DNA sequence.
- Within three years of the discovery, the UK achieved the world's first conviction based on DNA evidence in a case of rape and murder.

About the DNA Fingerprinting
- "DNA fingerprinting is a procedure that shows the hereditary cosmetics of living things. It is a strategy for finding the distinction between the satellite DNA areas in the genome."
- DNA profiling, DNA testing, DNA examination, Genetic profile, DNA distinguishing proof, genetic fingerprinting, and genetic investigation are a portion of the mainstream names utilized for DNA fingerprinting. This technique was invented by Alec Jeffreys in 1984.

Sources of DNA:
- Hair,
- Bone,
- Teeth,
- Saliva,
- Blood, etc.
- DNA evidence is used to solve crimes in two ways:
- If a suspect is known, that person's DNA sample can be compared to biological evidence found at a crime scene to establish whether the suspect was at the crime scene or whether they committed the crime.
- If a suspect is not known, biological evidence from the crime scene can be analysed and compared to offender profiles in existing DNA databases to assist in identifying a suspect.

How is DNA fingerprinting done?
- Each person's DNA, except for identical twins, is unique.
- By analyzing selected DNA sequences (called loci), a crime laboratory can develop a profile to be used in identifying a suspect.
- Because there is DNA in most cells in the human body, even a minuscule amount of bodily fluid or tissue can yield useful information.
- Samples may even be extracted from used clothes, linen, combs, or other frequently used items.

DNA fingerprinting comes to India
- By 1988, Lalji Singh, who had been in the UK from 1974 to 1987 on a Commonwealth Fellowship, developed DNA fingerprinting for crime investigations at the Centre for Cellular and Molecular Biology (CCMB) in Hyderabad.
- Today, Lalji Singh, who passed away in 2017, is known as "the father of DNA fingerprinting in India."
- In 1989, DNA fingerprinting was first used in a case by the Kerala Police.
- By the early 1990s, the technology had begun to be used for establishing paternity, and to link criminals and identify victims in sensational crimes.
- From the 2000s onwards, the technology became a staple in rape cases where vaginal swab samples were matched with semen samples from suspects.

Uses of DNA Fingerprinting
- **Forensic analysis:** It can be used in the identification of a (1) person involved in criminal activities, (2) for settling paternity or maternity disputes, and (3) in determining relationships for immigration purposes.
- **Pedigree analysis:** It can be used for inheritance pattern of genes through generations and for detecting inherited diseases such as Cystic Fibrosis, Haemophilia, Huntington's Disease, Sickle Cell Anaemia etc.
- **Personal Identification:** DNA fingerprints can be used as a genetic bar code to identify individuals.
- **Anthropological studies:** It is useful in determining the origin and migration of human populations and genetic diversities.

- **DNA Barcoding:** A technique for specifying the organisms' species using a short sequence of DNA situated in the genome is termed DNA bar-coding. The barcode DNA sequences are too short in respect to the complete genome and hence cheaper.

> **Question:** What is DNA Fingerprinting? What are the sources of DNA. Discuss the evolution of DNA Fingerprinting in India.

INS MORMUGAO

- Defense Minister today commissioned INS Mormugao into the Indian Navy.

INS Mormugao
- It is a P15B stealth-guided missile destroyer.
- It is the second of the four 'Visakhapatnam' class destroyers that has been designed by the Indian Navy's Warship Design Bureau.
- It has over 75% indigenous content and was built by the Mazagon Dock Shipbuilders Limited.
- It is equipped with surface-to-surface and surface-to-air missiles besides modern surveillance radar that provides target data to the weapon systems.
- The warship, measuring 163 metres by 17 metres, displacement of 7300 tonnes
- It is named after the historic port city of Mormugao in Goa.
- Propelled by four powerful gas turbines, the warship can achieve speeds of over 30 knots.
- It is said to feature state-of-the-art weapons, stealth features and sensors.
- It has a total atmospheric control system (TACS) that protects crew from nuclear, biological, and chemical threats.
- It undertook its first sea sortie in 2021, marking 60 years of Goa's liberation from Portuguese rule.

Miscellaneous
- INS Vishakhapatnam was commissioned into the Navy in 2021.

UNCONTROLLED RE – ENTRIES OF SATELLITES

Why in News?
- Outer Space Institute (OSI) has called for both national and multilateral efforts to **restrict uncontrolled re-entries** of Satellites.
- **OSI** is a network of **world-leading space experts united by their commitment to highly innovative, transdisciplinary research** that addresses grand challenges facing the continued use and exploration of space.

What are the Stages of a Rocket Launch?
- **Primary Stage:**
  o The primary stage of a rocket is **the first rocket engine to engage, providing the initial thrust to send the rocket skyward.**
  o This engine will continue to operate until its fuel is exhausted, at which time it separates from the rocket and falls to the ground.
- **Secondary Stage:**
  o After the primary stage has fallen away, **the next rocket engine engages to continue the rocket on its trajectory.**
  o The second stage has considerably **less work to do, since the rocket is already traveling at high speed** and the rocket's weight has significantly decreased due to the separation of the first stage.
  o If the rocket has additional stages, **the process will repeat until the rocket is in space.**
- **Payload:**

o Once the payload, whether it be a satellite or a spacecraft, is in orbit, the **rocket's final stage falls away, and the craft will be manoeuvred** using smaller **rockets whose purpose is to guide the spacecraft.** Unlike the main rocket engines, these manoeuvring rockets can be used multiple times.
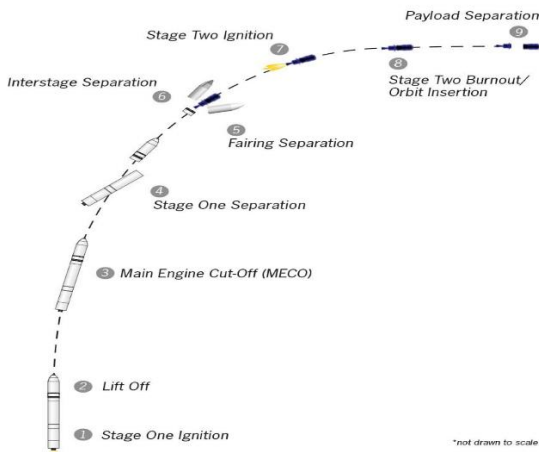
What is Uncontrolled Re-entry?

- In an uncontrolled re-entry, the rocket stage simply falls. Its path down is **determined by its shape, angle of descent, air currents and other characteristics.**
- It will also disintegrate as it falls. As the smaller pieces fan out, **the potential radius of impact will increase on the ground.**
- Some pieces burn up entirely while **others don't.** But because of the speed at which **they're travelling, debris can be deadly.**
  - o **As per a 2021 report of the International Space Safety Foundation**, an impact anywhere on an airliner with debris of mass above 300 grams would produce **a catastrophic failure, meaning all people on board would be killed.**
- Most rocket parts have landed in oceans principally because earth's surface has more water than land. But many have dropped on land as well.

What are the Concerns?

- There have been many instances in the past **where rockets striking some parts on Earth.**
- Russian rocket in 2018 and **China's Long March 5B** rockets in 2020 and 2022 striking parts of Indonesia, Peru, India and Ivory Coast, among others.
- Parts of a **SpaceX Falcon 9** that fell down in Indonesia in 2016 included two "refrigerator-sized fuel tanks".
- If re-entering **stages still hold fuel, atmospheric and terrestrial chemical** contamination is another risk.
- It is estimated that casualty risk from uncontrolled rocket body re-entries will be of order of 10% in the next decade" and that **countries in the 'Global South' face a "disproportionately higher" risk of casualties.**
  - o The U.S. Orbital Debris Mitigation Standard Practices (ODMSP) require all launches to keep the chance of a casualty from a re-entering body to be below 0.01%.
- There is **no international binding agreement to ensure rocket stages** always perform controlled re-entries nor on the technologies with which to do so.
- The **Liability Convention 1972** requires countries to pay for damages, **not prevent them.**
- These technologies include wing-like attachments, de-orbiting brakes, and extra fuel on the re-entering body, **and design changes that minimize debris formation.**

What can make Minimum Damage?

- Future solutions need to be extended not just launching satellites but to re-entering satellites as well.
- Advances in electronics and fabrication have made way for smaller satellites, **which are easier to build and launch in large numbers.** These satellites experience more atmospheric drag than if they had been bigger, **but they are also likely to burn up during re-entry.**
  - o India's 300-kg **RISAT-2 satellite** re-entered earth's atmosphere in October after 13 years in low-earth orbit. The **ISRO (Indian Space Research Organisation)** tracked it with its system for safe and sustainable space operations management from a month beforehand. It plotted its predicted paths using models in-house.

JAPAN'S NEW POLICY ON NUCLEAR ENERGY

Why in News?

- Recently, Japan has adopted a new policy **promoting greater use of <u>Nuclear Energy</u> to ensure a stable power supply** amid global fuel shortages and to reduce carbon emissions.

What is Japan's New Policy?

- It is Japan's major **reversal of its nuclear phase-out plan** following the Fukushima crisis in 2011.
  - **Fukushima accident** caused by Tsunami in 2011 was the **second worst nuclear accident in the history of nuclear power generation**. The site is on Japan's Pacific coast, in northeastern Fukushima prefecture about 100 km south of Sendai.
- The Policy seeks to **maximize the use of existing nuclear reactors by restarting as many of them as possible** and prolonging the operating life of old reactors beyond their 60-year limit, and by developing next-generation reactors to replace them.

- It pledges to sustain use of nuclear power into the future. Most nuclear reactors in Japan are more than 30 years old.

- It aims to push for the **development and construction of "next-generation innovative reactors"** with safer features to replace about 20 reactors now set for decommissioning.

  - Nuclear energy **accounts for less than 7% of Japan's energy supply,** and achieving the government's goal of raising its share to 20-22% by fiscal 2030 will require about 27 reactors, from the current 10.

What is the Prospect of India's Nuclear Energy?

- **Status of Nuclear Energy:**

  - Nuclear energy is the **fifth-largest source of electricity for India.** India has over 22 nuclear reactors in 7 power plants across the country which produces 6780 MW of nuclear power. The 7 power plants are:
    - Tarapur Atomic Power Station (TAPS), Maharashtra.
    - Kudankulam Nuclear Power Station (KKNPS), Tamil Nadu
    - Kakrapar Atomic Power Station (KAPS), Gujarat.
    - (Kalpakkam) Madras Atomic Power Station (MAPS), Tamil Nadu.
    - Narora Atomic Power Station (NAPS), Uttar Pradesh.
    - Kaiga Generating Station (KGS), Karnataka.
    - **Rajasthan Atomic Power Station (RAPS)**, Rajasthan.
  - The public sector entity, **Nuclear Power Corporation of India (NPCIL)**, is responsible for designing, building, commissioning and operating nuclear power reactors in the country.
    - NPCIL operates under the **Indian government's Department of Atomic Energy (DAE).**

- **Significance for India:**

  - **Availability of Thorium:** India is the **leader of the new resource of nuclear fuel called Thorium,** which is considered to be the nuclear fuel of the future.
    - With the availability of Thorium, India has the potential to be the first nation to realise the dream of a fossil fuel-free nation.

  - **Cuts Import Bills:** Nuclear energy will **also relieve the nation of about USD 100 billion annually** which we spend on importing petroleum and coal.
  - **Stable and Reliable Source:** The greenest sources of power are **definitely solar and wind. But solar and wind power, despite all their advantages, are not stable** and are dependent excessively on weather and sunshine conditions.
    - Nuclear power, on the other hand, provides a **relatively clean, high-density source of reliable energy** with an international presence.

- o **Cheaper to Run**: Nuclear power plants are cheaper to run **than their coal or gas rivals**. It has been estimated that even factoring in costs such as managing radioactive fuel and disposal nuclear plants cost between 33 to 50% of a coal plant and 20 to 25% of a gas combined-cycle plant.
- **Challenges:**
  - o **Insufficient Nuclear Installed Capacity:** In 2008, the Atomic Energy Commission projected that India would have 650GW of installed capacity by 2050; the current installed capacity is only 6.78 GW.
    - ▪ Such targets were based on the expectation that India would import many light-water reactors after the **India-U.S. civil nuclear deal.** But the deal has not led to the establishment of a single new nuclear plant, over 13 years after it was concluded.
  - o **Lack of Public Funding:** Nuclear power has never received the quantum of generous subsidy the fossil fuel received in the past and renewable is receiving currently.
    - ▪ In absence of public funding, nuclear power will find it tough to compete against natural gas and renewables in the future.
  - o **Acquisition of Land:** Land acquisition and selection of location for Nuclear Power Plant (NPP) is also a major problem in the country.
    - ▪ NPP's like **Kudankulam in Tamil Nadu** and Kovvada in Andhra Pradesh have met with several delays due to the land acquisition related challenges.
  - o **Impact of Climate Change:** Climate change will increase the risk of nuclear reactor accidents. During the world's increasingly hot summers, several nuclear power plants have already had to be temporarily shut down or taken off the grid.
    - ▪ Further, nuclear power plants depend on nearby water sources to cool their reactors, and with many rivers drying up, those sources of water are no longer guaranteed.
  - o **Deployment at Insufficient Scale**: It might not be the appropriate choice for mitigating **India's carbon emissions** since it cannot be deployed at the necessary scale.
  - o **Nuclear Waste:** Nuclear waste can have drastically bad effects on life, causing cancerous growths, for instance, or causing genetic problems for many generations of animals and plants.
    - ▪ In a densely populated country such as India, land is at a premium and emergency health care is far from uniformly available.

What are India's Initiatives Regarding Nuclear Energy?

- **Three-stage Nuclear Power Programme:**
1. India has **consciously proceeded to explore the possibility of tapping nuclear energy for the purpose of power generation.**
2. In this direction a **three-stage nuclear power programme** was formulated by Homi Bhabha in the 1950s.
- **The Atomic Energy Act, 1962:**
  a. The Atomic Energy Act, 1962 was framed and **implemented with the set objectives of using two naturally occurring elements Uranium** and Thorium as nuclear fuel in Indian Nuclear Power Reactors.
- **Pressurised Heavy Water Reactors:**
  b. In December, 2021, the Government of India informed Parliament about building ten indigenous **Pressurised Heavy Water Reactors (PHWRs)** to be set up in fleet mode and had granted "in principle approval" for 28 additional reactors, including 24 to be imported from France, the U.S. and Russia.
- **Nuclear power reactors at Jaitapur in Maharashtra:**
  c. Government has given in-principle (first step) approval for setting up of **six nuclear power reactors at Jaitapur in Maharashtra.**
  d. Jaitapur would be the world's most powerful nuclear power plant. There would be six state-of-the-art Evolutionary Power Reactors (EPRs) with an installed capacity of 9.6 GWe that will produce low carbon electricity.
  e. The six nuclear power reactors, which will have a capacity of 1,650 MW each, will be set up with technical cooperation from France.

Way Forward

- The global energy crisis should spur a **rational relook at an energy source as clear as nuclear which** needlessly seen as a hot potato.

- o We must make the right choices between various low-carbon technologies, all of which have some social and environmental impact.
- To meet rising energy demands, **nuclear power is one of the better solutions.**
- Considering lower capacity utilisation of renewables, **rising fossil fuel prices and ever soaring pollution problems,** the potential of nuclear power must be fully exploited.

GM MUSTARD

Why in News?
- Recently, the **Genetically Modified (GM) mustard Dhara Mustard Hybrid (DMH-11)** was tested in the field and shown to be **more productive.**
- Production of the **DMH-11** variety is not interfering with **honey bees' natural pollination practices.**

What are Genetically Modified (GM) Crops?
- **GM crops** are derived from plants whose **genes are artificially modified,** usually by inserting **genetic material** from another organism, in order to give it new properties, such as **increased yield, tolerance** to a **herbicide**, **resistance** to **disease** or **drought,** or **improved nutritional value.**
    - o Earlier, India approved the commercial cultivation of only one GM crop, **Bt cotton**, but **Genetic Engineering Appraisal Committee (GEAC)** has recommended GM Mustard for commercial use.

What is GM Mustard?
- **DMH-11** is an indigenously developed **transgenic mustard**. It is a **genetically modified variant of Herbicide Tolerant (HT) mustard.**
- **DMH-11** is a result of a cross between **Indian mustard variety 'Varuna'** and **East European 'Early Heera-2'** mustard.
- It contains **two alien genes ('barnase' and 'barstar')** isolated from a **soil bacterium** called **Bacillus amyloliquefaciens** that enable breeding of **high-yielding commercial mustard hybrids.**
- **Barnase in Varuna induces a temporary sterility** because of which it can't naturally self-pollinate. Barstar in Heera **blocks the effect of barnase allowing seeds to be produced.**
- **DMH-11** has shown approximately **28% more yield** than the **national check** and **37 %** more than the **zonal checks** and its use has been claimed and approved by the **GEAC.**
    - o **"Bar gene"** maintains the **genetic purity of hybrid seed.**

Why is the Barnase/Barstar System Required?
- The **hybrid seed production** requires an **efficient male sterility and fertility restoration system.**
- The currently available conventional **cytoplasmic-genetic male sterility system** in mustard has limitations of **breakdown of sterility** under certain environmental conditions leading to **lowering of seed purity.**
- The **genetically engineered barnase/barstar system** provides an **efficient and robust alternative method** for **hybrid seed production in mustard.**
- In India, the **Centre for Genetic Manipulation of Crop Plants (CGMCP)** has made a **successful attempt** with some alterations in the **barnase/ barstar system** which culminated in the development of **GM mustard hybrid MH11** which has undergone the required regulatory testing processes during **2008-2016.**

Why GM Mustard is Necessary?
- India's **import of edible oils is on continuous rise** to meet the domestic demand. It ultimately led reduction forex. GM Mustard is **essential to reduce the forex drain on Agri-import.**
- **Productivity of oilseed crops** viz., soybean, rapeseed mustard, groundnut, sesame, sunflower, safflower and linseed in India is **much lower than the global productivity of these crops.**
- Crossing of genetically diverse parents results in hybrids with **increased yield and adaptation**

What are the Safety Concerns associated with DMH-11?

- The safety of **three genes** used in the creation of the technique **Barnase, Barstar and Bar** is being questioned.
- Field trials for **three years (two years of BRL-I and one year of BRL-II)** have been conducted to assess the impact on **human health and environment** as per the stipulated guidelines and applicable rules.
- It is important to note that comprehensive research on the toxicity, allergenicity, compositional analysis, field trials, and environmental safety studies of GM mustard has shown that **they are safe for food and feed usage as well as for production.**
- **DMH-11** has **"Bar gene"** which is responsible for herbicide tolerance. Effectiveness of **"Bar Gene"** is under question as per herbicide tolerance is concerned.

What is the Significance of Genetically Modified Crops?

- Crossing of **genetically diverse plants** results in **hybrids** with **increased yield** and **adaptation**, a phenomenon known as **hybrid vigor heterosis** which has been widely exploited in crops like rice, maize, pearl millet, sunflower and many vegetables.
- It has been convincingly demonstrated that hybrids in general show **20-25% higher yield** over the **conventional varieties** across the crops.
- **Hybrid technology** can play an important role in **enhancing the productivity** of **rapeseed mustard** in the country.

YEAR-END- REVIEW OF DST

Why in News?

- Recently, the year-end-review of the **Department of Science & Technology (DST)** under the Ministry of Science & Technology was released.

What are the Major Achievements of DST During 2022?

- **India's Ranking in Global S&T Indices:**
    - India is now **placed at 40th position among the top innovative economies** globally as per **Global Innovation Index (GII) 2022.**
    - The country remains among the top 3 countries in scientific publications as per the **National Science Foundation (NSF) database and also in terms of no of PhDs, in size of the Higher Education System,** as well as in terms of number of Start-ups.
- **Creating a Robust Start-up & Innovation Ecosystem:**
    - DST has been a pioneer in establishing a network of Technology Business Incubators (TBI) and **Science & Technology Entrepreneur's Parks (STEP) across the country under the National Initiative for Developing and Harnessing Innovations (NIDHI) program.**
    - **New PRAYAS centres have been supported during 2022** along with support to other ongoing PRAYAS centres across the country that are **supporting young innovators to turn their ideas into prototypes.**
- **New Heights in Supercomputing Capacity:**
    - New **installations of high-performance computers** at **five institutes** (IIT Kharagpur, NIT Trichy, IIT Gandhinagar, IIT Guwahati, IIT Mandi).
- **Development in Cyberphysical Domains:**
    - The Union Cabinet approved the **National Mission on Interdisciplinary Cyber Physical Systems (NM-ICPS) in 2018** for a period of five years, to be implemented by the DST.
        - The Mission is being **implemented through 25 Technology Innovation Hubs (TIHs)** created at reputed academic institutes across the country.
    - **Some of the new innovations include:**
        - **XraySetu:** AI researchers at **ARTPARK** developed an AI-driven platform called XraySetu that helped Chest **X-ray** interpretation of images.
        - **RAKSHAK:** A team of scientists from IIT Bombay has developed a tapestry method for screening **Covid-19** under **Remedial Action, Knowledge Skimming, and Holistic Analysis**

of Covid-19 (RAKSHAK), an effort supported by the Technology Innovation Hub (TIH) at IIT Jodhpur.

- **India's Position on International S&T Engagement:**
  - India assumes the **G20 Presidency** recently and will convene the G20 Leaders' Summit **for the first time in the country in 2023.**
    - As part of the same, DST takes the responsibility of coordinating the **activities of Science-20 (S20) and Research Innovation Initiative Gathering (RIIG) Engagement Groups** during India's G20 Presidency in 2023.
  - **India joins hands with Finland to establish Virtual Network Centre in Quantum Computing** to jointly develop 20 qubits superconducting-based Quantum Computer in 1st phase and further **scale it up to 54 qubits in second phase.**
- **Geospatial Data, Infrastructure & Technology:**
  - Recently, the **2ⁿᵈ United Nations World Geospatial Information Congress (UNWGIC)** on the theme **"Geo-Enabling the Global Village: No one should be left behind"** was held successfully in Hyderabad.
  - Survey of India (SoI) the **National Survey and Mapping Organisation** of the country **has successfully carried out drone surveys of rural abadi areas of 2,00,000+ villages as part of the SVAMITVA** (Survey of villages and mapping with improvised technology in village areas).
  - **Online maps portal** provides various digital geospatial products (free as well as at fair & transparent price) to the users.
  - **High-resolution mapping for major river basins** is also being carried out to provide the high resolution **GIS (Geographic Information System)** and **Digital Elevation Model (DEM)** for improved flood hazard mapping and other planning purposes.
- **Accessible Scientific Infrastructure for All Stakeholders:**
  - Four new Universities under '**Promotion of University Research and Scientific Excellence (PURSE)'** and 65 Departments in various academic organizations and universities were supported under the **Fund for Improvement of S&T Infrastructure (FIST).**
- **Solutions for Energy & Environment Challenges:**
  - A **first-of-its-kind Distributor System Operator (DSO) report has been prepared** that can help in transforming the operational and financial state of the Indian power sector and **boost private sector's confidence attracting much-needed investment and innovation in the industry.**
  - A real-time pollution monitoring photonic system, **Air Unique Quality Monitoring System (AUM)** has been developed which **is capable of real-time remote monitoring of all air quality parameters,** with high sensitivity and accuracy simultaneously, at a very high frequency of sampling.
  - The **first Indigenously Designed** High Ash Coal Gasification Based **Methanol Production Plant** has been opened in Hyderabad.
    - With this, Government owned engineering firm BHEL (Bharat Heavy Electricals Limited) has **successfully demonstrated a facility to create methanol from high ash Indian coal.**
- **Expansion to Newer Areas:**
  - The Department has been implementing **two National missions on Climate Change.** Four new **State Climate Change Cells (SCCCs)** have been established in the States of Goa, UT of Chandigarh and Jharkhand and Uttar Pradesh.
- **Career Opportunities for Women Scientists:**
  - DST is encouraging meritorious girls to pursue higher education and career in underrepresented Science Technology Engineering and Mathematics (STEM) areas, through its major initiative '**Vigyan Jyoti'.**
  - Women **scientists** under the **Women Scientists Scheme-A (WOS-A)** pursue research after **breaking into careers in 5 subject areas of Basic and Applied Sciences.**
  - The **SERB-POWER mobility grant was introduced to provide an opportunity for women scientists to visit leading institutions/universities** across the globe for a period of 1-3 months

- **Conserving the Heritages:**
  - Under the **Science and Heritage Research Initiative (SHRI)** programme of DST, **the soundproofing qualities of the Pattamadai mat,** a mat made by weaving or interlacing **korai grass with cotton threads**, has been explored for use in noise guarding classrooms as well as recording studios against external noise disturbances.
    - This can **increase the demand for this traditional art of Tirunelveli, Tamil Nadu.**
- **Research Capabilities in State Universities & Colleges:**
  - A dedicated scheme, **State University Research Excellence (SERB-SURE)** has been launched by Science and Engineering Research Board (SERB) **to create a robust R&D ecosystem in state universities and colleges** including the private ones.
- **Good Laboratory Practice (GLP):**
  - DST is implementing the **National GLP Compliance Monitoring Programme** for certification of Indian Test Facilities/laboratories, conducting non-clinical health and environment safety studies in accordance with the **Organisation for Economic Co-operation and Development (OECD) Principles.**
- **Policy Formulation in Key Areas**
  - Brought out two guidelines during the year and two major policies are in the process of finalisation.
    - **Scientific Research Infrastructure Sharing maintenance and Networks (SRIMAN)guidelines**
    - **Scientific Social Responsibility (SSR) Guidelines**
    - **Science, Technology and Innovation (STI) Policy**
    - **National Geospatial Policy**

ENVIRONMENT

CLIMATE INVESTMENT OPPORTUNITIES IN INDIA'S COOLING SECTOR REPORT: WORLD BANK

- According to the World Bank from 2030 onwards, more than 160 to 200 million people could be exposed to a lethal heat wave in India every year, and around 34 million Indians will face job losses due to heat stress-related productivity decline. By 2037, the demand for cooling is likely to be eight times more than current levels.

Key findings

- In this scenario, it is imperative for India to deploy alternative and innovative energy efficient technologies for keeping spaces cool.
- According to the report, "Climate Investment Opportunities in India's Cooling Sector", this could open an investment opportunity of $1.6 trillion by 2040 besides reducing greenhouse gas emissions significantly and creating 3.7 million jobs.
- With the demand for cooling shooting up, there will be a demand for a new air-conditioner every 15 seconds, the report said, leading to an expected rise of 435% in annual greenhouse gas emissions over the next two decades.
- There is a need to shift to a more energy-efficient pathway which could lead to a substantial reduction in expected CO2 levels.
- The report proposes a roadmap to support New Delhi's India Cooling Action Plan (ICAP) 2019, through new investments in three major sectors: building construction, cold chains and refrigerants.

Heat Waves

- According to the Indian Meteorological Department (IMD), a Heat wave occurs if the maximum temperature of a station reaches at least 40°C or more for Plains and at least 30°C or more for Hilly regions. There are other criteria as well:

Based on Departure from Normal Temperature

- Heat Wave: Departure from normal is 4.5°C to 6.4°C
- Severe Heat Wave: Departure from normal is >6.4°C

Based on Actual Maximum Temperature

- Heat Wave: When actual maximum temperature ≥ 45°C
- Severe Heat Wave: When actual maximum temperature ≥47°C
- Heat Wave is declared if above criteria are met in at least 2 stations in a Meteorological subdivision for at least two consecutive days.

Reasons behind the increasing frequency of Heat Waves

- **Greenhouse Gas Emissions:** The primary driver is rising greenhouse gas emissions and the consequent change in the entire climate system.
- **Erratic Nature of Monsoon:** Many experts have deduced that rising instances of unusually long dry phases during Monsoons mean that soil moisture drops to a remarkably low level. This reinforces the heat waves.
- **Urbanization:** The urban centres are full of concrete structures that enhance the occurrence of heat waves and create an urban heat island effect.
- **Demand for Air Conditioning:** With a rise in temperature and an enhancement of per capita income of masses, a rise in installation and usage of air conditioners is witnessed in residential and commercial spaces.

Suggestive measures proposed in the report:

- The report proposes a road map to support New Delhi's India Cooling Action Plan (ICAP), 2019, through new investments in three major sectors: building construction, cold chains and refrigerants.

- Adopting climate-responsive cooling techniques as a norm in both private and government-funded constructions can ensure that those at the bottom of the economic ladder are not disproportionately affected by rising temperatures.
- The report suggests that India's affordable housing programme for the poor, the Pradhan Mantri Awas Yojana (PMAY), can adopt such changes on scale.
- It proposed enacting a policy for "district cooling", which could lead to the consumption of 20-30% less power than the most efficient conventional cooling solutions.
- Apart from this, guidelines for implementation of local and city-wide urban cooling measures such as cool-roofs should also be considered.

> **Question:** Define heat wave. What are the reasons behind the rising number of heat waves in recent years? Suggest measures to tackle it.

FLUE GAS DESULPHURISATION (FDG)

- A recent study has found that not a single coal-based thermal power plant in West Bengal has installed flue gas desulphurisation (FDG), a technology to eliminate sulphur compounds from exhaust emissions.
- Plants that contribute to 40% of coal-based power generation capacity in the State have not yet been awarded the contracts for FDG units whereas the remaining power production facilities were not able to complete the installation of the technology within the allotted time frame.
- The total coal-based electricity generation capacity of plants in the State is 13,686 megawatts (MW). None of the major plants connected to the power grid has installed FGD units or direct sorbent injection (DSI) technology to control sulphur dioxide emissions.
- The country's first emission norms for control of sulphur dioxide, nitrogen oxide, and mercury from coal-fired power plants were notified in December 2015 and since then the deadline for installation of pollution control equipment has been extended three times by the Ministry of Environment, Forest and Climate Change.
- Data from the Central Electricity Authority (CEA) shows that till February 2021, of the 600 units contributing the total thermal power of 211. 6 GW (gigawatts) in the country; only 20 units contributing 8.2 GW have installed FDGs.

Particulate Matter
- A significant portion of the overall Particulate Matter (PM) concentration in ambient air is made up of secondary particles, which are created when sulphur dioxide combines with other contaminants.
- Well-known dangerous particulate matter PM2.5 causes millions of fatalities each year both globally and in India.
- Controlling sulphur dioxide emissions from coal-based power plants at the source will significantly reduce the overall amount of air pollution in the State and beyond.

Flue Gas Desulphurisation(FGD)
- Flue-gas desulfurization(FGD) is a set of technologies used to remove sulfur dioxide (SO_2) from exhaust flue gases of fossil-fuel power plants and from the emissions of other sulfur dioxide-emitting processes such as waste incineration.
- FGD systems may involve wet scrubbing or dry scrubbing.
- In wet FGD systems, flue gases are brought in contact with an absorbent, which can be either a liquid or a slurry of solid material. The Sulphur dioxide dissolves in or reacts with the absorbent and becomes trapped in it.
- In dry FGD systems, the absorbent is dry pulverized lime or limestone; once absorption occurs, the solid particles are removed by means of baghouse filters.

About Sulphur Dioxide

- It is an inorganic compound, heavy, colourless, and poisonous gas. It is produced in large quantities in intermediate steps of sulphuric acid manufacture.
- It has a pungent, irritating odour, similar to the smell of a just-struck match.
- In nature, it occurs in volcanic gases and in a solution of some water warm springs.
- Usually, it is prepared industrially by the burning in air or oxygen of sulphur or such compounds of sulphur as iron pyrite or copper pyrite.
- In large quantities, sulphur dioxide is formed in the combustion of sulphur-containing fuels.
- It can combine in the atmosphere with water vapour to form sulphuric acid which is a major component of acid rain.
- Under moderate pressures at room temperatures, sulphur dioxide can be liquified and the liquid freezes at -73 degree Celsius and boils at -10 degree Celsius under atmospheric pressure.

Sulphur Dioxide uses are:
- It is used in the preparation of sulphuric acid, sulphur trioxide, and sulphites.
- It is also used as a disinfectant.
- It is used in a refrigerant, a reducing agent, a bleach, and food preservation mainly in dried fruits.

Sulphur Dioxide (SO2) and Air Pollution:
- SO2 emissions are a significant contributor to air pollution. High concentrations of SO2 in the air generally lead to the formation of other Sulfur Oxides (SOx).
- SOx can react with other compounds in the atmosphere to form small particles. These particles contribute to Particulate Matter (PM) pollution.
- Small particles may penetrate deeply into the lungs and in sufficient quantity can contribute to health problems.
- Air Pollution is a huge public health concern, with 91% of the world's population living in areas where outdoor air pollution exceeds guideline limits by the World Health Organization (WHO) and as a result, 4.2 million people die prematurely every year.
- The greatest source of SO2 in the atmosphere is the burning of fossil fuels in power plants and other industrial facilities.
- Other sources include industrial processes such as extracting metal from ore, natural sources such as volcanoes, and locomotives, ships and other vehicles and heavy equipment that burn fuel with high sulphur content.

> **Question:** Define Flue Gas Desulphurisation. Why is it important to installed in thermal power station? Also shed the light on government guidline about it.

BHOPAL GAS TRAGEDY

- The leakage of 27 tonnes of deadly methyl isocyanate (MIC) gas from the pesticide plant owned by Union Carbide Corporation in Bhopal 38 years ago is still wreaking havoc on the city. The latest is the spike in incidences of fungal infection among survivors, according to the Sambhavna Trust.

About the Bhopal Gas Tragedy
- Post-midnight on December 3, 1984, Methyl Isocyanate (MIC) (Chemical formula- CH3NCO or C2H3NO) leaked from the pesticide plant of Union Carbide (now Dow Chemicals), an MNC, in Madhya Pradesh capital Bhopal.
- It is estimated that about 40 tonnes of gas and other chemicals leaked from the Union Carbide factory.
- **Methyl isocyanate** is extremely toxic gas and if its concentration in the air touches 21ppm (parts per million), it can cause death within minutes of inhaling the gas.
- It is one of the worst chemical disasters globally and still continues to have its ill effects on the people of the affected areas.

- After the tragedy, the government of India enacted a Public Liability Insurance Act (1991), making it mandatory for industries to get insurance the premium for this insurance would contribute to an Environment Relief Fund to provide compensation to victims of a Bhopal-like disaster.

About Methyl Isocyanate (MIC)
- Methyl isocyanate is a colourless highly flammable liquid that evaporates quickly when exposed to the air. It has a sharp, strong odour.
- It is used in the production of pesticides, polyurethane foam, and plastics.
- The chemical is highly reactive to heat. When exposed to water, the compounds in MIC react with each other causing a heat reaction.
- Immediate health effects include ulcers, photophobia, respiratory issues, anorexia, persistent abdominal pain, genetic issue, neuroses, impaired audio and visual memory, impaired reasoning ability, and a lot more.
- Long-term health effects include chronic conjunctivitis, decreased lung function, increased pregnancy loss, increased infant mortality, increased chromosomal abnormalities, impaired associate learning and more.

About Fungal Infection
- The fungal infections will add to the long list of illnesses already present among survivors.
- These include problems with the respiratory tract, neurological system, psychological problems, increased incidences of cancer, blindness, birth defects and growth impairments.
- The illnesses are due to the accumulation of toxic material in the soil and groundwater over the years after the leakage that had instantly killed over 3,000 people.
- The Indian Council of Medical Research had projected that till 2009, 23,000 deaths may have occurred, but the numbers vary and are a topic of debate.
- Ringworm disease, caused by a fungus called tinea, is on the rise.
- Red itchy patches occur in the groin, on the head or in different places of the body. The rash spreads if left untreated.
- Yeast infection candida albicans is also being reported to the Sambhavna Clinic by female survivors.

> **Question:** Discuss the safety initiatives taken in India to address chemical risk under National Disaster Management Authority.

TUNGARESHWAR WILDLIFE SANCTUARY

- The Supreme Court (SC) exempted Maharashtra's Tungareshwar Wildlife Sanctuary (TWS) from its June 3 order mandating the creation of a one-kilometre eco-sensitive zone (ESZ) around all Protected Areas in India.
- It also stated that practical difficulties and ground realities will have to be taken into account before having a uniform order for creating ESZs as mandated by the June 3 order.
- The bench is hearing applications filed in the TN Godavarman Thirumalpad case that has sought exemption from the order.
- We are all for the protection of the environment. But at the same time, we cannot halt development.

About Tungareshwar Wildlife Sanctuary
- It was declared a wildlife sanctuary in 2003.
- It is in the suburbs of Mumbai.
- Tungareshwar is a mountain plateau situated between Virar and Vasai.
- Spread over 85 sq.km, it forms a corridor between Sanjay Gandhi National Park (also known as Borivali National Park) and Tansa Wildlife Sanctuary.
- There are three different types of forests – Dry Deciduous, Moist Deciduous and Semi Evergreen.
- It is a popular picnic destination.

- On the periphery of Mumbai, in Vasai, lies Tungareshwar Wildlife Sanctuary.
- Spread over 85 sq.km, it forms a corridor between Sanjay Gandhi National Park (also known as Borivali National Park) and Tansa Wildlife Sanctuary.
- There are three different types of forests – Dry Deciduous, Moist Deciduous and Semi Evergreen.
- The region is rich in biodiversity: the Leopard, Wild Boar, Barking Deer, Langur, Bonnet and Rhesus Macaque, and Black-naped Hare, as well as a multitude of birds, including the Crested Serpent-eagle, Jungle Owlet, White-eyed Buzzard, Oriental Honey-buzzard, Emerald Dove and Heart-spotted Woodpecker can be found here.
- However, the sanctuary is not without its share of problems. Irresponsible tourism, deforestation, illegal construction, encroachment for agriculture, and hunting have taken a toll on its natural beauty.

Question: What are eco-sensitive zone (ESZ) and highlight their environmental significance.

KOUNDINYA WILDLIFE SANCTUARY

- An 18-member herd of all female elephants from the forests of Gudiyattam and Pernambattu of Tamil Nadu are currently on the prowl in the Koundinya wildlife sanctuary zone in Chittoor district, apparently "in search of mates".

About Koundinya Wildlife Sanctuary
- Koundinya Wildlife Sanctuary is a wildlife sanctuary and an elephant reserve situated in Andhra Pradesh.
- It is the only sanctuary in Andhra Pradesh with a population of Asian elephants.
- The sanctuary has dry deciduous forests with thorny scrubs interspersed with trees.
- These forests have the Kaindinya and Kaigal tributaries of Palar River.
- Kalyana Revu Waterfalls (also called Kalyan Drive Falls) and Kaigal Waterfalls are located in the Koundinya Wildlife Sanctuary.
- The sanctuary is primarily an elephant reserve and is home to about 78 Indian elephants.
- The vulnerable yellow-throated bulbul is present in the sanctuary.
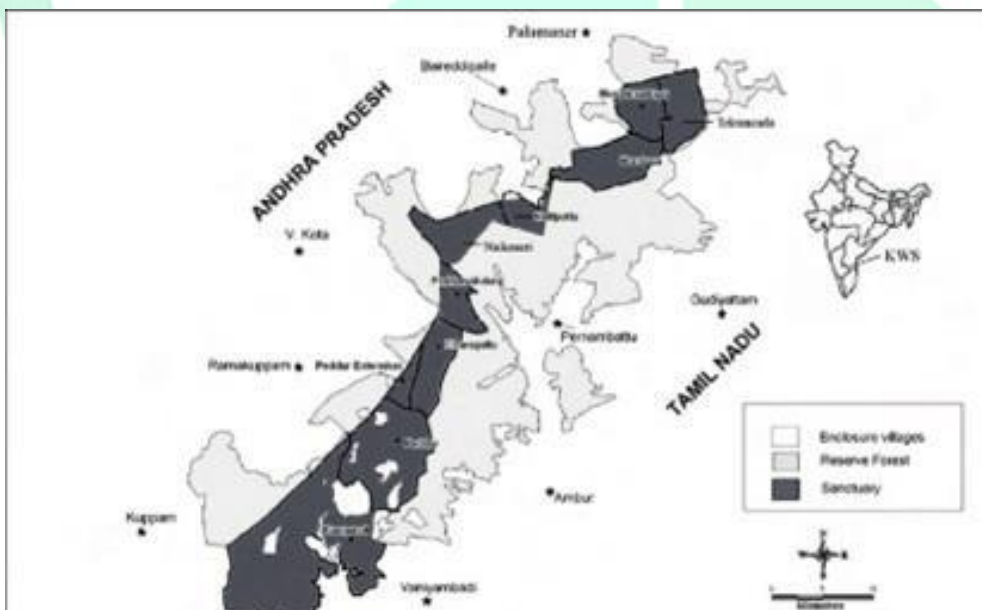
OKAVANGO DELTA AND MURCHISON FALLS

- Oil companies are threatening two of Africa's most iconic biodiversity hotspots in an effort to drill for oil that will ultimately make its way to a global elite and won't benefit Africans.

- ReconAfrica, a Canadian company, has been drilling for oil in the Kavango Zambezi Transfrontier Nature Conservation Area (KAZA).
- KAZA is the second-largest nature and landscape conservation area in the world. It is spread across the borders of Angola, Botswana, Namibia, Zambia and Zimbabwe.
- More than 200,000 people live in the area that falls under ReconAfrica's exploration licenses.

The Okavango delta
- The Okavango delta, a UNESCO World Heritage Site in southern Africa.
- The delta is also the homeland of indigenous people like the San.
- The Okavango delta is formed by the Okavango river, which originates in the highlands of Angola.

- It flows into the Kalahari desert of southern Africa and spreads out, forming what is called a 'fan'.
- The Okavango's waters make the otherwise dry area a waterlogged wetland that provides vital water resources for animals, plants and over one million people.
- The delta is home to Africa's Big Five wildlife species: Savanna elephants, Cape buffaloes, rhinos, lions and leopards.
- There are also giraffes, zebras, antelopes, pangolins, 400 bird species and over 1,000 plant species.

Threats to Okavango delta:
- Oil spill could pollute the Okavango River and the Okavango delta.
- Noise, infrastructure construction, toxic chemicals

Murchison Falls
- Murchison Falls became one of Uganda's first national parks in 1952
- At Murchison Falls, the Nile squeezes through an 8m wide gorge.
- The northern section of the park contains savanna and Borassus palms, acacia trees, and riverine woodland.
- The south is dominated by woodland and forest patches
- Murchison Falls National Park lies at the northern end of the Albertine Rift Valley, where the sweeping Bunyoro escarpment tumbles into vast, palm-dotted savanna.
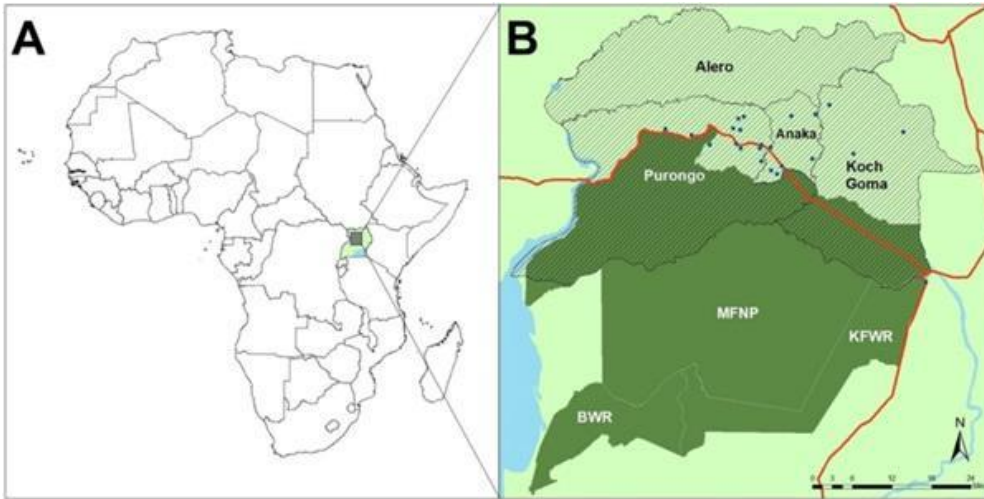
- First gazetted as a game reserve in 1926, it is Uganda's largest and oldest conservation area.
- The park is bisected by the Victoria Nile, which plunges 45m over the remnant rift valley wall, creating the dramatic Murchison Falls, the centerpiece of the park and the final event in an 80km stretch of rapids.
- The mighty cascade drains the last of the river's energy, transforming it into a broad, placid stream that flows quietly across the rift valley floor into Lake Albert.
- This stretch of river provides one of Uganda's most remarkable wildlife spectacles.
- Regular visitors to the riverbanks include elephants, giraffes, and buffaloes; while hippos, Nile crocodiles, and aquatic birds are permanent residents.
- Murchison Falls is notably blessed with over 144 mammals,556 bird species,51 reptiles, and 51 Amphibians.
- With a great number of African elephants, Murchison falls is impressive all year round.

Kavango Zambezi Transfrontier Nature Conservation Area (KAZA)
- KAZA is the second-largest nature and landscape conservation area in the world.
- It is spread across the borders of Angola, Botswana, Namibia, Zambia and Zimbabwe.
- The KAZA TFCA is enormous, larger than Germany and Austria combined and nearly twice as large as the United Kingdom.

- Jewels in the crown of this spectacular array of protected areas are the 15,000 km2 Okavango Delta, an explosion of green and blue in parched landscape – the world's largest inland delta, and the awe inspiring tumbling cataracts of the Victoria Falls, a World Heritage Site and one of the seven natural wonders of the world.

THE WILD LIFE (PROTECTION) AMENDMENT BILL, 2022
- The Wild Life (Protection) Amendment Bill, 2022, which seeks to to strengthen the protection of endangered species and enhance punishment for illegal wildlife trade, was passed in the Rajya Sabha.

- As India was a signatory to the Convention on International Trade in Endangered Species of Wild Fauna and Flora that required certain legislative actions to obligate the convention.

About Wild Life (Protection) Act, 1972

- The Wild Life (Protection) Act, 1972 provides a legal framework for the protection of various species of wild animals and plants, management of their habitats, regulation and control of trade in wild animals, plants and products made from them.
- The act also lists schedules of plants and animals that are afforded various degrees of protection and monitoring by the government.

Proposed Amendments

- This amendment proposed a new schedule for species listed in the Appendices under CITES.
- Section 6 has been amended to constitute Standing Committee to exercise such powers and duties as may be delegated to it by the State Board for Wildlife.
- Section 43 of the act amended which permitted the use of elephants for 'religious or any other purposes'.
- To enable the Central government to appoint a Management Authority Section 49E has been inserted.
- To allow the Central Government to appoint a Scientific Authority to provide guidance on matters relating to the impact on the survival of the specimens on being traded.
- The Bill also empowers Central government to regulate and stop the import, trade or possession of invasive plant or animal alien species.
- The Bill also enhances the penalties prescribed for violation of provisions of the Act.
- For 'General violations', maximum fine is increased from 25,000 to 1 lakh.
- In case of Specially protected animals, the minimum fine of Rs. 10,000 has been enhanced to Rs. 25,000.

The Concerns Associated with the Bill

- Phrase "any other purpose" is vague and has potential of encouraging commercial trade of elephants.
- Some important issues regarding Human-Wildlife conflict, Eco-sensitive zone rule, etc., has not been addressed.
- According to the report provided by the Parliamentary Standing Committee, species listed in all three schedules of the Bill are incomplete.
- The scientists, botanists, biologists are short in number and needed greater inclusion of them to accelerate the process of listing all existing species of wildlife.

About the Elephant Protection

- In 1897, the Elephants Preservation Act prohibited the killing or capture of wild elephants unless in self-defense or to protect property and crops, or under a license issued by the district collector.
- In 1927, the Indian Forest Act listed the elephant as 'cattle', prescribing the highest fine of Rs 10 for every impounded jumbo — in comparison, a cow attracted a fine of Re 1 and a camel of Rs 2.
- The Wildlife (Protection) Act (WLPA),1972 identified the elephant along with the bullock, camel, donkey, horse, and mule, as a "vehicle". Given the highest legal protection in 1977, the elephant was the only animal in WLPA's Schedule-I that can still be owned legally by means of inheritance or gift.
- In 2003, WLPA was amended to prohibit trade in all captive wildlife and any (non-commercial) transfer across state boundaries without permission from the concerned chief wildlife warden.
- Now, the Wildlife Protection Bill,2022 permits the transfer or transport of a captive elephant for a religious or any other purpose by a person having a valid certificate of ownership.

What are the objections to the present amendment?

- The sweeping ambit of "any other purpose" in the present amendment will empower elephant traders, put wild populations at greater risk of capture and defeat the very purpose of WLPA. Instead, the Parliamentary Standing Committee recommended that it should be limited to temple elephants kept for religious purposes.

- However, there is also a counter view that prohibition on commercial transfer only drove the live elephant trade underground as traders switched to dressing up commercial deals as gift deeds to bypass the 2003 amendment.

What is the stand of the new Bill on Vermin Species?
- The Wild Life (Protection) Amendment Bill, 2022 makes a significant amendment as it reduces the number of schedules from six to four. The Bill seeks to do away with Schedule V for vermin species entirely.
- This gives the Centre direct power to declare any species to be 'vermin' and make way for them to be freely hunted. Thus, declaring any species as vermin becomes easier.
- In recent years, however, the Centre has started using its powers under Section 62 to issue sweeping orders declaring species as vermin at even state levels, often without any credible scientific assessment.
- For example, Nilgais were declared as vermin across 20 districts in Bihar for a year in 2015.
- The Centre cited "large-scale destruction of agriculture" as the ground for declaring monkeys (Rhesus macaque) vermin in Shimla municipality in 2019.
- The issue has since entered the realm of centre-state politics. Since last year, Kerala's requests for declaring wild boars as vermin have been turned down repeatedly by the Environment ministry.

> **Question:** Discuss the key amendments introduced under The Wild Life (Protection) Amendment Bill, 2022.

UNITED NATIONS CONVENTION ON BIOLOGICAL DIVERSITY (CBD)

- Delegates from 196 countries — Parties to the United Nations Convention on Biological Diversity (CBD) — are meeting in Montreal, Canada from December 7-21 with the aim to hammer out a new global agreement on halting environmental loss.
- Many of the 24 conservation targets under discussion at the 15th Conference of the Parties (COP15) aim to avoid past mistakes and improve on the world's last set of conservation goals — the Aichi Biodiversity Targets that expired in 2020.
- No single country met all 20 Aichi Targets within its own borders, according to a September 2020 UN assessment.

What were the Aichi Targets?
- The Aichi Targets, adopted during the 2010 CBD summit in Nagoya, located in Japan's Aichi prefecture, included goals such as reducing deforestation by at least half during the coming decade and curbing pollution so that it no longer harmed ecosystems.
- India is also a party to the Convention.
- The convention is legally binding on its signatories.
- Only two member states of the United Nations are not Parties to the CBD, namely: the USA and the Vatican.
- The most notable Aichi objective and one of the few to include a numerical goal — aimed to protect or conserve 17% of all land and inland waters and 10% of the ocean by the end of the decade.
- Today about 15% of the world's land and 8% of ocean territories are under some form of protection, though the level of protection varies.
- About 10% of the targets saw no significant progress, the assessment found.
- Six of the targets, including the land and ocean conservation target, were deemed "partially achieved".
- The Global Environment Facility, the primary source of financing for international biodiversity protection, has collected around $5 billion from 29 countries for the funding period from 2022 to 2026.
- The Aichi Targets also failed to garner buy-in from governments beyond the environmental ministers who brokered the deal.

Reasons for the failure of Aichi Targets

- A lack of clearly defined metrics by which to gauge progress made the Aichi goals tough to implement, experts say.
- Aichi was made of aspirational targets, which was great for…enabling people to do a lot, but not great for communication.

Global Environment Facility
- The GEF was established in 1991 by the World Bank in consultation with UNDP and UNEP, to provide funding to protect the global environment.
- World Bank serves as the GEF trustee, administering the fund.
- GEF Funds are available to developing countries and countries with economies in transition to meet the objectives of the international environmental conventions and agreements.

GEF serves as a "financial mechanism" to five Conventions:
- Convention on Biological Diversity (CBD)
- United Nations Framework Convention on Climate Change (UNFCCC)
- Stockholm Convention on Persistent Organic Pollutants (POPs)
- UN Convention to Combat Desertification (UNCCD)
- Minamata Convention on Mercury.

> **Question:** What were the Aichi Targets? Give the reasons countries could not achieved their target under it.

ASOLA BHATTI SANCTUARY

- The Delhi Forest Department is in the process of procuring electric cycles and golf carts to enable visits to the Asola Bhatti Wildlife Sanctuary.

About the Asola Bhatti Sanctuary
- Asola-Bhatti Wildlife Sanctuary covering 32.71 sq km area on the Southern Delhi Ridge of Aravalli hill range on Delhi-Haryana border lies in Southern Delhi as well as northern parts of Faridabad and Gurugram districts of Haryana state.
- Biodiversity significance of Ridge lies in its merger with Indo-Gangetic plains, as it is the part of the Northern Aravalli leopard wildlife corridor, an important wildlife corridor which starts from the Sariska National Park in Rajasthan, passes through Nuh, Faridabad and Gurugram districts of Haryana and ends at Delhi Ridge.
- This protected area contains one of the last surviving remnants of Delhi Ridge hill range and its semi-arid forest habitat and its dependent wildlife.
- Once the whole Delhi Ridge was a forested area, but development has destroyed several parts of it.
- Historical place around sanctuary are Suraj Kund and Anangpur Dam (both in Haryana), Tughlaqabad Fort and Adilabad ruins (both in Delhi), Chhatarpur Temple (in Delhi).
- There are several dozen lakes formed in the abandoned open pit mines in and around the sanctuary. It is contiguous to the seasonal waterfalls in Pali-Dhuaj-Kot villages of Faridabad and the sacred Mangar Bani.

Biodiversity and important species
- There are about 193 species of birds reported from Asola along with large number of medicinal plants, more than 80 species of butterflies, hundreds of other insects, mammals such as leopards, nilgai (blue bull, the largest antelope of the country), blackbuck (fastest land animal surviving in the wild in the country), black-napped hare, Indian crested porcupine, small Indian civet, golden jackal, and jungle cat.
- Delhi Ridge is the northernmost extension of one of the oldest mountain systems of the world, Aravalli range, which begin in the state of Gujarat near Great Rann of Kutch.
- Biogeographically it represents outlier of Aravalli Mountain Range among protected area in India.
- It has a high potential for establishing conservation education and nature interpretation programs.

- It is Delhi NCR's green lung, carbon sink, source of ground water recharge, and shelter belt against advancing aridity.

CARBON MARKETS

Why in news?
- The Parliament has passed the **Energy Conservation (Amendment) Bill, 2022** in order to establish **Carbon Markets** in India and specify a Carbon Trading Scheme.
- The Bill amends the Energy Conservation Act, 2001.

What is the Energy Conservation (Amendment) Bill, 2022?
- **About:**
  o The Bill empowers the Centre to specify a carbon credits trading scheme.
  o Under the Bill, the **central government or an authorised agency will issue carbon credit certificates to companies or even individuals** registered and compliant with the scheme.
- These carbon credit certificates **will be tradeable in nature**. Other persons would be able to buy carbon credit certificates on a voluntary basis.
- **Concerns:**
  o Bill does not provide **clarity on the mechanism to be used** for the trading of carbon credit certificates— whether it will be like the cap-and-trade schemes or use another method— and **who will regulate such trading.**
  o It is not specified, which is the right ministry to **bring in a scheme of this nature,**
    ▪ While carbon market schemes in other jurisdictions like the U.S., United Kingdom, and Switzerland are framed by their **environment ministries**, the Indian Bill was tabled by the power ministry instead of the **Ministry of Environment, Forest, and Climate Change (MoEFCC).**
  o The Bill does not specify **whether certificates under already existing schemes would also be interchangeable** with carbon credit certificates and tradeable for reducing carbon emissions.
    ▪ Two types of tradeable certificates are already issued in India— Renewable Energy Certificates (RECs) and Energy Savings Certificates (ESCs).
    ▪ These are issued when companies use renewable energy or save energy, which **are also activities which reduce carbon emissions.**

What are Carbon Markets?
- **About:**
  o Carbon markets are **a tool for putting a price on carbon emissions**. It allows the **trade of carbon credits with the overall objective of bringing down emissions.**
  o These markets create incentives to reduce emissions or improve energy efficiency.
    ▪ For example, an industrial unit which outperforms the emission standards stands to gain credits.
    ▪ Another unit which is struggling to attain the prescribed standards can buy these credits and show compliance to these standards. The unit that did better on the standards earns money by selling credits, while the buying unit is able to fulfill its operating obligations.
  o It establishes **trading systems** where **carbon credits or allowances** can be bought and sold.
    ▪ A **carbon credit** is a kind of tradable permit that, per United Nations standards, equals one tonne of carbon dioxide removed, reduced, or sequestered from the atmosphere.
    ▪ **Carbon allowances or caps,** meanwhile, are determined by countries or governments according to their emission reduction targets.
  o **Article 6 of the Paris Agreement** provides for the use of **international carbon markets by countries** to fulfill their **NDCs (Nationally Determined Contributions).**

- NDCs are climate commitments by countries setting targets to achieve **net-zero emissions.**
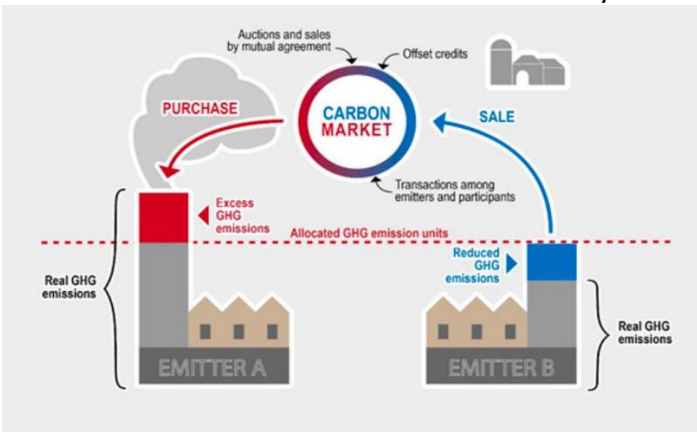
Types of Carbon Markets:
- **Compliance Markets:**
  o Compliance markets are **set up by policies at the national, regional, and/or international level and** are officially regulated.

    ▪ Today, compliance markets mostly operate under a principle called **'cap-and-trade", most popular in the European Union (EU).**

    ▪ Under the EU's emissions trading system (ETS) launched in 2005, member countries set a cap or limit for emissions in different sectors, such as power, oil, manufacturing, agriculture, and waste management. This cap is determined as per the climate targets of countries and is lowered successively to reduce emissions.

  o Entities in this sector are issued **annual allowances or permits by governments equal to the emissions they can generate.**
  o If companies produce emissions beyond the capped amount, **they have to purchase additional permits.** This makes up the 'trade' part of cap-and-trade.
  o The market price of carbon gets determined by market forces when purchasers and sellers trade in emissions allowances.
- **Voluntary Markets:**
  o Voluntary markets are those in which **emitters— corporations, private individuals, and others— buy carbon credits to offset the emission** of one tonne of CO_2 or equivalent greenhouse gases.
  o Such carbon credits **are created by activities which reduce CO_2 from the air, such as afforestation.**
  o In this market, a corporation looking to compensate **for its unavoidable GHG emissions purchases carbon credits from an entity engaged in projects** that reduce, remove, capture, or avoid emissions.
    ▪ For Instance, in the aviation sector, airlines may purchase carbon credits to offset the carbon footprints of the flights they operate. In voluntary markets, credits are verified by private firms as per popular standards. There are also traders and online registries where climate projects are listed and certified credits can be bought.
- **Status of Global Carbon Markets:**
  o In 2021, the value of global markets for tradeable carbon allowances or permits **grew by 164% to a record 760 billion euros (USD 851 billion)**, according to an analysis by Refinitiv.
  o The EU's ETS contributed the most to this increase, accounting for 90% of the global value at 683 billion euros.
  o As for voluntary carbon markets, **their current global value is comparatively smaller at USD 2 billion.**
  o The World Bank estimates that trading in carbon credits could reduce the cost of implementing NDCs by more than half — by as much as USD 250 billion by 2030.

What are the Challenges to Carbon Markets?

- **Poor Market Transparency:**
  - The **UNDP (United Nations Development Programme)** points out serious concerns pertaining to carbon markets- ranging from **double counting of greenhouse gas reductions and quality and authenticity of climate projects** that generate credits to poor market transparency.
- **Greenwashing:**
  - Companies may buy credits, **simply offsetting carbon footprints instead of reducing their overall emissions** or investing in clean technologies.
- **May Increase Net Emission through ETS:**
  - As for regulated or compliance markets, **ETSs (Emissions Trading System)** may not automatically reinforce climate mitigation instruments.
  - The **International Monetary Fund (IMF)** points out that including high emission-generating sectors under trading schemes to offset their emissions by buying allowances may increase emissions on net and provide no automatic mechanism for prioritizing cost-effective projects in the offsetting sector.

What is the Related Indian Initiative?

Clean Development Mechanism:

- In India, the clean development mechanism under the Kyoto Protocol provided a primary carbon market for the players.

Way Forward

- In order to keep global warming within 2°C, ideally no more than 1.5°C, global greenhouse gas (GHG) emissions need to be reduced by 25 to 50% over this decade. Nearly 170 countries have **submitted their nationally determined contributions (NDCs) so far as part of the 2015 Paris Agreement,** which they have agreed to update every five years.
- The UNDP emphasises that for carbon markets to be successful, "emission reductions and removals **must be real and aligned with the country's NDCs".**
- There must be **"transparency in the institutional and financial infrastructure for carbon market transactions".**

Question For Practice
Discuss global warming and mention its effects on the global climate. Explain the control measures to bring down the level of greenhouse gases which cause global warming, in the light of the Kyoto Protocol, 1997.

BLACK CARBON

Why in News?

- In **Lok Sabha,** the Minister of State for Environment, Forest and Climate Change outlined the various measures taken to counter black carbon.
- Under the **Indian Space Research Organization (ISRO)** Geosphere Biosphere Programme, the ISRO operates a network of aerosol observatories and black carbon mass concentration is one of the parameters being measured.

What is Black Carbon?

- **About**: Black Carbon (BC) is a **short-lived pollutant that is the second-largest contributor** to warming the planet behind **carbon dioxide (CO_2).**
  - Unlike other **greenhouse gas emissions,** BC is quickly washed out and can be eliminated from the atmosphere if emissions stop.
  - Unlike historical carbon emissions it is also a localised source with greater local impact.
  - Black carbon is a kind of an aerosol.

- **General Impacts:** Among aerosols (such as brown carbon, sulphates), Black Carbon has been recognized as the **second most important anthropogenic agent for <u>climate change</u>** and the **primary marker to understand the adverse effects caused by <u>air pollution.</u>**
  - Black carbon absorbs solar energy, it warms the atmosphere. When it falls to earth with precipitation, it darkens the surface of snow and ice, reducing their albedo (the reflecting power of a surface), warming the snow, and hastening melting.
- **Emission**: It gets **emitted from gas and diesel engines, coal-fired power plants,** and other sources that burn **fossil fuel.** It comprises a significant portion of particulate matter or PM, which is an air pollutant.
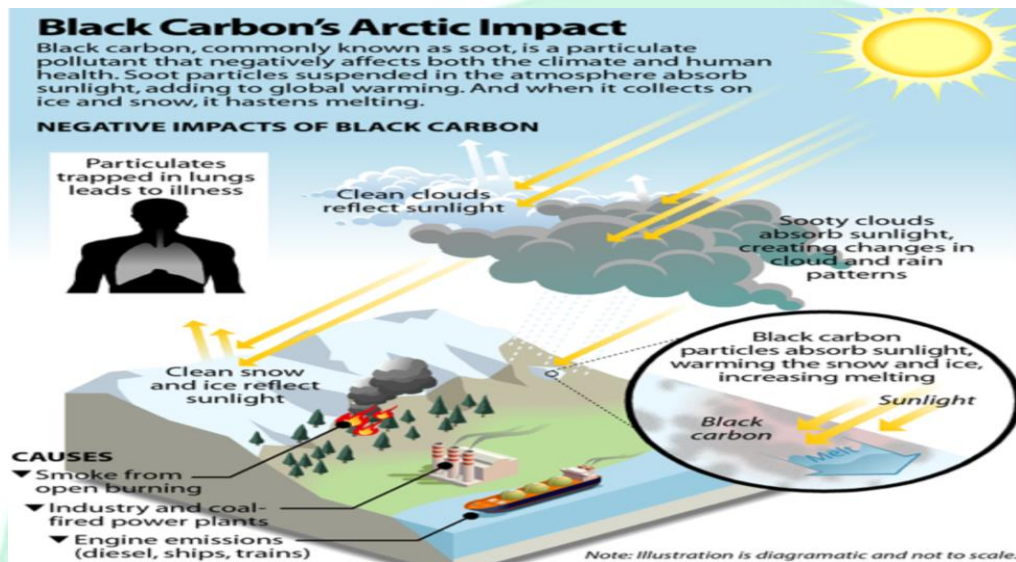
What are the Various Measures taken?
- **Pradhan Mantri Ujjwala Yojana:**
  - Under this initiative, the government is promoting use of **cleaner household cooking fuels.**
- **BS VI Emission Norms:**
  - Leapfrogging from BS-IV to **BS-VI norms** for fuel and vehicles from 1st April, 2020.
- **Introducing Cleaner Fuels:**
  - Introduction of cleaner / alternate fuels like gaseous fuel (**CNG, LPG** etc.), **ethanol blending.**
- **SATAT Scheme:**
  - A new initiative, **"Sustainable Alternative Towards Affordable Transportation (SATAT),** has been launched to set up 5000 **Compressed Bio-Gas (CBG)** production plants and make CBG available in the market for use.
- **Managing Crop Residue:**
  - Agricultural machines and equipment for in-situ crop residue management in Punjab, Haryana, Uttar Pradesh and NCT of Delhi are promoted under the Central Sector Scheme on **Promoting Agricultural Mechanization** for in-situ Crop Residue Management with 50% subsidy to individual farmers and 80% subsidy to the establishment of Custom Hiring Centres.
- **National Clean Air Programme:**
  - The Central Government is implementing the **National Clean Air Programme** as a long-term, time-bound, national-level strategy to tackle the air pollution problem across the country in a comprehensive manner.
  - The Centre has set a new target of a **40% reduction in particulate matter concentration in cities covered under the scheme by 2026**, updating the earlier goal of 20 to 30% reduction by 2024.
- **City specific Clean Air Action Plans:**
  - The **Central Pollution Control Board (CPCB)** has identified 131 cities based on ambient air quality levels exceeding national ambient air quality standards, and cities with a million plus population.
  - City specific Clean Air Action Plans **have been prepared and rolled out for implementation in these cities.**

- o **These plans define time bound targets to control city specific air polluting sources** (soil & road dust, vehicles, domestic fuel, municipal solid waste burning, construction material and industries, etc.).
- **FAME Scheme:**
  - o **Faster Adoption and Manufacturing of Electric Vehicles (FAME)** phase-2 scheme has been rolled out.

WORLD BANK REPORT ON AIR POLLUTION

Why in News?

Recently, the **World Bank** released a **report titled 'Striving for Clean Air: Air Pollution and Public Health in South Asia'.**

- The report **details how persisting with policies currently being implemented** (largely since 2018) will yield results but not to the desired level.

What are the Highlights of the Report?

- **Airsheds:**
  - o Six large airsheds exist in South Asia, where the air quality in one can affect the air quality in another. They are:
    - **West/Central Indo-Gangetic Plain (IGP)** that included Punjab (Pakistan), Punjab (India), Haryana, part of Rajasthan, Chandigarh, Delhi, Uttar Pradesh.
    - **Central/Eastern IGP:** Bihar, West Bengal, Jharkhand, Bangladesh
    - **Middle India:** Odisha/Chhattisgarh
    - **Middle India:** Eastern Gujarat/Western Maharashtra
    - **Northern/Central Indus River Plain:** Pakistan, part of Afghanistan; and
    - **Southern Indus Plain and further west:** South Pakistan, Western Afghanistan extending into Eastern Iran.
  - o When the wind direction was predominantly northwest to the southeast, **30% of the air pollution in Indian Punjab came from the Punjab Province in Pakistan** and, on average, 30% of the air pollution in the largest cities of Bangladesh (Dhaka, Chittagong, and Khulna) originated in India. In some years, substantial pollution flowed in the other direction across borders.
- **Exposure to PM 2.5:**
  - o Currently over **60% of South Asians are exposed to an average 35 µg/m3 of PM2.5 annually.**
  - o In some parts of the **IGP** it spiked to as much as 100 µg/m^3 – nearly 20 times the upper limit of 5 µg/m^3 recommended by the **World Health Organisation (WHO).**
- **Dominant Sources of Air Pollution:**
  - o Large industries, power plants and vehicles are dominant sources of air pollution around the world, but in South Asia, other sources make substantial additional contributions.
  - o These include **combustion of solid fuels for cooking and heating, emissions from small industries such as brick kilns,** burning of municipal and agricultural waste, and cremation.

What are the Suggestions?

- **Reducing Airsheds:**
  - o Governmental measures can reduce particulate matter, **but significant reductions in airsheds require coordinated policies across the airsheds.**
    - If Delhi National Capital Territory were to fully implement all air pollution control measures by 2030 while other parts of South Asia continued to follow current policies, it wouldn't keep pollution exposure below 35 µg/m3.
    - However, if other parts of South Asia also adopted all feasible measures it would bring pollution below that number.
- **Changing Approach:**
  - o South Asian countries including India **need to change their approach in order to improve air quality and reduce pollutants** to levels considered acceptable by the WHO.
- **Close Coordination Required:**
  - o Curbing air pollution requires not only tackling its specific sources, but **also close coordination across local and national jurisdictional boundaries.**

- o **Regional cooperation can help implement cost-effective joint strategies** that leverage the interdependent nature of air quality.
- o The most cost-effective one, which calls for full coordination between airsheds, would cut the average exposure of PM 2.5 in South Asia to 30 µg/m³ at a cost of USD 278 million per

What is Airsheds?

- The World Bank defines an airshed as a common geographic area where pollutants get trapped, creating similar air quality for everyone.

> **Question For Practice** - Describe the key points of the revised Global Air Quality Guidelines (AQGs) recently released by the World Health Organisation (WHO). How are these different from its last update in 2005? What changes in India's National Clean Air Programme are required to achieve revised standards?

KUNMING-MONTREAL GLOBAL BIODIVERSITY FRAMEWORK

Why in News?

- Recently, at the 15th Conference of Parties (COP15) to the UN Convention on Biological Diversity **"Kunming-Montreal Global Biodiversity Framework" (GBF)** was adopted.
- GBF includes 4 goals and 23 targets for achievement by 2030.
- The U.N. biodiversity conference concluded in Canada's Montreal.
- The first part of **COP 15 took place in Kunming, China and reinforced the commitment to address the biodiversity crisis and** the <u>Kunming Declaration</u> was adopted by over 100 countries

Decoding the 23 targets set at COP15
A total of 196 countries have signed a historic deal to protect 30% of the world for nature by 2030 in Montreal

What are the Key Targets of the GBF?

- **30x30 Deal:**
  - o **Restore 30% degraded ecosystems** globally (on land and sea) by 2030
  - o **Conserve and manage 30% areas** (terrestrial, inland water, and coastal and marine) by 2030
- **Stop the extinction of known species, and by 2050** reduce tenfold the extinction risk and rate of all species (including unknown)
- **Reduce risk from pesticides by at least 50% by 2030**
- Reduce nutrients lost to the environment by at least 50% by 2030
- **Reduce pollution risks and negative impacts of pollution** from all sources by 2030 to levels that are not harmful to biodiversity and ecosystem functions
- **Reduce global footprint of consumption by 2030**, including through significantly reducing overconsumption and waste generation and halving food waste

- **Sustainably manage areas under agriculture, aquaculture, fisheries, and forestry** and substantially increase agroecology and other biodiversity-friendly practices
- Tackle climate change through nature-based solutions
- Reduce the rate of introduction and establishment of invasive alien species by at least 50% by 2030
- Secure the safe, legal and sustainable use and trade of wild species by 2030
- Green up urban spaces

What are the Other Major Outcomes of COP15?
- **Money for Nature:**
  o Signatories aim to **ensure USD200 billion per year is channelled to conservation initiatives, from public and private sources.**
  o Wealthier countries should contribute at least USD20 billions of this every year by 2025, and at least USD30 billion a year by 2030.
- **Big Companies Report Impacts on Biodiversity:**
  o Companies should analyse and report how their operations affect and are affected by biodiversity issues.
  o The parties agreed to large companies and financial institutions being subject to "requirements" to make disclosures regarding their operations, supply chains and portfolios.
- **Harmful Subsidies:**
  o **Countries committed to identify subsidies that deplete biodiversity by 2025,** and then eliminate, phase out or reform them.
  o They agreed to slash those incentives by at least USD500 billion a year by 2030 and increase incentives that are positive for conservation.
- **Monitoring and reporting progress:**
  o All the agreed aims will be supported by processes to monitor progress in the future, in a bid to prevent this agreement meeting the same fate as similar targets that were agreed in Aichi, Japan, in 2010, and never met.
  o **National action plans will be set and reviewed**, following a similar format used for greenhouse gas emissions under U.N.-led efforts to curb climate change. Some observers objected to the lack of a deadline for countries to submit these plans.

How India Presented its Demands at the Conference?
- India called for an **urgent need to create a new and dedicated fund to help developing countries successfully implement a post-2020 global framework** to halt and reverse biodiversity loss.
  o So far, the **Global Environment Facility** which caters to multiple conventions, including the **UNFCCC** and **UN Convention to Combat Desertification**, remains the only source of funding for biodiversity conservation.
- India also said that **conservation of biodiversity must also be based on 'Common but Differentiated Responsibilities and Respective Capabilities' (CBDR)** as climate change also impacts nature.
- According to India, **developing countries bear most of the burden of implementing the targets for conserving biodiversity** and, therefore, require adequate funding and technology transfer.

What is the Convention on Biological Diversity (CBD)?
- CBD is a legally binding treaty to conserve biodiversity that **has been in force since 1993** and has been ratified by 196 nations.
- It **sets out guidelines for countries to protect biodiversity**, ensure sustainable use, and promote fair and equitable benefit sharing.
- It aims at achieving a **historic deal to halt and reverse biodiversity loss on par with the 2015 Paris Agreement on climate change.**
- The **CBD Secretariat is based in Montreal, Canada.**
- The Parties (Countries) under CBD, **meet at regular intervals and these meetings are called Conference of Parties (COP).**

- In 2000, a supplementary agreement to the **Convention known as the Cartagena Protocol on Biosafety** was adopted. It came into force on 11th September 2003.
  - The Protocol seeks to protect biological diversity from the potential risks posed by living modified organisms resulting from modern biotechnology.
- The **Nagoya Protocol** on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) was adopted in 2010 in **Nagoya, Japan at COP10.** It entered into force on 12th October 2014.
  - It not only applies to genetic resources that are covered by the CBD, and to the benefits arising from their utilization but also covers traditional knowledge (TK) associated with genetic resources that are covered by the CBD and the benefits arising from its utilization.
- **The COP-10 also adopted a ten-year framework for action** by all countries to save biodiversity. Officially known as **"Strategic Plan for Biodiversity 2011-2020",** it provided a set of 20 ambitious yet achievable targets collectively known as the **Aichi Targets for biodiversity.**
- India enacted **Biological Diversity Act in 2002** for giving effect to the provisions of the CBD.

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