

AUGUST 2022
CURRENT EVENTS

PM IAS initiative

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CREATIVE THOUGHT AND ACTION



GS 1

History, Art & Culture

1. 1 Manusmriti
2. 2 Pandurang Khankhoje

Geography

1. 1 Increasing Cloudburst Incidents in India

GS:2

Polity & Constitution

1. Guardianship and adoption of minors
2. Jagdeep Dhankhar is new Vice-President
3. National Anti-Doping Bill
4. Parliamentary panel reviews Goa Civil Code
5. Blasphemy and hate speech
6. Fundamental duties
7. Electricity (Amendment) Bill 2022
8. SC calls for a panel to look into freebies issue
9. Guardianship and adoption of minors
10. S. Subramaniam Balaji vs Tamil Nadu judgment
11. The Competition (Amendment) Bill, 2022
12. Indian Antarctic Bill 2022
13. Clearing of Backlog Cases
14. Releasing convicts on grounds of Remission
15. A Parliament without Disruption

Social Justice & Governance

1. Triple Talaq
2. SMILE-75 Initiative
3. Essential Commodities Act
4. Govt. to enumerate Sanitation Workers
5. Pradhan Mantri Awas Yojana
6. Haryana's Cheerag scheme for EWS students
7. Jal Jeevan Mission
8. Nikshay Poshan Yojana
9. India's treatment of women
10. NAMASTE scheme
11. The concerns around Aadhaar-Voter ID linkage
12. One Nation One Fertiliser scheme
13. Ban on VLC Media Player
14. The reliability of poverty survey data

International Relations

1. New START Treaty
2. North Atlantic Treaty Organisation
3. Razakars
4. Chabahar Port
5. Nagorno-Karabakh Conflict

6. Tigray crisis
7. A new G20 global vision
8. Russia opposes the adoption of the N- disarmament text

GS – 3

Indian Economy

1. Purchasing Managers Index
2. Vishnugadh Project
3. New Norms to Invest Overseas
4. Central Bank Digital Currency
5. The 'developed country' goal
6. Ration Mitra
7. Model Tenancy Act
8. RBI hiked rates by 50 bps
9. India's trade deficit
10. Financial Inclusion Index
11. Open network for digital commerce
12. ILO report: India's youth employment has declined.
13. Modified Interest Subvention Scheme (MISS)
14. "Wheat waiver" Risky WTO demand
15. Should RBI limit its intervention in currency market?

Science & Technology

1. Nova V1280 Scorpii
2. E-Waste Management
3. Nuclear matrix
4. INS Vikrant
5. Lumpy skin disease
6. AlphaFold
7. Live-fire exercises
8. 5G spectrum auction concludes
9. Hellfire R9X missile
10. African swine fever
11. AGM-88 HARM
12. SSLV-D1/EOS-2 mission
13. Advanced Towed Artillery Gun System (ATAGS)
14. Genome Sequencing
15. Findings of the Hayabusa-2 probe
16. NASA's James Webb Space Telescope
17. National Automated Fingerprint Identification System (NAFIS)
18. Tomato flu
19. Langya Viru
20. Polio
21. West Nile Virus
22. Butterfly Mine
23. Vertical Launch Short Range Surface to Air Missile
24. F-INSAS, Nipun mines and Landing Craft Assault

Environment & Ecology

1. New Elephant Reserve in Tamil Nadu

2. Great Barrier Reef
3. Wildlife (Protection), Amendment Bill
4. Arctic warming
5. Peninsular Rock Agama (*Psammophilus dorsalis*)
6. Relocation of cheetahs
7. Ramsar Site
8. Eco-sensitive zones
9. Project Arth Ganga
10. African Rhinoceros
11. Forever chemicals
12. Domestic Carbon Markets
13. Delhi and Kolkata are the world's most polluted cities.
14. Ethanol blending
15. Tilapia Aquaculture Project
16. Bhitarkanika National Park
17. New Climate Action Goals
18. Rock agama study reveals urbanisation, conservation

Internal Security

1. Udarashakti Exercise
2. Ex Vajra Prahar 2022
3. Personal Data Protection Bill
4. AL NAJAH-IV
5. Exercise Pitch Black
6. Ex VINBAX 2022
7. Prevention of Money Laundering Act (PMLA)
8. AFT's delivery of justice

Disaster Management

1. 1 Drought is looming over Uttar Pradesh, Jharkhand & Bihar

MANUSMRITI:

Context:

The Vice Chancellor of Jawaharlal Nehru University, recently criticised the Manusmriti, the ancient Sanskrit text, over its gender bias. Her remarks came while delivering the keynote address at the B R Ambedkar Lecture Series organised by the Union Ministry of Social Justice and Empowerment.

Relevance:

GS I: History

Dimensions of the Article:

1. What is Manusmriti?
2. What is the text about?
3. What is its significance?
4. Why is it controversial?

What is Manusmriti?

The Mānavadharmasāstra, also known as Manusmriti or the Laws of Manu, is a Sanskrit text belonging to the Dharmasāstra literary tradition of Hinduism.

Composed sometime between the 2nd century BCE and 3rd century CE, the Manusmriti is written in sloka verses, containing two non-rhyming lines of 16 syllabus each.

The text is attributed to the mythical figure of Manu, considered to be ancestor of the human race in Hinduism.

There has been considerable debate between scholars on the authorship of the text.

Many have argued that it was compiled by many Brahmin scholars over a period of time.

However, Indologist Patrick Olivelle (Manus Code Of Law: A Critical Edition And Translation Of The Mānava Dharmasāstra, 2005) argues that Manusmṛiti's "unique and symmetrical structure," means that it was

composed by a "single gifted individual," or by a "strong chairman of a committee" with the aid of others.

What is the text about?

The Manusmriti is encyclopedic in scope, covering subjects such as the social obligations and duties of the various castes and of individuals in different stages of life, the suitable social and sexual relations of men and women of different castes, on taxes, the rules for kingship, on maintaining marital harmony and the procedures for settling everyday disputes.

At its core, the Manusmriti discusses life in the world, how it is lived in reality, as well as how it ought to be, according to Wendy Doniger and Brian Smith (The Laws of Manu, 1991).

They argue that the text is about dharma, which means duty, religion, law and practice.

It also discusses aspects of the ashashtra, such as issues relating to statecraft and legal procedures.

According to Olivelle, the aim of the text is to "present a blueprint for a properly ordered society under the sovereignty of the king and the guidance of Brahmins."

It was meant to be read by the priestly caste and Olivelle argues that it would likely have been part of the curriculum for young Brahmin scholars at colleges, and would have been referenced by the scholarly debates and conversations on the Dharmasastras at that time.

What is its significance?

By the early centuries of the Common Era, Manu had become, and remained, the standard source of authority in the orthodox tradition for that centrepiece of Hinduism, varṇāśrama-dharma (social and religious duties tied to class and stage of life).

They argue that it was a very significant text for Brahmin scholars — it attracted 9 commentaries by other writers of the tradition, and was cited by other ancient Indian texts far more frequently than other dharmasāstra.

European Orientalists considered the Manusmṛiti to be of great historical and religious significance as well.

It was the first Sanskrit text to be translated into a European language, by the British philologist Sir William Jones in 1794.

Subsequently, it was translated into French, German, Portuguese and Russian, before being included in Max Muller's edited volume, Sacred Books of the East in 1886.

For colonial officials in British India, the translation of the book served a practical purpose.

In 1772, Governor-General Warren Hastings decided to implement laws of Hindus and Muslims that they believed to be "continued, unchanged from remotest antiquity".

For Hindus, the dharmasastras were to play a crucial role, as they were seen by the British as 'laws,' whether or not it was even used that way in India.

Why is it controversial?

Manusmṛiti has categorised all women as "shudras", which is "extraordinarily regressive".

Recently, Dalit boy in Rajasthan was allegedly beaten by his teacher for touching a water pot, and subsequently died due to his injuries.

The ancient text has 4 major divisions:

- o Creation of the world.
- o Sources of dharma.
- o The dharma of the four social classes.
- o Law of karma, rebirth, and final liberation.

The third section is the longest and most important section.

The text is deeply concerned with maintaining the hierarchy of the four-fold varna system and the rules that each caste has to follow.

For the author of the text, the Brahmin is assumed to be the perfect representative of the human race, while Sudras, who are relegated to the bottom of the order, are given the sole duty of serving the 'upper' castes. Some verses also contain highly prejudicial sentiments against women on the basis of their birth.

Pandurang Khankhoje

Context:

Lok Sabha Speaker, who is currently in Canada for the 65th Commonwealth Parliamentary Conference, will travel to Mexico where he will unveil statues of Swami Vivekananda and Maharashtra-born freedom fighter and agriculturalist Pandurang Khankhoje (1883-1967).

Relevance:

GS I: History

Dimensions of the Article:

1. Who was Pandurang Khankhoje?
2. What was his association with the Indian independence movement?
3. How did Khankhoje reach Mexico?

Who was Pandurang Khankhoje?

Born in Wardha, Maharashtra, in the late 19th century, Pandurang Khankhoje came in contact with other revolutionaries early on.

As a student, Khankhoje was an ardent admirer of the French Revolution and of the American War of Independence. Closer to home, the Hindu reformer Swami Dayanand and his Arya Samaj movement, which called for a spirit of reform and social change, became the hero to a young student group led by Khankhoje.

Khankhoje decided to go abroad for further training in revolutionary methods and militaristic strategy.

At this time, the British government's suspicions of him were also growing due to his anti-government activities.

Before leaving, he visited Bal Gangadhar Tilak, by whom he was inspired.

Tilak advised him to go to Japan, which was itself a strong, anti-West Asian imperialistic force then.

After spending time with nationalists from Japan and China, Khankhoje eventually moved to the US, where he enrolled in college as a student of agriculture.

But a year later, he joined the Mount Tamalpais Military Academy in California to fulfil his original purpose of leaving India.

What was his association with the Indian independence movement?

Khankhoje was one of the founding members of the Ghadar Party, established by Indians living abroad in 1914, mostly belonging to Punjab.

Its aim was to lead a revolutionary fight against the British in India.

While in the US, Khankhoje met Lala Har Dayal, an Indian intellectual teaching at Stanford University.

Har Dayal had begun a propaganda campaign, publishing a newspaper that featured patriotic songs and articles in the vernacular languages of India. This was the seed from which the Ghadar Party would emerge

How did Khankhoje reach Mexico?

At the military academy, Khankhoje met many people from Mexico.

The Mexican Revolution of 1910 had led to the overthrow of the dictatorial regime, and this inspired Khankhoje.

He also reached out to Indians working on farms in the US with the aim of discussing the idea of Indian independence with them. There, he met with Mexican workers as well.

Along with the Indian workers, militant action was planned by Khankhoje in India, but the outbreak of the First World War halted these plans.

He then reached out to Bhikaji Cama in Paris, and met with Vladimir Lenin in Russia among other leaders, seeking support for the Indian cause.

However, as he was facing possible deportation from Europe and could not go to India, he sought shelter in Mexico.

Soon, in part due to his prior friendship with Mexican revolutionaries, he was appointed a professor at the National School of Agriculture in Chapingo, near Mexico City.

He researched corn, wheat, pulses and rubber, developing frost and drought-resistant varieties, and was part of efforts to bring in the Green Revolution in Mexico.

Later on, the American agronomist Dr Norman Borlaug, called the Father of the Green Revolution in India, brought the Mexican wheat variety to Punjab.

GEOGRAPHY:

Increasing Cloudburst Incidents in India

Context:

- Over the last three days, cloudbursts and flash floods have killed over 20 people in various parts of Himachal Pradesh and Uttarakhand.

Relevance:

- **GS Paper 1:** Important Geophysical phenomena such as earthquakes, tsunamis, Volcanic activity, cyclones etc.

Mains Question

Discuss the measures to prevent and mitigate the devastating effects of cloudbursts, highlighting the causes and consequences of cloudbursts. (250 Words)

CloudBurst

- A cloudburst is a brief but intense burst of rain. Short bursts of extremely heavy rain over a small geographical area can cause widespread devastation.
- However, not all instances of extremely heavy rainfall are cloudbursts. A cloudburst is defined very precisely.
- A cloudburst event is defined as rainfall of 10 cm or more in an hour over a 10 km x 10 km area.
- According to this definition, 5 cm of rain in a half-hour period over the same area is also considered a cloudburst.

Cloudburst Occurrence

- It happens when moist air moves up a hill, forming a vertical column of clouds known as 'cumulonimbus' clouds.
- Such clouds are known to produce rain, thunder, and lightning. An orographic lift is the upward motion of the clouds.
- When these unstable clouds become heavy enough and become trapped in the ridges and valleys between the hills, they cause an intense rainstorm over a small area.
- The energy required for the cloudburst is derived from the upward motion of air.
- It is most common between 1,000 and 2,500 metres above sea level.
- The moisture is typically provided by a low-pressure system (associated with cyclonic storms in the ocean) over the Gangetic plains, which is accompanied by low-level winds from the east.
- Cloudbursts are sometimes aided by winds blowing in from the north-west.
- Cloudburst events are highly unlikely due to the numerous factors that must come together.

What is the frequency of cloudbursts?

- Cloudbursts are a common occurrence, especially during the monsoon season.

- The majority of these occur in Himalayan states due to the local topology, wind systems, and temperature gradients between the lower and upper atmosphere.

The result of a cloudburst

- Because of the terrain, heavy rainfall events frequently cause landslides and flash floods, wreaking havoc downstream.
- These occur in very small areas that are frequently devoid of rainfall measuring instruments. However, the consequences of these events are not limited to small areas.

Cloudburst forecasting

- The India Meteorological Department (IMD) forecasts rainfall events months in advance, but it does not predict the amount of rainfall — no meteorological agency does.
- Rainfall forecasts can be light, heavy, or very heavy, but weather scientists cannot predict how much rain will fall in any given location.
- In addition, forecasts are typically for a relatively large geographical area, such as a region, a state, a meteorological subdivision, or, at best, a district.
- Forecasts for smaller areas become increasingly uncertain.
- It is also theoretically possible to forecast rainfall over a very small area.
- It necessitates a dense network of weather instruments as well as computing capabilities that appear to be unattainable with current technologies.
- As a result, specific cloudburst events are impossible to predict.

Are cloudbursts becoming more common?

- There is no long-term trend indicating that cloudbursts, as defined by the IMD, are on the rise.
- However, incidents of extreme rainfall, as well as other extreme weather events, are on the rise — not just in India, but globally.
- While India's overall rainfall has not changed significantly, an increasing proportion of rainfall is occurring in a short period of time.
- This means that even during the rainy season, the wet spells are very wet and are interspersed with long dry spells.
- This type of pattern, attributed to climate change, suggests that cloudburst events may be on the rise as well.

POLITY AND CONSTITUTION:

Guardianship and adoption of minors

Context:

- A Parliamentary panel has recommended conferring equal rights on mothers as guardians under the Hindu Minority and Guardianship Act (HMGA), 1956 instead of treating them as subordinates to their husband, and has called for joint custody of children during marital disputes. It has also proposed allowing the LGBTQI community to adopt children.

Relevance:

GS II- Polity and Governance

Dimensions of the Article:

1. Recommendations of the Parliamentary panel on guardianship and child custody
2. What does the law say on guardianship?
3. Can queer and transgender people adopt children in India?

Recommendations of the Parliamentary panel on guardianship and child custody:

- The department-related Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice tabled its report in both Houses of Parliament on the ‘**Review of Guardianship and Adoption Laws**’.
- In its report the committee has said that there is an “urgent need to amend the HMGA (Hindu Minority and Guardianship Act, 1956) and accord equal treatment to both mother and father as natural guardians as the law violated the right to equality and right against discrimination envisaged under Articles 14 and 15 of the Constitution.”
- In cases of marital dispute, the panel says there is a need to relook at child custody which is typically restricted to just one parent where mothers tend to get preference.
- It says courts should be empowered to grant joint custody to both parents when such a decision is conducive for the welfare of the child, or award sole custody to one parent with visitation rights to the other.
- On adoption, the Committee has said that there is a need for a new legislation that harmonises the Juvenile Justice (Care and Protection of Children) Act, 2015 and the **Hindu Adoptions and Maintenance Act (HAMA), 1956** and that such a law should cover the LGBTQI community as well.

What does the law say on guardianship?

- Indian laws accord superiority to the father in case of guardianship of a minor.

Hindu Minority and Guardianship Act, (HMGA) 1956:

- The natural guardian of a Hindu minor in respect of the minor’s person or property “is the father, and after him, the mother: provided the custody of a minor who has not completed the age of five years shall ordinarily be with the mother.”

Muslim Personal Law (Shariat) Application Act, 1937

- The Shariat or the religious law will apply in case of guardianship according to which the father is the natural guardian, but custody vests with the mother until the son reaches the age of seven and the daughter reaches puberty though the father’s right to general supervision and control exists. The concept of Hizanat in Muslim law states that the welfare of the child is above all else.
- This is the reason why Muslim law gives preference to the mother over the father in matters of custody of children in their tender years.

Githa Hariharan vs Reserve Bank of India in 1999

- Challenged the HMGA for violating the guarantee of equality of sexes under Article 14 of the Constitution of India and the court held that the term “after” should not be taken to mean “after the lifetime of the father”, but rather “in the absence of the father”.
- But the judgment failed to recognise both parents as equal guardians, subordinating a mother’s role to that of the father.
- Though the judgment sets a precedent for courts, it has not led to an amendment to the HMGA.

What about cases of marital disputes?

- In cases of marital disputes, some courts such as the Punjab and Haryana High Court and Bombay High Court have framed rules to grant joint custody or shared parenting.
- Instead of this “patchwork” there is a need to amend the law, including the Guardians and Wards Act, 1890 to introduce concepts such as joint custody.

Can queer and transgender people adopt children in India?

- The Adoption Regulations, 2017 is silent on adoption by LGBTQI people and neither bans nor allows them to adopt a child.
- Its eligibility criteria for prospective adoptive parents says that they should be physically, mentally and emotionally stable, financially capable and should not have any life-threatening medical condition.
- Single men can only adopt a boy while a woman can adopt a child of any gender.
- A child can be given for adoption to a couple only if they have been in a marital relationship for at least two years.
- The HAMA which applies to Hindus, Sikhs, Jains and Buddhists allows men and women to adopt if they are of sound mind and are not minors.
- Activists say LGBTQI people who seek adoption face institutional discrimination because of stigma.
- Therefore, the law should be amended to include them as eligible candidates including when they apply as non-single parents such as when they are in civil unions or married for which there is no legal recognition in the country as yet even though the Supreme Court legalised gay sex in 2018.

Jagdeep Dhankhar is new Vice-President

Context

National Democratic Alliance candidate and former West Bengal Governor Jagdeep Dhankhar will be the 14th Vice-President of the country.

Relevance:

GS II- Polity and Governance

Dimensions of the Article:

1. About Vice-President
2. Election
3. Qualification
4. Powers and Functions
5. Removal of Vice President

About Vice-President:

- The Vice-President occupies the second highest office in the country.
- He is accorded a rank next to the President in the official warrant of precedence.
- This office is modelled on the lines of the American Vice President.

Election

- The Vice-President, is elected by the method of indirect election. He is elected by the members of an electoral college consisting of the members of both Houses of Parliament.
- Thus, this electoral college is different from the electoral college for the election of the President in the following two respects:
- It consists of both elected and nominated members of the Parliament (in the case of president, only elected members).

- It does not include the members of the state legislative assemblies (in the case of President, the elected members of the state legislative assemblies are included).

Qualification

- To be eligible for election as Vice-President, a person should fulfil the following qualifications:
- He should be a citizen of India.
- He should have completed 35 years of age.
- He should be qualified for election as a member of the Rajya Sabha.
- He should not hold any office of profit under the Union government or any state government or any local authority or any other public authority.
- The nomination of a candidate for election to the office of Vice-President must be subscribed by at least 20 electors as proposers and 20 electors as seconders. Every candidate has to make a security deposit of 15,000 in the Reserve Bank of India.

Oath or Affirmation

- Before entering upon his office, the Vice-President has to make and subscribe to an oath or affirmation. In his oath, the Vice-President swears
- To bear true faith and allegiance to the Constitution of India
- To faithfully discharge the duties of his office.
- The oath of office to the Vice-President is administered by the President or some person appointed in that behalf by him.

Conditions of the Office

- The Constitution lays down the following two conditions of the Vice President's office:
- He should not be a member of either House of Parliament or a House of the state legislature. If any such person is elected Vice-President, he is deemed to have vacated his seat in that House on the date on which he enters upon his office as Vice-President.
- He should not hold any other office of profit.

Powers and Functions

- The functions of Vice-President are two-fold
- He acts as the ex-officio Chairman of Rajya Sabha. In this capacity, his powers and functions are similar to those of the Speaker of Lok Sabha. In this respect, he resembles the American vice-president who also acts as the Chairman of the Senate, the Upper House of the American legislature.
- He acts as President when a vacancy occurs in the office of the President due to his resignation, removal, death or otherwise. He can act as President only for a maximum period of six months within which a new President has to be elected.
- Further, when the sitting President is unable to discharge his functions due to absence, illness or any other cause, the Vice-President discharges his functions until the President resumes his office.
- While acting as President or discharging the functions of President, the Vice-President does not perform the duties of the office of the chairman of Rajya Sabha. During this period, those duties are performed by the Deputy Chairman of Rajya Sabha.

Removal of Vice President

- The Constitution states that the vice president can be removed by a resolution of the Rajya Sabha passed by an Effective majority (majority of all the then members) and agreed by the Lok Sabha with a simple majority(Article 67(b)).
- But no such resolution may be moved unless at least 14 days' notice in advance has been given.
- Notably, the Constitution does not list grounds for removal.

- No Vice President has ever faced removal or the deputy chairman in the Rajya Sabha cannot be challenged in any court of law per Article 122.

National Anti-Doping Bill

Context

Recently, parliament passed the National Anti-Doping Bill 2021 Bill that seeks to create a statutory framework for the National Anti-Doping Agency (NADA).

Relevance:

GS II: Polity and Governance

Dimensions of the Article:

1. About National Anti-Doping Bill
2. Significance of the Bill
3. What are the Issues with the Bill?

About National Anti-Doping Bill

It was initially presented in the Lok Sabha in December 2021 and is being piloted by the Union Ministry of Youth Affairs and Sports.

The bill will protect the interest of sportspersons as it will provide ample space for them to put forth their versions especially when they face anti-doping charges.

Key Features of the Bill

- Building institutional capabilities in anti-doping and enabling hosting of major sports events;
- The Bill provides for constituting this National Anti-Doping Agency as a statutory body.
- It will be headed by a Director General appointed by the central government. Functions of the Agency include,
- Planning, implementing, and monitoring anti-doping activities,
- Investigating anti-doping rule violations,
- Promoting anti-doping research.
- The Bill establishes a National Board for Anti-Doping in Sports to make recommendations to the government on anti-doping regulation and compliance with international commitments on anti-doping.
- The Board will oversee the activities of the Agency and issue directions to it.
- Protecting rights of all sportspersons;
- Ensuring time-bound justice to athletes;
- Enhancing cooperation among agencies in fighting doping in sports;
- Reinforcing India's commitment to international obligations for clean sports;
- Independent mechanism for anti-doping adjudication;
- Establishing more Dope Testing Labs;
- Creating job opportunities both, directly & indirectly; and
- Creating opportunities for academic research, science and manufacturing relating to Anti-Doping.
- Establishing standards for the manufacturing of nutritional supplements for sports in India.

Significance of the Bill

- In addition to improving agency collaboration in the battle against doping, the bill aims to provide athletes with time-bound justice.
- It also aims to reaffirm India's commitment to upholding its duties under international clean sports laws.

- The bill would contribute to the development of a reliable, impartial system for anti-doping adjudication.
- The legislation will also provide NADA and the National Dope Testing Laboratory legal sanctity in how they do their business.

What are the Issues with the Bill?

- The qualifications of the Director General are not specified in the Bill and are left to be notified through Rules.
- The central government may remove the Director General from the office on grounds of misbehavior or incapacity or “such other ground”.
- Leaving these provisions to the discretion of the central government may affect the independence of the Director General.
- This also goes against the mandate of the World Anti-Doping Agency that such bodies must be independent in their operations.
- Under the Bill, the Board has powers to remove the members of the Disciplinary Panel and Appeal Panel on grounds which will be specified by regulations and are not specified in the Bill.
- Further, there is no requirement to give them an opportunity of being heard. This may affect the independent functioning of these panels.

Parliamentary panel reviews Goa Civil Code

Context

A parliamentary panel has reviewed Goa’s uniform civil code, and some of its members feel that there are some peculiar and outdated provisions related to matrimony in it.

Relevance:

GS II- Polity and Governance

Dimensions of the Article:

1. What is Goa Civil Code?
2. What is Uniform Civil Code (UCC)?
3. Positive aspects of Uniform Civil Code include
4. Challenges in Implementing Uniform Civil Code Include
5. Does India not already have a UCC for civil matters?
6. How does the idea of UCC relate to the Fundamental Right to religion?

What is Goa Civil Code?

- The Goa Civil Code is a set of civil laws that governs all residents of the coastal State irrespective of their religion and ethnicity.
- Citing various positives of the Goa Civil Code, Goa CM had urged that it could be a model for implementing the UCC across the country.
- GCC has come under focus amid a call for the implementation of a Uniform Civil Code (UCC) across the country.
- The UCC features prominently on the present regime’s ideological agenda, and the party had made promises on it in the run-up to the Lok Sabha elections in 2014 and 2019.
- This had an intimidating impact on certain sections of the population whose archaic provisions of personal laws were untouched for the sake of appeasement.

What is Uniform Civil Code (UCC)?

- The Uniform Civil Code (UCC) in India proposes to replace the personal laws based on the scriptures and customs of each major religious community in the country with a common set governing every citizen.
- The constitution has a provision for Uniform Civil Code in Article 44 as a Directive Principle of State Policy which states that “The State shall endeavor to secure for the citizens a uniform civil code throughout the territory of India.”
- Article 44 is one of the Directive Principles of State Policy. These, as defined in Article 37, are not justiciable (not enforceable by any court) but the principles laid down therein are fundamental in governance.
- Fundamental Rights are enforceable in a court of law. While Article 44 uses the words “state shall endeavour”, other Articles in the ‘Directive Principles’ chapter use words such as “in particular strive”; “shall in particular direct its policy”; “shall be obligation of the state” etc.
- Article 43 mentions “state shall endeavour by suitable legislation”, while the phrase “by suitable legislation” is absent in Article 44. All this implies that the duty of the state is greater in other directive principles than in Article 44.

Positive aspects of Uniform Civil Code include

- UCC will divest religion from social relations and personal laws and will ensure equality in terms of justice to both men and women regardless of the faith they practice.
- There will be *uniform laws for all Indians* with regard to marriage, inheritance, divorce etc.
- It will help in *improving the condition of women* in India as Indian society is mostly patriarchal
- Informal bodies like caste panchayats give judgements based on traditional laws. UCC will ensure that legal laws are followed rather than traditional laws.
- It can help in *reducing instances of vote bank politics*. If all religions are covered under same laws, politicians will have less to offer to communities in exchange of their vote.

Challenges in Implementing Uniform Civil Code Include

- Implementation of UCC might *interfere with the principle of secularism*, particularly with the provisions of Articles 25 and 26, which guarantee freedom relating to religious practices.
- Conservatism by religious groups, which resist such changes as it *interferes with their religious practices*.
- It is difficult for the government to come up with a uniform law that is accepted by all religious communities. All religious groups- whether majority or minority have to support the change in personal laws.
- *Drafting of UCC is another obstacle*. There is no consensus regarding whether it should be a blend of personal laws or should be a new law adhering to the constitutional mandate.

Does India not already have a uniform code in civil matters?

- Indian laws do follow a uniform code in most civil matters — Indian Contract Act, Civil Procedure Code, Sale of Goods Act, Transfer of Property Act, Partnership Act, Evidence Act, etc.
- States, however, have made hundreds of amendments and, therefore, in certain matters, there is diversity even under these secular civil laws. Recently, several states refused to be governed by the uniform Motor Vehicles Act, 2019.
- If the framers of the Constitution had intended to have a Uniform Civil Code, they would have given exclusive jurisdiction to Parliament in respect of personal laws, by including this subject in the Union List. But “personal laws” are mentioned in the Concurrent List.
- In 2020, the Law Commission concluded that a Uniform Civil Code is neither feasible nor desirable.

How does the idea of a Uniform Civil Code relate to the fundamental right to religion?

- **Article 25** lays down an individual’s fundamental right to religion; Article 26(b) upholds the right of each religious denomination or any section thereof to “manage its own affairs in matters of religion”;

Article 29 defines the right to conserve distinctive culture. An individual's freedom of religion under **Article**

- **25** is subject to "public order, health, morality" and other provisions relating to fundamental rights, but a group's freedom under **Article 26** has not been subjected to other fundamental rights.
- In the Constituent Assembly, there was division on the issue of putting Uniform Civil Code in the fundamental rights chapter.
- The matter was settled by a vote. By a 5:4 majority, the fundamental rights subcommittee headed by Sardar Vallabhbhai Patel held that the provision was outside the scope of Fundamental Rights and therefore the Uniform Civil Code was made less important than freedom of religion.

Blasphemy and hate speech

- While Mohammad Zubair of Alt News was arrested for tweeting a still picture from a movie that had some religious context attached to it, Nupur Sharma, a member of the BJP, has been absconding with no coercive action taken against her for her inflammatory remarks on a prime-time TV show.

Relevance:

GS II: Polity and Governance

Dimensions of the Article:

1. What is "Hate Speech"?
2. Laws related to hate speech in India
3. What is the history of Section 295 (A)?
4. How has the legislation been interpreted?
5. Should there be a difference between blasphemy laws and hate speech laws?
6. How should one deal with incidents of blasphemy?

What is "Hate Speech"?

- **In general**, "Hate Speech" refers to words whose intent is to create hatred towards a particular group, that group may be a community, religion or race.
- This speech may or may not have meaning, but is likely to result in violence.
- **BPRD Definition:** The Bureau of Police Research and Development recently published a manual for investigating agencies on cyber harassment cases that defined hate speech as a "language that denigrates, insults, threatens or targets an individual based on their identity and other traits (such as sexual orientation or disability or religion etc.)."
- **According to the Law Commission of India**, "Hate speech generally is an incitement to hatred primarily against a group of persons defined in terms of race, ethnicity, gender, sexual orientation, religious belief and the like. This, hate speech is any word written or spoken, signs, visible representations within the hearing or sight of a person with the intention to cause fear or alarm, or incitement to violence."

Laws related to hate speech in India

- **Article 19 of the Constitution**– Freedom of Speech and Expression is guaranteed to all the citizens of India. However, the right is subjected to reasonable restrictions in the interests of the sovereignty and integrity of India, the security of the State, friendly relations with foreign States, public order, decency or morality or in relation to contempt of court, defamation or incitement to an offence.

Indian Penal Code on Hate Speech

- **Section 295A** defines and prescribes a punishment for deliberate and malicious acts, intended to outrage religious feelings of any class by insulting its religion or religious beliefs.

- “Whoever, with deliberate and malicious intention of outraging the religious feelings of any class of citizens of India by words, either spoken or written, or by signs or by visible representations or otherwise, insults or attempts to insult the religion or the religious beliefs of that class, shall be punished with imprisonment of either description for a term which may extend to [three years], or with fine, or with both,” the IPC section reads.

According to Section 153A of IPC, “promotion of enmity between different

- groups on grounds of religion, race, place of birth, residence, language, etc., and doing acts prejudicial to maintenance of harmony”, is a punishable offence and attracts three years of imprisonment.
- **According to Section 505 of IPC,** “Statements that promote mutiny by the armed forces, or causes such fear or alarm that people are induced to commit an offence against the state or public tranquillity; or is intended to incite or incites any class or community to commit an offence against another class or community”, will attract a jail term of up to three years under Section 505(1).
- **Under Section 505(2),** “it is an offence to make statements creating or promoting enmity, hatred or ill-will between classes.
- **Under Section 505(3),** the offence will attract up to a five-year jail term if it takes place in a place of worship, or in any assembly engaged in religious worship or religious ceremonies.

What is the history of Section 295 (A)?

- As far as laws in India go, there isn’t formal legislation against blasphemy.
- The closest equivalent to a blasphemy law is Section 295(A) of the Indian Penal Code (IPC), which punishes any speech, writings, or signs that “with premeditated and malicious intent” insult citizens’ religion or religious beliefs with a fine and imprisonment for up to three years.

The history of Section 295(A) of the IPC can be traced back to 95 years:

- In 1927, a satire was published which had obscene parallels to the Prophet's personal life.
- It was indeed very offensive to the Muslim community but the erstwhile High Court of Lahore observed that the author of this cannot be prosecuted as the writing did not cause animosity or hostility between any communities.
- Thus, the offense did not fall under Section 153(A), which dealt with maintaining public tranquility/order.
- However, this incident gave rise to a demand that there be a law to protect the sanctity of religions, and thus, Section 295(A) was introduced.

Ramji Lal Modi case (1957):

- The legality of Section 295(A), which had been challenged in the Ramji Lal Modi case (1957), was affirmed by a five-judge Bench of the Supreme Court.
- The apex court reasoned that while Article 19(2) allows reasonable limits on freedom of speech and expression for the sake of public order, the punishment under Section 295(A) deals with aggravated form of blasphemy which is committed with the malicious aim of offending the religious sensibilities of any class.

How has the legislation been interpreted?

- The apex court redefined the test it laid down in the Ramji Lal Modi case.
- It decided that the connection between speech and disorder must be like a "spark in a powder keg".

Superintendent, Central Prison, Fatehgarh vs Ram Manohar Lohia case:

- The Supreme Court stated that the link between the speech spoken and any public disorder caused as a result of it should have a close relationship for retrieving Section 295(A) of IPC.

- By 2011, it concluded that only speech that amounts to "incitement to impending unlawful action" can be punished.
- That is, the state must meet a very high bar before using public disturbance as a justification for suppressing expression.

Should there be a difference between blasphemy laws and hate speech laws?

- The wording of Section 295(A) is considerably too wide.
- It cannot be stated that deliberate disrespect to religion or religious sensibilities is necessarily tantamount to incitement.
- The Supreme Court has said on several occasions that perhaps the goal of hate speech statutes in Section 295(A) is to prevent prejudice and ensure equality.
- Unfortunately, there is a huge disparity between this interpretation and the actual wording due to which the law is still being exploited at all levels of administration.
- Insulting religion or religious figures may be disputed or condemned but it should not be legally outlawed or prosecuted.
- The reason for this is because hate speech laws are predicated on the critical distinction between criticising or ridiculing religion and encouraging prejudice or aggression towards individuals or a community because of their faith.

How should one deal with incidents of blasphemy?

- Blasphemy laws which prohibit religious criticism in general are incompatible with the principles of a democratic society.
- In a free and democratic society, there should be no screening of discourse and dissent.
- The only feasible solution that stands on the thin line of protection of faith and questioning hate speech should be keeping blasphemy in the statutes but decriminalising it.

Fundamental duties

Chief Justice of India (CJI) N.V. Ramana said fundamental duties in the Constitution are not merely to serve a "pedantic or technical" purpose, they are meant to guide citizens engineer a social transformation.

Relevance:

GS II- Polity (Indian Constitution)

Dimensions of the Article:

1. Details
2. How were the fundamental duties incorporated in the Constitution?
3. What are the fundamental duties of the citizen?

Details:

- The need to enforce fundamental duties arises due to new illegal trend of protest by protesters in the garb of freedom of speech and expression.
- Vandalism, blocking of road and rail routes in order to compel the government to meet their demands is a sheer violation of the FDs which are generally not enforceable.

How were the fundamental duties incorporated in the Constitution?

- The fundamental duties were incorporated in Part IV-A of the Constitution by The Constitution (42nd Amendment) Act, 1976, during Indira Gandhi's Emergency.
- Article 51(A) describes 11 fundamental duties — 10 came with the 42nd Amendment; the 11th was added by the 86th Amendment in 2002, when Atal Bihari Vajpayee was Prime Minister.

- These duties are not enforceable by law.
- However, a court may take them into account while adjudicating on a matter.
- They were made a part of the Constitution to emphasise the obligation of the citizen in return for the fundamental rights that he or she enjoys.

What are the fundamental duties of the citizen?

Article 51(A) says it shall be the duty of every citizen of India:

- to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;
- to cherish and follow the noble ideals which inspired our national struggle for freedom;
- to uphold and protect the sovereignty, unity and integrity of India;
- to defend the country and render national service when called upon to do so;
- to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;
- to value and preserve the rich heritage of our composite culture;
- to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures;
- to develop the scientific temper, humanism and the spirit of inquiry and reform;
- to safeguard public property and to abjure violence;
- to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement;
- who is a parent or guardian to provide opportunities for education to his child or, as the case may be, ward between the age of six and fourteen years.
- The last subsection, (k), on the education of children, was added in 2002 by The Constitution (86th Amendment) Act. The same amendment also introduced Article 21A in the Constitution: "The State shall provide free and compulsory education to all children of the age of six to fourteen years in such manner as the State may, by law, determine."

Electricity (Amendment) Bill 2022

Context:

Recently, the Electricity (Amendment) Bill 2022 was introduced in Parliament amid protests and later sent to the standing committee for further deliberation.

Relevance:

GS II- Polity and Governance

Dimensions of the Article:

1. What does the amendment Bill propose?
2. What are the Protestor's Arguments Against the Bill?

What does the amendment Bill propose?

The Bill seeks to amend Electricity Act 2003:

- For consumers, the Bill, has proposed to **amend Sections 42 and 14 of the Electricity Act**, thus, enabling competition in retail distribution of power by offering the customers the option to choose electricity suppliers, just like they can choose telephone or internet service providers.

- The amended **Section 14**, the Bill says, will “facilitate the use of distribution networks by all licensees under provisions of non-discriminatory open access”, while **Section 42** will be amended to “facilitate non-discriminatory open access to the distribution network of a distribution licensee”.
- The Bill, with the amendment of **Section 62 of the Act**, makes provision for “**mandatory**” fixing of minimum as well as maximum tariff ceilings by the “appropriate commission” to avoid predatory pricing by power distribution companies and to protect consumers.
- Also, the amendment Bill has several provisions to ensure graded and timely tariff revisions that will help provide state power utilities enough cash to be able to make timely payments to power producers.
- This move is aimed at addressing the recurrent problem of default by distribution companies in payment to generation companies.
- The bill through amendments in **Section 166 of the Act** also seeks to strengthen payment security mechanisms and give more powers to regulators.

What are the Protestor's Arguments Against the Bill?

- The Constitution lists ‘**Electricity**’ as **Item 38 of List III (Concurrent) of the Seventh Schedule**, so both the Central and state governments have the power to make laws on this subject.
- With the proposed amendments, the federal structure of Indian polity, a part of the ‘**basic structure**’ of the Constitution of India, is being violated.
- **Free power for farmers** and Below Poverty Line population will go away eventually.
- **Only government discoms or distribution companies** will have universal power supply obligations.
- Therefore, it is likely that private licensees will prefer to supply the electricity in profit-making areas – to industrial and commercial consumers.
- Once this happens, profit-making areas will be snatched from government discoms and they will become loss-making companies.

SC calls for a panel to look into freebies issue

Context:

- Recently, The Supreme Court said Parliament may not be able to effectively debate the issue of doing away with “irrational freebies” offered to voters during elections, saying the “reality” is that not a single political party wants to take away freebies.
- The court suggested setting up a specialised body composed of persons who can “dispassionately” examine the problem

Relevance: GS-II: Governance (Government Policies and Interventions, Issues arising out of the design and implementation of policies, Transparency and Accountability)

Dimensions of the Article:

1. What are Freebies?
2. Understanding difference between welfare schemes and freebies
3. Impact of freebie culture
4. Drawbacks of Freebies
5. Judiciary on the culture of freebies
6. Way Forward

What are Freebies?

- Political parties promise to offer free electricity/water supply, monthly allowance to unemployed, daily wage workers, and women as well as gadgets like laptops, smartphones, etc. in order to secure the vote of the people.

- The states have become habituated to giving freebies, be it in the form of loan waivers or free electricity, cycles, laptops, TV sets, and so on.

Understanding difference between welfare schemes and freebies

- Welfare initiatives include a targeted Public Distribution System, providing social security for labourers, quality education, fair employment, affordable healthcare, decent housing, and protection from exploitation and violence.
- Freebies, on the other hand, are provided to attract voters to cast their vote in a particular election. They create limited private benefit for the receiver and do not contribute towards strengthening public goods/facilities.
- Freebies could include offers such as free rations, TV sets, laptops to students, free rides for women in buses, free gas cylinders and stoves and so on.

Impact of freebie culture

- Given the electoral effectiveness of the freebies culture, states seem to accord lesser importance to welfare initiatives and hence welfare measures have taken a back seat in terms of governance. There seems to be a withdrawal of the state in providing welfare measures such as social security, access to quality education and health, etc.
- The impact has been all the more severe on the poor and marginalised communities due to denial of access to their rightful share of state resources.
- Freebies drastically widen the gap between the rich and the poor.
- Freebies violate the constitutional mandate of extending benefits for public purposes and instead create private benefits.

Drawbacks of Freebies

- Freebies undermine the fundamental tenets of macroeconomic stability, the politics of freebies confuses priorities for spending, and subsidies continue to dominate expenditures.
- Freebies ultimately have an influence on the public coffers, since the majority of Indian states frequently have very little financial resources and revenue sources.
- Voters are unfairly influenced, the playing field is disrupted, and the integrity of the voting process is tainted by the promise of irrational giveaways from public funds before elections.
- When giveaways involve providing free electricity, it will result in an excessive use of natural resources and divert attention away from renewable energy sources.

Judiciary on the culture of freebies

- The Supreme Court gave a ruling in favour of offering of freebies stating that freebies are not corrupt practice as it is mentioned in election manifesto.
- In **S. Subramaniam Balaji v. Govt. of Tamil Nadu (2013)**, the court said that “Although, promises in the election manifesto cannot be construed as ‘corrupt practice’ under **Section 123 of Representation of People Act**, the distribution of freebies influences the people shaking the root of free and fair elections.”
- In 2021, The Madras High Court expressed its strong displeasure over the way in which political parties were competing with each other to garner votes by offering freebies.

Way Forward

- There is an urgent need to tackle the freebie culture in India, given its negative impacts. Also, there needs to be a reorientation of public policy in a healthy direction.
- The political party manifestos should offer programmatic policy interventions towards better public services than narrow private benefits in the form of freebies.
- They should focus on enhancing budgetary allocation for the maintenance of public infrastructures like schools, colleges, hostels and hospitals.

- The Election Commission and the Higher Judiciary intervention can help in this regard. An informed and aware citizenry is a must to bring about this change.

Guardianship and adoption of minors

Context:

- A Parliamentary panel has recommended conferring equal rights on mothers as guardians under the Hindu Minority and Guardianship Act (HMGA), 1956 instead of treating them as subordinates to their husband, and has called for joint custody of children during marital disputes. It has also proposed allowing the LGBTQI community to adopt children.

Relevance:

GS II- Polity and Governance

Dimensions of the Article:

1. Recommendations of the Parliamentary panel on guardianship and child custody
2. What does the law say on guardianship?
3. Can queer and transgender people adopt children in India?

Recommendations of the Parliamentary panel on guardianship and child custody:

- The department-related Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice tabled its report in both Houses of Parliament on the ‘**Review of Guardianship and Adoption Laws**’.
- In its report the committee has said that there is an “urgent need to amend the HMGA (Hindu Minority and Guardianship Act, 1956) and accord equal treatment equality and right against discrimination envisaged under Articles 14 and 15 of the Constitution.”
- In cases of marital dispute, the panel says there is a need to relook at child custody which is typically restricted to just one parent where mothers tend to get preference.
- It says courts should be empowered to grant joint custody to both parents when such a decision is conducive for the welfare of the child, or award sole custody to one parent with visitation rights to the other.
- On adoption, the Committee has said that there is a need for a new legislation that harmonises the Juvenile Justice (Care and Protection of Children) Act, 2015 and the **Hindu Adoptions and Maintenance Act (HAMA), 1956** and that such a law should cover the LGBTQI community as well.

What does the law say on guardianship?

- Indian laws accord superiority to the father in case of guardianship of a minor.

Hindu Minority and Guardianship Act, (HMGA) 1956:

- The natural guardian of a Hindu minor in respect of the minor’s person or property “is the father, and after him, the mother: provided the custody of a minor who has not completed the age of five years shall ordinarily be with the mother.”

Muslim Personal Law (Shariat) Application Act, 1937

- The Shariat or the religious law will apply in case of guardianship according to which the father is the natural guardian, but custody vests with the mother until the son reaches the age of seven and the daughter reaches puberty though the father’s right to general supervision and control exists. The concept of Hizanat in Muslim law states that the welfare of the child is above all else.
- This is the reason why Muslim law gives preference to the mother over the father in matters of custody of children in their tender years.

Githa Hariharan vs Reserve Bank of India in 1999

- Challenged the HMGA for violating the guarantee of equality of sexes under Article 14 of the Constitution of India and the court held that the term “after” should not be taken to mean “after the lifetime of the father”, but rather “in the absence of the father”.
- But the judgment failed to recognise both parents as equal guardians, subordinating a mother’s role to that of the father.
- Though the judgment sets a precedent for courts, it has not led to an amendment to the HMGA.

What about cases of marital disputes?

- In cases of marital disputes, some courts such as the Punjab and Haryana High Court and Bombay High Court have framed rules to grant joint custody or shared parenting.
- Instead of this “patchwork” there is a need to amend the law, including the Guardians and Wards Act, 1890 to introduce concepts such as joint custody.

Can queer and transgender people adopt children in India?

- The Adoption Regulations, 2017 is silent on adoption by LGBTQI people and neither bans nor allows them to adopt a child.
- Its eligibility criteria for prospective adoptive parents says that they should be physically, mentally and emotionally stable, financially capable and should not have any life-threatening medical condition.
- Single men can only adopt a boy while a woman can adopt a child of any gender.
- A child can be given for adoption to a couple only if they have been in a marital relationship for at least two years.
- The HAMA which applies to Hindus, Sikhs, Jains and Buddhists allows men and women to adopt if they are of sound mind and are not minors.
- Activists say LGBTQI people who seek adoption face institutional discrimination because of stigma.
- Therefore, the law should be amended to include them as eligible candidates including when they apply as non-single parents such as when they are in civil unions or married for which there is no legal recognition in the country as yet even though the Supreme Court legalised gay sex in 2018.

S. Subramaniam Balaji vs Tamil Nadu judgment***Context:***

- The Supreme Court referred to a three-judge Bench a series of petitions seeking a judicial direction that political parties who make “wild” promises of largesse should also reveal in their poll manifestos where they will get the money to pay for them.
- The reference is a shift from the court’s own stand in the S. Subramaniam Balaji vs Tamil Nadu judgment of 2013.

Relevance:

GS II: Governance

Dimensions of the Article:

1. About Balaji case judgment:
2. What triggered the Balaji case?
3. Why is the Court’s move to review the Balaji judgment significant?

About Balaji case judgment:

- In the Balaji case judgment, a Division Bench of the Supreme Court had held that making promises in election manifestos do not amount to a 'corrupt practice' under Section 123 of the Representation of People Act (RP).
- However, the Supreme Court is now worried that freebies promised by political parties to win elections could bleed the public exchequer dry.
- The Court said that parties who form the government riding the wave created by their pre-poll promises of "free gifts" are bleeding the State finances dry by actually trying to fulfil their outlandish promises using public money.
- The Supreme Court has therefore decided to revisit the Balaji verdict.

What triggered the Balaji case?

- The course of events started in 2006, during the run-up to the Tamil Nadu Assembly elections.
- The Dravida Munnetra Kazhagam (DMK) released its election manifesto announcing a scheme of free distribution of colour television sets (CTVs) to "each and every household" which did not have one if the party was voted to power.
- The party justified that the TV would "provide recreation and general knowledge to household women, more particularly, those living in the rural areas".
- The party swept to power in the polls and decided to implement its scheme and portioned off ₹750 crore from the budget for the project.
- The government finally distributed 30,000 TV sets across the State.
- In 2011, rival All India Anna Dravida Munnetra Kazhagam (AIADMK) and its alliance also announced its election manifesto with free gifts to "equalise" the gifts offered by the DMK.
- AIADMK promised grinders, mixies, electric fans, laptop computers, four gram gold thalis, a cheque of ₹50,000 for women's marriage, green houses, 20 kg of rice to ration card holders (even to those above the poverty line) and free cattle and sheep.
- Mr. Balaji, a resident of Tamil Nadu, challenged the schemes introduced by the parties in the Madras High Court.
- He said the expenditure to be incurred by the State from the exchequer was "unauthorised, impermissible and ultra vires the constitutional mandates".
- The High Court dismissed his case, following which he had moved the apex court.

Why is the Court's move to review the Balaji judgment significant?

- In its order, the court foresees that "freebies may create a situation wherein the State government cannot provide basic amenities due to lack of funds and the State is pushed towards imminent bankruptcy".
- The court said it wants a transparent debate before the three-judge Bench on whether an "enforceable" judicial order can stop political parties from promising and distributing 'irrational freebies'.
- The case is unique as the Supreme Court is exploring whether judicial parameters can be set on a purely political act of promising freebies.

The Competition (Amendment) Bill, 2022

Context:

The long-awaited Bill to amend the Competition Act, 2002, was finally tabled in the Lok Sabha recently.

Relevance:

GS II: Government policies and Interventions

Dimensions of the Article:

1. About Indian Competition Act

2. About Competition (Amendment) Bill, 2022

3. What is gun-jumping?

4. What next?

About Indian Competition Act:

- The Indian Competition Act was passed in 2002, but it came into effect only seven years later.
- The Competition Commission primarily pursues three issues of anti-competitive practices in the market: anti-competitive agreements, abuse of dominance and combinations.
- As the dynamics of the market changes rapidly due to technological advancements, artificial intelligence, and the increasing importance of factors other than price, amendments became necessary to sustain and promote market competition.
- Therefore, a review committee was established in 2019 which proposed several major amendments.

About Competition (Amendment) Bill, 2022

Regulation of combinations based on transaction value:

- The Act prohibits any person or enterprise from entering into a combination which may cause an appreciable adverse effect on competition.
- Combinations imply mergers, acquisitions, or amalgamation of enterprises.
- The prohibition applies to transactions where parties involved have:
- Cumulative assets of more than Rs 1,000 crore, or Cumulative turnover of more than Rs 3,000 crore, subject to certain other conditions.
- The Bill expands the definition of combinations to include transactions with a value above Rs 2,000 crore.

Definition of control for classification of combination:

- For classification of combinations, the Act defines control as control over the affairs or management by one or more enterprises over another enterprise or group.
- The Bill modifies the definition of control as the ability to exercise material influence over the management, affairs, or strategic commercial decisions.

Time limit for approval of combinations:

- The Act specifies that any combination shall not come into effect until the CCI has passed an order or 210 days have passed from the day when an application for approval was filed, whichever is earlier.
- The Bill reduces the time limit in the latter case to 150 days.

Anti-competitive agreements:

- Under the Act, anti-competitive agreements include any agreement related to production, supply, storage, or control of goods or services, which can cause an appreciable adverse effect on competition in India.
- Any agreement between enterprises or persons, engaged in identical or similar businesses, will have such adverse effect on competition if it meets certain criteria.

These include:

- Directly or indirectly determining purchase or sale prices
- Controlling production, supply, markets, or provision of services, Directly or indirectly leading to collusive bidding.
- The Bill adds that enterprises or persons not engaged in identical or similar businesses shall be resumed to be part of such agreements, if they actively participate in the furtherance of such agreements.

Settlement and Commitment in anticompetitive proceedings:

- Under the Act, CCI may initiate proceedings against enterprises on grounds of: Entering into anti-competitive agreements, Abuse of dominant position.

Abuse of dominant position includes:

- Discriminatory conditions in the purchase or sale of goods or services
- Restricting production of goods or services Indulging in practices leading to the denial of market access.

The Bill permits CCI to close inquiry proceedings if the enterprise offers:

- Settlement (may involve payment)
- Commitments (may be structural or behavioural in nature).
- The manner and implementation of settlement and commitment may be specified by CCI through regulations.

Relevant product market:

- The Act defines relevant product market as products and services which are considered substitutable by the consumer.
- The Bill widens this to include the production or supply of products and services considered substitutable by the suppliers.

Appointment of Director General:

- The Act empowers the central government to appoint a Director General to CCI.
- The Director General assists in conducting inquiries into contraventions of any provisions of the Act.
- The Bill amends this to empower the CCI to appoint the Director General, with prior approval of the government.

Qualification of members of CCI:

- As per the Act, the chairperson and members of CCI should have professional experience of at least 15 years in fields such as:
 - Economics,
 - Competition matters,
 - Law,
 - Management,
 - Business
- The Bill expands this to include experience in the field of technology.

Decriminalisation of certain offences:

- The Bill changes the nature of punishment for certain offences from imposition of fine to penalty.
- These offences include failure to comply with orders of CCI and directions of Director General with regard to anti-competitive agreements and abuse of dominant position.

Major change in dealing with new-age market combinations

- Any acquisition, merger or amalgamation may constitute a combination.
- Section 5 currently says parties indulging in merger, acquisition, or amalgamation need to notify the Commission of the combination only on the basis of 'asset' or 'turnover'.
- The new Bill proposes to add a 'deal value' threshold.
- It will be mandatory to notify the Competition Commission of any transaction with a deal value in excess of ₹2,000 crore and if either of the parties has 'substantial business operations in India'.

What is gun-jumping?

- Parties should not go ahead with a combination prior to its approval.
- If the combining parties close a notified transaction before the approval, or have consummated a reportable transaction without bringing it to the Commission's knowledge, it is seen as gun-jumping.
- The penalty for gun-jumping was a total of 1% of the asset or turnover. This is now proposed to be 1% of the deal value.

What next?

- By implementing these amendments, the Commission should be better equipped to handle certain aspects of the new-age market and transform its functioning to be more robust.
- The proposed amendments are undoubtedly needed; however, these are heavily dependent on regulations that will be notified by the Commission later.
- These regulations will influence the proposals. Also, the government needs to recognise that market dynamics change constantly, so it is necessary to update laws regularly.

Indian Antarctic Bill 2022

Context:

- Recently, Parliament passed the Indian Antarctic Bill, 2022, which aims at having India's own national measures for protecting the Antarctic environment as also the dependent and associated ecosystem.

Relevance:

GS II- Government policies and Interventions

Dimensions of the Article:

1. What is the Antarctica Bill?
2. What is the Antarctica Treaty?
3. What are the main provisions of the Bill?
4. What are the prohibitions?
5. What is the penalty system that has been introduced?

What is the Antarctica Bill?

- The draft bill is the first domestic legislation with regard to Antarctica in India.
- Twenty-seven countries including Argentina, Australia, Belarus, Belgium, Canada, Chile, Columbia, Finland, France, Germany, Italy, Japan, Republic of Korea, the Netherlands, New Zealand, Norway, Peru, Russian Federation, South Africa, Spain, Sweden, Turkey, Ukraine, United Kingdom, United States of America, Uruguay and Venezuela already have domestic legislations on Antarctica. Many others, such as India, are now following suit.
- While India has been sending expeditions to Antarctica for the past 40 years, these expeditions have been circumscribed by international law.
- The Bill now puts into place a comprehensive list of regulations related to Antarctica, for such scientific expeditions, as well as for individuals, companies and tourists.
- The Ministry has explained that it expects activity in Antarctica to increase in the coming years, making the enforcement of a domestic set of protocols essential.
- A domestic legislation will further provide more validity to the Antarctic Treaty, and subsequent protocols, of which India is a signatory.
- The most significant part of the Bill is extending the jurisdiction of Indian courts to Antarctica, for crimes on the continent by Indian citizens, or foreign citizens who are a part of Indian expeditions.
- So far there was no recourse for crimes committed during an expedition, including crimes against the environment.

What is the Antarctica Treaty?

- The Antarctic Treaty was signed in 1959 by 12 countries — Argentina, Australia, Belgium, Chile, French Republic, Japan, New Zealand, Norway, Union of South Africa, USSR, the UK of Great Britain and Northern Ireland and the US of America, and came into force in 1961.
- The Treaty covers the area south of 60°S latitude. Currently, 54 nations are signatories to the Antarctic Treaty, but only 29 nations have a right to vote at the Antarctic Treaty Consultative Meetings – this includes India.
- India signed the Antarctic Treaty in 1983 and received consultative status the same year.
- The Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) was set up in 1980 for the protection and preservation of the Antarctic environment and, in particular, for the preservation and conservation of marine living resources in Antarctica.
- The Protocol on Environmental Protection to the Antarctic Treaty was signed in 1991 and came into force in 1998. It designates Antarctica as a “natural reserve, devoted to peace and science”.

Objectives of the treaty:

- To demilitarize Antarctica and establish it as a zone used for peaceful research activities and to set aside any disputes regarding territorial sovereignty, thereby ensuring international cooperation.

What are the main provisions of the Bill?

Extending of jurisdiction of Indian courts:

- While the most significant provision of the Bill remains the extending of jurisdiction of Indian courts to Antarctica, and the investigation and trial for crimes committed on the Arctic continent, the Bill is a comprehensive document of regulations, particularly keeping in mind environmental protection and the fragile nature of the region.

Permit system:

- The Bill introduces an elaborate permit system for any expedition or individual who wishes to visit the continent.
- These permits will be issued by a Committee that will be set up by the government.
- The Committee will comprise of the Secretary Earth Sciences ministry and will also have officials from Defence, Ministry of External Affairs, Finance, Fisheries, Legal Affairs, Science and Technology, Shipping, Tourism, Environment, Communication and Space ministries along with a member from the National Centre for Polar and Ocean Research and National Security Council Secretariat and experts on Antarctica.
- The permits can be cancelled by the Committee if deficiencies are found or activities in contravention of the law are detected.

Commercial fishing

- While India does not carry out commercial fishing in the area, since every country has an allotted quota, the Bill now provides for this activity.
- However, strict guidelines are in place in accordance with international law.

Tourism activity

- Like fishing, while India does not carry out any tourism activity in the region, and very few Indian tourists visit Antarctica, when they do, they do so through foreign tour operators.
- Antarctica receives a number of tourists from foreign countries.
- The Bill now enables Indian tour operators to operate in Antarctica, although, like for commercial fishing, this is circumscribed by strict regulations.
- The Bill further enlists elaborate standards for environmental protection as well as waste management.

What are the prohibitions?

The Bill prohibits drilling, dredging, excavation or collection of mineral resources or even doing anything to identify where such mineral deposits occur the only exception is for scientific research with a granted permit.

- Damaging of native plants, flying or landing helicopters or operating vessels that could disturb birds and seals, using firearms that could disturb the birds and animals, remove soil or any biological material native to Antarctica, engage in any activity that could adversely change the habitat of birds and animals, kill, injure or capture any bird or animal have been strictly prohibited.
- The introduction of animals, birds, plants or microscopic organisms that are not native to Antarctica are also prohibited. Extraction of species for scientific research needs to be done through a permit. The central government can also appoint an officer to carry out inspections.

What is the penalty system that has been introduced?

- The draft Bill proposes the setting up of a separate designated court to try crimes committed in Antarctica.
- The Bill further sets high penal provisions — the lowest penalty comprising an imprisonment between one-two years and a penalty of Rs 10-50 lakh.
- Extraction of any species native to Antarctica, or introduction of an exotic species to the continent can draw imprisonment of seven years and a fine of Rs 50 lakh.
- For dumping of nuclear waste or a nuclear explosion, the imprisonment can range between 20 years to life imprisonment with a fine of Rs 50 crore.

Clearing of Backlog Cases

Context

- In a recent notice, the Supreme Court announced a list of 25 of the 53 Constitution Bench cases that will be heard.
- The notice is a strong indication that the Court is serious about reducing its massive legal backlog.
- The recent developments have come as a pleasant surprise, as the court had been roundly chastised for its selective method of listing, which was seen as an institutional failure.

Relevance

GS Paper 2: Important Constitutional Bodies.

Mains Question

- Courts are sitting on a ticking time bomb, and strengthening the Indian judiciary has never been more important. Discuss. (150 Words)

Background

- It is alleged that India's Supreme Court has gradually devolved into an ordinary appellate forum, far from the high constitutional authority that it was intended to be.
- However, in a country that will soon overtake China at the top of the population tables, it appears difficult to limit the Supreme Court to constitutional issues.

Backlog cases' magnanimity

- Cases pending in the Supreme Court: The Supreme Court currently has over 71,411 cases pending, with a paltry (meagre) batch of 53 Constitution Bench cases (where at least five judges sit together to answer important questions on the Constitution).
- Additionally, Article 136 of the Constitution allows anyone to file a challenge to the Supreme Court against any order or judgement of any court, which is one of the reasons for the increasing number of cases in the Supreme Court.

- In India, there is one judge for every 73,000 people. In comparison, the United States has one judge for every 13,000 people.
- Recent verdicts: In the last five years, such benches have issued rulings on Aadhaar, privacy, reservations, judicial appointments, temple entry, governor powers, and land acquisition.
- However, these have been prioritised for hearing over cases that have been pending for decades.

Causes of Delay and backlog

- **Persistent Vacancies:** Across India, there are vacancies against even the sanctioned strengths of courts, with vacancies exceeding 30% in the worst-performing states.
- As a result, the average waiting period for a trial in lower courts is around 10 years, and 2-5 years in higher courts.
- **Poor State of the Subordinate Judiciary:** District courts across the country suffer from inadequate infrastructure and poor working conditions, which must be drastically improved if they are to meet the higher judiciary's digital expectations.
- In addition, there is a huge digital divide between courts, practitioners, and clients in major cities and those outside.
- It will take years to overcome the obstacles of ageing infrastructure and digital illiteracy.
- **The Government is the Biggest Litigant:** Poorly drafted orders have resulted in contested tax revenues totaling 4.7% of GDP, and this figure is rising.
- Crowding out investment: Around Rs 50,000 crore is trapped in stalled projects, and investments are declining.
- Both of these issues have arisen as a result of injunctions and stay orders granted by the courts, primarily as a result of poorly drafted and poorly reasoned orders.
- **Less budgetary allocation:** The judiciary's budget ranges between 0.08 and 0.09 percent of GDP. Only four countries, Japan, Norway, Australia, and Iceland, have a lower budget allocation and do not face pendency issues like India.

Few constitutional cases are pending in the Supreme Court.

- **Election Commissioners:** Unlike most other entities, such as the Director CBI, the CVC, and the judges, who are appointed by broad-based committees or recommended by Collegia, the selection of Election Commissioners is entirely up to the government.
- The Supreme Court is hearing a petition to reform the way members of the Election Commission of India are appointed.
- **Constitutional Amendment No. 103:** Following the Indira Sawhney decision in 1993, which allowed OBC reservations in jobs and education but rejected the use of economic stratification for such quotas, the Constitution was amended in 2019 to allow for a maximum of 10% for economically disadvantaged groups (EWS).
- **Demonetisation case:** Among policy decisions, demonetisation has been by far one of the most contentious in recent Indian history, and its legality will be examined.
- Because the Supreme Court had directed that no petitions be heard by any high court, all orders were solicited (requested) at the apex court.
- **Reservation:** The Andhra Pradesh quota for Muslims, as well as Sikhs' right to minority status in Punjab, are also in play, and could result in a complete rethinking of political strategy in these states.
- **Minority-related cases:** In the coming months, the Supreme Court will hear a slew of cases involving minorities and religious freedom. For example, consider the Dawoodi Bohra process of excommunication and the practise of Nikah Halala.
- **Regarding excommunication:** The Maharashtra Prohibition of People from Social Boycott (Prevention, Prohibition, and Redressal) Bill, 2016, makes social boycott, or excommunication, a crime punishable by jail time and a fine.
- The community's then spiritual leader, the 51st Syedna, petitioned against the law, claiming that it violated his fundamental constitutional rights.

Conclusion

- Justice Lalit has a better understanding of how the Court works because he has previously served as both a solicitor and a Senior Advocate of the Court than many who have come from lower courts and tried to understand how the top court works.
- One can only hope that the implementation of strict deadlines becomes the new normal. It is customary for practises to change with each new Chief Justice, but a categorical declaration of intent should last far beyond Justice Lalit's tenure. This would be a fitting legacy for a country well served.

The Way Forward

- **Increasing the Strength of the Judicial System:** One solution is to significantly increase the strength of the judicial system by appointing more judges at the subordinate level — improvements must begin at the bottom of the pyramid.
- Strengthening the subordinate judiciary also entails providing administrative and technical support as well as opportunities for advancement, development, and training.
- Institutionalizing the All-India Judicial Service can be a positive step.
- **Appropriate Budgeting:** The appointments and improvements will necessitate substantial but absolutely necessary expenditure.
- The Fifteenth Finance Commission's recommendations and the India Justice Report 2020 have both raised the issue and suggested ways to earmark and deploy funds.
- **Hibernating Unnecessary PILs:** The Supreme Court should order the dismissal of all 'hibernating' PILs - those pending for more than ten years before HCs - if they do not involve a significant public policy or legal issue.
- **Correcting Historical Inequalities:** Judiciary reform should include addressing social inequalities within the judiciary.
- Women judges, as well as judges from historically marginalised castes and classes, must be given a fair share of the table.
- **Promoting Alternative Dispute Resolution:** It should be mandated that all commercial litigation be heard only if the petitioner provides an affidavit stating that mediation and conciliation have been attempted and failed.
- ADR (Alternate Dispute Resolution), Lok Adalats, and Gram Nyayalayas should be used effectively.

Releasing convicts on grounds of Remission

Context

- Public-spirited activists are challenging the premature release of 11 convicts serving life sentences for the gang-rape of a woman and the murder of at least seven people during Gujarat's anti-Muslim pogrom in 2002.
- The survivor, Bilkis Bano, has not yet approached the courts, but it is clear that the Gujarat government's order granting remission to the convicts should be subject to judicial review.
- People are raising questions that why those found guilty of multiple murders, including the murder of a three-year-old child, and gang rapes were considered suitable candidates for early release.

Relevance

GS Paper 2: Indian Constitution—historical underpinnings, evolution, features, amendments, significant provisions and basic structure

Mains Question Compare and contrast the pardoning powers of India's president and governor as outlined in the constitution. (250 words)

The Transferred Jurisdiction

- The remission was granted by a two-judge bench of the Supreme Court in response to a petition filed by one of the convicts.
- The question was whether the Gujarat government or the Maharashtra government should consider their remission request.
- The Court ruled that the matter should be considered by the State government of Gujarat, where the crime occurred, rather than Maharashtra, the State to which the Supreme Court transferred the trial to ensure an impartial trial.

The Problem with Remission

- While issuing this order, the Bench also stated that the remission should be considered in accordance with a policy established in July 1992, as that was the policy in effect at the time of their 2008 conviction.
- This meant that the current policy's prohibition on granting remission to those convicted of murder and rape would not apply to these convicts.
- The remission order appears to be illegal on at least two grounds. First, the state government made a decision without consulting the federal government. In cases investigated by the CBI, such consultation with the Centre is required under Section 435 of the Code of Criminal Procedure. Furthermore, the committee that recommended remission for the convicts was made up of two BJP legislators.
- A remission panel should ideally include senior government officials in charge of home or law, a district judge, the prison superintendent, and officers who deal with probation and offender rehabilitation.

Other Concerns

- The presence of political members undoubtedly taints its decision. Furthermore, it appears that the district judge's objection was ignored, casting doubt on the legitimacy of the remission.
- It will be appropriate if the Supreme Court forms a large enough bench to reconsider judgments that allow the remission policy in effect on the date of conviction, rather than the current policy; and to decide whether the 'appropriate government' should be the one in the state where the crime occurred, or the one in which the trial was transferred on judicial orders
- It can also outline the contours of a rational remission policy, one informed by humanitarian considerations as well as the offenders' capacity for reform and sense of remorse.

Pardoning Power

President: According to Article 72 of the Constitution, the President has the authority to grant pardons, reprieves, respites, or remissions of punishment, as well as to suspend, remit, or commute the sentence of any person convicted of any offence where the sentence is death.

- **Limitation:** The President's pardon power cannot be exercised independently of the government. In several cases, the Supreme Court has ruled that when deciding on mercy petitions, the President must follow the advice of the Council of Ministers. *Maru Ram vs. Union of India* in 1980 and *Dhananjay Chatterjee vs. State of West Bengal* in 1994 are two examples.
- **Procedure:** Rashtrapati Bhawan forwards the mercy request to the Home Ministry, which seeks advice from the Cabinet. In turn, the Ministry forwards this to the relevant state government, and based on the response, it formulates its advice on behalf of the Council of Ministers.
- Although the President is bound by the Cabinet's advice, Article 74 (1) allows him to return it for reconsideration only once. If the Council of Ministers rejects any change, the President is forced to accept it.

Governor: According to Article 161, the Governor of India has pardoning powers as well.

Key Terms

- **Pardon:** It absolves the convict of all sentences, punishments, and disqualifications by removing both the sentence and the conviction.
- **Commutation:** The substitution of one form of punishment for a less severe form. A death sentence, for example, may be commuted to rigorous imprisonment, which may then be commuted to simple imprisonment.
- **Remission:** It refers to reducing the length of a sentence without changing its nature.
- A sentence of rigorous imprisonment for two years, for example, may be reduced to rigorous imprisonment for one year.
- **Respite:** It refers to the imposition of a lesser sentence in place of one that was originally imposed due to a unique circumstance, such as a convict's physical disability or a woman offender's pregnancy.
- **Reprieve:** It denotes a temporary stay of execution of a sentence (especially one of death). Its purpose is to give the convict enough time to petition the President for a pardon or commutation.

A Parliament without Disruption

Context

- The Monsoon session of Parliament ended four days ahead of schedule, despite ongoing disruptions caused by issues such as price increases, suspension of 27 MPs, Enforcement Directorate action against some opposition leaders, and so on.
- This is the seventh consecutive time the parliament session has been cut short.

Relevance:

GS Paper2: Parliament and State Legislatures – structure, functioning, conduct of business, powers & privileges and issues arising out of these.

Mains Question

- The decision to skip "Question Hour" during the Monsoon Session of Parliament has raised serious concerns about the institution's democratic functioning and undermines the constitutional mandate of parliamentary oversight over executive action. Discuss (250 words)

Background

- The Lok Sabha and Rajya Sabha were adjourned sine die, with seven and five bills, respectively, passed during the monsoon session, which was set to end on August 12.
- While the Lok Sabha held 16 sittings totaling 44 hours and 29 minutes, the upper house met for 38 hours, with up to 47 hours lost due to disruption.
- The "disrupt-and-devour-attention" drama that dominated much of the monsoon session is cause for grave concern because it jeopardises Parliament's ability to conduct business and conduct serious deliberation on significant issues of public importance.

Reasons for decreased parliamentary productivity include:

- **Lost fervour (passion):** If a parliamentarian arrives prepared to the House and disruption occurs too frequently, their enthusiasm fades, resulting in popular rather than substantive intervention.
- For example, humour, poetry, emotional appeal, and a few philosophical quotations, all of which have a negative impact on the quality of debates.
- **Faux (insincere) efforts:** Many opposition members argue vehemently that the bill be referred to the relevant standing committee for further review.
- However, the percentage of members attending these committee meetings—their duration, quality of deliberations, and outcomes—do not appear to be a genuine effort.
- **Less emphasis on quality debate:** Although disruptions have become more common, they continue to be widely reported, and disruptors frequently bask in the media spotlight. In contrast, those who deliver a

reasonably good speech—well-argued and supported by statistics, examples, or case studies—rarely receive adequate attention, further undermining parliamentarians' interest.

- The role of the media: Due to dwindling reader interest, the space allotted for parliamentary proceedings in both print and electronic media is rapidly shrinking.
- Inadequate coverage of Question Hour or Zero Hour, for example, in comparison to previous years.
- Bill debates are also subject to brief and hazy reporting.

Way forward

- **Presiding officers imitating (emulating) courts of law:** Presiding officers can conduct in-camera proceedings in their chambers to protect at least the Zero Hour and Question Hour from disruption.
- While the House is forced to adjourn, presiding officers can order in-camera hearings of MPs' questions and ministers' replies.
- **Fixed Schedule:** The parliamentary schedule can be changed as follows:
 - For limited flexibility, a calendar of sittings could be announced at the start of each year.
 - The rules should be changed so that the House is summoned if a significant minority of members (say, 25% or 33%) provide written notice.
- **Incorporate best practises (UK Model):** The British Parliament allots 20 days per year for the opposition to decide the agenda. A constitutional convention requires the Prime Minister to respond to questions directly posed to him by MPs.
- **Creating a new Index:** A parliamentary disruption index should be developed as a means of monitoring disruptions in legislatures and preventing indiscipline. It would also make more time available for debate and discussion of issues before the House.

SOCIAL JUSTICE AND GOVERNANCE

Triple Talaq

Context:

- Five years after the Supreme Court's five-judge Bench invalidated instant triple talaq in August 2017, the women petitioners continue to live a life of half-divorcees.
- No arrests could be made for giving instant triple talaq as the Muslim Women (Protection of Rights on Marriage) Act, 2019 came into force long after pronouncement of instant talaq.

Relevance:

GS-II Social Justice

Dimensions of the Article:

1. History of Triple Talaq and Legislation
2. The Muslim Women (Protection of Rights on Marriage) Bill, 2019
3. Arguments favouring the bill
4. Arguments opposing the bill

History of Triple Talaq and Legislation

- The case dates back to 2016 when the Supreme Court had sought assistance from the then Attorney General on pleas challenging the constitutional validity of "triple talaq", "nikah halala" and "polygamy", to assess whether Muslim women face gender discrimination in cases of divorce.

- The Supreme Court later announced the setting up of a five-judge constitutional bench to hear and deliberate on the challenges against the practice of 'triple talaq, nikah halala' and polygamy.
- In 2017, the Supreme Court set aside the decade-old practice of instant triple talaq saying it was violative of Article 14 and 21 of the Indian Constitution.

The Muslim Women (Protection of Rights on Marriage) Bill, 2019

- The Muslim Women (Protection of Rights on Marriage) Bill, 2019 was tabled in the parliament for gender equality and justice, proposing to make the practice of instant triple talaq a penal offence.

Key provisions of the bill:

- The Bill makes all declaration of talaq, including in written or electronic form, to be void (i.e. not enforceable in law) and illegal.
- It defines talaq as talaq-e-biddat or any other similar form of talaq pronounced by a Muslim man resulting in instant and irrevocable divorce.
- Talaq-e-biddat refers to the practice under Muslim personal laws where pronouncement of the word 'talaq' thrice in one sitting by a Muslim man to his wife results in an instant and irrevocable divorce.
- The Bill makes declaration of talaq a cognizable offence, attracting up to three years' imprisonment with a fine.
- The bail may be granted only after hearing the woman (against whom talaq has been pronounced), and if the Magistrate is satisfied that there are reasonable grounds for granting bail.
- The offence may be compounded by the Magistrate upon the request of the woman (against whom talaq has been declared).
- A Muslim woman against whom talaq has been declared, is entitled to seek subsistence allowance from her husband for herself and for her dependent children. The amount of the allowance will be determined by the Magistrate.
- A Muslim woman against whom such talaq has been declared, is entitled to seek custody of her minor children. The manner of custody will be determined by the Magistrate.

Arguments favouring the bill:

- Bill is needed so that even Muslim women also get equality on par with other Muslim men.
- Triple talaq adversely impact rights of women to a life of dignity and is against constitutional principles such as gender equality, secularism, international laws etc.
- The penal measure acts as a "necessary deterrent" It significantly empowers Muslim women.
- The practice of triple talaq has continued despite the Supreme Court order terming it void.
- The practice is arbitrary and, therefore, unconstitutional The law is about justice and respect for women and is not about any religion or community
- It protects the rights of Muslim women against arbitrary divorce Instant triple talaq is viewed as sinful and improper by a large section of the community itself.
- The fine amount could be awarded as maintenance or subsistence.

Arguments opposing the bill:

- Since marriage is a civil contract, the procedures to be followed on its breakdown should also be of civil nature only.
- Civil redress mechanisms must ensure that Muslim women are able to negotiate for their rights both within and outside of the marriage The mutual divorce provision is missing in the proposed law and needs to be debated.
- Some representatives have given it a political and religious color.

SMILE-75 Initiative

Focus. GS: Government schemes

Why in News?

- The Social Justice and Empowerment Ministry has launched the 'SMILE-75' initiative for comprehensive rehabilitation of persons engaged in begging in 75 identified municipalities as a part of the celebrations of 75 years of Independence.

SMILE Scheme

- SMILE is an acronym for Support for Marginalised Individuals for Livelihood and Enterprise.
- This scheme is a sub-scheme under the 'Central Sector Scheme for Comprehensive Rehabilitation of persons engaged in the act of Begging'.
- It also focuses on rehabilitation, provision of medical facilities and intervention, counselling, education, skill development, economic linkages to transgender persons.
- It covers several comprehensive measures including welfare measures for persons who are engaged in the act of begging.
- The focus of the scheme is extensively on rehabilitation, provision of medical facilities, counselling, basic documentation, education, skill development, economic linkages and so on.

Objectives:

- To make cities/town and municipal areas begging-free.
- To make a strategy for comprehensive rehabilitation of the persons engaged in the act of begging through the coordinated action of various stakeholders.

Its implementation

- The scheme would be implemented with the support of State/UT Governments/Local Urban Bodies, Voluntary Organizations, Community Based Organizations (CBOs), institutions and others.
- The scheme provides for the use of the existing shelter homes available with the State/UT Governments and Urban local bodies for rehabilitation of the persons engaged in the act of Begging.
- In case of the non-availability of existing shelter homes, new dedicated shelter homes are to be set up by the implementing agencies.

Essential Commodities Act**Context:**

The Centre has invoked the Essential Commodities Act of 1955 to ask States to monitor and verify the stocks of Arhar/Tur Dal available with traders.

Relevance:

GS-II Social Justice

Dimensions of the Article:

1. Essential Commodities Act
2. How it works?
3. What are Food Items covered under it?
4. Recent amendments to the ECA

Essential Commodities Act

- The ECA is an act which was established to ensure the delivery of certain commodities or products, the supply of which if obstructed owing to hoarding or black-marketing would affect the normal life of the people.
- The ECA was enacted in 1955.
- This includes foodstuff, drugs, fuel (petroleum products) etc.
- It has since been used by the Government to regulate the production, supply and distribution of a whole host of commodities it declares 'essential' in order to make them available to consumers at fair prices.

- Additionally, the government can also fix the maximum retail price (MRP) of any packaged product that it declares an “essential commodity”.
- The list of items under the Act includes drugs, fertilizers, pulses and edible oils, and petroleum and petroleum products.

How it works?

- If the Centre finds that a certain commodity is in short supply and its price is spiking, it can notify stock-holding limits on it for a specified period.
- The States act on this notification to specify limits and take steps to ensure that these are adhered to.
- Anybody trading or dealing in a commodity, be it wholesalers, retailers or even importers are prevented from stockpiling it beyond a certain quantity.
- A State can, however, choose not to impose any restrictions. But once it does, traders have to immediately sell into the market any stocks held beyond the mandated quantity.

What are Food Items covered under it?

- The items covered include rice, wheat, atta, gram dal, arhar dal, moong dal, urad dal, masoor, dal, tea, sugar, salt, Vanaspati, groundnut oil, mustard oil, milk, soya oil, palm oil, sunflower oil, gur, potato, onion and tomato.
- Based on the deliberations, Government takes various measures from time to time to stabilize prices of essential food items which, inter-alia, include appropriately utilizing trade and fiscal policy instruments like import duty.
- The govt. can impose stock limits and advise State for effective action against hoarders & black marketers etc. to regulate domestic availability and moderate prices.

Recent amendments to the ECA

- In 2020, the EC Act was amended for the stock limit to be imposed only under exceptional circumstances such as famine or other calamities.
- **Exceptional circumstances:** It allowed the centre to delist certain commodities as essential, allowing the government to regulate their supply and prices only in cases of war, famine, extraordinary price rises, or natural calamities.
- **Commodities de-regulated:** The commodities that have been deregulated are food items, including cereals, pulses, potatoes, onion, edible oilseeds, and oils.

Exceptions provided

- The government regulation of stocks will be based on rising prices, and can only be imposed if there is
- A 100% increase in retail price in the case of horticultural produce and A 50% increase in retail price in the case of non-perishable agricultural food items
- These restrictions will not apply to stocks of food held for public distribution in India.

Govt. to enumerate Sanitation Workers

Context:

- The Ministry of Social Justice and Empowerment (MoSJ&E) is now preparing to undertake a nationwide survey to enumerate all people engaged in the hazardous cleaning of sewers and septic tanks.
- Cleaning of sewers and septic tanks has led to at least 351 deaths since 2017.

Relevance:

GS-II: Social Justice and Governance (Issues related to Poverty, Minorities, Welfare Schemes, Government Policies and Interventions)

Dimensions of the Article:

1. Various initiatives for sanitation workers
2. Manual Scavenging in India
3. Prevalence of Manual Scavenging in India
4. Existing provisions regarding Manual Labour
5. National Action Plan for elimination of Manual Scavenging

Various initiatives for sanitation workers

- The ministry now has proper distinction between sanitation work and manual scavenging.
- The practice of manual scavenging no longer takes place in the country as all manual scavengers had been accounted for and enrolled into the rehabilitation scheme, said the ministry.
- The enumeration of sanitization workers is soon to be conducted across 500 AMRUT (Atal Mission for Rejuvenation and Urban Transformation) cities, as a part of National Action Plan for Mechanised Sanitation Ecosystem (NAMASTE).
- The NAMASTE scheme aims to eradicate unsafe sewer and septic tank cleaning practices.

Manual Scavenging in India

- Manual scavenging is defined as “the removal of human excrement from public streets and dry latrines, cleaning septic tanks, gutters and sewers”.
- In 1993, India banned the employment of people as manual scavengers (The Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993), however, the stigma and discrimination associated with it still linger on.
- In 2013, the definition of manual scavengers was also broadened to include people employed to clean septic tanks, ditches, or railway tracks. The Act recognizes manual scavenging as a “dehumanizing practice,” and cites a need to “correct the historical injustice and indignity suffered by the manual scavengers.”

Prevalence of Manual Scavenging in India

- As per the National Commission for Safai Karamcharis (NCSK), a total of 631 people have died in the country while cleaning sewers and septic tanks in the last 10 years.
- 2019 saw the highest number of manual scavenging deaths in the past five years. 110 workers were killed while cleaning sewers and septic tanks.
- This is a 61% increase as compared to 2018, which saw 68 cases of such similar deaths.
- Despite the introduction of several mechanised systems for sewage cleaning, human intervention in the process still continues.
- As per data collected in 2018, 29,923 people are engaged in manual scavenging in Uttar Pradesh, making it the highest in any State in India.

Why is manual scavenging still a concern after so many years?

- A number of independent surveys have talked about the continued reluctance on the part of state governments to admit that the practice prevails under their watch.
- Many times, local bodies outsource sewer cleaning tasks to private contractors.
- However, many of them fly-by-night operators, do not maintain proper rolls of sanitation workers. In case after case of workers being asphyxiated to death, these contractors have denied any association with the deceased.
- The practice is also driven by caste, class and income divides. It is linked to India’s caste system where so-called lower castes are expected to perform this job. It is linked to India’s caste system where so-called lower castes are expected to perform this job.

Existing provisions regarding Manual Labour

- Prevention of Atrocities Act: In 1989, the Prevention of Atrocities Act became an integrated guard for sanitation workers; more than 90% people employed as manual scavengers belonged to the Scheduled Caste. This became an important landmark to free manual scavengers from designated traditional occupations.
- The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013: Superseding the 1993 Act, the 2013 Act goes beyond prohibitions on dry latrines, and outlaws all manual excrement cleaning of insanitary latrines, open drains, or pits.
- Article 21 of the Constitution guarantees 'Right to Life' and that also with dignity. This right is available to both citizens and non-citizens.

National Action Plan for elimination of Manual Scavenging

- The Social Justice and Empowerment Ministry's National Action Plan aims to modernise existing sewage system and coverage of non-sewered areas; setting up of faecal sludge and septage management system for mechanised cleaning of septic tanks, transportation and treatment of faecal sludge; equipping the municipalities, and setting up of Sanitation Response Units with help lines.

The Prohibition of Employment as Manual Scavengers and their Rehabilitation

(Amendment) Bill, 2020

- As a part of the Ministry's National Action Plan, this bill will amend the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013.
- The bill proposes to completely mechanise sewer cleaning and provide better protection at work and compensation in case of accidents.
- The Bill proposes to make the law banning manual scavenging more stringent by increasing the imprisonment term and the fine amount.
- The funds will be provided directly to the sanitation workers and not to the municipalities or contractors to purchase the machinery.

Safaimitra Suraksha Challenge

- Ministry of Housing and Urban Affairs launched Safaimitra Suraksha Challenge across 243 Cities to ensure that no life of any sewer or septic tank cleaner is ever lost again owing to the issue of 'hazardous cleaning'.
- The Challenge was launched on the occasion of World Toilet Day.
- Aims to prevent 'hazardous cleaning' of sewers and septic tanks and promoting their mechanized cleaning.
- Representatives from 243 cities across the country took a pledge to mechanize all sewer and septic tank cleaning operations by 30th April 2021.
- The initiative is in line with the core of the Swachh Bharat Mission-Urban (SBMU) The actual on-ground assessment of participating cities will be conducted in May 2021 by an independent agency and results of the same will be declared on 15 August 2021.
- Cities will be awarded in three sub-categories – with population of more than 10 lakhs, 3-10 lakhs and upto 3 lakhs, with a total prize money of ₹52 crores to be given to winning cities across all categories.

Pradhan Mantri Awas Yojana

Context:

- The Union Cabinet approved an extension to the Pradhan Mantri Awas Yojana-Urban up to December 31, 2024 so that the houses sanctioned under the scheme can be completed, officials said.
- The Pradhan Mantri Awas Yojana-Gramin (PMAY-G) has a completion rate of 67.72%, whereas the Pradhan Mantri Awas Yojana-Urban (PMAY-U) scheme

- that started a year ahead is lagging behind with a **50% completion rate**.

Relevance:

GS-II: Social Justice (Welfare Schemes, Government Policies and Interventions)

Dimensions of the Article:

1. What are the Reasons for Delay in Both the Schemes?
2. Pradhan Mantri Awas Yojana (PMAY- U: Housing for All - Urban)
3. Pradhan Mantri Awaas Yojana- Gramin (PMAY-G)

What are the Reasons for Delay in Both the Schemes?

- The government officials blame the **Covid-19 Pandemic** for the slowdown in the PMAY-U.
- The completion rate for houses sanctioned before the Covid-19 pandemic stood around 80%.
- Six States account for 70% of the target units — **West Bengal, Madhya Pradesh, Bihar, Odisha, Uttar Pradesh and Chhattisgarh**.
- Out of them only two States — Uttar Pradesh and West Bengal — have a completion rate above the national average.
- Bihar has one of the lowest completion rates.
- In urban areas, issues such as a **lack of clear titles and other land documents** tend to crop up. This further slowed down the pace. The same is true for rural areas as well.

Pradhan Mantri Awas Yojana (PMAY- U: Housing for All - Urban)

- The Pradhan Mantri Awas Yojana (Urban) Programme launched by the **Ministry of Housing and Urban Poverty Alleviation (MoHUPA)**, in Mission mode envisions provision of Housing for All by 2022, when the Nation completes 75 years of its Independence.
- The Mission seeks to address the housing requirement of urban poor including slum dwellers through following programme verticals:
 - Slum rehabilitation of Slum Dwellers with participation of private developers using land as a resource
 - Promotion of Affordable Housing for weaker section through credit linked subsidy
 - Affordable Housing in Partnership with Public & Private sectors Subsidy for beneficiary-led individual house construction /enhancement.
- The mission seeks to address the housing requirement of urban poor including slum dwellers. A slum is defined as a compact area of at least 300 people or about 60 - 70 households of poorly built congested tenements in unhygienic environment usually with inadequate infrastructure and lacking in proper sanitary and drinking water facilities.
- Mission will be implemented as Centrally Sponsored Scheme (CSS) except for the component of credit linked subsidy which will be implemented as a Central Sector Scheme.
- “Housing for All” Mission for urban area is being implemented during 2015- 2022 and this Mission will provide central assistance to implementing agencies through States and UTs for providing houses to all eligible families/beneficiaries by 2022.

Coverage area

The Mission covers the entire urban area consisting of:

- Statutory Towns
- Notified Planning Areas
- Development Authorities
- Special Area Development Authorities
- Industrial Development Authorities or

- Any such authority under State legislation which is entrusted with the functions of urban planning & regulations

Pradhan Mantri Awaas Yojana- Gramin (PMAY-G)

- The Pradhan Mantri Awaas Yojana- Gramin (PMAY-G) was launched to achieve the objective of “Housing for All” by 2022. The erstwhile rural housing scheme Indira Awaas Yojana (IAY) was restructured to Pradhan Mantri Awaas Yojana- Gramin (PMAY-G).
- **Ministry of Rural development** is involved in the implementation of Pradhan Mantri Awaas Yojana- Gramin (PMAY-G).
- PMAY-G aims to provide a pucca house with basic amenities to all rural families, who are homeless or living in kutcha or dilapidated houses by the end of March 2022 and also to help rural people Below the Poverty Line (BPL) in construction of dwelling units and upgradation of existing unserviceable kutcha houses by providing assistance in the form of a full grant.
- People belonging to SCs/STs, freed bonded labourers and non-SC/ST categories, widows or next-of-kin of defence personnel killed in action, ex-servicemen and retired members of the paramilitary forces, disabled persons and minorities will be the target beneficiaries of the PMAY-G.
- The cost of unit assistance is shared between Central and State Governments in the ratio 60:40 in plain areas and 90:10 for North Eastern and hilly states.

Haryana’s Cheerag scheme for EWS students

Context:

- Senior politicians and teachers’ bodies in Haryana have raised questions on the government’s Cheerag scheme, which was recently launched to offer “free education” to Economically Weaker Section (EWS) students of government schools in “budget” private schools.

Relevance:

GS II: Government Schemes

Dimensions of the Article:

1. What is Haryana’s Cheerag scheme?
2. What are the concerns over Haryana’s Cheerag scheme?

What is Haryana’s Cheerag scheme?

- Haryana government recently launched the “Chief Minister Equal Education Relief, Assistance and Grant (Cheerag)” scheme.
- It was introduced in place of a similar scheme launched by Bhupinder Singh Hooda’s government in 2007 under Rule 134 A of the Haryana School Education Rules, 2003.
- Under the Cheerag scheme, government school students whose parents have an annual verified income of less than Rs 1.8 lakh can enroll in private schools from Class II to XII.
- The government will reimburse Rs 700 per student from Classes II to V, Rs 900 per student from Classes VI to VIII, and Rs 1,100 per student from Classes IX to XII.

What are the concerns over Haryana’s Cheerag scheme?

- Haryana Vidyalaya Adhyapak Sangh, a body of government school teachers, is not impressed with the Cheerag scheme and has already staged protests against it across the state.
- The union leaders have apprehensions that the scheme may be aimed at encouraging private schools at the cost of government schools.

Jal Jeevan Mission

Focus: GS II- Government policies and Interventions

Why in News?

Goa becomes the First 'Har Ghar Jal' Certified State & Dadra & Nagar Haveli and Daman & Diu becomes the First 'Har Ghar Jal' Certified UT in the Country

About Jal Jeevan Mission:

Nodal: Ministry of Jal Shakti

- Jal Jeevan Mission, a central government initiative under the Ministry of Jal Shakti, aims to ensure access of piped water for every household in India.
- National Rural Drinking Water Programme (NRDWP) was restructured and subsumed into Jal Jeevan Mission (JJM) – to provide Functional Household Tap Water (FHTC) to every rural household with service level at the rate of 55 lpcd i.e., Har Ghar Nal Se Jal (HGNSJ) by 2024.

Implications

- Supply of water to all households is a basic necessity
- Reduction in water borne diseases which was due to consumption of substandard water

Challenges

- Critical situation of Decrease in ground water table.
- Water demand and supply is a miss match
- Contamination of local ground level sources of water like, ponds lakes and wells.
- Sustaining the provision of water to all households is a challenge, not just starting it.

Nikshay Poshan Yojana

Context:

Only two-thirds of people living with tuberculosis benefitted from the Union government's Nikshay Poshan Yojana (NPY), sole nutrition support scheme, in 2021, which raises major public health concern.

Relevance:

GS II: Government policies and Interventions

Dimensions of the Article:

1. Nikshay Poshan Yojana (NPY)
2. About Tuberculosis
3. Status of TB in India

Nikshay Poshan Yojana (NPY)

- It is a direct benefit transfer (DBT) scheme for nutritional support to Tuberculosis (TB) patients rolled out in April 2018 by Ministry of Health and Family Welfare.
- The scheme is a centrally sponsored scheme under National Health Mission (NHM).
- Financial norms of NHM in terms of cost sharing are applicable to the scheme.
- This scheme is implemented across all States and UTs in India.
- All TB patients notified on or after 1st April 2018 including all existing TB patients under treatment are eligible to receive incentives.
- The patient must be registered/notified on the NIKSHAY portal.

Performance:

- As per India TB Report 2022, only 62.1 % of 2.1 million notified cases across the country received at least one payment in 2021.
- In Delhi, which has the highest burden of all forms of TB at 747 cases per 100,000 people, only 30.2 % of patients have got at least one DBT.
- Other poor performers are Punjab, Jharkhand, Maharashtra, Bihar, Rajasthan and Uttar Pradesh. In the North East, Manipur and Meghalaya fared the worst.

About Tuberculosis

- TB remains the world's deadliest infectious killer.
- Each day, over 4000 people lose their lives to TB and close to 30,000 people fall ill with this preventable and curable disease
- TB is caused by bacteria (*Mycobacterium tuberculosis*) that most often affect the lungs.
- **Transmission:** TB is spread from person to person through the air. When people with TB cough, sneeze or spit, they propel the TB germs into the air.
- **Symptoms:** Cough with sputum and blood at times, chest pains, weakness, weight loss, fever and night sweats.
- **Treatment:** TB is a treatable and curable disease. It is treated with a standard 6 month course of 4 antimicrobial drugs that are provided with information, supervision and support to the patient by a health worker or trained volunteer.
- Anti-TB medicines have been used for decades and strains that are resistant to 1 or more of the medicines have been documented in every country surveyed.
- Multidrug-resistant tuberculosis (MDR-TB) is a form of TB caused by bacteria that do not respond to isoniazid and rifampicin, the 2 most powerful, first-line anti-TB drugs. MDR-TB is treatable and curable by using second-line drugs.
- Extensively drug-resistant TB (XDR-TB) is a more serious form of MDR-TB caused by bacteria that do not respond to the most effective second-line anti-TB drugs, often leaving patients without any further treatment options.

Status of TB in India

- According to the India TB Report 2022, there were over 19 lakh TB patients overall in 2021. It increased by 19% to be over 16 lakhs in 2020.
- Between 2019 and 2020, the death rate in India from all forms of tuberculosis climbed by 11%.
- The predicted total number of TB-related deaths in 2020 was 4.93 lakh, which is 13% more than the 2019 forecasts.
- The comorbidities that affect a person with TB include malnutrition, HIV, diabetes, alcoholism, and tobacco use.

India's treatment of women**Context²**

- The nature and scope of employment, political engagement, educational attainment, health status, representation in decision-making bodies, access to property, etc. are some pertinent indicators of a person's status within a society. But not all members of a society, particularly women, have equal access to the elements that make up these status indicators.
- Patriarchal norms limit Indian women's options for education and employment, limiting their ability to enter the workforce and choose their line of work.
- Let's examine the current state of women's rights to freedom, dignity, equality, and representation in the country, who make up nearly half of the population.

Relevance

GS Paper 1: Role of women and women's organization, population and associated issues, poverty and developmental issues, urbanization, their problems and their remedies. Social empowerment. **GS Paper 2:** social Justice

Mains Question

What obstacles stand in the way of India's women's status being improved? List a few significant government programmes that promote women's empowerment. (250 Words)

How Does the Constitution Address the Empowerment of Women?

- In the Indian Constitution, the idea of gender equality is firmly established.
- In addition to guaranteeing women's equality, the Constitution gives the State the authority to implement positive discrimination policies in their favour in order to lessen the cumulative socio-economic and political disadvantages that women face.
- Women have the fundamental right to equal protection under the law and to be free from sex-based discrimination (Article 15). It also places a fundamental obligation on every citizen to renounce behaviours that are disrespectful of women's dignity (Article 14).

What are the Sectors in India where Women have excelled?

- Women have long been subjected to social injustice and prejudice. But as times have changed, they have established a reputation for themselves. They have freed themselves from the constraints of gender norms and are now free to pursue their aspirations. For illustration:
- Sindhutai Sapkal (Padma Shri 2021) is a social activist who raises orphaned children.
- Environmentalist: Tulsi Godwa, Encyclopaedia of Forest, Padma Shri 2021 Avani Chaturvedi, the first woman in India to fly a fighter jet solo (MiG-21 Bison)
- In sports, Mary Kom became the first woman from her nation to take home an Olympic boxing medal.
 - PV Sindhu, the first woman from India to win two Olympic medals (Bronze in Tokyo 2020); and (Silver- Rio 2016).
- The Indian Women's Cricket Team placed third at the 2022 Commonwealth Games.
- International organisations include Gita Gopinath, the IMF's first female chief economist (International Monetary Fund).
- Space Technology: Tessy Thomas, the Indian missile woman (Agni-V missile project)
- Education: Shakuntala Devi holds the record for fastest human computation in the Guinness World Records.
- First Women's Batch of the National Defense Academy AIR 1 Entrance Exam, held in Shanan Dhaka
- The Top 3 in India Female candidates in the UPSC Civil Services Examination 2021 achieved ranks.

What are the current issues that women in India face?

- Despite government efforts to ensure that men and women in our society have equal access to education, the literacy rate for women in India, particularly in rural areas, continues to be extremely low.
- Due to the great distances between schools in rural India and the lack of strong local law and order, it is unsafe for women to travel great distances to attend school.
- Because many families find it economically impossible to afford to send their daughters to school, traditional practises like female infanticide, dowry, and early marriage have also contributed to the issue.
- **Role Stereotyping:** In a significant portion of our Indian society, men were still expected to handle all of the household finances and perform manual labour.
- Stereotypes about women's gender roles have typically resulted in prejudice and discrimination against them.
- For instance, because of the responsibilities associated with raising children, women may be viewed as less dependable workers.

- **Differentiation in the Socialization Process:** Socialization norms for men and women continue to differ in many areas of India, particularly in rural areas.
- Women are expected to be quiet, composed, and soft-spoken. They must behave in a particular way when they sit, walk, talk, and walk. Men, on the other hand, should be assertive, loud, and free to act however they please.
- **Women's Legislative Representation:** In India, there are still few women in the various legislative bodies.
- India ranks 148th out of 193 nations in the report by the Inter-Parliamentary Union (IPU) and UN Women regarding the proportion of elected female lawmakers.
- **Safety Concern:** Despite ongoing efforts to improve safety, women in India continue to face threats from a variety of crimes such as honour killings, rape, trafficking, forced prostitution, and feticides.
- Period poverty refers to a lack of access to the sanitary products, education about menstruation, and sanitation facilities needed to manage menstruation in a healthy way.
- A 2011 study by the United Nations Children's Fund (UNICEF) found that only 13% of Indian girls are aware that they can start menstruating before menarche.
- **Glass Ceiling:** Women face a social barrier that prevents them from being promoted to management's highest positions not just in India but throughout the world.

What recent government initiatives are there for the empowerment of women?

- The Beti Bachao and Beti Padhao Scheme
- Pradhan Mantri Matru Vandana Yojana, Swadhar Greh, Ujjawala Yojna,

What should the next step be?

- **Better Education Opportunities:** Educating women also educates the rest of the family. In order to increase women's self-confidence, education is crucial.
- It also gives people the chance to alter their social standing. Education empowers and instils confidence in the ability to make better decisions. Also, education policy should target young men and boys to positively change their attitudes toward girls and women. o The Education policy needs to be more inclusive to ensure girls' right to education and their right to be free from discrimination within educational institutions.
- Skill-based microfinancing can help women become financially independent so they are no longer dependent on other people in the community.
- Women's financial empowerment depends on providing them with nontraditional skill training that matches market demand and more employment opportunities in the public and private sectors.
- **Women's Safety:** To ensure the safety of women across the nation, a multi-sectoral strategy should be developed to educate women about current government initiatives and mechanisms.
- The Panic Button and the Nirbhaya Police Squad are two positive steps for women's safety.
- The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013, was passed to protect female employees' right to equality in status and opportunity and to create safe work environments for women.
- **Specific Actions at the Lowest Level of Governance:** In order to increase inclusivity in governance and enhance the status of women in India, it is necessary to design, support, and promote projects at the Lowest Level of Governance. For illustration:
 - Swagatam Nandini (Katni, Madhya Pradesh): This initiative was started with the goal of celebrating the birth of girls. Parents of new-born baby girls are congratulated with baby kits under the Ladli Lakshmi Scheme, and there is a small procession to mark the occasion.
 - Nanhe Chinh (Panchkula, Haryana): Supported by Anganwadi Workers (AWWs), families bring young girls to neighbourhood AWCs where their footprints are traced on chart paper and displayed alongside the names of the mother and the child.
- **Financial Incentives for Higher Education:** There is a need to offer relatively higher financial incentives for higher education in order to reduce the higher dropout rate among girls.

- Villages and districts should receive rewards for achieving equal child sex ratio through education, information, and communication campaigns.
- E-governance should receive more attention so that timely oversight of the funds released by the federal government and various state governments for scholarships for female students can be ensured.
- Improvements to the most fundamental services at the rural level can lighten the load on domestic labour.
- For instance, rural women's domestic work frequently entails taxing tasks like collecting fuelwood and water. Clean natural gas (which is already improving) and piped drinking water will lessen this load.
- From women's development to women-led development: Instead of being passive recipients of the benefits of development, women should be reimaged as the architects of India's progress and development.
- An educated and empowered woman will ensure education and empowerment for future generations, so the effects of women-led development are undeniable.

NAMASTE scheme

Focus: GS II- Government policies and Interventions

Why in News?

The Government has formulated a National Action Plan for Mechanized Sanitation Ecosystem- NAMASTE scheme for cleaning of sewers and septic tank.

NAMASTE Scheme

- Namaste is a Central Sector Scheme of the Ministry of Social Justice and Empowerment (MoSJE) as a joint initiative of the MoSJE and the Ministry of Housing and Urban Affairs (MoHUA).
- NAMASTE envisages safety and dignity of sanitation workers in urban India by creating an enabling ecosystem that recognizes sanitation workers as one of the key contributors in operations and maintenance of sanitation infrastructure thereby providing sustainable livelihood and enhancing their occupational safety through capacity building and improved access to safety gear and machines.
- Ensure safety and dignity of sanitation workers in urban India and providing sustainable livelihood and enhancing their occupational safety through capacity building and improved access to safety gear and machines.
- NAMASTE would also aim at providing access to alternative livelihoods support and entitlements to reduce the vulnerabilities of sanitation workers and enable them to access self-employment and skilled wage employment opportunities and break the intergenerationality in sanitation work.
- In addition, NAMASTE would bring about a behavior change amongst citizens towards sanitation workers and enhance demand for safe sanitation services.
- Five hundred cities (converging with AMRUT cities) will be taken up under this phase of NAMASTE. The list of cities will be notified at an appropriate time. The category of cities that will be eligible are given below:
- All Cities and Towns with a population of over one lakh with notified Municipalities, including Cantonment Boards (Civilian areas), All Capital Cities/Towns of States/ Union Territories (UTs), not covered in 4(i), Ten Cities from hill states, islands and tourist destinations (not more than one from each State).

NAMASTE aims to achieve the following outcomes:

- Zero fatalities in sanitation work in India
- All sanitation work is performed by skilled workers
- No sanitation workers come in direct contact with human faecal matter
- Sanitation workers are collectivized into SHGs and are empowered to run sanitation enterprises
- All Sewer and Septic tank sanitation workers (SSWs) have access to alternative livelihoods

- Strengthened supervisory and monitoring systems at national, state and ULB levels to ensure enforcement and monitoring of safe sanitation work
- Increased awareness amongst sanitation services seekers (individuals and institutions) to seek services from registered and skilled sanitation workers

The concerns around Aadhaar-Voter ID linkage

Context:

Reports have surfaced online of instances where block level officers have asked individuals to link their Aadhaar with their Voter IDs, failing which their Voter IDs could be cancelled.

Relevance:

GS II: Government policies and Interventions

Dimensions of the Article:

1. Is the linking of Aadhaar with one's Voter ID mandatory?
2. Why does the government want this?
3. Why is the mandatory linking of Aadhaar to the Voter ID an issue?
4. What are the operational difficulties?
5. Way forward

Is the linking of Aadhaar with one's Voter ID mandatory?

- In December 2021, Parliament passed the Election Laws (Amendment) Act, 2021 to amend the Representation of the People Act, 1950, inter alia. Section 23(4) was inserted in the Representation of the People Act, 1950.
- It states that the electoral registration officer may “for the purpose of establishing the identity of any person” or “for the purposes of authentication of entries in electoral roll of more than one constituency or more than once in the same constituency” for citizens already enrolled, require them to furnish their Aadhaar numbers.
- To reflect this amendment, in June 2022, the government notified changes to the Registration of Electors Rules, 1960.
- Rule 26B was added to provide that “every person whose name is listed in the roll may intimate his Aadhaar number to the registration officer”.
- Although, the use of discretionary language throughout the amendments have been accompanied by assurances by both the government and the EC that linkage of the Aadhaar with Voter ID is optional, this does not seem to be reflected in Form 6B issued under the new Rule 26B.
- **Form 6B** provides the format in which Aadhaar information may be submitted to the electoral registration officer.
- **Form 6B** provides the voter to either submit their Aadhaar number or any other listed document. However, the option to submit other listed documents is exercisable only if the voter is “not able to furnish their Aadhaar number because they do not have an Aadhaar number”.
- To that extent, the element of choice that has been incorporated in the

- amendments seem to be negated or at the very least thrown into confusion.

Why does the government want this?

- The EC conducts regular exercises to maintain an updated and accurate record of the voter base.
- A part of this exercise is to weed out duplication of voters, such as migrant workers who may have been registered more than once on the electoral rolls in different constituencies or for persons registered multiple times within the same constituency.
- As per the government, linkage of Aadhaar with voter IDs will assist in ensuring that only one Voter ID is issued per citizen of India.

Why is the mandatory linking of Aadhaar to the Voter ID an issue?

- The preference to use Aadhaar for verification and authentication, both by the state and private sector, stems from two reasons.
- At the end of 2021, 99.7% of the adult Indian population had an Aadhaar card. This coverage exceeds that of any other officially valid document such as driver's licence, ration cards, PAN cards etc that are mostly applied for specific purposes.
- Since Aadhaar allows for biometric authentication, Aadhaar based authentication and verification is considered more reliable, quicker and cost efficient when compared to other IDs.
- But these reasons do not suffice the mandating of Aadhaar except in limited circumstances as per the ***Puttaswamy judgment***.
- It needs to be considered whether such mandatory linkage of Aadhaar with Voter ID would pass the test of being "necessary and proportionate" to the purpose of de-duplication which is sought to be achieved.
- ***Puttaswamy judgment:***
- One of the questions that the Supreme Court explored was whether the mandatory linking of Aadhaar with bank accounts was constitutional or not.
- The Court observed that the mandatory linking of Aadhaar with bank accounts was not only for new bank accounts but also existing ones, failing which the individual will not be able to operate their bank account.
- The Court held that depriving a person of their right to property for non-linkage fell foul of the test of proportionality.
- Even though the situation at hand is slightly different in that other means of verification and authentication are allowed if the person does not hold an Aadhaar, given the wide coverage of Aadhaar, the current design would in effect mandate Aadhaar linkage.
- In this context, it needs to be considered whether requiring an Aadhaar holder to mandatorily provide Aadhaar for authentication or verification would not be considered violative of their informational autonomy (right to privacy) which would allow them to decide which official document they want to use for verification and authentication.
- Moreover, in Lal Babu Hussein (1995), the Supreme Court had held that the Right to vote cannot be disallowed by insisting only on four proofs of identity — voters can rely on any other proof of identity and obtain the right to vote.

What are the operational difficulties?

Aadhaar is only a proof of residence and not a proof of citizenship:

- The preference to Aadhaar for the purposes of determining voters is puzzling as
- Aadhaar is only a proof of residence and not a proof of citizenship.
- Therefore, verifying voter identity against this will only help in tackling duplication but will not remove voters who are not citizens of India from the electoral rolls.

Estimate of error rates in biometric based authentication differ widely:

- As per the Unique Identification Authority of India in 2018, Aadhaar based biometric authentication had a 12% error rate.
- This led the Supreme Court to hold in Puttaswamy that a person would not be denied of benefits in case Aadhaar based authentication could not take place.
- This concern is also reflected in the previous experiences of using Aadhaar to clean electoral rolls. A similar exercise undertaken in 2015 in Andhra and Telangana led to the disenfranchisement of around 30 lakh voters before the Supreme Court stalled the process of linkage.

Violation of the right to privacy:

- Civil society has highlighted that linking of the two databases of electoral rolls and Aadhaar could lead to the linkage of Aadhaar's "demographic" information with voter ID information, and lead to violation of the right to privacy and surveillance measures by the state.
- This, however, would seem to be the case with the use of any other officially valid document to verify or authenticate the identity of the voter.
- This would leave the EC with the option of verifying its information only through door-to-door checks.
- It also needs to be noted that the Puttaswamy judgment, after reviewing the Aadhaar architecture, held that the use of biometric based authentication and verification, did not lead to the creation of a "surveillance state".
- To address these concerns, one needs to have enforceable data protection principles that regulate how authentication data will be used.

Way forward

- Even as the amendments have been made and the EC has launched a campaign for linkage, a writ petition has filed with the Supreme Court challenging the same.
- It challenges the amendments as being violative of the right to privacy. The Supreme Court has transferred the writ to the Delhi High Court.
- In the meantime, it is important that the government clarifies through correction in Form 6B that the linking is not mandatory and expedites the enactment of a data protection legislation that allays concerns of unauthorised processing of personal data held by the government.

One Nation One Fertiliser scheme

The Ministry of Chemicals and Fertilisers announced that it has been decided to implement One Nation One Fertiliser by introducing a "Single Brand for Fertilisers and Logo" under the fertiliser subsidy scheme named "Pradhanmantri Bhartiya Janurvarak Pariyojna" (PMBJP).

Relevance:

GS II: Government policies and Interventions

Dimensions of the Article:

1. About One Nation One Fertiliser scheme
2. Reasons for introducing a single 'Bharat' brand for all subsidised fertilisers
3. What can be the drawbacks of the scheme?

About One Nation One Fertiliser scheme

- Under the new “One Nation One Fertiliser” scheme, companies are allowed to display their name, brand, logo and other relevant product information only on one-third space of their bags.
- On the remaining two-thirds space, the “Bharat” brand and Pradhanmantri Bharatiya Jan Urvarak Pariyojana logo will have to be shown.
- The single brand name for UREA, DAP, MOP and NPK etc. would be BHARAT UREA, BHARAT DAP, BHARAT MOP and BHARAT NPK etc. respectively for all Fertiliser Companies, State Trading Entities (STEs) and Fertiliser Marketing Entities (FMEs).

Reasons for introducing a single ‘Bharat’ brand for all subsidised fertilisers

- The maximum retail price of urea is currently fixed by the government, which compensates companies for the higher cost of manufacturing or imports incurred by them.
- The MRPs of non-urea fertilisers are, on paper, decontrolled. But companies cannot avail of subsidy if they sell at MRPs higher than that informally indicated by the government.
- Simply put, there are some 26 fertilisers (inclusive of urea), on which government bears subsidy and also effectively decides the MRPs;
- Apart from subsidising and deciding at what price companies can sell, the government also decides where they can sell.
- This is done through the Fertiliser (Movement) Control Order, 1973.
- Under this, the department of fertilisers draws an agreed monthly supply plan on all subsidised fertilisers in consultation with manufacturers and importers.
- This supply plan is issued before the 25th of each month for the following month, with the department also regularly monitoring movement to ensure fertiliser availability as per requirement, including remote areas.
- When the government is spending vast sums of money on fertiliser subsidy (the bill is likely to cross Rs 200,000 crore in 2022-23), plus deciding where and at what price companies can sell, it would obviously want to take credit and send that message to farmers.

What can be the drawbacks of the scheme?

- It will disincentivise fertiliser companies from undertaking marketing and brand promotion activities. They will now be reduced to contract manufacturers and importers for the government. Any company’s strength ultimately is its brands and farmer trust built over decades.
- Currently, in case of any bag or batch of fertilisers not meeting the required standards, the blame is put on the company. But now, that may be passed on fully to the government. Politically, the scheme might well boomerang rather than benefit the ruling party.

Ban on VLC Media Player

Context:

The website of VideoLAN Client (VLC) Media Player has been banned in India.

VLC states that according to its statistics, its website has been banned since February 2022 in India.

Relevance:

GS II: Government policies and Interventions

Dimensions of the Article:

1. What is VideoLan?
2. Reasons for Ban
3. In which situations can online content be blocked to the public?

4. What is the procedure for blocking access to content online?

What is VideoLan?

- VLC gained popularity in India in the late 90s when advancements in information technology led to the penetration of personal computers in Indian homes.
- It continues to be one of the most popular media players.
- Apart from being free and open source, VLC easily integrates with other platforms and streaming services and supports all file formats without requiring additional codecs.

Ban on VLC:

- Although the VLC website has been blocked, users may still download the VLC software from the Google Play and Apple Stores.
- Concerning the restriction on the VLC website, civil society organisations have regularly submitted Right to Information (RTI) requests to the Ministry of Electronics and Information Technology (MeitY).
- But the Ministry has consistently responded to these requests by saying that "no information is available."
- A message reading "The website has been prohibited as per order of Ministry of Electronics and Information Technology under Information Technology Act, 2000" was visible when the website was previously visited.

Reasons for Ban:

- Report from cybersecurity firm, Symantec, in April 2022 suggested that Cicada, a hacker group allegedly backed by China, has been using the VLC Media Player to deploy a malicious malware loader.
- VLC website has been banned; its app is available for download as the app stores' servers where the mobile apps are hosted are considered safer than servers where the desktop versions are hosted.

In which situations can online content be blocked to the public?

- There are two routes through which content can be blocked online — Executive route:
- Given the reach of the internet and its potential to cause significant harm to online users, governments across the world reserve the power to monitor and issue directions for regulation of the online content being available in their jurisdictions.
- The Government of India gets this power from Section 69A of the Information Technology Act, 2000.
- Section 69A allows the government to direct an intermediary to "block for access by the public any information generated, transmitted, received, stored or hosted in any computer resource" if it is "necessary or expedient to do so, in the interest of sovereignty and integrity of India, defence of India, security of the state, friendly relations with foreign states or public order or for preventing incitement to the commission of any cognisable offence".
- Section 69A draws its power from Article 19(2) of the Constitution which allows the government to place reasonable restrictions on the fundamental right to freedom of speech and expression.

Judicial route:

- Courts in India, also have the power to direct intermediaries to make content unavailable in India to provide effective remedy to the victim/plaintiff.
- For example, courts may order internet service providers to block websites which provide access to pirated content and violate the plaintiff's copyright.

What is the procedure for blocking access to content online?

- A detailed procedure for blocking content is provided by the Information Technology Rules, 2009 (IT Rules, 2009) that have been formulated under Section 69A of the Information Technology Act, 2000.

- An important point to note is that only the Central government can exercise this power of directing intermediaries to block access to online content directly, and not the State governments.
- The procedure typically provides that Central or State agencies will appoint a “nodal officer” who will forward the blocking order to the “designated officer” of the Central government.
- The designated officer, as part of a committee, examines the request of the nodal officer.
- The committee comprises representatives from the Ministries of Law and Justice, Information and Broadcasting, Home Affairs, and the Cert-In.
- The creator/host of the content in question is given a notice to submit clarifications and replies.
- The committee then makes a recommendation on whether the request of the nodal officer should be accepted or not.
- If this recommendation is approved by the MeitY, the designated officer can direct the intermediary to remove content

The reliability of poverty survey data

Context

Based on the fourth and fifth rounds of the National Family Health Survey (NFHS) data, the Poverty Ratio (Head Count Ratio) in Tamil Nadu decreased from 4.89% in 2015-16 to 1.57% in 2020-21.

Relevance

GS Paper 2: Population and associated issues, poverty and developmental issues, urbanization, their problems and their remedies.

Mains Question

"The poverty line in India does not allow for a comfortable existence, but it does allow for an existence above subsistence." Examine the concept of the poverty line in India critically. (250 words)

The Burning Question

- The flames Based on the previous four rounds of NFHS databases, academics have questioned the quality of NFHS data for a variety of reasons.
- Such queries may also be directed at the NFHS 5 database. But first, let us look at the poverty statistics derived from NFHS 5 data using the NITI Aayog's multidimensional poverty measurement and policy intervention pointers.
- Following that, we will raise concerns about the quality of NFHS data, with the goal of using it with caution and improving data quality with the future in mind.

According to the MPI

- NITI Aayog estimated the Multidimensional Poverty Index (MPI) and published the baseline report in 2021, armed with a fairly large sample survey data of NFHS 4 (with more than six lakh households in India).
- The MPI was founded on the idea that poverty is the result of simultaneous deprivation in multiple functions, such as health, education, and standard of living.
- The NITI Aayog identified 12 indicators in these three sectors and calculated the weighted average of deprivation for all men and women surveyed in NFHS 4.
- Individuals were considered multidimensionally poor if their aggregate weighted deprivation score was greater than 0.33.
- The non-poor may also be deficient in a few of these indicators, but not to the extent that they are classified as multidimensionally poor.
- The Poverty Ratio or Head Count Ratio is defined as the proportion of the population with a deprivation score greater than 0.33 to the total population.

- The authors estimated the MPI and its components for Tamil Nadu using NFHS 5 and compared them to NITI Aayog's estimates based on NFHS 4.
- Another intriguing aspect of this approach is the estimation of Poverty Intensity.
- This is the multidimensionally poor's weighted-average deprivation score.
- For example, in Tamil Nadu, the Intensity of Poverty decreased from 39.97% to 38.78% during this period, indicating that the summary measure of multiple deprivations of the poor has only marginally decreased in these five years, which must be highlighted for policy focus.
- The MPI is calculated using the Head Count Ratio and the Intensity of Poverty. Tamil Nadu's MPI fell from 0.020 to 0.006.
- This sharp decline in the MPI is largely due to a greater decline in the Head Count Ratio when compared to the Intensity of Poverty. This suggests that any further decline in MPI in Tamil Nadu should be achieved only by addressing all dimensions of poverty and significantly reducing its intensity across the state.

Interventional Strategy

- The estimation of deprivation also shows that the overall population that has been identified as deprived in most of the indicators individually is larger than the population that has been identified as multidimensionally poor.
- This emphasises the point that people may be severely deprived in a few functions but not be multidimensionally poor.
- This adds another dimension to public policy intervention, namely, combating poverty in Tamil Nadu should be multidimensional as well as universal.
- Only this method can address deprivation across all indicators. This will undoubtedly and directly reduce the level of poverty in Tamil Nadu.
- The Head Count Ratio and Intensity of Poverty can be calculated statistically for each district and separated by gender, rural/urban, and other dimensions.
- As a result, the MPI and its components are extremely useful in terms of understanding poverty in its entirety as well as the granular details required for sectoral and spatial policy and programmatic interventions.
- The MPI's strength as a tool for data-driven public policy is dependent on the quality of survey data, specifically the NFHS data.

NFHS data quality

- In academia, there has been much discussion about the quality of survey data. Since its inception in the 1950s, the National Sample Survey Organisation's (NSSO) sample surveys have sparked debate among economists and statisticians, both in terms of sampling and non-sample errors.
- Following several review reports on the NSSO's methodologies, the NSSO has attempted to improve sampling design and reduce non-sampling errors, particularly with regard to recall periods for providing household consumption expenditure. All of this is well documented.
- Substitution of dry rations for hot meals in mid-day meal programmes, as well as high hospital pressures in handling COVID-19 cases are expected to increase deprivation in nutrition and maternal health in the post-lockdown period, contrary to the decline in deprivation in nutrition and maternal health that we derived from this database in the post-pandemic period.
- Tamil Nadu is known for increasing enrolment and decreasing dropout rates year after year; thus, the increase in deprivation in terms of education should raise concerns.
- In terms of school attendance, we don't know how parents interpreted school attendance during the long period of school closure during the lockdown.
- As a result, when interpreting statistics derived from the entire database, combined survey data from two different time periods separated by a major pandemic must be approached with caution.
- Assuming that the survey data are from a single time period, it is normal to compare the results of specific indicators from the survey data with programmatic data derived from official records.

- There are claims that the deprivation indicators for drinking water and sanitation in Tamil Nadu are higher than the claims made by the respective State government departments. These kinds of issues are common in survey data.
- For example, consumption expenditure on foodgrain derived from NSSO data would not agree with the System of National Accounts' estimation of food consumption.

Data utilisation and quality

- For various (well-founded) reasons, the quality of survey data has always been a contentious issue in academic and policy debates.
- However, this has not prevented academics and policymakers from deducing policy directions because such data at a reasonably aggregate level (say, at the level of a State) should be useful.
- As previously stated, the sharp decline in Head Count Ratio and a marginal decline in Intensity of Poverty in NFHS 5 compared to NFHS 4 in Tamil Nadu cannot be ignored.
- From this, we can conclude that in order to reduce the Intensity of Poverty, we must address deprivation across the entire population, implying that a universal approach, rather than a targeted approach, is required.
- The survey data only provides broad policy recommendations, whereas programmatic interventions should be informed by ground-level realities.
- Simultaneously, ongoing engagement with survey data in terms of improving sample design and response quality must be maintained. Analyzing data and identifying inconsistencies in inferences from different databases on a given issue would aid in the improvement of data collection systems. Allow us to continue using survey data to draw policy conclusions (with caution) and to help improve data quality.

INTERNATIONAL RELATIONS

New START Treaty

Recently, Russia suspended United States of America's on-site inspections under New START Treaty with Washington due to Western sanctions and coronavirus infections.

Relevance:

GS II: International Relations

Dimensions of the Article:

1. About New START Treaty
2. When did the process of nuclear disarmament begin?
3. Why Russia Suspended the Inspection?
4. What are the various Treaties signed Between USA & Russia?

About New START Treaty

- The New Strategic Arms Reduction Treaty (New START) pact, which limits the number of nuclear warheads, missiles, and bombers deployed, is set to expire in 2021 unless renewed.
- The treaty limits the United States and Russia to a total of 1,550 deployed nuclear warheads and 700 deployed missiles and bombers, which is well below Cold War limits.
- Former US President Barack Obama and then-Russian President Dmitry Medvedev signed it in 2010.
- It is one of the most important constraints on the deployment of nuclear weapons by superpowers.

The History of US-Russia Nuclear Relations

- The United States formally abandons its intermediate-range nuclear forces (INF)
- The agreement required the two countries to eliminate all ground-based missiles with ranges of 500 to 5,500 kilometres.

When did the process of nuclear disarmament begin?

- In 1985, the two countries began arms control talks on three fronts.
- The first dealt with strategic weapons with ranges of more than 5,500 kilometres, resulting in the START treaty in 1991.
- Both sides were limited to 1,600 strategic delivery vehicles and 6,000 warheads.
- A second track dealt with intermediate-range missiles, which resulted in the 1987 INF Treaty.
- A third track, Nuclear and Space Talks, was intended to address Soviet concerns about the United States' Strategic Defense Initiative (SDI), but it produced no results.

Why Russia Suspended the Inspection?

- It is difficult for Russia to carry out inspections on American soil due to Western sanctions including the closure of air space for Russian planes and visa restrictions.
- It also pointed to a new spike in coronavirus cases in the United States.

What are the various Treaties signed Between USA & Russia?

- ***Strategic Arms Limitation Talks-1(SALT):***
- It began in 1969, Under the Interim Agreement, both sides pledged not to construct new Intercontinental Ballistic Missile (ICBM) silos, not to increase the size of existing ICBM silos significantly, and capped the number of Submarine- Launched Ballistic Missile (SLBM) launch tubes and SLBM-carrying submarines.

Strategic Arms Reduction Treaty-1 (START):

- Signed in 1991, the agreement required the destruction of excess delivery vehicles which was verified using an intrusive verification regime that involved on-site inspections, the regular exchange of information (including telemetry), and the use of national technical means (i.e., satellites).

Strategic Arms Reduction Treaty-2:

- Signed in 1993, called for reducing deployed strategic arsenals to 3,000-3,500 warheads and banned the deployment of destabilizing multiple-warhead landbased missiles.

Strategic Offensive Reductions Treaty (SORT):

- Signed in 2004, under which the United States and Russia reduced their strategic arsenals to 1,700-2,200 warheads each.

Strategic Arms Reduction Treaty (START):

- Signed in 2010, a legally binding, verifiable agreement that limits each side to 1,550 strategic nuclear warheads deployed on 700 strategic delivery systems (ICBMs, SLBMs, and heavy bombers) and limits deployed and nondeployed launchers to 800.

North Atlantic Treaty Organisation

Context:

- New Delhi held its first political dialogue with the North Atlantic Treaty Organisation (NATO) in Brussels on December 12, 2019.
- The idea was to ensure the dialogue was primarily political in character, and to avoid making any commitment on military or other bilateral cooperation.

Relevance:

GS II: International Relations

Dimensions of the Article:

1. What is NATO?
2. What is important about NATO's collective defence?
3. What is the significance of India's talks with NATO?

What is NATO?

- The North Atlantic Treaty Organisation, or NATO, is a political and military alliance of 28 European countries and two countries in North America (United States and Canada).
- It was set up in 1949 by the US, Canada, and several western European nations to ensure their collective security against the Soviet Union.
- It was the US's first peacetime military alliance outside the western hemisphere.
- Thirty countries are currently members of NATO, which is headquartered in Brussels, Belgium.
- The headquarters of the Allied Command Operations is near Mons, also in Belgium.

What is important about NATO's collective defence?

- Members of NATO are committed to mutual defence in response to an attack by any external party.
- Collective defence lies at the very heart of NATO, "a unique and enduring principle that binds its members together, committing them to protect each other and setting a spirit of solidarity within the Alliance".
- This is laid out in **Article 5** of the North Atlantic Treaty, the founding treaty of NATO.

Article 5 reads:

- "The Parties agree that an armed attack against one or more of them in Europe or North America shall be considered an attack against them all and consequently they agree that, if such an armed attack occurs, each of them, in exercise of the right of individual or collective self-defence recognized by Article 51 of the Charter of the United Nations, will assist the Party or Parties so attacked by taking forthwith, individually and in concert with the other Parties, such action as it deems necessary, including the use of armed force, to restore and maintain the security of the North Atlantic area."

What is the significance of India's talks with NATO?

- India's talks with NATO hold significance given that the North Atlantic alliance
- has been engaging both China and Pakistan in bilateral dialogue.
- There was a view here that given the role of Beijing and Islamabad in New
- Delhi's strategic imperatives, reaching out to NATO would add a key dimension
- to India's growing engagement with US and Europe.
- Until December 2019, NATO had held nine rounds of talks with Beijing, and the Chinese Ambassador in Brussels and NATO's Deputy Secretary General engaged with each other every quarter.
- NATO had also been in political dialogue and military cooperation with Pakistan; it opened selective training for Pakistani officers and its military delegation visited Pakistan in November 2019 for military staff talks.
- The first round of dialogue was finalised for December 12, 2019 by the Indian mission in Brussels after it received a draft agenda for the meeting from NATO.
- Upon receipt of the draft agenda, an inter-ministerial meeting was convened with representatives from the External Affairs and Defence ministries, and the National Security Council Secretariat.
- Engaging NATO in a political dialogue would provide New Delhi an opportunity to bring about a balance in NATO's perceptions about the situation in regions and issues of concerns to India.

Was there any common ground?

- In New Delhi's assessment, there was a convergence in the perspectives of both India and NATO on China, terrorism, and Afghanistan, including Pakistan's role in Afghanistan.
- The first dialogue, it is learnt, revealed three critical issues on which India expected only limited common ground with NATO:
- From NATO's perspective, it was not China, but Russia whose aggressive actions continued to be the main threat to Euro-Atlantic security, and that NATO had faced difficulties to convene meetings of
- NATO-Russia Council due to Russian refusal to place issues such as Ukraine and Intermediate-Range Nuclear Forces Treaty on the agenda.

- Given the divergence among NATO countries, its view on China was seen as mixed; while it did deliberate on China's rise, the conclusion was that China presented both a challenge and an opportunity.
- In Afghanistan, NATO saw the Taliban as a political entity, which was not in line with India's stance. This was almost two years before the Taliban announced an interim government in Afghanistan in September 2021.
- However, the Indian side felt maritime security was a principal area of conversation in the future, given a substantial common ground with NATO.

Razakars

Context:

Recently, Six members of 'Razakar Bahini', a locally recruited paramilitary force that collaborated with the Pakistan army during the 1971 Bangladesh Liberation War, were sentenced to death for 'crimes against humanity' by Bangladesh's International Crimes Tribunal.

Relevance:

GS II: International Relations

Dimensions of the Article:

1. Who were the Razakars?
2. Fate after the Liberation War

Who were the Razakars?

- The Razakars were an auxiliary force of the Pakistan army during the 1971 Bangladesh War.
- Composed of mostly pro-Pakistani Bengalis and Biharis from Bangladesh (formerly East Pakistan), the approximate 50,000 Razakars assisted the army in raids against the local population and were accused of committing horrific atrocities.
- Razakar literally means 'volunteer' or 'helper' in Persian and Urdu, but has come to mean 'collaborator' and is associated with betrayal in Bangladesh.
- Razakars mostly consisted of Urdu-speaking Bihari Muslims and religious parties that opposed the separation of East and West Pakistan, like Jamaat-e-Islami, Al Badr and Al Shams.
- The nationalist struggle in Bangladesh was brutally suppressed by the Pakistani army and the allied Razakars, with a death toll being pegged at anywhere from 300,000 to 3 million civilians, rape of 100,000 to 400,000 women and 25,000 to 195,000 forced pregnancies.

Fate after the Liberation War

- After Bangladesh achieved independence in December 1971, the newly formed government very quickly banned organisations that collaborated with Pakistani state forces, such as the Jamaat-e-Islami, and many of its influential leaders escaped to Pakistan.
- The Bangladesh Collaborators (Special Tribunals) Order was passed in 1972 and in the following year, the Sheikh Mujibur Rahman's government introduced the International Crimes (Tribunal) Act in 1973, to investigate and prosecute those that committed atrocities during the war.

Chabahar Port

Context:

Recently, during the foreign ministerial meeting of the Shanghai Cooperation Organisation (SCO) meeting, India pushes for a greater role for Chabahar Port in increasing the connectivity in the region.

Relevance:

GS II: International Relations

Dimensions of the Article:

1. The Chabahar Port and its benefits for India
2. What is INSTC?

The Chabahar Port and its benefits for India

- The Chabahar Port is Located on the Gulf of Oman and is the only oceanic port of the country.
- With this, India can bypass Pakistan in transporting goods to Afghanistan.
- It will also boost India’s access to Iran, the key gateway to the **International North-South Transport Corridor** that has sea, rail and road routes between India, Russia, Iran, Europe and Central Asia.
- It also helps India counter Chinese presence in the Arabian Sea which China is trying to ensure by helping Pakistan develop the Gwadar port. Gwadar port is less than 400 km from Chabahar by road and 100 km by sea.
- With Chabahar port being developed and operated by India, Iran also becomes a military ally to India. Chabahar could be used in case China decides to flex its navy muscles by stationing ships in Gwadar port to reckon its upper hand in the Indian Ocean, Persian Gulf and Middle East.
- Trade benefits: With Chabahar port becoming functional, there will be a significant boost in the import of iron ore, sugar and rice to India. The import cost of oil to India will also see a considerable decline. India has already increased its crude purchase from Iran since the West imposed ban on Iran was lifted.
- From a diplomatic perspective, Chabahar port could be used as a point from where humanitarian operations could be coordinated.
- It aims to cut the cost of freight transportation between India and Russia by around 30% and to cut the transit time from 40 days by more than half. It proposes a 7,200 km multi-mode network comprising ship, rail, and road lines.
- The route largely comprises transporting cargo from Russia, India, Iran, and Azerbaijan.
- It would be provided as a viable and fairer alternative to China’s Belt and Road Initiative (BRI).
- Further, it will enhance regional connectivity.

Objective:

The objective of the corridor is to increase trade connectivity between major cities such as Mumbai, Moscow, Tehran, Baku, Astrakhan, etc.

Nagorno-Karabakh Conflict

Context:

- The conflict between Armenia and Azerbaijan over Nagorno-Karabakh has been at the centre of three major wars and multiple clashes for decades.
- The flare-up began recently after Azerbaijan claimed that it had captured the territory in Karabakh in a retaliatory campaign, after an Armenian attack killed one Azerbaijani soldier.

Relevance:

Prelims, GS-II: International Relations (Important Foreign Policies and Developments), GS-I Geography (Maps), GS-I: History (World History)

Dimensions of the Article:

1. Nagorno-Karabakh begin conflict
2. The Azeri-Armenian war of 1991
3. The war of 2016 and 2020
4. Current peace talks

Nagorno-Karabakh begin conflict

- Nagorno-Karabakh is a **landlocked, mountainous and forested region**, falling within the boundaries of Azerbaijan.
- Nagorno-Karabakh, called Artsakh in Armenian, hosts a predominantly ethnic Armenian population with an Azeri minority.
- It is located in the **South Caucasus region** and is roughly made up of modern-day Armenia, Azerbaijan, and Georgia.
- Nagorno-Karabakh, which was once a part of the Armenian kingdom, has been ruled by several empires over the centuries — **the Ottomans, the Persians, and the Russians**.
- Armenia, Azerbaijan and Georgia later became separate Republics, with the Azeris incorporating Nagorno-Karabakh into their Republic.
- During the First World War, the Ottomans, aided by Azeris, attacked the south Caucasus, especially targeting ethnic Armenians.
- As the Ottomans retreated at the end of the World War, Azerbaijan and Armenia descended into a full-blown war in 1920.

The Azeri-Armenian war of 1991

- Soon, the Bolsheviks took over south Caucasus to expand Soviet influence and Azerbaijan, Armenia, and Georgia became Soviet Republics.
- The Soviets officially placed **Nagorno-Karabakh as an autonomous Oblast (administrative region) in Azerbaijan's territory**, despite the chiefly Armenian population.
- As Soviet power began to wane in the 1980s, the **ethnic Armenian population of Nagorno-Karabakh expressed a desire to be reunited with their roots** and became a part of Armenia, organising a vote for the same in 1988.
- This did not go down well with Azerbaijan and military clashes ensued.
- The war killed nearly 30,000 people and caused numerous ethnic Azeris to flee Karabakh and Armenia.
- Some Armenians in parts of Azerbaijan fled too.
- By 1993, Armenia had taken control of most of Nagorno-Karabakh. The war ended in 1994 when both countries entered into a ceasefire brokered by Russia but the borders of Armenia and Azerbaijan were not demarcated.

Peace talks by Minsk Group:

- Peace talks were initiated by the Minsk Group but peace treaty **could not be brokered**.
- The Minsk Group, created by the **Organisation for Security and Cooperation in Europe (OSCE)** in early 1990, was co-chaired by Russia, the United States, and France.
- The Minsk Group's proposals were continuously rejected by both Yerevan and Baku.
- The role of the Minsk Group declined during the 2020 war between the two countries, as other negotiating groups entered the scene.

The war of 2016 and 2020

- A ceasefire signed in 1994 could not prevent multiple flare-ups between the Nagorno-Karabakh rebel armed forces backed by the Armenian military, and the Azerbaijani military.
- Some skirmishes turned into direct clashes and the conflict has resulted in several casualties over the years.

2016

- A clash started between Azerbaijan and Armenia which lasted for four days.
- A ceasefire signed in Moscow put an end to the war but the Nagorno-Karabakh issue was far from resolved.
- Fresh clashes erupted on the Armenia-Azerbaijan border in September of 2020,

2020

- It turned into a fierce six-week war in which more than 2,000 people died.
- The fighting began after Azerbaijani President Aliyev launched an offensive vowing to take back Nagorno-Karabakh and other Armenian-occupied districts.
- Both parties entered a ceasefire brokered by Moscow in November 2020.

Current peace talks

- Despite the 2020 ceasefire, clashes have not stopped.
- Recently, seven Azerbaijani and six Armenian soldiers were killed in border clashes.
- With the efforts of the Minsk Group remaining largely unsuccessful, Baku saw an opportunity to introduce its own peace proposal, which calls for the mutual recognition of each State's territorial integrity, meaning the recognition of Nagorno-Karabakh within Azerbaijani territory.
- The European Union, meanwhile, has emerged as a potential peace broker.
- European Council President spearheaded meetings between both countries for the beginning of peace talks. While both countries have now agreed to formulate border security and delimitation commissions and start talks for a peace deal, a permanent solution for the Karabakh issue remains out of sight.

Tigray crisis**Context:**

The World Health Organisation's (WHO) director-general has suggested that racism is behind a lack of international attention and interest in Ethiopia's war-stricken northern Tigray region, where millions of civilians are living in dire conditions.

Relevance:

GS II: International Relations

Dimensions of the Article:

1. The conflict in Tigray
2. What is the current humanitarian situation?

The conflict in Tigray

- While there have been tensions in the regions for nearly 3 decades, observers state that they escalated in September 2020, when leaders in Tigray held local elections in defiance of the Ethiopian government.
- According to a Reuters report, these elections were considered "illegal" by the federal government, further leading to conflict with Tigray authorities.
- In November 2020, Abiy ordered a military offensive in the northern region of Tigray.
- His government claimed that the rebels known as the Tigray People's Liberation Front (TPLF), a former ruling party in Ethiopia designated as a terrorist organization by the Ethiopian government, had attacked its army bases.
- Over the next year, violence would spread to other parts of the country.
- The conflict was a result of months of disagreements between the Abiy government and political leaders in Tigray, who were opposing reforms pursued by the federal government.
- However, the conflict is far from over. A five-month ceasefire between rebels and government forces shattered on August 24 2022, after fighting broke out on the border of Tigray, with both sides accusing the other of initiating the violence.

What is the current humanitarian situation?

- According to a report by the United Nations Office for the Coordination of Humanitarian Affairs, food security is expected to worsen in Tigray in the coming months.

- The report said that the humanitarian situation had “significantly deteriorated” in the region in 2022, exacerbated by prolonged drought.
- The report also highlighted how for the first time in July this year a COVID- 19 vaccination campaign was launched at Mekelle hospital, making it the first COVID-19 vaccination in Tigray.
- But given the instability in the region, the vaccination campaign faced several difficulties “including intermittent power outage affecting cold-chain maintenance, lack of fuel, limited communication and internet access affecting timely results and reporting, difficulty locating IDPs in host communities, and low partners’ participation.”

A new G20 global vision

Context

- India will take over the presidency from Indonesia and host the G20 Leaders Summit for the first time in 2023.
- While India has a clear understanding of the G20's role, there is concern that the agenda, themes, and focus areas that India will set for 2023 lack vision.

Relevance:

GS Paper 2: Important International Institutions.

Mains Question:

Do you believe the G20 summits have lost their significance? Analyze critically. (150 Words)

Background

- India should concentrate on using the G20 2023 summit as a forum to discuss issues such as aggressive trade barriers/sanctions, inter-country conflicts, and advocating for global peace and cooperation.
- However, it has announced plans to increase international support in a variety of social and economic sectors, including energy, agriculture, trade, digital economy, health, and the environment, as well as employment, tourism, anti-corruption, and women's empowerment.
- Experts believe that India has squandered an opportunity to nudge the G20 and regional organisations toward its specific focus areas.

About G20:

- Following the Asian Financial Crisis in 1997-1998, it was recognised that participation of major emerging market countries in discussions about the international financial system was required, and G7 finance ministers agreed to establish the G20 Finance Ministers and Central Bank Governors meeting in 1999.
- Because the group has no permanent staff, the presidency is rotated every year in December by a G20 country from a different region.
- That country is then in charge of organising the next summit, as well as smaller meetings throughout the year.
- They can also invite non-member countries to attend as guests.
- The first G20 meeting was held in Berlin in 1999, following a financial crisis in East Asia that affected many countries **worldwide**. **Global share:** The G20 accounts for 95% of global patents, 85% of global GDP, 75% of global trade, and 65% of global population.

G20 Collaboration Difficulties

- **Faltering commitments/(losing strength):** The massive multilateral commitments on aid and trade in recent years have necessitated institutional innovation in governance.
- For example, the role of the United Nations and the World Trade Organization in ensuring cooperation between donor and recipient country groups is losing importance.

- **Rethinking the G20's Vision:** The global impact of the Ukraine war, rival finance, the growing influence of trade and value chains dominated by the United States and China, and developing countries' reluctance to take sides in the strategic competition necessitate new thinking on the nature and form of collaboration from the G20.
- **Emerging alternatives:** There are now three socioeconomic systems that will jointly set the global agenda: the G7, China-Russia-India, and others. The G20's primary role must be reoriented to avoid a clash of ideas that harms the global good.
- **Addressing common issues**
- **Limited focus areas:** India should seek collaboration in limited focus areas related to science and technology, building on UNGA and other multilateral bodies' resolutions.
- **New conceptual frame:** As recognised in the case of climate change, presumed equality must be extended to other areas with a global impact, redefining common concerns.
- **Involving developing countries:** Emerging economies are no longer to be viewed as the source of problems that require external solutions, but rather as the source of solutions to shared problems.
- **BRICS Model:** The BRICS provide an appropriate model for 21st-century governance institutions in which a small group of states dominated by a single power will not shape the agenda.
- **Human rights:** The 1993 Vienna Declaration on Human Rights, which reaffirmed the indivisibility of all human rights, needs to be strengthened.
- **Emphasis on quality of life:** Principles of shared but differentiated responsibilities for improving the quality of life in all households can serve as a guide for discussions in other forums.
- International cooperation should be guided by ensuring adequate food, housing, education, health, water, and sanitation, as well as work for all.
- **Avoiding strategic competition:** Countries could support expanding on the 1971 United Nations General Assembly Declaration designating the Indian Ocean as a zone of peace and non-extension into the region of rivalries and conflicts that are foreign to it for all time.
- **Environment:** The G20 should reconsider imposing a Global Financial Transaction Tax to fund a Green Technology Fund for Least Developed Countries, as proposed in 2011. (LDCs).
- **Leveraging the digital IT revolution:** It is necessary to rethink digital access as a "universal service" that extends beyond physical connectivity. Open source software should be made available for more cost-effective service delivery, good governance, and long-term development.
- **Geospatial information:** To find solutions to natural resource management problems ranging from climate change-related natural disasters to agricultural innovation and urban and infrastructure planning, regional and international collaboration will be required through existing centres with massive computing capacities, machine learning, and artificial intelligence.

The Way Forward

- The G20 must strengthen its partnership with international organisations such as the IMF, OECD, WHO, World Bank, and WTO, and delegate the task of progress monitoring to them.
- For the benefit of all member countries, global cooperation, dialogue, and diplomacy should take precedence over individual interests. Russia opposes the adoption of the N-disarmament text.

Russia opposes the adoption of the N-disarmament text

Context

- Russia obstructed agreement on the final document of a four-week review of the United Nations Treaty on Nuclear Non-Proliferation (NPT).
- The NPT, regarded as the cornerstone of nuclear disarmament, is reviewed every five years by the 191 signatories.

Relevance

- GS Paper 2: Bilateral, regional and global groupings and agreements involving India and/or affecting India's interests. Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora.

Mains Question

Discuss India's major reservations about the Nuclear Non-Proliferation Treaty (NPT). (150 Words)

Nuclear Non-Proliferation Treaty (NPT)

- The NPT is an international treaty whose goal is to prevent the spread of nuclear weapons and weapons technology, to promote peaceful uses of nuclear energy, and to advance the goal of disarmament.
- The Treaty represents the nuclear-weapon States' only binding commitment in a multilateral treaty to the goal of disarmament.
- The Treaty has been signed by 191 countries, including the five nuclear-weapon states.
- South Sudan, India, Pakistan, and Israel have all opted out of the NPT.
- North Korea signed the NPT in 1985 but left in 2003.

Important provisions:

- The Treaty defines nuclear weapon states (NWS) as those that had previously manufactured and detonated a nuclear explosive device. As a result, all other states are considered non-nuclear weapon states (NNWS).
- China, France, Russia, the United Kingdom, and the United States are the five nuclear weapon states.
- The Treaty has no bearing on states' rights to develop, produce, and use nuclear energy for peaceful purposes.

States' Role:

- Nuclear weapon states are not to transfer nuclear weapons to any recipient, nor are they to assist, encourage, or induce any NNWS to manufacture or otherwise acquire them.
- Non-nuclear weapon states are not permitted to receive nuclear weapons from any transferor, nor are they permitted to manufacture or acquire them.
- All nuclear materials on NNWS's territories or under their control must be subject to International Atomic Energy Agency (IAEA) safeguards.

Important characteristics

- The Treaty is regarded as the cornerstone of the global nuclear non-proliferation regime and an essential foundation for the pursuit of nuclear disarmament.
- The Treaty establishes a safeguards system under the International Atomic Energy Agency's responsibility (IAEA).
- Safeguards are used to verify compliance with the Treaty through IAEA inspections.
- The Treaty's provisions call for a five-year review of the Treaty's operation.
- The original term of the treaty was 25 years, but it was extended indefinitely at a review conference in 1995.

The NPT was a success.

- With the adherence of 191 countries, the NPT is close to universal world participation.
- It is still unique in that no other international agreement is based on a bargain between nuclear-weapon states and non-nuclear-weapon states.
- Under the supervision of the IAEA, the Treaty facilitates cooperation on peaceful applications of nuclear technology.
- It is credited with establishing the non-proliferation norm, which is responsible for keeping the number of countries armed with nuclear weapons below ten.

- The Nuclear Non-Proliferation Treaty (NPT) has failed to prevent the spread of nuclear weapons.
- NPT in its current form attempts to prevent horizontal proliferation but is incapable of preventing vertical proliferation.
- Failure to prevent horizontal spreading is evident in Iran, Libya, and North Korea.
- There are nearly 16,000 nuclear weapons still in existence, many of which are on high alert and far more powerful than the bomb dropped on Hiroshima.
- There is no adherence to the treaty that is honest. Many countries, including Brazil, South Africa, Iran, and Iraq, continued clandestine (secret) nuclear programmes after joining the NPT.
- Today, the NPT is a treaty that protects the rights of five nuclear weapon states. These countries are aiding in the vertical proliferation of nuclear weapons.
- Following a four-week UN conference on a nuclear disarmament treaty known as the NPT, Russia prevented the adoption of a joint declaration.
- Russia had one major objection to certain paragraphs that, according to Russian officials, were obviously political in nature.
- The most recent draught text expressed grave concern about military activities in the vicinity of Ukrainian power plants, including Zaporizhzhia.
- Because of the possibility of reactor damage, the shelling around these plants has heightened fears of nuclear radiation.
- Russia objected to this paragraph concerning the occupied Ukrainian nuclear power plant in Zaporizhzhia by the Russian military.

Why India has not signed NPT yet?

- **Failure of the Disarmament Process:** The NPT proposes no tangible disarmament roadmap, no mention of a testing ban or a freeze on the production of fissile materials or nuclear weapons, and no provisions for reductions and elimination.
- **Nuclear 'Haves' and 'Have-Nots':** India accuses the treaty of being discriminatory because it focuses only on preventing horizontal proliferation while leaving no room for vertical proliferation.
- In this context, India demands that Nuclear Weapon States (NWS) renounce their arsenals and cease further production in exchange for Non-NWS commitments not to produce them.
- **Discriminating Safeguards:** Under International Atomic Energy Agency (IAEA) nuclear safety protocols, the NWS was allowed to maintain 'voluntary' safeguards while the rest were subjected to comprehensive safeguards, which the NNWS found intrusive and discriminatory.
- The emergence of non-state actors with declared intent to access weapons of mass destruction, as well as the discovery of a global nuclear black market, has raised concerns about the NPT's limitations.

INDIAN ECONOMY

Purchasing Managers Index

India's manufacturing sector rebounded in July, with sales and output growing at the fastest pace since November. The PMI quickened last month to 56.4, from June's 9-month low of 53.9.

Relevance:

GS-III: Indian Economy (Growth and Development of Indian Economy, Mobilization of Resources)

Dimensions of the Article:

1. What is Purchasing Managers' Index (PMI)?
2. Understanding PMI

What is Purchasing Managers' Index (PMI)?

- The Purchasing Managers' Index (PMI) is an index of the prevailing direction of economic trends in the manufacturing and service sectors.
- It consists of a diffusion index that summarizes whether market conditions, as viewed by purchasing managers, are expanding, staying the same, or contracting.
- The purpose of the PMI is to provide information about current and future business conditions to company decision makers, analysts, and investors.
- In simple words, Purchasing Managers Index (PMI) is a measure of the prevailing direction of economic trends in manufacturing.
- PMI is a survey-based measure that asks the respondents about changes in their perception about key business variables as compared with the previous month.
- The purpose of the PMI is to provide information about current and future business conditions to company decision makers, analysts, and investors.
- It is calculated separately for the manufacturing and services sectors and then a composite index is also constructed.
- PMI is compiled by IHS Markit for more than 40 economies worldwide - IHS Markit is a global leader in information, analytics and solutions for the major industries and markets that drive economies worldwide.

Understanding PMI

- The PMI is a number from 0 to 100.
- A print above 50 means expansion, while a score below that denotes contraction.
- A reading at 50 indicates no change.
- If PMI of the previous month is higher than the PMI of the current month, it represents that the economy is contracting.
- It is usually released at the start of every month. It is, therefore, considered a good leading indicator of economic activity.
- It is different from the Index of Industrial Production (IIP), which also gauges the level of activity in the economy.
- IIP covers the broader industrial sector compared to PMI.
- However, PMI is more dynamic compared to a standard industrial production index.

Vishnugadh Project***Context:***

An independent panel of the World Bank is considering a plea by residents of some village to investigate environmental damage from the under-construction Vishnugad Pipalkoti Hydro Electric Project (VPHEP).

Relevance:

GS III: Indian Economy (Infrastructure)

Dimensions of the Article:

1. Details
2. Vishnugadh Project

Details

- According to the residents' complaint, the nearby Lakshmi Narayan Temple, which is regarded as having historical and cultural significance, is in danger due to muck dumping from the dam.
- They also complained the low water supply, claiming that only two hours of water were provided to 70 out of 92 houses each day.

- They were able to easily access water prior to the project's development.

Vishnugadh Project

- The Tehri Hydropower Development Corporation (THDC), a largely State-owned company, is constructing the 444-MW VPHEP.
- It is being built in Uttarakhand's Chamoli District beside the Dhauliganga River.
- The **World Bank** provides the majority of the funding for the project, which was approved in 2011. June 2023 is the projected completion date.
- A little over 40% of the project's \$792 million budget (about 64,000 crore) has already been spent

New Norms to Invest Overseas

Context:

- Recently, The Ministry of Finance noticed new norms making it easier for domestic corporates to invest abroad, while making it tougher for loan defaulters and those facing a probe by investigative agencies to invest in overseas entities.

Relevance:

GS III: Indian Economy

Dimensions of the Article:

1. Key Highlights of the New Rules
2. Significance of the News rules:

Key Highlights of the New Rules

Reserve Bank of India:

- The Reserve Bank of India (RBI) will be in charge of enforcing the Overseas Investment Rules and Regulations, which were notified under the Foreign Exchange Management Act.
- These rules will supersede all current regulations relating to foreign investments as well as the purchase and sale of real estate outside of India.

No-Objection Certificate

- Anyone who has a bank account that is considered a non-performing asset, is identified as a wilful defaulter by any bank, is under investigation by a financial sector regulator, the Enforcement Directorate (ED), or the Central Board of Investigation must obtain a No-Objection Certificate (NOC).
- Additionally, without the express permission of the central bank, no Indian resident will be allowed to invest in foreign companies involved in the real estate industry, gambling of any kind, or the trading of financial goods pegged to the Indian rupee.

Sixty Day Timeline:

- However, it may be assumed that the lenders and any relevant regulatory body or investigative agency have no objections to the proposed transaction if they fail to provide the NOC within sixty days of receiving an application.

Significance of the News rules:

- The updated regulatory framework for foreign investment offers simplification of the current framework and has been adjusted to reflect the current dynamics of business and the economy.

- A lot of clarity has been added to the terms "overseas direct investment" and "overseas portfolio investment," and "many overseas investment-related activities that were previously under the approval route are now under the automatic route, considerably improving convenience of doing business."

Central Bank Digital Currency

Context:

According to the recent reports the Reserve Bank of India's (RBI) digital rupee — the Central Bank Digital Currency (CBDC) — may be introduced in phases beginning with wholesale businesses in the current financial year.

Relevance:

GS III: Indian Economy

Dimensions of the Article:

1. About Central Bank Digital Currency (CBDC)
2. Why are central banks issuing digital currencies?
3. What will the introduction of the digital rupee change for citizens?

About Central Bank Digital Currency (CBDC):

- CBDC is the legal tender issued by a central bank in a digital form.
- It is the same as a fiat currency and is exchangeable one-to-one with the fiat currency. Only its form is different.
- The digital fiat currency or CBDC can be transacted using wallets backed by blockchain.
- Though the concept of CBDCs was directly inspired by Bitcoin, it is different from decentralised virtual currencies and crypto assets, which are not issued by the state and lack the 'legal tender' status.
- CBDCs enable the user to conduct both domestic and cross-border transactions which do not require a third party or a bank.

How will CBDC help?

- Introduction of CBDC has the potential to provide significant benefits, such as reduced dependency on cash, higher seigniorage due to lower transaction costs, reduced settlement risk.
- Introduction of CBDC would also possibly lead to a more robust, efficient, trusted, regulated and legal tender-based payments option.
- RBI had proposed amendments to the Reserve Bank of India Act, 1934, which would enable it to launch a CBDC.
- RBI has repeatedly flagged concerns over money laundering, terror financing, tax evasion, etc with private cryptocurrencies like Bitcoin, Ether, etc.
- Introducing its own CBDC has been seen as a way to bridge the advantages and risks of digital currency.

Why are central banks issuing digital currencies?

- To bring down the use of physical cash.
- The cost of issuing digital currencies is far lower than the cost of printing and distributing physical cash.
- The RBI can create and distribute the digital rupee at virtually zero cost since the creation and the distribution of the digital rupee will happen electronically.
- Unlike physical cash, which is hard to trace, a digital currency that is monitored by the RBI can be more easily tracked and controlled by the Central bank.
- Central bank digital currencies are promised as reliable, sovereign-backed alternatives to private currencies which are volatile and unregulated.

- This feature of digital currencies, however, has raised various concerns regarding their privacy and could slow down their adoption.
- In fact, it is worth noting that the need for privacy has been one of the primary reasons behind the switch to private digital currencies. What will the introduction of the digital rupee change for citizens?
- There are several models proposed by technology experts and evangelists on how the digital rupee could be transacted, and the formal announcement by the RBI will likely provide the details.
- One chief difference could be that a digital rupee transaction would be instantaneous as opposed to the current digital payment experience.

The 'developed country' goal

Context:

In his Independence Day address, Prime Minister asked Indians to embrace the “Panch Pran” — five vows — by 2047 when the country celebrates 100 years of independence.

The 'developed country' goal is the first of the five vows that Prime Minister exhorted Indians to take during his address to the nation on Independence Day.

Relevance: GS III: Indian Economy (Growth and Development)

Dimensions of the Article:

1. What is a “developed” country?
2. Why is the United Nations classification contested?
3. Where does India stand?
4. How much can India achieve by 2047?

What is a “developed” country?

The ‘World Economic Situation and Prospects’ of the United Nations classifies countries into three broad categories:

- o Developed economies
- o Economies in transition
- o Developing economies

- The idea is “to reflect basic economic country conditions”, and the categories “are not strictly aligned with the regional classifications”. So, it isn’t as though all European countries are “developed”, and all Asian ones are “developing”.
- Compared to less industrialised countries, a **developed country** is one that is industrialised, has a developed economy, and an advanced technological infrastructure.
- While **developing nations** are those that are either pre-industrial and largely agrarian or they are currently industrialising.
- Organizations like the United Nations, World Bank, World Trade Organization, and World Economic Forum group developed and developing countries based on their metrics.
- For instance, the UN divides nations into low-, lower-middle-, middle-, and high-income nations. This classification is based on the gross national income (GNI) per capita of each nation.

o Low -Income Economy: GNI per capita of up to \$1,085

o Lower Middle-income: GNI per capita up to \$4,255

o Upper-Middle-income: GNI per capita \$13,205

o High-Income economy: GNI per capita above \$13,205

Why is the United Nations classification contested?

- It can be argued that the UN classification is not very accurate and, as such, has limited analytical value.
- Only the top three mentioned in chart 3 alongside — the US, the UK and Norway — fall in the developed country category.
- There are 31 developed countries according to the UN in all. All the rest — except 17 “economies in transition” — are designated as “developing” countries, even though in terms of proportion, China’s per capita income is closer to Norway’s than Somalia’s.
- China’s per capita income is 26 times that of Somalia’s while Norway’s is just about seven times that of China’s.
- India is currently far behind both the so-called developed countries, as well as some developing countries.
- Often, the discourse is on the absolute level of GDP (gross domestic product).
- On that metric, India is one of the biggest economies of the world — even though the US and China remain far ahead.

However, to be classified as a “developed” country, the average income of a country’s people matters more.

o And on per capita income, India is behind even Bangladesh.

o China’s per capita income is 5.5 times that of India, and the UK’s is almost 33 times.

The disparities in per capita income often show up in the overall quality of life in different countries.

A way to map this is to look at the scores of India and other countries on the Human Development Index (HDI), a composite index where the final value is reached by looking at three factors:

- o Health and longevity of citizens,
- o Quality of education they receive,
- o Standard of life.

India has made a secular improvement on HDI metrics. For instance, the life expectancy at birth (one of the sub-metrics of HDI) in India has gone from around 40 years in 1947 to around 70 years now.

India has also taken giant strides in education enrolment at all three levels — primary, secondary, and tertiary.

What is the distance left to cover?

- A 2018 diagnostic report on India by the World Bank despite being the world’s third-largest economy in purchasing power parity (PPP) terms, most Indians are still relatively poor compared to people in other middle income or rich countries.
- 10% of Indians, at most, have consumption levels above the commonly used threshold of \$10 (PPP) per day expenditures for the global middle class.”
- Other metrics, such as the food share of consumption, suggest that even rich households in India would have to see a substantial expansion of their total consumption to reach levels of poor households in rich countries.

How much can India achieve by 2047?

- The World Bank’s 2018 report had made a mention of what India could achieve by 2047.
- By 2047 — the centenary of its independence — at least half its citizens could join the ranks of the global middle class.

- This will mean that households have access to better education and health care, clean water, improved sanitation, reliable electricity, a safe environment, affordable housing, and enough discretionary income to spend on leisure pursuits

Ration Mitra

Context:

The Centre has launched a common facility to register names in ration cards on a pilot basis for 11 States and Union Territories.

Relevance:

GS III- Indian Economy (Food Security)

Dimensions of the Article:

1. About Ration Mitra
2. About National Food Security (NFS) Act

About Ration Mitra

- Ration Mitra' Portal aims to enable these States to identify and verify the eligible beneficiaries for coverage under the National Food Security Act.
- Named as Ration Mitra, this software developed by the National Informatics Centre can be used to enrol people of any State.
- The portal is an enabler for States/UTs to complete their inclusion exercise under NFSA.
- The NFSA provides food security coverage for 81.35 crore persons in the country. The present NFSA coverage is about 79.74 crore

About National Food Security (NFS) Act

- The NFS Act, 2013 aims to provide subsidized food grains to approximately two-thirds of India's 1.2 billion people.
- It converts into legal entitlements for existing food security programs of the GoI.
- It includes the Midday Meal Scheme, Integrated Child Development Services (ICDS) scheme and the Public Distribution System (PDS).
- Further, the NFS Act 2013 recognizes maternity entitlements.
- The Midday Meal Scheme and the ICDS are universal in nature whereas the PDS will reach about two-thirds of the population (75% in rural areas and 50% in urban areas).
- Pregnant women, lactating mothers, and certain categories of children are eligible for daily free cereals.
- The NFS Act, 2013 aims to provide subsidized food grains to approximately two-thirds of India's 1.2 billion people.
- It also includes rice at Rs 3/kg, wheat at Rs 2/kg and coarse grain at Rs 1/kg — under the Targeted Public Distribution System (TPDS). These are called central issue prices (CIPs).

Model Tenancy Act

Context:

According to Ministry of Housing and Urban Affairs (MoHUA), Model Tenancy Act has been rectified by only four states, i.e., Andhra Pradesh, Tamil Nadu, Uttar Pradesh, and Assam.

Relevance:

GS-III: Indian Economy (Growth and Development of Indian Economy)

Dimensions of the Article:

1. What is the Model Tenancy Act?

2. Significance

What is the Model Tenancy Act?

- Model Tenancy Act, 2019, a tenancy law in India, was designed to rebuild tenancy market seeking to replace archaic rental laws of India and to solve housing availability deficit.
- The Act seeks to penalize recalcitrant tenants for refusing to move out of their rental properties after the agreed-upon rental period expires.
- The landlord will be able to claim double of the monthly rent for two months and four times of the monthly rent after that as compensation.
- The Act stipulates that a landlord cannot refuse to provide essential utilities and access to common facilities. This has been a fairly common grouse of tenants in the past.
- The landlord will also not be able to increase the rent without giving at least three months' notice to the tenant, and cannot increase rent in the middle of a rental term.
- In order to bring transparency, fix accountability and promote fairness in the rental housing segment, the policy proposes setting up of a rent authority.
- The Act will help in achieving the target of "Housing for All by 2022".
- The Act is not binding on the states as land and urban development remain state subjects.

Significance:

In order to quickly resolve conflicts and other relevant issues, the authority will offer a method.

It will contribute to a nationwide revamp of the legal system governing rental homes.

In order to overcome the severe housing shortage, it is anticipated to boost private investment in rental housing.

RBI hiked rates by 50 bps

Context:

With inflation remaining at 'elevated levels', the Monetary Policy Committee (MPC) of the Reserve Bank of India unanimously decided to raise the policy repo rate by 50 basis points (bps) to 5.4%.

Relevance:

GS III: Indian Economy

Dimensions of the Article:

1. What is the repo rate?
2. Why is the repo rate such a crucial monetary tool?
3. How does the repo rate work?
4. What impact can a repo rate change have on inflation?

What is the repo rate?

- The repo rate is one of several direct and indirect instruments that are used by the RBI for implementing monetary policy.

- Specifically, the RBI defines the repo rate as the fixed interest rate at which it provides overnight liquidity to banks against the collateral of government and other approved securities under the liquidity adjustment facility (LAF).
- In other words, when banks have short-term requirements for funds, they can place government securities that they hold with the central bank and borrow money against these securities at the repo rate.
- Since this is the rate of interest that the RBI charges commercial banks such as State Bank of India and ICICI Bank when it lends them money, it serves as a key benchmark for the lenders to in turn price the loans they offer to their borrowers.

Why is the repo rate such a crucial monetary tool?

- According to Investopedia, when government central banks repurchase securities from commercial lenders, they do so at a discounted rate that is known as the repo rate.
- The repo rate system allows central banks to control the money supply within economies by increasing or decreasing the availability of funds.

How does the repo rate work?

- Besides the direct loan pricing relationship, the repo rate also functions as a monetary tool by helping to regulate the availability of liquidity or funds in the banking system.
- For instance,

o When the repo rate is decreased,

Banks may find an incentive to sell securities back to the government in return for cash. This increases the money supply available to the general economy.

o When the repo rate is increased,

- Lenders would end up thinking twice before borrowing from the central bank at the repo window thus, reducing the availability of money supply in the economy.
- Since inflation is, in large measure, caused by more money chasing the same quantity of goods and services available in an economy, central banks tend to target regulation of money supply as a means to slow inflation.

What impact can a repo rate change have on inflation?

- Inflation can broadly be: mainly demand driven price gains, or a result of supply side factors that in turn push up the costs of inputs used by producers of goods and providers of services, thus spurring inflation, or most often caused by a combination of both demand and supply side pressures.
- Changes to the repo rate to influence interest rates and the availability of money supply primarily work only on the demand side by making credit more expensive and savings more attractive and therefore dissuading consumption.
- However, they do little to address the supply side factors, be it the high price of commodities such as crude oil or metals or imported food items such as edible oils.

India's trade deficit

Context:

- India's trade deficit has widened to a record \$31.02 billion in July thanks to contracting merchandise exports and a rise in imports. This is a three-times increase from the \$10.63 billion trade deficit reported in July last year.

Relevance:

GS III: Indian Economy

Dimensions of the Article:

1. What is trade deficit?
2. Is it bad for a country's economy?

What is trade deficit?

- Trade deficit or negative balance of trade (BOT) is the gap between exports and imports.
- When money spent on imports exceeds that spent on exports in a country, trade deficit occurs.
- It can be calculated for different goods and services and also for international transactions.
- The opposite of trade deficit is trade surplus.

What causes it?

- There are multiple factors that can be responsible.
- One of them is some goods not being produced domestically.
- In that case, they have to be imported. This leads to an imbalance in their trade.
- A weak currency can also be a cause as it makes trade expensive.

Is it bad for a country's economy?

- If trade deficit increases, a country's GDP decreases.
- A higher trade deficit can decrease the local currency's value.
- More imports than exports, according to economists, impact the jobs market and lead to an increase in unemployment.
- If more mobiles are imported and less produced locally, then there will be less local jobs in that sector.

Financial Inclusion Index***Context:***

The Reserve Bank of India has released the Composite Financial Inclusion Index (FIIndex) for the year ended 31st March 2022.

India's Financial Inclusion Index has improved to 56.4 from 53.9 in the previous year 2021.

Relevance: GS III: Indian Economy

Dimensions of the Article:

1. What does Financial Inclusion mean?
2. About Financial Inclusion Index (FI Index)

What does Financial Inclusion mean?

- Financial inclusion means the availability and equality of opportunities to access financial services. It refers to a process through which individuals and businesses can access appropriate, affordable and timely financial products and services.
- The financial products and services include equity, banking, loan and insurance products.
- The efforts to broaden financial inclusion target those who are unbanked or underbanked and directs sustainable financial services to them.
- Simply put, financial inclusion extends beyond opening a bank account, as it is possible for individuals with bank accounts to be excluded from financial services.
- A more inclusive financial system is linked to stronger and more sustainable growth and development and that is why it has become a key priority for countries across the world.

About Financial Inclusion Index (FI Index)

- Financial Inclusion Index has been conceptualised as a comprehensive index comprising the details of banking, insurance, investments, postal and pension sector in consultation with government and sectoral regulators.
- FI-Index has been created without any base year.
- It reflects cumulative efforts of all stakeholders towards financial inclusion.
- It captures information on different aspects of financial inclusion in a single value in the range of 0 and 100.
- 0 indicates complete financial exclusion while 100 indicates complete financial inclusion.
- The FI-Index comprises three broad parameters (weights indicated in brackets) viz., **Access (35%), Usage (45%), and Quality (20%)** with each of these consisting of various dimensions, which are computed based on a number of indicators.
- It comprises of three broad parameters such as Access, Usage, and Quality. Each of these parameters comprises of various dimensions, that are computed on the basis of different indicators.
- It is responsive to ease of access, availability & usage of services along with quality of services, comprising of all 97 indicators.
- Unique feature is its quality parameter that captures the quality aspect of financial inclusion on the line of financial literacy, consumer protection etc.

Open network for digital commerce

Context:

- **US firm Microsoft** has become the first big tech company to join the **Open Network for Digital Commerce (ONDC)**, a government-backed project which is aimed at enabling small merchants and mom-and-pop stores in parts of the country to access processes and technologies that are typically deployed by large e-commerce platforms such as Amazon and Flipkart.

Relevance: GS III- Indian Economy

Dimensions of the Article:

1. What is ONDC?
2. What led to formation of ONDC?
3. What is the current status?
4. What are the likely benefits of ONDC?

What is ONDC?

- It is a not-for-profit organisation that will offer a network to enable local digital commerce stores across industries to be discovered and engaged by any network-enabled applications.
- It is neither an aggregator application nor a hosting platform, and all existing digital commerce applications and platforms can voluntarily choose to adopt and be a part of the ONDC network.
- The ONDC model is trying to replicate the success of the Unified Payments Interface (UPI) in the field of digital payments.
- UPI allows people to send or receive money irrespective of the payment platforms they are registered on.
- The open network concept also extends beyond the retail sector, to any digital commerce domains including wholesale, mobility, food delivery, logistics, travel, urban services, etc.

The main aims of ONDC are to:

- Promote open-source methodology, using open specifications and
- Promote open network protocols independent of any specific platform
- Digitise value chains,

- Promote inclusion of suppliers,
- Standardize operations,
- Derive efficiencies in logistics
- Enhance value for consumers.

Example:

- Currently, a buyer needs to go to Amazon, for example, to buy a product from a seller on Amazon.
- Under ONDC, it is envisaged that a buyer registered on one participating ecommerce site (for example, Amazon) may purchase goods from a seller on another participating e-commerce site (for example, Flipkart).

What led to formation of ONDC?

- The Department for Promotion of Industry and Internal Trade (DPIIT), under Ministry of Commerce and Industries, conducted an outreach during the outbreak of the COVID-19 pandemic to understand its impact on small sellers and hyperlocal supply chain functioning.
- Post which, it found that there is a huge disconnect between the scale of online demand and the ability of the local retail ecosystem to participate.
- Following this, consultations were held with multiple ministries and industry experts and “ONDC was envisioned to revolutionise digital commerce in India,” as per the strategy paper.

What is the current status?

- Presently, ONDC is in its pilot stage in five cities — Delhi NCR, Bengaluru, Bhopal, Shillong and Coimbatore — with a target of onboarding around 150 retailers.
- The government has also constituted an advisory council to analyse the potential of ONDC as a concept and to advise the government on measures needed to accelerate its adoption.
- Over the next five years, the ONDC expects to bring on board 90 crore users and 12 lakh sellers on the network, enabling 730 crore additional purchases and an additional gross merchandising value (GMV) of ₹3.75 crore.
- The GMV for the digital commerce retail market in India was ₹2.85 lakh crore (\$38 billion) in 2020, which is only 4.3% of the total retail GMV in India.

What are the likely benefits of ONDC?

- The ONDC will standardise operations like cataloguing, inventory management, order management and order fulfilment, hence making it simpler and easier for Small businesses to be discoverable over network and conduct business.
- However, experts have pointed out some likely potential issues such as getting enough number of e-commerce platforms to sign up, along with issues related to customer service and payment integration.

ILO report: India's youth employment has declined.

Context

The International Labour Organization (ILO) recently published the Global Employment Trends for Youth 2022 report.

Relevance

GS Paper 3: mobilisation of resources, growth, development and employment.

Mains Question

Comment on the Indian unemployment problem. What suggestions do you have for increasing job opportunities? (150 Words)

ILO

- The International Labour Organization (ILO) was founded in 1919 as part of the Treaty of Versailles, which ended World War I, to reflect the belief that universal and lasting peace can only be achieved through social justice.
- The ILO was designated as a United Nations specialised agency in 1946.
- The International Labor Organization is dedicated to promoting social justice and internationally recognised human and labour rights.

Objectives

- The ILO has four strategic objectives: o Promote and realise standards, fundamental principles, and rights at work; o Increase opportunities for women and men to decent employment and income;
- Improve the coverage and effectiveness of social protection for all; and o Strengthen tripartism and social dialogue.

Report on Global Youth Employment Trends

- **Global Employment Trends for Youth 2022:** Investing in Transforming Futures for Young People is a report that provides an update on key youth labour market indicators and trends.
- The report focuses on the impact of the COVID 19 crisis, as well as how targeted and sustained investments in the green, blue, digital, creative, and care economies can support a human-centered recovery and help young people find work.
- **Impact of the COVID-19 Pandemic** - o The report finds that the pandemic has exacerbated the numerous labour market challenges confronting those aged 15 to 24, who have experienced a much higher percentage loss in employment than adults since early 2020.
- The total global number of unemployed youths is expected to reach 73 million in 2022, up from 75 million in 2021 but still six million higher than the pre-pandemic level of 2019.
- Gender Gap o Young women have a much lower employment-to-population ratio than young men (EPR).
- In 2022, 27.4 percent of young women are expected to be employed globally, compared to 40.3 percent of young men.
- This means that young men are nearly 1.5 times more likely to be employed than young women.
- **Regional Differences** - o The recovery in youth unemployment is expected to differ between low- and middle-income countries and high-income countries.
- Only high-income countries are expected to achieve youth unemployment rates comparable to those of 2019.
- Meanwhile, in the other income groups, rates are expected to remain more than one percentage point higher than pre-crisis levels.
- **Green and Blue Future** - o On the plus side, the report stated that young people were well-positioned to benefit from the expansion of the so-called green and blue economies, which are centred on the environment and sustainable ocean resources, respectively.
- According to the study, an additional 8.4 million jobs for young people could be created by 2030 through green and blue investments, particularly in clean and renewable energies, sustainable agriculture, recycling, and waste management.
- **Broadband Coverage & Healthcare Sector** - o The report estimates that achieving universal broadband coverage by 2030 could result in a net increase in employment of 24 million new jobs worldwide, with 6.4 million taken by young people.
- According to the report, investments in the care sector will create 17.9 million more jobs for young people by 2030.

Key points for India

- In India, the report found that the youth employment participation rate fell by 0.9 percentage points in the first nine months of 2021 compared to the same period in 2020.
- The situation is especially dire for young people aged 15-20.
- In India, school closures lasted 18 months, and only 8% of the 24 crore school-aged children in rural areas and 23% in urban areas had adequate access to online education, according to the report.
- It went on to say that India has very low female youth labor market participation, and that Indian young women experienced greater relative employment losses than young men in 2021 and 2022.
- It also stated that domestic work is a highly informal sector in India, with extremely low wages and young women and girls vulnerable to abuse.

Modified Interest Subvention Scheme (MISS)

Context:

- The Union Cabinet has decided to restore the interest subvention on short-term agriculture loans to 1.5% for all financial institutions, including cooperative banks.
- Thus, Interest Subvention of 1.5% will be provided to lending institutions for the financial year 2022-23 to 2024-25 for lending short term agri-loans upto Rs 3 lakh to the farmers.

Relevance:

GS II: Government policies and Interventions

Dimensions of the Article:

1. What is MISS?
2. Features of MISS
3. Benefits of MISS

What is MISS?

- To enable farmers to buy agricultural goods and services on credit at any time, the Kisan Credit Card programme was developed.
- The GoI introduced the Interest Subvention Scheme (ISS), now known as the Modified Interest Subvention Scheme, to make sure that farmers only had to pay a minimal interest rate to the bank (MISS).
- It attempts to offer farmers short-term credit at discounted interest rates.

Features of MISS

- Under this scheme, short term agriculture loan upto Rs. 3.00 lakh is available to farmers engaged in Agriculture and other allied activities including Animal Husbandry, Dairying, Poultry, fisheries etc. at the rate of 7% p.a.
- An additional 3% subvention (Prompt Repayment Incentive – PRI) is also given to the farmers for prompt and timely repayment of loans.
- Therefore, if a farmer repays his loan on time, he gets credit at the rate of 4% p.a.
- For enabling this facility to the farmers, GoI provides Interest Subvention (IS) to the Financial Institutions offering this scheme.
- This support is 100% funded by the Centre, it is also the second largest scheme of DA&FW as per budget outlay and coverage of beneficiaries.
- The lending institutions include- Public Sector Banks, Private Sector Bank, Small Finance Banks, Regional Rural Banks, Cooperative Banks and Computerized PACS directly ceded with commercial banks.

Benefits of MISS

- The Government of India has made it a major goal to provide farmers with easier access to financing at lower rates.
- An increase in interest subvention will guarantee the long-term survival of lending institutions as well as the continuity of credit flow to the agricultural sector.
- Banks will be able to absorb increase in cost of funds and will be encouraged to grant loans to farmers for short term agriculture requirements and enable more farmers to get the benefit of agriculture credit.
- This will also lead to generation of employment since short term agri-loans are provided for all activities including Animal Husbandry, Dairying, Poultry, fisheries.
- Farmers will continue to avail short term agriculture credit at interest rate of 4% per annum while repaying the loan in time.

"Wheat waiver" Risky WTO demand

Context

The WTO ministerial meeting in June in Geneva did little to address the issue of public food stockpiling

Relevance:

Mains Paper 3: PDS, Buffer Stock & Food Security

Mains Question

- Why should developing countries keep pushing for a permanent solution to the World Trade Organization's decision on whether to allow public stockholding of food stocks for food security purposes? Discuss the current public stockholding provisions and their limitations.

WTO Public Stockholding Issue

- India's PSH policy is based on purchasing food from farmers at an administered price (minimum support price, or MSP), which is usually higher than the market price.
- PSH's dual objectives: The PSH policy aims to provide remunerative prices to farmers while also providing subsidised food to the underprivileged.
- Subsidy for trade distortion: Such price support-based procurement from farmers is considered a trade-distorting subsidy under WTO law, and if given in excess of the permissible limit, violates WTO law.
- India's rightful goal in the World Trade Organization (WTO) has been to find a permanent solution to the issue of public stockholding (PSH) of food in order to protect India's food security (PSH policy).
- Peace clause: India is currently enjoying temporary relief as a result of a "peace clause" that prohibits countries from bringing legal challenges against price support-based procurement for food security purposes.
- The WTO ministerial meeting in Geneva in June did little to address this issue.
- India's concerns about the PSH issue have been taken into consideration.

Concerns in India

- For India, the real issue is not maintaining adequate food stocks, which WTO rules do not prohibit as long as food is stocked using non-trade distorting instruments such as farmer income support (cash transfers independent of crop production).
- Use of MSP: India is concerned that it should have the policy space to hold public food stocks using the MSP, which is a price support instrument; however, price support is not mentioned in the Geneva declaration.
- India's demand for a permanent solution to the PSH policy has taken on new significance.
- India insists on being allowed to export food, particularly wheat, from the pool of foodgrain procured under the MSP.

- WTO rules, however, prohibit countries from exporting foodgrain purchased at subsidised prices.
- Paragraph 4 of the 2013 WTO decision on PSH for food security purposes states unequivocally that countries procuring food for food security purposes must ensure that the food does not "distort trade or adversely affect the food security of other Members."
- The same spirit can be found in paragraph 10 of the Geneva ministerial food security declaration, which states that countries may sell surplus food stocks on the international market in accordance with WTO rules. However, such a request is extremely unlikely to be granted.
- According to Article IX.3 of the WTO Agreement, waivers can only be granted in "exceptional circumstances."

What exactly is the issue here?

- Public stockholding (PSH) is a policy tool that governments use to acquire, stockpile, and distribute food when it is needed. Consider the MSP scheme.
- Under WTO rules, governments that purchase at prices higher than market prices are considered to be subsidising their farmers.
- Current rules suggest a fixed subsidy of 10% for food procurement from farmers to feed the poor; additionally, the methodology for subsidy calculation is based on a 1986-88 price index, which does not account for inflation.
- Currently, developing-country public distribution programmes are included in trade-distorting Amber Box measures that attract reduction commitments.

The way forward

- Developed countries have historically opposed India's PSH programme, fearing that India will divert some of its public stock to the international market, lowering global prices.
- India actively pushing for food exports from its official granaries provides new ammunition to opponents of the PSH solution.
- As a result, India should reconsider its position on requesting a waiver for wheat exports from its public stockholding, which, in any case, was not part of India's PSH policy.
- Spending precious negotiating capital on this issue may dilute India's core agenda of pursuing a permanent solution for its PSH programme in order to achieve the goal of food security and remunerative prices for farmers.
- WTO negotiations necessitate crystal clarity on the core objectives that must be relentlessly pursued.
- Adding newer objectives and shifting goalposts may cause you to fall between two stools.

Should RBI limit its intervention in currency market?

Context

- According to the IMF's recently published External Sector Report 2022, the RBI's intervention in the currency market should be limited to addressing disorderly market conditions.
- External Sector Report, published annually since 2012, analyses global external developments and provides multilaterally consistent assessments of the world's largest economies' external positions.

Relevance

GS Paper – 3: Important International Institutions

Mains Question

What are the most common criticisms levelled at the World Bank and the IMF? Discuss. (150 Words)

International Monetary Fund (IMF):

- The International Monetary Fund (IMF) is an international financial institution headquartered in Washington, D.C., that works to achieve long-term growth and prosperity for all of its 190 member countries. Its member countries govern it and hold it accountable.
- Founded in 1944 at the Bretton Woods Conference, the IMF was formally established in 1945 with the goal of rebuilding the international monetary system.

The IMF is responsible for three critical missions.:

- Strengthening international monetary cooperation; o Promoting trade and economic growth; and o Opposing policies that would harm prosperity.
- To carry out these missions, IMF member countries collaborate with one another and with other international organisations.
- The IMF advocates for fiscal stability and monetary cooperation, which are critical for increasing productivity, job creation, and economic well-being.
- It now plays a key role in managing balance-of-payments difficulties (as experienced by a member country) and international financial crises.
- Through a quota system, member countries contribute funds to a pool from which countries experiencing balance-of-payments problems can borrow money..

Functions of IMF

- **Financial Assistance:** To help member countries with balance-of-payments problems, the IMF lends money to replenish international reserves, stabilise currencies, and improve economic growth conditions. Countries must implement structural adjustment policies that are overseen by the IMF.
- **Surveillance by the IMF:** It monitors the economic and financial policies of its 190 member countries and oversees the international monetary system.
- As part of this process, which occurs both at the global and national levels, the IMF identifies potential threats to stability and advises on necessary policy adjustments.
- It offers technical assistance and training to central banks, finance ministries, tax authorities, and other economic institutions.
- This assists countries in increasing public revenue, modernising banking systems, developing strong legal frameworks, improving governance, and improving macroeconomic and financial data reporting. It also aids countries in their efforts to achieve the Sustainable Development Goals (SDGs).

IMF and India

- India is an IMF founding member.
- International regulation of money by the IMF has undoubtedly contributed to the expansion of international trade. To some extent, India has benefited from these fruitful outcomes.
- India had significant balance of payments deficits after partition, particularly with the US dollar and other hard currency countries. The International Monetary Fund (IMF) came to her aid.
- The Fund provided loans to India to help it deal with the financial consequences of the Indo-Pak conflict of 1965 and 1971.
- From the IMF's inception until March 31, 1971, India purchased foreign currency worth Rs. 817.5 crores from the IMF, which was fully repaid.
- Since 1970, the IMF's assistance to India, as well as other IMF members, has been increased through the establishment of the Special Drawing Rights (SDRs created in 1969).
- Following a sharp increase in the prices of its imports, including food, fuel, and fertilisers, India was forced to borrow from the Fund.
- In 1981, India received a massive loan of approximately Rs. 5,000 crores to help it overcome a foreign exchange crisis caused by a persistent deficit in the balance of payments on current account.
- India sought large amounts of foreign capital for its various river projects, land reclamation schemes, and communications development. Because private foreign capital was in short supply, the only viable

option was to borrow from the International Bank for Reconstruction and Development (i.e. World Bank).

- For the purpose of assessing the state of the Indian economy, India has engaged the services of IMF specialists. India has thus benefited from independent scrutiny and advice.
- With India's balance of payments out of whack due to the escalation of oil prices since October 1973, the IMF has begun making oil facilities available by establishing a special fund for the purpose.
- Early 1990s, when foreign exchange reserves – for two weeks' imports as opposed to the generally accepted 'safe minimum reserves' of three months equivalent – were woefully inadequate.
- The Indian government's immediate response was to secure a \$2.2 billion emergency loan from the International Monetary Fund by pledging 67 tonnes of India's gold reserves as collateral security.
- In the coming years, India promised the IMF that it would implement several structural reforms (such as currency depreciation, reduction in budgetary and fiscal deficits, reduction in government expenditure and subsidies, import liberalisation, industrial policy reforms, trade policy reforms, banking reforms, financial sector reforms, privatisation of public sector enterprises, and so on).
- With the implementation of liberalisation policies, foreign reserves began to rise.
- India has a special place on the Fund's Board of Directors. Thus, India had played an important role in determining the Fund's policies. This has increased India's standing in international circles.
- Since 1993, India has not received any financial assistance from the IMF.
- The repayment of all International Monetary Fund loans was completed on May 31, 2000.
- The Finance Minister of India serves as an ex-officio Governor on the IMF's Board of Governors.
- The RBI Governor serves as the IMF's Alternate Governor.
- India's current IMF quota is SDR (Special Drawing Rights) 5,821.5 million, making it the 13th largest quota holding country and giving it a 2.44 percent stake.
- However, based on voting share, India (along with its constituency countries Bangladesh, Bhutan, and Sri Lanka) is ranked 17th out of 24 at the Executive Board.

Highlights from the External Sector Report 2022

- Because of a shift in consumption from services to goods, the pandemic has continued to have an uneven impact on economies' current account balances.
- After recovering from the COVID-19 shock, commodity prices began to rise in 2021.
- Global current account balances are gradually improving in the medium term as the pandemic's impact fades, commodity prices normalise, and fiscal consolidation in current account deficit economies continues.

India specific observations:

- The report comes at a difficult time for the Indian rupee and other emerging market currencies.
- According to the report, the RBI's intervention in the currency market should be limited to addressing disorderly market conditions, with exchange rate flexibility acting as the primary shock absorber.
- India's official forex reserves are adequate for precautionary purposes, implying that additional reserves are unnecessary.
- Rising commodity prices and the Ukraine conflict, according to the IMF, will push India's current account deficit (CAD) to 3.1 percent of GDP in 2022, up from 1.2 percent last year.
- According to the IMF, the CAD is also broadly consistent with India's per capita income, positive growth prospects, demographic trends, and development requirements.
- India's low level of foreign liabilities in comparison to peers reflects an incremental approach to capital account liberalisation that has primarily focused on attracting Foreign Direct Investment (FDI).

Policy prescriptions:

- The report recommended a phased withdrawal of fiscal and monetary policy stimulus, which has already begun and is boosting exports.
- It proposed that the government negotiate free trade agreements with major trading partners in order to boost exports, liberalise the investment regime, and lower import duties.
- Structural reforms could boost global value chain integration and attract FDI, reducing external vulnerabilities.

INDUSTRY AND INFRASTRUCTURE

DigiYatra: the contactless passenger processing system for airports

Context

GMR's Delhi International Airport Ltd (DIAL) announced the soft launch of the Centre's DigiYatra initiative, releasing the beta version of its Android app. DigiYatra, a passenger processing system based on facial recognition technology, has been tested at Delhi airport and the necessary infrastructure has been installed at Terminal 3.

Relevance

GS Paper3: Infrastructure – Energy, Ports, Roads, Airports, Railways etc.

Mains Question

What is the name of India's first biometrics-based digital airport processing system? How will it address the processing system in busy airports? (150 Words)

What is DigiYatra and how will it work?

DigiYatra envisions travellers passing through various airport checkpoints using paperless and contactless processing, using facial features to establish their identity, which is linked to the boarding pass.

With this technology, passenger entry would be automatically processed based on a facial recognition system at all checkpoints, including airport entry, security check areas, aircraft boarding, and so on.

Digi Yatra Foundation:

It was established in 2019 as a joint venture (JV) company under Section 8 of the Companies Act, 2013.

The Foundation was established with the goal of developing the Digi Yatra Central Ecosystem (DYCE).

The Digi Yatra Foundation will be a pan-India entity that will be in charge of the Passenger ID validation process.

It will also foster consensus among India's aviation stakeholders.

It would also establish compliance criteria and guidelines for local airport systems.

How can people avail the DigiYatra facility?

- To use this service, passengers must first download the DigiYatra app. The Android version of the app is now available, with the iOS version expected to follow in the coming weeks.
- Users can sign up for the app using their Aadhaar credentials, then take a selfie with their Aadhaar card. Following that, vaccination information must be entered into the app using CoWIN credentials.
- The individual must then scan his or her boarding pass with the QR code or Bar code, and the credentials will be shared with the airport.

- Passengers will enter the airport by scanning their boarding passes at the e-gate and looking into the facial recognition system camera installed there. A similar method will be used for entering other checkpoints.

How is DigiYatra being implemented?

- The Consultative Committee of the Ministry of Civil Aviation met last month to discuss the DigiYatra project.
- The project is being carried out by the DigiYatra Foundation, a joint venture company owned by the Airports Authority of India (26% stake) and Bengaluru, Delhi, Hyderabad, Mumbai, and Cochin International Airports. The remaining 74% of the shares are held equally by these five shareholders.
- The passenger ID validation process will be managed by the DigiYatra Foundation.
- It will also establish compliance criteria and guidelines for local airport systems.
- The various compliances and guidelines (including guidelines on security, image quality, and data privacy) defined by the DigiYatra guidelines for the local airport Biometric Boarding Systems will be audited on a regular basis.

Which other airports will have DigiYatra?

- It was proposed at the consultative committee meeting that DigiYatra be launched in Varanasi and Bengaluru this month, and in five airports — Pune, Vijayawada, Kolkata, Delhi, and Hyderabad — by March next year.
- The Airport Authority of India (AAI) will identify the airports where DigiYatra will be phased-in.

What are the Goals of DIGI YATRA?

- Improve the passenger experience and make it simple and easy for all air travellers.
- Improve throughput by leveraging existing infrastructure with the "Digital Framework."
- As a result, operations will be less expensive.
- Digitize current manual processes to improve efficiencies
- Improve current system performance and security standards.
- Implementation of the "Digi Yatra" system, which includes a digital "ID" backed by a strong verifiable government-issued identity, such as AADHAAR.

SCIENCE AND TECHNOLOGY

Nova V1280 Scorpii

Focus. GS III: Science and Technology

Why in News?

Scientists from SN Bose Centre for Basic Science (SNBCBS) observed the imploding novae called Nova V1280 Scorpii and found that a thick dust formed around it after a month and lasted for about 250 days.

About Novae

- A nova is an astronomical occurrence in which a powerful explosion temporarily increases the brightness of a star by hundreds to millions of times before gradually dimming over the course of weeks or months.
- It happens in a binary star system made up of a white dwarf and a main-sequence star, which is characterised by two stars orbiting a shared centre of mass.
- The primary star is the one that is brighter; the secondary star is the one that is fainter.
- White dwarf stars are those whose hydrogen nuclear fuel has been completely consumed.

- Such stars have very high density. A typical white dwarf is half the size of our Sun and has a surface gravity 1,00,000 times that of Earth.

What are the Findings?

- Scientists constructed simple models to estimate parameters of dust like hydrogen density, temperature, luminosity and elemental abundances during pre- and post-dust phase.
- High abundance of certain elements like carbon, nitrogen and oxygen was found along with a mixture of small amorphous carbon dust grains and large astrophysical silicate dust grains.
- Dust formation in novae ejecta is not a common phenomenon.
- It has been observed only in a few novae within 30 to 100 days after an outburst, as compared to interstellar dust, which typically takes a few thousand years to form and hence provided opportunity to study the dust formation process in novae.
- High abundance of isotopes of certain elements like carbon, nitrogen and oxygen was found in the predust phase.
- A mixture of small amorphous carbon dust grains and large astrophysical silicate dust grains present in the ejecta was found in the post dust phase.
- Some complex organic compounds like amorphous organic solids with a mixed aromatic-aliphatic structure was found which play an important role in formation of molecular clouds in stars and planets.

E-Waste Management

Context:

A proposed framework by the Centre for regulating e-waste in India has upset a key link of India's electronic waste collection system and threatens the livelihood of thousands of people.

Relevance:

GS III- Science and Technology

Dimensions of the Article:

1. About Draft Notification for Electronic Waste Management
2. What is the controversy now?
3. What is Extended Producer Responsibility (EPR)?
4. What is e-waste?
5. e-Waste recycling in India
6. Legislation related to e-waste recycling in India

About Draft Notification for Electronic Waste Management

Coverage for Electronics:

A wide range of electronic goods, including laptops, landline and mobile phones, cameras, recorders, music systems, microwaves, refrigerators and medical equipment have been specified in the notification.

Target for E-Waste Collection:

- Consumer goods companies and makers of electronics goods have to ensure at least 60% of their electronic waste is collected and recycled by 2023 with targets to increase them to 70% and 80% in 2024 and 2025, respectively.
- Companies will have to register on an online portal and specify their annual production and e-waste collection targets.

EPR Certificates:

- The rules bring into effect a system of trading in certificates, akin to carbon credits, that will allow companies to temporarily bridge shortfalls.
- The rules lay out a system of companies securing Extended Producer Responsibility (EPR) certificates.
- These certificates certify the quantity of e-waste collected and recycled in a particular year by a company and an organisation may sell surplus quantities to another company to help it meet its obligations.

Focus on Circular Economy:

- New Rules emphasizes on the EPR, recycling and trading.
- This follows from the government's objective to promote a Circular Economy.

Penalty:

- Companies that don't meet their annual targets will have to pay a fine or an 'environmental compensation' but the draft doesn't specify the quantum of these fines.

Implementing Authority:

- The CPCB (Central Pollution Control Board) will oversee the overall implementation of these regulations.

State Governments' Responsibilities:

- The State governments have been entrusted with the responsibility of earmarking industrial space for e-waste dismantling and recycling facilities, undertaking industrial skill development and establishing measures for protecting the health and safety of workers engaged in the dismantling and recycling facilities for ewaste.

What is the controversy now?

- In May, the Ministry published a draft notification that eliminates PROs and dismantlers and transfers complete duty for recycling to authorized recyclers.
- There are very few authorised recyclers in India.
- Recyclers will source a quantity of waste, recycle them and generate electronic certificates.
- Companies can buy these certificates equivalent to their annual committed target and thus do not have to be involved with engaging the PROs and dismantlers.
- Dismantling a fledgling system was detrimental to the future of e-waste management in India.

What is Extended Producer Responsibility (EPR)?

- Extended Producer Responsibility (EPR) is the term used to describe a producer's responsibility to manage a product's plastic packaging in an environmentally sound manner until the end of its useful life.
- The Plastic Waste (Management and Handling) Rules, 2011 and the E-Waste Management and Handling Rules, 2011 were the rules that first implemented EPR in India.
- However, because the majority of businesses did not have an internal recycling department, **Producer Responsibility Organizations**, a network of government registered businesses, emerged (PRO).

How PROs work?

- PROs act as an intermediary between manufacturers and formal recycling They are (expected to be) technologically equipped to recycle end-of-life electronic goods safely and efficiently.
- The PROs typically bid for contracts from companies and arrange for specified quantities of goods to be recycled.

- They provide companies certified proof of recycling that they then maintain as part of their records. Several PROs work on consumer awareness and enable a supply chain for recycled goods.

What is e-waste?

- E-waste is a popular, informal name for electronic products nearing the end of their "useful life." Computers, televisions, VCRs, stereos, copiers, and fax machines are common electronic products. Many of these products can be reused, refurbished, or recycled.
- There is no clear definition for e-waste; for instance whether or not items like microwave ovens and other similar "appliances" should be grouped into the category has not been established.

Is e-waste dangerous?

- Electronic scrap components, such as CPUs, contain potentially harmful materials such as lead, cadmium, beryllium, or brominated flame retardants.
- Recycling and disposal of e-waste may involve significant risk to health of workers and their communities.
- UN Sustainable Development Goal (SDG) 12 talks of the necessity to "ensure sustainable consumption and production patterns". Referring to discarded electronic devices, this means achieving ecologically acceptable management throughout their life cycle, as well as reducing the release of poisons into the atmosphere, water and soil to minimise their negative impact on health and the environment.

e-Waste recycling in India

- While e-waste recycling is a source of income for many people in India, it also poses numerous health and environmental risks.
- More than 95% of India's e-waste is illegally recycled by informal waste pickers called kabadiwalas or raddiwalas.
- These workers operate independently, outside of any formal organization which makes enforcing e-waste regulations difficult-to-impossible.
- Recyclers often rely on rudimentary recycling techniques that can release toxic pollutants into the surrounding area.
- The release of toxic pollutants associated with crude e-waste recycling can have far reaching, irreversible consequences.
- A report by the Union Environment Ministry in 2018 found that many of India's ewaste recyclers weren't recycling waste at all. While some were storing it in hazardous conditions, many didn't even have the capacity to handle such waste.

Legislation related to e-waste recycling in India

- The Ministry of Environment, Forests, and Climate Change (MoEFCC) is primarily responsible for regulations regarding electronic waste. Additionally, the Central Pollution Control Board (CPCB) and State Pollution Control Board (SPCB) produce implementation procedures to ensure proper management of rules set forth by the MoEFCC.

E-Waste (Management and Handling) Rules, 2011

- Prior to the enactment of the E-Waste (Management and Handling) Rules, 2011; e-waste was covered under the Hazardous Waste Management (HWM) Rules.
- Under the Environmental Protection Act 1986.
- It made manufacturers, dealers, refurbishers and Producer Responsibility Organizations (PRO) liable for safe disposal of electronic goods.

E-Waste Management Rules, 2016

- The E-Waste Management Rules, 2016 have recently been amended by the Centre, to facilitate and effectively implement the environmentally sound management of e-waste in India.
- These amendments have been made with the objective of channelizing the ewaste generated in the country towards authorized dismantlers and recyclers in order to further formalize the e-waste recycling sector.
- By way of revised targets and monitoring under the Central Pollution Control Board (CPCB), effective and improved management of e-waste would be ensured

Nuclear matrix

Context:

- Using a novel method, a group of researchers from CSIR-Centre for Cellular and Molecular Biology, Hyderabad (CCMB) and Tata Institute for Genetics and Society, Bengaluru (TIGS), have established a way of studying the nuclear matrix of the fruit fly (*Drosophila melanogaster*) without removing the nucleus from the embryo.

Relevance:

GS III: Science and Technology

Dimensions of the Article:

1. What is Nuclear matrix?
2. Different way in which the genome is folded and packaged in different types of cell:
3. NuMat preparation

What is Nuclear matrix?

- Every cell that makes up an organism contains a copy of its genome.
- This genome is packaged in special ways with the help of a structure known as the nuclear matrix. The nuclear matrix gives an organisation and architecture to the nucleus.
- The nuclear matrix is like a scaffolding.
- This is a dynamic material providing access for the regulation of different genes in different cells. Studying the nuclear matrix is, therefore, very important to get a better picture of how precisely development progresses every time a new individual is born.
- Using biochemical means, if the nucleus is taken out and treated with an enzyme that digests all the DNA, then washed with a solution of high salt concentration so that viable DNA proteins or protein-protein interactions are removed, what is then left is a fibrous meshwork of proteins called the nuclear matrix.
- This is like a building from which all movables have been sucked out, leaving only the beams, ceiling, walls, plug points, etc.
- Analogous to the building, the nuclear matrix creates the architecture in which the genome is packaged.

Different way in which the genome is folded and packaged in different types of cell:

- We have 220 different types of cells in the body, but all contain identical genomes.
- The same genome sequence is present in neurons, where it works for thinking; in the liver, the same sequence enacts metabolism; and in the intestine, it works to digest. So, this information is packaged differently in different cell types.
- To give an example that justifies the different way in which the genome is folded and packaged in different types of cell, **consider proteases**.
- These are enzymes that digest proteins and are active in the intestine.
- The intestine contains a lining that prevents these enzymes from digesting the proteins present there, thereby protecting the intestine.

- The same are found in the brain cells also. If they were allowed to be active, they would digest the brain cells which do not have the protective epithelium, and that would be disastrous.
- So, the genome, despite carrying all the genetic material, is packaged such that some genetic material is hidden in such a way that it is never seen by transcription machinery.
- Our body has about 220 different kinds of cells. So, that means the same genome can be packaged in 220 different ways.

NuMat preparation

- The researchers collect embryos which are between zero and 16 hours old.
- They make, for the first time, the in situ nuclear matrix preparation using this entire collection of embryos. Then, they image them.
- Some are in very early developmental stages, where they are made up of nuclei only, or just making a mono layer of nuclei across the embryos or have gone through differentiation. The array is made available in one preparation.

INS Vikrant

Context:

The nation's first Indigenous Aircraft Carrier (IAC-1) will be commissioned on September 2, the Indian Navy has announced.

Relevance:

GS II: Science and Technology

Dimensions of the Article:

1. About INS Vikrant:
2. Why is it important for India to have an aircraft carrier?
3. What weapons and equipment will the new 'Vikrant' have?

About INS Vikrant:

- Vikrant is the largest warship to have ever been built in India, and the first indigenously designed and built aircraft carrier for the Indian Navy.
- It puts India in an elite club of nations that have the capability to design and build these giant, powerful warships.
- The Navy took delivery of the warship, designed by the Warship Design Bureau (WDB), its in-house organisation, from the manufacturer, Cochin Shipyard Ltd (CSL), a public sector shipyard under Ministry of Ports, Shipping & Waterways The 262 m long and 62 m wide 'Vikrant' displaces approximately 43,000 tonnes when fully loaded, and has a maximum designed speed of 28 knots (about 52 km/h) with an endurance of 7500 NM.
- The ship has around 2,200 compartments designed for a crew of around 1,600, including specialised cabins to accommodate women officers and sailors.
- The carrier is designed with a very high degree of automation for machinery operations, ship navigation and survivability.
- The carrier is equipped with the latest state of the art equipment and systems.
- It boasts a fully-fledged state of the art medical complex with the latest medical equipment facilities including major modular OT, emergency modular OT, physiotherapy clinic, ICU, laboratories, CT scanner, X-Ray machines, dental complex, isolation ward and telemedicine facilities.

Why is it important for India to have an aircraft carrier?

- An aircraft carrier is one of the most potent marine assets for any nation, which enhances a Navy's capability to travel far from its home shores to carry out air domination operations.
- Many experts consider having an aircraft carrier as essential to be considered a *"blue water"* navy — that is, a navy that has the capacity to project a nation's strength and power across the high seas.
- An aircraft carrier generally leads as the capital ship of a carrier strike/ battle group.
- As the aircraft carrier is a prized and sometimes vulnerable target, it is usually escorted in the group by destroyers, missile cruisers, frigates, submarines, and supply ships.
- Only five or six nations currently have the capability of manufacturing an aircraft carrier, and India has joined this prestigious club now.
- India has had aircraft carriers earlier too — but those were built either by the British or the Russians.
- The 'INS Vikramaditya', which was commissioned in 2013 and which is currently the Navy's only aircraft carrier, started out as the Soviet-
- Russian warship 'Admiral Gorshkov'. India's two earlier carriers, the 'INS Vikrant' and the 'INS Viraat', were originally the British-built 'HMS Hercules' and 'HMS Hermes'. These two warships were commissioned into the Navy in 1961 and 1987 respectively.

What weapons and equipment will the new 'Vikrant' have?

- The new warship is comparable to India's existing carrier 'INS Vikramaditya', which is a 44,500-tonne vessel and can carry up to 34 aircraft, including both fighter jets and helicopters.
- Once commissioned, IAC-1 will be "the most potent sea-based asset".
- Ship will be capable of operating 30 aircraft including MiG-29K fighter jets, Kamov-31 Air Early Warning Helicopters, MH-60R Seahawk multi-role helicopters, as well as the Advanced. Light Helicopters (ALH) built by Bengalurubased Hindustan Aeronautics Ltd, and the indigenously manufactured Light Combat Aircraft (LCA) (Navy).
- Using a novel aircraft-operation mode known as Short Take Off But Arrested Recovery (STOVAR), the IAC is equipped with a ski-jump for launching aircraft, and a set of three 'arrestor wires' for their recovery onboard.
- The MiG-29K and Kamov-31 aircraft are already in use on the 'Vikramaditya'.
- The MH-60R Seahawks are manufactured by the American aerospace and defence company Lockheed Martin. The new warship will offer an "incomparable military instrument with its ability to project Air Power over long distances, including Air Interdiction, Anti-Surface Warfare, offensive and defensive Counter-Air, Airborne Anti-Submarine Warfare and Airborne Early Warning".

Lumpy skin disease

Context:

With the lumpy skin disease spreading fast among bovines in western and northern Rajasthan, cattle-rearers in the State are suffering heavy losses. The infection has spread to about 25,000 cattle in the last couple of months and resulted in the death of more than 1,200 animals.

Relevance:

Focus: GS-III Science and Technology

About Lumpy Skin Disease

- It is caused by infection of cattle or buffalo with the poxvirus Lumpy skin disease virus (LSDV).
- The virus is one of three closely related species within the genus capripoxvirus, the other two species being Sheeppox virus and Goatpox virus.

Symptoms:

- It appears as nodules of two to five-centimetre diameter all over the body, particularly around the head, neck, limbs, udder and genitals.

- The lumps gradually open up like large and deep wounds.

Transmission:

- The LSD virus easily spreads by blood-sucking insects like mosquitoes, flies and ticks and through saliva and contaminated water and food.

Spread:

- Historically, LSD has remained confined to Africa, where it was first discovered in 1929, and parts of West Asia.
- LSD was first reported in Asia and the Pacific region in 2019 in north west China, Bangladesh and India.

Treatment:

No treatment is available for the disease so prevention by vaccination is the most effective means of control.

AlphaFold

DeepMind, a company based in London and owned by Google, announced this week that it had predicted the three-dimensional structures of more than 200 million proteins using AlphaFold.

Relevance:

GS III- Science and Technology

Dimensions of the Article:

1. What is AlphaFold?
2. How does AlphaFold work?
3. What are the implications of this development?
4. Is AlphaFold one-of-a-kind tool in predicting protein structures?

What is AlphaFold?

- AlphaFold is an AI-based protein structure prediction tool.
- It is based on a computer system called deep neural network.
- Inspired by the human brain, neural networks use a large amount of input data and provides the desired output exactly like how a human brain would.
- The real work is done by the black box between the input and the output layers, called the hidden networks.
- AlphaFold is fed with protein sequences as input.
- When protein sequences enter through one end, the predicted threedimensional structures come out through the other. It is like a magician pulling a rabbit out of a hat.

How does AlphaFold work?

- It uses processes based on “**training, learning, retraining and relearning.**”
- The first step uses the available structures of 1,70,000 proteins in the Protein Data Bank (PDB) to train the computer model.
- Then, it uses the results of that training to learn the structural predictions of proteins not in the PDB.
- Once that is done, it uses the high-accuracy predictions from the first step to retrain and relearn to gain higher accuracy of the earlier predictions.
- By using this method, AlphaFold has now predicted the structures of the entire 214 million unique protein sequences deposited in the Universal Protein Resource (UniProt) database.

What are the implications of this development?

- Proteins are the business ends of biology, meaning proteins carry out all the functions inside a living cell.
- Therefore, knowing protein structure and function is essential to understanding human diseases.
- Scientists predict protein structures using x-ray crystallography, nuclear magnetic resonance spectroscopy, or cryogenic electron microscopy.
- These techniques are not just time-consuming, they often take years and are based mainly on trial-and-error methods.
- The development of AlphaFold changes all of that. It is a watershed movement in science and structural biology in particular.
- AlphaFold has already helped hundreds of scientists accelerate their discoveries in vaccine and drug development since the first public release of the database nearly a year back.

Is AlphaFold one-of-a-kind tool in predicting protein structures?

- AlphaFold is neither flawless nor the only AI-based protein structure prediction tool.
- RoseTTaFold, developed by David Baker at the University of Washington in Seattle, U.S., is another tool. Although less accurate than AlphaFold, it can predict the structure of protein complexes.
- The development of AlphaFold is sure to make many scientists feel vulnerable, especially when they compare their efforts from years of hard work in the lab to that of a computer system. However, this is the time to adjust and take advantage of the new reality.

Live-fire exercises

Context:

- In a massive show of strength, China began its live-fire exercise near Taiwan, launching at least 11 ballistic missiles into the country's coast, a day after US House speaker Nancy Pelosi visited Taiwan.

Relevance: GS III: Science and Technology

Dimensions of the Article:

1. What are live-fire exercises?
2. Have they been done in the region before?

What are live-fire exercises?

- They are exercises primarily used by military personnel, in which live ammunition is used to create training conditions that are as close to real combat scenarios as possible.
- Live-fire exercises are also used by law enforcement and firefighters as a form of field training, to train them to act calmly in real-life emergency situations in the future.
- During live-fire training, soldiers are placed in simulated combat situations and are given the opportunity to use their weapons and equipment (like ships, aircraft, tanks and drones).
- Such exercises are invaluable in maintaining combat readiness of troops, the cohesiveness of units, and instilling confidence in their ability to use their weapons and equipment correctly.
- It also involves testing the effectiveness of vehicles, weapon platforms and weapons systems (such as intercontinental ballistic missiles, cruise missiles, anti-aircraft weapons), so that any design flaws can be resolved before the weapons are fully operational.
- As we see in the recent case in the Taiwan Strait, live-fire exercises allow countries to brandish their military prowess and capacity for destruction.
- As the Associated Press notes, the drills involving warplanes, ships and missiles are designed to show the level of lethal force that China could unleash on Taiwan, if the country refuses to toe the line set by Beijing.

Have they been done in the region before?

- China had previously undertaken a similar show of force during the Third Taiwan Strait Crisis in 1995-1996, when it fired missiles into the waters near Taiwan, after former President Lee Teng-hui visited the US, despite China's strong objections.
- Between July 25-29, the US army resumed its live-fire drills in South Korea after a hiatus of three years, in response to the series of weapons tests undertaken by North Korea this year.
- The deadly Apache helicopters stationed in South Korea were allowed to fire rockets and guns at the Rodriguez Live Fire Complex, south of the Demilitarised Zone (DMZ) that divides North and South Korea.
- The live-fire exercises had been previously cancelled in 2019 after residents living in the vicinity of the area had complained about noise and raised concerns about safety.
- After North Korea launched 8 short-range ballistic missiles, the US and South Korea responded in a tit-for-tat fashion, by firing 8 of their own into the sea.

5G spectrum auction concludes

Context:

- India's biggest ever spectrum auction ended with bids upwards of Rs 1.5 lakh crore coming in after seven days of bidding spread over 40 rounds.
- Reliance Jio emerged as the largest spender in the 5G spectrum auction, acquiring almost half of all the airwaves sold for more than Rs 88,000 crore, and was also the only one (among four applicants) to have acquired spectrum in the premium 700 MHz band.

Relevance:

GS III- Science and Technology

Dimensions of the Article:

1. About 5G
2. Application of 5G
3. What are the key issues?
4. What benefits are likely to come with 5G?

About 5G

- 5G is the next generation of mobile broadband that will eventually replace, or at least augment 4G LTE connection and it offers exponentially faster download and upload speeds.
- 5G will deliver multi-Gbps peak rates, ultra-low latency, massive capacity, and a more uniform user experience.
- This is in contrast to 4G link speeds in averaging 6-7 Megabit per second (Mbps) in India as compared to 25 Mbps in advanced countries.

Application of 5G

- 5G will help in creating cyber-physical networks which not only interconnect people, but also interconnect and control machines, objects, and devices. It will deliver new levels of performance and efficiency that will empower new user experiences and connect new industries.
- It will act as an enabler for the Industrial Revolution 4.0 and is expected to form the backbone of emerging technologies such as the Internet of Things (IoT) and machine to machine communications.
- 5G can also help make transport infrastructure more efficient by making it smart. It will enable vehicle-to-vehicle and vehicle-to-infrastructure communication, making driverless cars, among other things, a reality.

- Also, the primary applications of 5G will be the implementation of a sensorembodied network that will allow real-time relay of information across fields such as manufacturing, consumer durables and agriculture.

What benefits are likely to come with 5G?

- 5G is the next generation cellular technology that will **provide faster and more reliable communication** with ultra low latency.
- As per the set standards, with 5G, the peak network speeds are expected to be in the range of 2-20 Gbps as opposed to about 25 Mbps on current 4G networks.
- In India, however, 4G speeds average at around 6-7 Mbps, but are picking up gradually.
- It is expected that with 5G technology, consumers will be able to **download data heavy content such as 8K movies** and games with better graphics in just a few seconds.
- The users will need to update to 5G-enabled devices to access the network, if they are not already using one.
- However, it is likely that the primary use of the technology will go beyond delivery of services on personal mobile devices.
- 5G is expected to form the backbone of emerging technologies such as IoT and machine to machine communications, thereby supporting a much larger range of applications and services, such as tele-surgery and real time data analytics.
- Ultra low latency offered by 5G makes the technology desirable for such use cases.
- Latency is the amount of time data takes to travel between its source and destination.
- As per a report by a government panel on 5G, even after the entry of 5G into the Indian networks, the earlier generation mobile technologies — 2G, 3G and 4G, will continue to remain in use and may take 10 or more years to phase out.
- 5G is expected to create a cumulative economic impact of \$1 trillion in India by 2035, the report added.

Hellfire R9X missile

Context:

- The US military used its 'secret weapon' — the Hellfire R9X missile – to kill Al Qaeda chief Ayman al-Zawahiri on the balcony of a safehouse in Kabul on July 31.
- Al-Zawahiri, an Egyptian surgeon who had a \$25 million bounty on his head, had helped coordinate the September 11, 2001, attacks that had killed nearly 3,000 people.

Relevance:

GS III- Science and Technology

Dimensions of the Article:

1. What is the Hellfire R9X missile?
2. When did the Hellfire missile enter active service?
4. What is known about the other Hellfire missile variants?

What is the Hellfire R9X missile?

- Better known in military circles as the **AGM-114 R9X**, the Hellfire R9X is a US origin missile known to cause minimum collateral damage while engaging individual targets.
- Also known as the '**Ninja Missile**', this weapon does not carry a warhead and instead deploys razor-sharp blades at the terminal stage of its attack trajectory.
- This helps it to break through even thick steel sheets and cut down the target using the kinetic energy of its propulsion without causing any damage to the persons in the general vicinity or to the structure of the building.

- The blades pop out of the missile and cut down the intended target without causing the massive damage to the surroundings which would be the case with a missile carrying an explosive warhead.

When did the Hellfire missile enter active service?

- The Hellfire 9RX missile is known to have been in **active service since 2017**.
- However, its existence became public knowledge two years later in 2019.
- It is a variant of the original Hellfire missile family which is used in conventional form with warheads and is traditionally used from helicopters, ground-based vehicles, and sometimes small ships and fast moving vessels.
- For several years now, the Hellfire family of missiles, including the 'Ninja Missile', are armed on Combat Unmanned Aerial Vehicles or drones that the US Military uses in offensive military operations around the world.

Where has the Hellfire missile been used on previous occasions?

- In 2017, the '**Ninja Missile**' was reportedly used to kill the then No. 2 leader of Al Qaeda, Abu Khayr Al Masri, in Syria.
- It was also used against other targets in Syria at around the same time.
- The damage caused to the vehicles which carried the targets, particularly the shredded roofs of cars, gave the first clues that a normal warhead was not used on the missile and that it had sharp blades.
- It has also been used against Taliban targets in Afghanistan in 2020 and again in 2022.

What is known about the other Hellfire missile variants?

- Hellfire is actually an acronym for Heliborne, Laser, Fire and Forget Missile and it was developed in the US initially to target tanks from the Apache AH-64 attack helicopters.
- Later, the usage of these missiles spread to several other variants of helicopters and also ground and sea-based systems and drones.
- Developed by Lockheed Martin and Northrop Grumman, the Hellfire missile has other variants such as 'Longbow' and 'Romeo' apart from the 'Ninja'.

African swine fever

Context:

- Barely a week after about 500 pigs were culled in Kerala's Wayanad district to prevent the spread of African swine fever detected there, new cases of the disease have been reported from there and Kannur.

Relevance:

Focus: GS-III Science and Technology

Dimensions of this Article:

1. What is African Swine Fever?
2. What are the symptoms of African swine fever?

What is African Swine Fever?

- African Swine Fever (ASF) does not affect humans but can be catastrophic for pigs.
- In 2019, the outbreak of the disease swept through pig populations in China — which is the largest exporter and consumer of pork — leading to large-scale cullings.
- ASF is a severe viral disease that affects wild and domestic pigs typically resulting in an acute haemorrhagic fever.
- The disease has a case fatality rate (CFR) of almost 100 per cent.

- Its routes of transmission include direct contact with an infected or wild pig (alive or dead), indirect contact through ingestion of contaminated material such as food waste, feed or garbage, or through biological vectors such as ticks.
- Any country with a pig sector is at risk of the spread of the disease and its spread is most likely via meat arriving aboard ships and planes, which is incorrectly disposed of and by meat carried by individual travellers.

What are the symptoms of African swine fever?

- High Fever
- Weakness and Difficulty Standing
- Vomiting
- Diarrhea
- Red or blue blotches on the skin (Particularly around ears and snout)
- Coughing or labored breathing

AGM-88 HARM

Context:

- United States confirmed that Washington has supplied some “anti-radiation missiles” to Ukraine, which could be fired from some Ukrainian Air Force aircraft. The statement has put meat on Russian allegations that an American anti-radar missile, AGM-88 HARM, which is part of NATO’s inventory, has been used in the theatre of conflict.

Relevance:

GS III- Science and Technology

Dimensions of the Article:

1. What is the AGM-88 HARM missile?
2. Do the Ukrainians have a platform to use these missiles?

What is the AGM-88 HARM missile?

- The acronym ‘HARM’ in the AGM-88 HARM **air-to-surface missile stands for**

High-Speed Anti-Radiation Missile.

- It is a tactical weapon fired from fighter aircraft, and has the capability to detect and home into radiation emitted by hostile radar stations that have surface-to-air detection capabilities
- The missile was originally developed by the Dallas-headquartered Texas Instruments, but is now produced by the major American defence contractor Raytheon Corporation.
- The AGM-88 HARM is **14 metres in length, but only 10 inches in diameter.**
- It weighs around **360 kg and carries a fragmentation type warhead** that is optimised for radar targets.
- It also has an anti-radar homing seeker broadband RF antenna and receiver, and a solid state digital processor.
- The missile has a **range of more than 100 km.**

Do the Ukrainians have a platform to use these missiles?

- It would appear that only Western military groups have the required fighter aircraft to use these missiles, and that the AGM-88 HARM cannot be fitted and used on the Russian-origin aircraft that Ukraine has in its fleet.
- Several NATO aircraft in Europe — including the Tornado ECR, F-16CM Block 50, and F/A-18-EA-18G — can fire the AGM-88 HARM missiles.

Is there no way the missile can be used by Ukraine's Russian-origin aircraft?

- Theoretically, it is possible to use the AGM-88 HARM in a limited mode in a Russian-origin aircraft.
- However, this would have required a lot of fast-moving research and development which may not have been possible in Ukraine itself due to the extended conflict.

SSLV-D1/EOS-2 mission***Context:***

- The SSLV D1/EOS-2 mission was carrying two satellites — the Earth Observation Satellite-2 (EOS-2 and AzadiSAT. However, the mission failed to place the satellites in their required orbits, and the satellites, as they were already detached from the launch vehicle, were lost.

Relevance:

GS III- Science and Technology

Dimensions of the Article:

1. What was the purpose of the SSLV-D1/EOS-2 mission?
2. Which part of the mission succeeded and where did it fail?
3. Difference between circular and elliptical orbits
4. What are the launch vehicles used by ISRO?

What was the purpose of the SSLV-D1/EOS-2 mission?

- The purpose of this mission was to place the two satellites in circular low-Earth orbits at a height of about 350 km above the Equator.
- The mission aimed to place the EOS-2 in a circular low-Earth orbit at a height of about 350 km above the Equator and inclined at an angle of 37 degrees.

EOS-2 (135 kg):

- It was designed and developed by ISRO, offered advanced optical remote sensing operations.
- It would have operated in the infrared region and could have served many purposes, from imaging for climate studies to simply keeping an eye on Earth.

AzadiSAT (8 kg):

- It was a collective of 75 tiny payloads weighing around 50 grams each, which were integrated by students.
- It carried tiny experiments which would have measured the ionising radiation in its orbit and also a transponder which worked in the ham radio frequency to enable amateur operators to access it.

Which part of the mission succeeded and where did it fail?

- The SSLV was composed of three stages powered by solid fuels and these three performed their function as planned.
- However, when it came to the stage when the satellites had to be set in orbit, there was a glitch which resulted in the satellites being lost forever.
- With a degree of openness that is unprecedented in ISRO, it was announced that there was a malfunctioning of a sensor which resulted in placing the satellites in an elliptical orbit, rather than a circular orbit.
- The ellipse or oval shape of the elliptical orbit is elongated in one direction and compressed in another (the so-called major and minor axes, which are like two radii of the ellipse).

- The shortest height above the Earth of this oval orbit was only about 76 km.

Difference between circular and elliptical orbits

- Mostly objects such as satellites and spacecrafts are put in elliptical orbits only temporarily.
- They are then either pushed up to circular orbits at a greater height or the acceleration is increased until the trajectory changes from an ellipse to a hyperbola and the spacecraft escapes the gravity of the Earth in order to move further into space — for example, to the Moon or Mars or further away.
- Satellites that orbit the Earth are mostly placed in circular orbits.
- One reason is that if the satellite is used for imaging the Earth, it is easier if it has a fixed distance from the Earth.
- If the distance keeps changing as in an elliptical orbit, keeping the cameras focussed can become complicated.

Why do we need to develop an SSLV when we have successfully used PSLV and GSLV?

- The PSLV (Polar Satellite Launch Vehicle) and GSLV (Geosynchronous Satellite Launch Vehicle) are quite powerful and can carry huge loads.
- To place an Earth Orbiting Satellite in a low Earth orbit, one does not need such power horses.
- The SSLV can easily carry small-to-medium loads from 10 kg to 500 kg.
- It is less expensive.
- The three stages being powered by solid fuel is another advantage.
- Solid fuel is easier to handle, whereas handling the liquid propellants used in the PSLV and GSLV is more complex.

Advanced Towed Artillery Gun System (ATAGS)

Context:

- In a first, an indigenously developed howitzer gun, ATAG, became part of the 21-gun salute during the Independence Day ceremony at the Red Fort Monday. Developed by the DRDO, the Advanced Towed Artillery Gun System (ATAGS) was used alongside the traditional Britishorigin '25 Pounders' artillery guns

Relevance:

GS III- Science and Technology (Indigenization Of Technology)

Dimensions of the Article:

1. ATAG System
2. Features

ATAG System

- The ATAGS is a 155-mm, 52-calibre artillery gun jointly developed by the **DRDO in partnership with Bharat Forge of the Kalyani Group and the Tata Power SED.**
- ATAGS has greater than 95% of indigenous content. It set a world record for the longest unassisted projectile range of 48 kilometres.
- The ATAGS has demonstrated a range of over 45 km, making it the “most consistent and accurate gun in the world”.

Features

- The gun has a barrel, breech mechanism, muzzle brake, and recoil system, and can fire 155 mm calibre ammunition with a range of 48 kilometres.
- It includes an all-electric drive to assure long-term dependability and minimal maintenance.

- It has advanced features such as high mobility, quick deployment, auxiliary power mode, sophisticated communication system, automatic command and control system with night capabilities in direct fire mode, and automatic command and control system.

Genome Sequencing

Context:

A recent study revealed that the rate of genetic changes in the monkeypox virus was higher than expected.

Relevance:

GS III- Science and Technology

Dimensions of the Article:

1. About Genome Sequencing:
2. Importance of Genome Sequencing
3. Genomic surveillance
4. APOBEC3 protein
5. About Monkeypox

About Genome Sequencing:

Genome sequencing is figuring out the order of DNA nucleotides, or bases, in a genome—the order of Adenine, Cytosine, Guanine, and Thymine that make up an organism's DNA.

Human genome

- It is made up of 23 chromosome pairs with a total of about 3 billion DNA base pairs.
- There are 24 distinct human chromosomes: 22 autosomal chromosomes, plus the sex-determining X and Y chromosomes.
- Chromosomes 1-22 are numbered roughly in order of decreasing size.
- Somatic cells usually have one copy of chromosomes 1-22 from each parent, plus an X chromosome from the mother and either an X or Y chromosome from the father, for a total of 46.
- There are estimated 20,000-25,000 human protein-coding genes.
- The estimate of the number of human genes has been repeatedly revised down from initial predictions of 100,000 or more as genome sequence quality and gene finding methods have improved, and could continue to drop further.

Importance of Genome Sequencing

- Sequencing the genome is an important step towards understanding it.
- The genome sequence will represent a valuable shortcut, helping scientists find genes much more easily and quickly. A genome sequence does contain some clues about where genes are, even though scientists are just learning to interpret these clues.
- Scientists also hope that being able to study the entire genome sequence will help them understand how the genome as a whole works—how genes work together to direct the growth, development and maintenance of an entire organism.
- Finally, genes account for less than 25 percent of the DNA in the genome, and so knowing the entire genome sequence will help scientists study the parts of the genome outside the genes. This includes the regulatory regions that control how genes are turned on and off, as well as long stretches of "nonsense" or "junk"
- DNA—so called because significance of it hasn't been established.

Genomic surveillance

- Genomic surveillance of pathogens could provide unique insights to understand the outbreak better, track the spread of pathogens and provide immense opportunities for public health decision-making as well as for epidemiology.
- Researchers from across the world have made available over 650 complete genome sequences of monkeypox isolates to date in public domain databases including GISAID and GenBank.
- This includes over 600 genomes which were sequenced this year alone from over 35 countries, including genomes of two isolates from India, collected from Kerala.

Accelerated evolution of monkeypox virus

- The monkeypox virus has a DNA genome of around 2,00,000 base pairs, roughly six times larger than that of SARS-CoV-2.
- Like other viruses, the monkeypox virus evolves by the accumulation of genetic errors, or mutations, in its genome when it replicates inside a host.
- Information about mutations occurring in different genome sequences of the monkeypox virus across different regions can, thus, provide essential insights into how the virus is evolving, its genetic diversity and other factors that may be relevant to the development of diagnostic tools.
- Being a DNA virus, the monkeypox virus like other poxviruses was believed to have a small rate of accumulating genetic changes compared to viruses with an RNA genome like SARS-CoV-2, which have a much larger rate of mutations.
- For poxviruses, this rate is estimated to be as low as a couple of genetic changes every year.
- A recent study, however, revealed that the observed rate of genetic changes in the virus was higher than expected — average of around 50 genetic changes.
- The higher-than-expected rate of evolution coupled with the rapid rise in monkeypox cases across the world could potentially be due to highly parallel evolution in a large number of individuals simultaneously, as the present outbreak came out of a superspreader event.

APOBEC3 protein

- The study also suggests that several mutations that have been identified in the new sequences of the monkeypox virus may have emerged due to interaction between the virus genome and an important family of proteins coded by the human genome known as the Apolipoprotein B Editing Complex (or APOBEC3).
- These proteins offer protection against certain viral infections by editing the genome sequence of the virus while it replicates in the cell.
- Some researchers, therefore, suggest that many of the genetic mutations in the monkeypox genomes from the current outbreak are relics of the effect of APOBEC3 and may not provide a significant evolutionary advantage to the virus.
- Monkeypox virus can infect a range of hosts, including non-human primates and rodents which could act as a natural reservoir.
- Infections in the reservoir could also enable continued transmission and accumulation of mutations before spilling over to cause human infections.
- Other studies have also suggested a continued evolution of the virus, including deletions involving genes as seen in a few genomes from the present outbreak, which could suggest newer ways in which the virus continues to evolve with sustained human-to-human transmission.

About Monkeypox:

- Monkeypox is a viral zoonotic disease with symptoms similar to smallpox, although with less clinical severity.

- The CDC's monkeypox overview says the infection was first discovered in 1958 following two outbreaks of a pox-like disease in colonies of monkeys kept for research — which led to the name 'monkeypox'.

Zoonotic disease

- Monkeypox is a zoonosis, that is, a disease that is transmitted from infected animals to humans.
- According to the WHO, cases occur close to tropical rainforests inhabited by animals that carry the virus.
- Monkeypox virus infection has been detected in squirrels, Gambian poached rats, dormice, and some species of monkeys.
- Human-to-human transmission is, however, limited — the longest documented chain of transmission is six generations, meaning the last person to be infected in this chain was six links away from the original sick person, the WHO says.

Transmission:

- 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.

Symptoms

- According to the US Centers for Disease Control and Prevention (CDC), monkeypox begins with a fever, headache, muscle aches, back ache, and exhaustion.
- It also causes the lymph nodes to swell (lymphadenopathy), which smallpox does not.
- The WHO underlines that it is important to not confuse monkeypox with chickenpox, measles, bacterial skin infections, scabies, syphilis and medication-associated allergies.
- The incubation period (time from infection to symptoms) for monkeypox is usually 7-14 days but can range from 5-21 days.
- Usually within a day to 3 days of the onset of fever, the patient develops a rash that begins on the face and spreads to other parts of the body.
- The skin eruption stage can last between 2 and 4 weeks, during which the lesions harden and become painful, fill up first with a clear fluid and then pus, and then develop scabs or crusts.
- According to the WHO, the proportion of patients who die has varied between 0 and 11% in documented cases, and has been higher among young children.

Findings of the Hayabusa-2 probe

Context:

- Recently, In an article published in the journal Nature Astronomy, scientists from Japan suggest that water and organic materials might have been brought to our planet from the outer edges of the solar system.
- The scientists made the hypothesis after analysing samples from the asteroid Ryugu, collected by the Japan Aerospace Exploration Agency's (JAXA) Hayabusa-2 probe, which had brought 5.4 grams of rocks and dust from the asteroid to Earth in December 2020.

Relevance:

GS III: Science and Technology

Dimensions of the Article:

1. Hayabusa-2 mission
2. What were the findings of the study?
3. What is an asteroid?

4. Why do scientists study asteroids?

Hayabusa-2 mission

- The Hayabusa-2 mission was launched in December 2014 when the spacecraft was sent on a six-year voyage to study the asteroid Ryugu.
- According to a report by Deutsche Welle from 2020, the spacecraft, which was approximately the size of a refrigerator, traveled more than 5 billion kilometers during its journey.
- The spacecraft arrived at the asteroid in mid-2018 after which it deployed two rovers and a small lander onto the surface.
- In 2019, the spacecraft fired an impactor into the asteroid's surface to create an artificial crater with a diameter of a little more than 10 metres, which allowed it to collect the samples.
- In December 2020, Hayabusa-2 delivered a small capsule that contained the rock and dust samples when it was 220,000 km from the Earth's atmosphere, which safely landed in the South Australian outback.
- Hayabusa2's predecessor, the Hayabusa mission, brought back samples from the asteroid Itokawa in 2010.

What were the findings of the study?

— Since the capsule landed on Earth, scientists have been studying the invaluable material — weighing merely a few grams, but approximately 4.6 billion years old in order to explore the foundations of the solar system.

- Their analyses of the samples have helped us explore the origins of life on our planet.
- In June, a group of scientists found that the materials contained amino acids, and suggested that these building blocks of life might have formed in space.
- The current study, published, states that “Volatile and organic-rich C-type asteroids may have been one of the main sources of Earth's water,” which is essential for the emergence of life.
- While the delivery of volatiles (water and organics) to Earth has been a subject of debate amongst scientists, the materials found in the “Ryugu particles, identified in this study, probably represent one important source of volatiles.”
- The study claimed that the organic material collected probably originated from the fringes of the Solar System, but was “unlikely to be the only source of volatiles delivered to the early Earth”.
- While the composition of particles collected from Ryugu closely matches water on Earth, the study notes there were slight differences, leading scientists to hypothesise that our planet's water might have also originated from places other than asteroids.

What is an asteroid?

- Asteroids are rocky objects that orbit the Sun, much smaller than planets. They are also called minor planets. According to NASA, there are 994,383 known asteroids, the remnants from the formation of the solar system over 4.6 billion years ago.
- Asteroids are divided into three classes.
- First are those found in the main asteroid belt between Mars and Jupiter, which is estimated to contain somewhere between 1.1-1.9 million asteroids.
- The second group is that of trojans, which are asteroids that share an orbit with a larger planet. NASA reports the presence of Jupiter, Neptune and Mars trojans. In 2011, they reported an Earth trojan as well.
- The third classification is Near-Earth Asteroids (NEA), which have orbits that pass close to the Earth.
- Those that cross the Earth's orbit are called Earthcrossers.
- More than 10,000 such asteroids are known, out of which over 1,400 are classified as potentially hazardous asteroids (PHAs).
- Ryugu is also classified as a PHA and was discovered in 1999 and was given the name by the Minor Planet Center in 2015.

- It is 300 million kilometres from Earth and it took Hayabusa-2 over 42 months to reach it.

Why do scientists study asteroids?

- Since asteroids are one of the oldest celestial bodies in the Solar System, scientists study them to look for information about the formation and history of planets and the sun.
- Another reason for tracking them is to look for asteroids that could possibly crash into Earth, leading to potentially hazardous consequences.
- NASA's OSIRIS-REX mission had collected samples from the asteroid Bennu in October 2020, which will be brought to Earth in 2023.
- Scientists are interested in studying asteroids such as Bennu, because it hasn't undergone drastic changes since its formation over billions of years ago and therefore it contains chemicals and rocks dating back to the birth of the solar system. It is also relatively close to the Earth.

NASA's James Webb Space Telescope

Context:

- The James Webb Space Telescope, NASA's latest and most powerful telescope, has captured new images of our solar system's largest planet, Jupiter, presenting it in a never before seen light. The photographs published have captured a new view of the planet, presenting in detail its massive storms, colourful auroras, faint rings and two small moons — Amalthea andAdrastea.

Relevance: GS III- Science and Technology

Dimensions of the Article:

1. What is NASA's James Webb Telescope?
2. What is the mission of the James Webb Space Telescope?
3. How is the James Webb better than the Hubble?

What is NASA's James Webb Telescope?

- The telescope has been in the works for years. NASA led its development with the European Space Agency (ESA) and the Canadian Space Agency.
- It was launched aboard a rocket on December 25, 2021, and is currently at a point in space known as the Sun-Earth L2 Lagrange point, approximately 1.5 million km beyond Earth's orbit around the Sun.
- Lagrange Point 2 is one of the five points in the orbital plane of the Earth-Sun system.
- Named after Italian-French mathematician Joseph-Louis Lagrange, the points are in any revolving two-body system like Earth and Sun, marking where the gravitational forces of the two large bodies cancel each other out.
- Objects placed at these positions are relatively stable and require minimal external energy or fuel to keep themselves there, and so many instruments are positioned here.
- L2 is a position directly behind Earth in the line joining the Sun and the Earth. It would be shielded from the Sun by the Earth as it goes around the Sun, in sync with the Earth.

What is the mission of the James Webb Space Telescope?

- NASA says the James Webb Space Telescope will be "a giant leap forward in our quest to understand the Universe and our origins", as it will examine every phase of cosmic history:
- from the Big Bang to the formation of galaxies, stars, and planets to the evolution of our own Solar System.

The science goals for the Webb can be grouped into four themes.

- To look back around 13.5 billion years to see the first stars and galaxies forming out of the darkness of the early universe.
- To compare the faintest, earliest galaxies to today's grand spirals and understand how galaxies assemble over billions of years.
- To see where stars and planetary systems are being born.
- To observe the atmospheres of extrasolar planets (beyond our solar system), and perhaps find the building blocks of life elsewhere in the universe. The telescope will also study objects within our own Solar System.

How is the James Webb better than the Hubble?

- JWST is much more powerful and has the ability to look in the infrared spectrum, which will allow it to peer through much deeper into the universe, and see through obstructions such as gas clouds.
- As electromagnetic waves travel for long distances, they lose energy, resulting in an increase in their wavelength. An ultraviolet wave, for example, can slowly move into the visible light spectrum and the infrared spectrum, and further weaken to microwaves or radio waves, as it loses energy.
- Hubble was designed to look mainly into the ultraviolet and visible regions of the electromagnetic spectrum. JWST is primarily an infrared telescope, the first of its kind.

National Automated Fingerprint Identification

System (NAFIS)

- The Union Home Minister has inaugurated the National Automated Fingerprint Identification System (NAFIS).
- In April this year, Madhya Pradesh became the first state in the country to identify a deceased person through NAFIS.

Relevance:

GS III: Science and Technology

Dimensions of the Article:

1. What is NAFIS?
2. How does it work?
3. Is this the first time that such an automation project is being attempted?

What is NAFIS?

- It is conceptualized and managed by the National Crime Records Bureau (NCRB) at the Central Fingerprint Bureau (CFPB) in New Delhi, The project is a country-wide searchable database of crime- and criminal-related fingerprints.
- The web-based application functions as a central information repository by consolidating fingerprint data from all states and Union Territories.

Benefits of NAFIS

- It enables law enforcement agencies to upload, trace, and retrieve data from the database in real time on a 24×7 basis.
- It would help in the quick and easy disposal of cases with the help of a centralised fingerprint database.

How does it work?

- NAFIS assigns a unique 10-digit National Fingerprint Number (NFN) to each person arrested for a crime.

- This unique ID will be used for the person's lifetime, and different crimes registered under different FIRs will be linked to the same NFN.
- The 2020 report states that the ID's first two digits will be that of the state code in which the person arrested for a crime is registered, followed by a sequence number.
- By automating the collection, storage, and matching of fingerprints, along with digitizing the records of fingerprint data, NAFIS will provide the much-needed unique identifier for every arrested person in the CCTNS (Crime and Criminal Tracking Network & Systems) database as both are connected at the backend

Is this the first time that such an automation project is being attempted?

- Upon the recommendations of the National Police Commission in 1986, the Central Fingerprint Bureau first began to automate the fingerprint database by digitizing the existing manual records through India's first Automated Fingerprint
- Identification System (AFI) in 1992, called Fingerprint Analysis & Criminal Tracing System (FACTS 1.0)
- The latest iteration, FACTS 5.0, which was upgraded in 2007, was considered to have "outlived its shelf life", according to a 2018 report by the NCRB and thus needed to be replaced by NAFIS.

Tomato flu

Context:

A new infection dubbed tomato flu, or tomato fever, has been detected in India mostly among children younger than five, according to a report in the Lancet Respiratory Journal. ***Relevance:***

GS II- Health

Dimensions of the Article:

1. What is tomato flu?
2. How can tomato flu be treated? How to take care of it?

What is tomato flu?

- The flu that gets its name because of the red blister it causes.
- It affects children below five years of age.
- The symptoms of this flu, also called Tomato fever, include rashes, skin irritation and dehydration.
- According to several reports, the flu can also cause tiredness, joint pain, stomach cramps, nausea, vomiting, diarrhoea, coughing, sneezing, runny nose, high fever, and body ache.
- In some cases, it may also change the colour of the legs and the hands.
- The symptoms will resolve overtime on their own if supportive care is given.

How can tomato flu be treated? How to take care of it?

- Like other cases of flu, tomato fever is also contagious.
- If someone is infected with this flu, they need to be kept in isolation as this could spread rapidly from one person to another
- It is essential to prevent children from scratching the blisters caused by the flu.
- Proper rest and hygiene is also advised.
- Utensils, clothes and other items used by the infected persons must be sanitised to prevent the flu from spreading.
- Fluid intake would also help counteract dehydration.

Langya Virus

Context:

Langya Henipavirus: Almost three years after the novel coronavirus was detected in China, a new zoonotic virus has been discovered in the country's two eastern provinces with 35 infections identified so far.

This new type of Henipavirus is also being called Langya Henipavirus or the LayV.

Relevance:

GS II: Health

Dimensions of the Article:

1. What is Langya virus?
2. How was Langya virus discovered?
3. Symptoms of Langya virus
4. Where has Langya virus come from?

What is Langya virus?

- The newly discovered virus is a “**phylogenetically distinct Henipavirus**”, according to a recent study — A Zoonotic Henipavirus in Febrile Patients in China
- The types of Henipaviruses that had been identified prior to this included Hendra, Nipah, Cedar, Mojiang and the Ghanaian bat virus.
- According to the US CDC, the Cedar virus, Ghanaian bat virus, and Mojiang virus are not known to cause human disease. But Hendra and Nipah infect humans and can cause fatal illness.
- Langya, meanwhile, is known to cause fever.
- The study adds that Langya's genome organization is “identical to that of other Henipaviruses”, and that it is closely related to the “Mojiang Henipavirus, which was discovered in southern China”.
- **Henipaviruses** are classified as biosafety level 4 (BSL4) pathogens.
- They can cause severe illness in animals and humans, and as of now there are no licensed drugs or vaccines meant for humans.

How was Langya virus discovered?

- Langya was discovered in eastern China during surveillance testing of patients who had fever along with a recent history of animal exposure.
- It was identified and isolated from the throat swab sample of one of those patients.
- 35 patients with LayV infection were found in Shandong and Henan provinces, out of which 26 were only infected with this new virus and no other pathogen.

Symptoms of Langya virus:

- The study looked at the 26 patients with only LayV infection to identify the associated symptoms.
- While all 26 had fever, 54% reported fatigue, 50% had cough, 38% complained of nausea.
- Also, 35% of the total 26, complained of headache and vomiting.
- The study found that 35% had impaired liver function, while 8% had their kidney function impacted.
- The patients were accompanied by abnormalities of “thrombocytopenia (35%), leukopenia (54%), impaired liver (35%) and kidney (8%) function”, the study noted.
- **Thrombocytopenia is low platelet count, while leukopenia means a fall in the white blood cell count**, in turn reducing the body's disease-fighting capability.

Where has Langya virus come from?

- In all likelihood, the new virus has jumped from an animal to humans.
- The LayV virus RNA has been predominantly found in shrews, which may be its natural hosts.
- The study zeroed in on shrews after conducting a serosurvey of domestic and wild animals.

- Among domestic animals, seropositivity was detected in goats and dogs.

What about human-to-human transmission?

- There are **no clear answers** yet.
- The authors of the study have underlined that the sample size of their investigation is too small to determine human-to-human transmission.
- However, they point out that among the 35 patients infected by LayV, there was “no close contact or common exposure history”, which suggests that the “infection in the human population may be sporadic”.

Polio

Context:

- Polio, a deadly disease that used to paralyze tens of thousands of children every year, is spreading in London, New York and Jerusalem for the first time in decades, spurring catch-up vaccination campaigns.

Relevance:

GS II- Health

Dimensions of the Article:

1. What is Polio?
2. Polio in India
3. India’s Pulse Polio Programme
4. Steps taken by the Government to maintain polio free status in India

What is Polio?

- The World Health Organization (WHO) defines polio or poliomyelitis as “a highly infectious viral disease, which mainly affects young children.”
- The virus is transmitted by person-to-person, spread mainly through the faecal-oral route or, less frequently, by a common vehicle (e.g., contaminated water or food) and multiplies in the intestine, from where it can invade the nervous system and can cause paralysis.
- Initial symptoms of polio include fever, fatigue, headache, vomiting, stiffness in the neck, and pain in the limbs.
- In a small proportion of cases, the disease causes paralysis, which is often permanent.
- There is no cure for polio, it can only be prevented by immunization.
- There are three individual and immunologically distinct wild poliovirus strains:

1. Wild Poliovirus type 1 (WPV1)
2. Wild Poliovirus type 2 (WPV2)
3. Wild Poliovirus type 3 (WPV3)

- Symptomatically, all three strains are identical, in that they cause irreversible paralysis or even death.
- However, there are genetic and virological differences, which make these three strains separate viruses which must each be eradicated individually.

Polio in India

- India received polio-free certification by the WHO in 2014, after three years of zero cases.
- This achievement has been spurred by the successful pulse polio campaign in

- which all children were administered polio drops.
- The last case due to wild poliovirus in the country was detected on 13th January 2011.

India's Pulse Polio Programme

- With the global initiative of eradication of polio in 1988 following World Health Assembly resolution in 1988, Pulse Polio Immunization programme was launched in India in 1995. Children in the age group of 0-5 years administered polio drops during National and Sub-national immunization rounds (in high-risk areas) every year.
- The Pulse Polio Initiative was started with an objective of achieving hundred per cent coverage under Oral Polio Vaccine.
- It aimed to immunize children through improved social mobilization, plan mopup operations in areas where poliovirus has almost disappeared and maintain high level of morale among the public.

Steps taken by the Government to maintain polio free status in India

- Maintaining community immunity through high quality National and Sub National polio rounds each year.
- An extremely high level of vigilance through surveillance across the country for any importation or circulation of poliovirus and VDPV is being maintained.
- All States and Union Territories in the country have developed a Rapid Response Team (RRT) to respond to any polio outbreak in the country.
- To reduce risk of importation from neighbouring countries, international border vaccination is being provided through continuous vaccination teams (CVT) to all eligible children round the clock.
- Government of India has issued guidelines for mandatory requirement of polio vaccination to all international travelers before their departure from India to polio affected countries namely: Afghanistan, Nigeria, Pakistan, Ethiopia, Kenya, Somalia, Syria and Cameroon.

West Nile Virus

- In New York, the number of mosquito pools that tested positive for West Nile virus is the "highest number ever recorded" at 1,068 across the five boroughs, compared with 779 positive pools this time last year.

Relevance:

GS II- Health

Dimensions of the Article:

1. About West Nile Virus
2. Transmission
3. Symptoms
4. Detection of WNV

About West Nile Virus

- The West Nile Virus is a **mosquito-borne, single-stranded RNA virus**.
- The virus was first reported in the state in Alappuzha in 2006 and then in Ernakulam in 2011.

- According to the WHO, it is “a member of the flavivirus genus and belongs to the Japanese Encephalitis antigenic complex of the family Flaviviridae”.

Transmission

- **Culex species of mosquitoes** act as the principal vectors for transmission. It is transmitted by infected mosquitoes between and among humans and animals, including birds, which are the reservoir host of the virus.
- Mosquitoes become infected when they feed on infected birds, which circulate the virus in their blood for a few days.
- The virus eventually gets into the mosquito’s salivary glands.
- During later blood meals (when mosquitoes bite), the virus may be injected into humans and animals, where it can multiply and possibly cause illness.
- WNV can also spread through blood transfusion, from an infected mother to her child, or through exposure to the virus in laboratories.
- It is not known to spread by contact with infected humans or animals.
- According to the US Centre for Disease Control and Prevention (CDC), it does not spread “through eating infected animals, including birds”
- To date, no human-to-human transmission of WNV through casual contact has been documented.

Symptoms

- The disease is **asymptomatic in 80% of the infected people**.
- The rest develop what is called the West Nile fever or severe West Nile disease.
- In these 20% cases, the symptoms include **fever, headache, fatigue, body aches, nausea, rash, and swollen glands**.
- Severe infection can lead to encephalitis, meningitis, paralysis, and even death.
- It usually turns fatal in persons with co-morbidities and immuno-compromised persons (such as transplant patients).

Detection of WNV

- The virus was first isolated in a woman in the West Nile district of Uganda in 1937.
- It was identified in birds (crows and columbiformes like doves and pigeons) in the Nile delta region in 1953. Before 1997, WNV was not considered pathogenic for birds, but then, a more virulent strain caused the death in Israel of different bird species, presenting signs of encephalitis and paralysis.
- In 1999, a WNV strain, believed to be one circulating in Israel and Tunisia, reached New York producing a large outbreak that spread across the United States and eventually across the Americas, from Canada to Venezuela.
- According to the WHO, human infections attributable to WNV have been reported in many countries in the world for over 50 years.
- WNV outbreak sites are found along major bird migratory routes.
- Today, the virus is found commonly in Africa, Europe, the Middle East, North America, and West Asia.

Butterfly Mine

- The UK Ministry of Defence, in its intelligence assessment of the ongoing war in Ukraine, has and sounded an alarm on the possible use of PFM-1 series ‘Butterfly Mines’ by the Russian military in Donetsk and Kramatorsk.

Relevance:

GS III: Defence

Dimensions of the Article:

1. What is the 'Butterfly Mine' and why is it called so?
2. How are these mines associated with Soviet Union and Afghanistan?
3. Are these kind of mines allowed by international law?

What is the 'Butterfly Mine' and why is it called so?

- The PFM-1 and PFM-1S are two kinds of anti-personnel landmines that are commonly referred to as 'Butterfly mines' or 'Green Parrots'.
- These names are derived from the shape and colour of the mines.
- The main difference between the PFM-1 and PFM-1S mine is that the latter comes with a self destruction mechanism which gets activated within one to 40 hours.
- The 'Butterfly mine' has earned a reputation for being particularly attractive to children because it looks like a coloured toy.
- It is very sensitive to touch and just the act of picking it up can set it off.
- Because of the relatively lesser explosive packed in this small mine, it often injures and maims the handler rather than killing them. These mines are also difficult to detect because they are made of plastic and can evade metal detectors.
- These mines can be deployed in the field of action through several means, which include being dropped from helicopters or through ballistic dispersion using artillery and mortar shells.
- These mines glide to the ground without exploding and later explode on coming in contact.
- Since these mines were green in colour when they were first put to use they also earned the name 'Green Parrots'.

How are these mines associated with Soviet Union and Afghanistan?

- By some estimates more than a million 'Butterfly mines' litter Afghanistan and were airdropped in valleys and mountain passes to impede the movement of the Afghan Mujahideen.
- More than 30,000 Afghans are believed to have been victims of these mines and a large number of children were among the casualties.

Are these kind of mines allowed by international law?

- The anti personal mines are banned by international convention on land lines but Russia and Ukraine are not signatories to it.
- However, there is a 1996 Amended Protocol II to the Convention on Certain Conventional Weapons-the Landlines Protocol to which Russia and Ukraine are signatories.
- In the ongoing conflict, both countries have accused each other of having used these mines, since both possess them in sufficient numbers.

Vertical Launch Short Range Surface to Air Missile

Focus. GS III- Defence Technology

Why in News?

- Recently, Vertical Launch Short Range Surface to Air Missile (VL-SRSAM) was successfully flight-tested by Defence Research & Development Organisation (DRDO) and the Indian Navy from an Indian Naval Ship at Integrated Test Range (ITR), Chandipur off the coast of Odisha.

About VL-SRSAM:

- For the deployment of Indian Naval warships, VL-SRSAM has been created and developed cooperatively by three Defense Research and Development Organization facilities.
- The missile is capable of destroying a variety of close-range aerial threats, including sea-skimming targets.

- Sea skimming is a technique many anti-ship missiles and some fighter or strike aircraft use to avoid radar and infrared detection.

Design:

- The missile is intended to hit fast-moving aerial targets with a range of 40 to 50 km and an altitude of roughly 15 km.
- Its design is based on the Beyond Visual Range Air to Air Missile known as the Astra.
- The Defence Research and Development Organization created the Astra ("weapon") air-to-air all-weather beyond-visual-range active radar homing missile for India.
- A Beyond-Visual-Range (BVR) missile is an air-to-air missile that can engage targets at distances of at least 20 nautical miles.

Features of VL-SRSAM:

- **Cruciform wings:** They are four small wings arranged like a cross on four sides and give the projectile a stable aerodynamic posture.
- **Thrust Vectoring:** It is the ability to change the direction of the thrust from its engine, control the angular velocity and the attitude of the missile.
- Thrust is the force which moves an aircraft through the air.
- **Canisterised system:** The inside environment is controlled, thus making its transport and storage easier and improving the shelf life of weapons.

F-INSAS, Nipun mines and Landing Craft Assault

- A day after a made-in-India howitzer gun, the ATAGS, was used for the first time in the ceremonial 21-gun salute during the Independence Day celebrations, Defence Minister handed over several new defence systems, including the F-INSAS, the Nipun mines, the Landing Craft Assault (LCA), to the Army.

Relevance:

GS III: Defence

Dimensions of the Article:

1. What is the F-INSAS system?
2. What are Nipun mines?
3. What is the Landing Craft Assault?

What is the F-INSAS system?

- F-INSAS stands for Future Infantry Soldier As A System, a programme for infantry modernisation aimed at increasing the operational capability of the soldier.
- As part of the project, soldiers are being equipped with modern systems that are lightweight, all-weather-all-terrain, cost-effective and low maintenance.
- The full-gear of the F-INSAS system includes an AK-203 assault rifle, which is a Russian-origin gas-operated, magazine-fed, select-fire assault rifle.
- It has a range of 300 metre, and is being made at Korwa near Amethi in a Russia- India joint venture.
- On the weaponry front, other than the AK-203, the F-INSAS includes a multi-mode hand grenade, which can be used in defensive and offensive modes.
- Apart from this, the F-INSAS provides soldiers with ballistic helmets and ballistic goggles for protection against small projectiles and fragments, along with a bulletproof vest.
- The helmet and the bullet-proof jacket are capable of protecting the soldier against 9 mm bullets and ammunition fired from AK-47 rifles.

- The F-INSAS also comes with hands-free, secured advanced communications set for real-time exchange of information with the command post and fellow soldiers for enhanced situational awareness.
- Most importantly, all these items have been sourced from Defence Public Sector Undertakings, and private Indian industries.
- They have been indigenously designed by the Indian entities, including the DRDO and the ordnance factories ecosystem.

What are Nipun mines?

- Nipun mines are indigenously designed and developed anti-personnel mines, termed by the DRDO as 'soft target blast munition'.
- These mines are meant to act as the first line of defence against infiltrators and enemy infantry.
- They have been developed with the efforts of Armament Research and Development Establishment, a Pune-based DRDO facility, and Indian industry.
- Anti-personnel mines are meant to be used against humans as against anti-tank mines that are aimed at heavy vehicles.
- They are smaller in size and can be deployed in large numbers.
- The Army has said that the mine will provide protection to the troops on the borders and is more potent and effective than the existing anti-personnel mine in its arsenal.

What is the Landing Craft Assault?

- The Landing Craft Assault (LCA) is meant to serve as a replacement for the boats with limited capabilities currently in use in the Pangong Tso lake.
- The LCA, which has been indigenously developed by Goabased Aquarius ShipYard Limited, is said to have better launch, speed and capacity to operate across water obstacles in eastern Ladakh.
- Similar vessels are already in operation in the Indian Navy.

ENVIRONMENT AND ECOLOGY

New Elephant Reserve in Tamil Nadu

Context:

- Recently, the Government of India has announced the notification of one more Elephant Reserve (ER) Agasthiyamalai in Tamil Nadu during a programme in the Periyar Wildlife Sanctuary in Kerala.
- This will be the 32nd Elephant Reserve in the country after Singphan ER in Nagaland was notified in 2018.
- Agasthiyamalai is Tamil Nadu's 5th Elephant Reserve and also a Biosphere Reserve.

Relevance:

GS II- Environment and Ecology

Dimensions of the Article:

1. Asian Elephants
2. African Elephants
3. Threats
4. What is Project Elephant?
5. Way Forwards to prevent Man – Animal Conflicts

Asian Elephants:

- The Asian elephant is divided into three subspecies: **Indian, Sumatran, and Sri Lankan.**
- The Indian subspecies has the largest territory and is home to the majority of the continent's remaining elephants.
- The eldest and largest female elephant in the herd is in charge (known as the matriarch). The matriarch's daughters and their children make up this herd.
- Elephants have the longest known gestation period of any mammal, extending up to 680 days (22 months).

Protection Status:

- **IUCN Red List:** Endangered.
- **Wildlife (Protection) Act, 1972:** Schedule I.
- **CITES:** Appendix I

African Elephants:

The Savanna (or bush) elephant and the Forest elephant are two subspecies of African elephants.

Protection Status:

IUCN Red List Status:

- **African Savanna Elephant:** Endangered.
- **African Forest Elephant:** Critically Endangered
- **CITES:** Appendix II

Threats:

- Escalation of poaching.
- Habitat loss.
- Human-elephant conflict.
- Mistreatment in captivity.
- Abuse due to elephant tourism.
- Rampant mining, Corridor destruction.

Human-Elephant Conflicts

- Elephant-human conflict is a result of habitat loss and fragmentation.
- When elephants and humans interact, there is conflict from crop raiding, injuries and deaths to humans caused by elephants, and elephants being killed by humans for reasons other than ivory and habitat degradation.
- Such encounters foster resentment against the elephants amongst the human population and this can result in elephants being viewed as a nuisance and killed.
- In addition to the direct conflicts between humans and elephants, elephants also suffer indirect costs like degradation of habitat and loss of food plants.

What is Project Elephant?

- Project Elephant is a Central Government sponsored scheme launched in February 1992.
- Through the Project Elephant scheme, the government helps in the protection and management of elephants to the states having wild elephants in a free-ranging population.
- It ensures the protection of elephant corridors and elephant habitat for the survival of the elephant population in the wild.
- This elephant conservation strategy is mainly implemented in 16 of 28 states or union territories in the country which includes Arunachal Pradesh, Assam, Andhra Pradesh, Chhattisgarh Jharkhand, Kerala, Karnataka, Meghalaya, Maharashtra, Nagaland, Orissa, Tamil Nadu, Uttaranchal, Uttar Pradesh, and West Bengal.
- The union government provides technical and financial help to these states to carry out and achieve the goals of project elephant. Not just that, assistance for the purpose of the census, training of field officials is also provided to ensure the mitigation and prevention of man-elephant conflict.

Way Forwards to prevent Man – Animal Conflicts

- **Surveillance-** Increased vigilance and protection of identified locations using hitech surveillance tools like sensors can help in tracking the movement of animals and warn the local population.
- **Improvement of habitat-** In-situ and ex-situ habitat conservation measures will help in securing animals their survival.
- Re-locating of animal habitats away from residential and commercial centres will serve to minimize animal-man conflict for illegal and self-interested motives
- **Awareness Programmes-** To create awareness among people and sensitize them about the Do's and Don'ts in the forest areas to minimize the conflicts between man and animal.
- **Training programs-** Training to the police offices and local people should be provided for this purpose forest department should frame guidelines.
- **Boundary walls-** The construction of boundary walls and solar fences around the sensitive areas to prevent the wild animal attacks.
- **Technical and financial support-** For the development of necessary infrastructure and support facilities for immobilization of problematic animals through tranquilization, their translocation.
- **Part of CSR-** Safeguarding Tiger corridors, building eco-bridges and such conservation measures can be part of corporate social responsibility.

Great Barrier Reef

Context:

- The highest levels of coral cover, within the past 36 years, has been recorded in the northern and central parts of Australia's Great Barrier Reef (GBR), according to the annual long-term monitoring report by the Australian Institute of Marine Science (AIMS).

Relevance:

Environment and Ecology (Conservation of Environment and Ecology, Environmental Pollution and Degradation)

Dimensions of the Article:

1. Great Barrier Reef
2. About Coral Reefs
3. What does the new report say?

Great Barrier Reef

- The Great Barrier Reef, located in the **Coral Sea (North-East Coast), off the coast of Queensland, Australia**, is the world's most extensive and spectacular coral reef ecosystem composed of over 2,900 individual reefs and 900 islands.
- This reef structure is composed of and built by billions of tiny organisms, known as coral polyps which are tiny, soft-bodied organisms and their base which is a hard, protective limestone skeleton called a calicle, forms the structure of coral reefs.
- It was selected as a **World Heritage Site in 1981**.

About Coral Reefs

- Indonesia has the largest coral reef area in the world and the Great Barrier Reef of the Queensland coast of Australia is the largest aggregation of coral reefs.
- India, Maldives, Sri Lanka and Chagos have the maximum coral reefs in South Asia.
- Coral Reefs protect humanity from natural calamities acting as a barrier, provide revenue and employment through tourism and recreation and also provide habitats for fishes, starfish and sea anemones.
- Coral blocks are used for buildings and road construction, the lime supplied by corals is used in cement industries and coral reefs may also be used in jewellery.

India has four coral reef areas:

- Gulf of Mannar,
- Andaman and Nicobar Islands,
- Lakshadweep islands
- Gulf of Kutch.

Risks and threats to coral reefs

- Due to anthropogenic activities such as coastal development, destructive fishing methods and pollution from domestic and industrial sewage.
- Due to increased sedimentation, over-exploitation and recurring cyclones.
- Coral diseases such as black band and white band due to infectious microorganisms introduced by the human population that live on the coastal regions.

What does the new report say?

- The annual long-term monitoring by AIMS began 36 years ago, and reefs are surveyed through in-water and aerial techniques.
- The report states that reef systems are resilient and capable of recovering after disturbances such as accumulated heat stress, cyclones, predatory attacks and so on, provided the frequency of such disturbances is low.
- The new survey shows record levels of region-wide coral cover in the northern and central GBR since the first ever AIMS survey was done.
- Coral cover is measured by determining the increase in the cover of hard corals.
- The hard coral cover in northern GBR had reached 36% while that in the central region had reached 33%.
- Meanwhile, coral cover levels declined in the southern region from 38% in 2021 to 34% in 2022.
- The record levels of recovery, the report showed, were fuelled largely by increases in the fast-growing Acropora corals, which are a dominant type in the GBR.
- Incidentally, these fast growing corals are also the most susceptible to environmental pressures such as rising temperatures, cyclones, pollution, crown-of-thorns starfish (COTs) attacks which prey on hard corals and so on.

- Also, behind the recent recovery in parts of the reef, are the low levels of acute stressors in the past 12 months — no tropical cyclones, lesser heat stress in 2020 and 2022 as opposed to 2016 and 2017, and a decrease in COTs outbreaks.

Wildlife (Protection), Amendment Bill

Context:

- The Lok Sabha passed the Wildlife (Protection), Amendment Bill, with no significant modifications to the version of the Bill presented in the House for discussion.
- GS III- Environment and Ecology

Dimensions of the Article:

1. About Wildlife (Protection) Act, 1972
2. Wildlife (Protection) Amendment Bill: Key Features

About Wildlife (Protection) Act, 1972

- WPA provides for the protection of the country's wild animals, birds and plant species, in order to ensure environmental and ecological security.
- It provides for state wildlife advisory boards, regulations for hunting wild animals and birds,
- establishment of sanctuaries and national parks, regulations for trade in wild animals, animal products and trophies, and judicially imposed penalties for violating the Act.
- The act provides for the protection of wild animals, birds and plants.
- It provides for protection of hunting rights of the Scheduled Tribes in Andaman and Nicobar Islands.
- It has provisions for the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
- It regulates the trade of wild animals, birds and plants.
- It has six schedules which give varying degrees of protection.
- Species listed in Schedule I and part II of Schedule II get absolute protection — offences under these are prescribed the highest penalties.
- Species listed in Schedule III and Schedule IV are also protected, but the penalties are much lower.
- Schedule V includes the animals which may be hunted.
- The plants in Schedule VI are prohibited from cultivation and planting

Wildlife (Protection) Amendment Bill: Key Features

CITES:

- CITES is an international agreement between governments to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species.
- Under CITES, plant and animal specimens are classified into three categories (Appendices) based on the threat to their extinction.
- The Convention requires countries to regulate the trade of all listed specimens through permits.
- It also seeks to regulate the possession of live animal specimens.
- The Bill seeks to implement these provisions of CITES.

Rationalising schedules:

- Currently, the Act has six schedules for specially protected plants (one), specially protected animals (four), and vermin species (one).
- Vermin refers to small animals that carry disease and destroy food.
- The Bill reduces the total number of schedules to four by:

- Reducing the number of schedules for specially protected animals to two (one for greater protection level), Removes the schedule for vermin species, and Inserts a new schedule for specimens listed in the Appendices under CITES (scheduled specimens).

Obligations under CITES:

The Bill provides for the central government to designate a:

- Management Authority, which grants export or import permits for trade of specimens,
- Scientific Authority, which gives advice on aspects related to impact on the survival of the specimens being traded.
- Every person engaging in trade of a scheduled specimen must report the details of the transaction to the Management Authority.
- As per CITES, the Management Authority may use an identification mark for a specimen.
- The Bill prohibits any person from modifying or removing the identification mark of the specimen.
- Additionally, every person possessing live specimens of scheduled animals must obtain a registration certificate from the Management Authority.

Invasive alien species:

- The Bills empowers the central government to regulate or prohibit the import, trade, possession or proliferation of invasive alien species.
- Invasive alien species refers to plant or animal species which are not native to India and whose introduction may adversely impact wild life or its habitat.
- The central government may authorise an officer to seize and dispose the invasive species.

Control of sanctuaries:

- The Act entrusts the Chief Wild Life Warden to control, manage and maintain all sanctuaries in a state.
- The Chief Wild Life Warden is appointed by the state government.
- The Bill specifies that actions of the Chief Warden must be in accordance with the management plans for the sanctuary.
- These plans will be prepared as per guidelines of the central government, and as approved by the Chief Warden.
- For sanctuaries falling under special areas, the management plan must be prepared after due consultation with the concerned Gram Sabha. Special areas include a Scheduled Area or areas where the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 is applicable.
- Scheduled Areas are economically backward areas with a predominantly tribal population, notified under the Fifth Schedule to the Constitution.

Conservation reserves:

- Under the Act, state governments may declare areas adjacent to national parks and sanctuaries as a conservation reserve, for protecting flora and fauna, and their habitat.
- The Bill empowers the central government to also notify a conservation reserve.

Surrender of captive animals:

- The Bill provides for any person to voluntarily surrender any captive animals or animal products to the Chief Wild Life Warden.
- No compensation will be paid to the person for surrendering such items.
- The surrendered items become property of the state government.

Arctic warming

Context:

- Recently, Finnish Meteorological Institute researchers published their study in the
- Communications Earth & Environment journal, concluding that the Arctic is heating four times faster than the rest of the planet.
- The warming is more concentrated in the Eurasian part of the Arctic, where the Barents Sea north of Russia and Norway is warming at an alarming rate — seven times faster than the global average.

Relevance:

GS III: Environment and Ecology

Dimensions of the Article:

1. What is Arctic amplification?
2. What are the consequences of Arctic warming?
3. What is the impact on India?

What is Arctic amplification?

- Global warming, the long-term heating of the earth's surface, hastened due to anthropogenic forces or human activities since pre-industrial times and has increased the planet's average temperature by 1.1 degrees Celsius.
- While changes are witnessed across the planet, any change in the surface air temperature and the net radiation balance tend to produce larger changes at the north and south poles.
- This phenomenon is known as polar amplification; these changes are more pronounced at the northern latitudes and are known as the Arctic amplification.

What causes it?

- Among the many global warming-driven causes for this amplification, primary causes are:
 - The ice-albedo feedback
 - Lapse rate feedback
 - Water vapour feedback
- ice and snow have high albedo (measure of reflectivity of the surface), implying that they are capable of reflecting most of the solar radiation as opposed to water and land.
- In the Arctic's case, global warming is resulting in diminishing sea ice.
- As the sea ice melts, the Arctic Ocean will be more capable of absorbing solar radiation, thereby driving the amplification.
- The lapse rate or the rate at which the temperature drops with elevation decreases with warming.
- Studies show that the ice-albedo feedback and the lapse rate feedback are responsible for 40% and 15% of polar amplification respectively.

What are the consequences of Arctic warming?

- The causes and consequences of Arctic amplification are cyclical — what might be a cause can be a consequence too.
- The Greenland ice sheet is melting at an alarming rate, and the rate of accumulation of sea ice has been remarkably low since 2000, marked by young and thinner ice replacing the old and thicker ice sheets.
- The unusual summer temperatures resulted in a melt of 6 billion tonnes of ice sheet per day, amounting to a total of 18 billion tonnes in a span of three days, enough to cover West Virginia in a foot of water.
- Greenlandic ice sheet holds the second largest amount of ice, after Antarctica, and therefore it is crucial for maintaining the sea level.
- In 2019, this was the single biggest cause for the rise in the sea level, about 1.5 metres. If the sheet melts completely, the sea level would rise by seven metres, capable of subsuming island countries and major coastal cities.

- The warming of the Arctic Ocean and the seas in the region, the acidification of water, changes in the salinity levels, are impacting the biodiversity, including the marine species and the dependent species.
- The warming is also increasing the incidence of rainfall which is affecting the availability and accessibility of lichens to the reindeer.
- The Arctic amplification is causing widespread starvation and death among the Arctic fauna.
- The permafrost in the Arctic is thawing and in turn releasing carbon and methane which are among the major greenhouse gases responsible for global warming.
- Experts fear that the thaw and the melt will also release the long-dormant bacteria and viruses that were trapped in the permafrost and can potentially give rise to diseases.

What is the impact on India?

- In recent years, scientists have pondered over the impact the changing Arctic can have on the monsoons in the subcontinent.
- The link between the two is growing in importance due to the extreme weather events the country faces, and the heavy reliance on rainfall for water and food security.
- A study titled 'A possible relation between Arctic sea ice and late season Indian Summer Monsoon Rainfall extremes' published in 2021 by a group of Indian and Norwegian scientists found that the reduced sea ice in the Barents-Kara sea region can lead to extreme rainfall events in the latter half of the monsoons — in September and October.
- The changes in the atmospheric circulation due to diminishing sea ice combined with the warm temperatures in the Arabian Sea contribute to enhanced moisture and drive extreme rainfall events.
- In 2014, India deployed IndARC, India's first moored-underwater observatory in the Kongsfjorden fjord, Svalbard, to monitor the impact of the changes in the Arctic Ocean on the tropical processes such as the monsoons.
- According to the World Meteorological Organization's report, 'State of Global Climate in 2021', sea level along the Indian coast is rising faster than the global average rate.

Peninsular Rock Agama (*Psammophilus dorsalis*)

Context:

- A study carried out by researchers from Indian Institute of Science (IISc), Bengaluru,
- undertook to characterise urbanisation in the region and also to understand where the rock agama reside in and around Bengaluru specifically

Relevance:

GS III: Environment and Ecology

Dimensions of the Article:

1. About Peninsular Rock Agama
2. Why research them?

About Peninsular Rock Agama

- The Peninsular Rock Agama (*Psammophilus dorsalis*) is a type of garden lizard has a strong presence in southern India.
- This lizard is a large animal, strikingly coloured in orange and black. They do not generate their own body heat, so they need to seek warmth from external sources like a warm rock or a sunny spot on the wall.
- They are important in ecology from different aspects — they can indicate which parts of the city are warming, and their numbers show how the food web is changing.

- Habitat loss and other such features of urbanisation have affected the presence of the animal in urban centres.

Why research them?

- A healthy environment depends on insects because they provide a wide range of functions, including pollination.
- Therefore, even while rock agamas are fascinating in and of themselves, they also serve as a useful model system for analysing other facets of the ecosystem.
- There is a great deal of vegetation and fauna that is quickly disappearing in cities like Bengaluru.
- One such species, the rock agama, is reliant on rocky scrub environments that are being transformed into structures and crops.

Relocation of cheetahs

Context:

India’s ambitious project to translocate African cheetahs has missed an unofficial deadline of August 15, though sources say the wild cats are likely to arrive here within this year.

Relevance:

GS III- Environment and Ecology

Dimensions of the Article:

1. What was the distribution of cheetahs in India?
2. What caused the extinction of cheetahs in India?
3. What is the current status of this project?
4. About Cheetah

What was the distribution of cheetahs in India?

- Historically, Asiatic cheetahs had a very wide distribution in India.
- There are authentic reports of their occurrence from as far north as Punjab to Tirunelveli district in southern Tamil Nadu, from Gujarat and Rajasthan in the west to Bengal in the east.
- Most of the records are from a belt extending from Gujarat passing through Maharashtra, Madhya Pradesh, Uttar Pradesh, Chhattisgarh, Jharkhand and Odisha.
- There is also a cluster of reports from southern Maharashtra extending to parts of Karnataka, Telangana, Kerala and Tamil Nadu.
- The distribution range of the cheetah was wide and spread all over the subcontinent.
- They occurred in substantial numbers.

Habitats:

- Scrub forests
- Dry grasslands
- Savannas
- Other arid and semi-arid open habitats Some of the last reports of cheetahs in India prior to their local extinction are from edge habitats of sal forests in east-central India, not necessarily their preferred habitat.
- In Iran, the last surviving population of wild Asiatic cheetahs are found in hilly terrain, foothills and rocky valleys within a desert ecosystem

What caused the extinction of cheetahs in India?

- The cheetah in India has been recorded in history from before the Common Era. It was taken from the wild for coursing blackbuck for centuries, which is a major contributor to the depletion of its numbers through the ages.
- However, the final phase of its extinction coincided with British colonial rule. The British added to the woes of the species by declaring a bounty for killing it in 1871.
- Major reasons for the extinction of the Asiatic cheetah in India.
- The consistent and widespread capture of cheetahs from the wild (both male and female) over centuries
- Its reduced levels of genetic heterogeneity due to a historical genetic bottleneck resulting in reduced fecundity and high infant mortality in the wild.
- Its inability to breed in captivity.
- Sport hunting.
- Bounty killings.
- It is reported that the Mughal Emperor Akbar had kept 1,000 cheetahs in his menagerie and collected as many as 9,000 cats during his half century reign from 1556 to 1605.
- As late as 1799, Tipu Sultan of Mysore is reported to have had 16 cheetahs as part of his menagerie.
- It is recorded that the last cheetahs were shot in India in 1947, but there are credible reports of sightings of the cat till about 1967.

What is the current status of this project?

- According to the Government, Kuno is ready to receive the cheetahs.
- About a month ago a team of government officials visited Namibia to inspect the cheetahs that would be sent to India, review the arrangements and to reach an agreement for the transfer of the cats.
- It is being reported that Namibia wants India's support for lifting the CITES ban on commercial trade of wildlife products, including ivory.
- a condition requiring India to support Namibia for "sustainable utilisation of wildlife".
- The cheetahs are to be provided by the Cheetah Conservation Fund, an NGO, and not the Namibian government.
- Three to five cheetahs are expected to be part of the first group of cats and these are expected to arrive as early as May 2022 and released in the wild by August 15.

Issues with Re introduction

- Experts are divided on whether the reserve would provide a favourable climate for African cheetahs in terms of prey abundance.
- Cheetah habitat was required to sustain a genetically viable population.

About Cheetah:

- The cheetah is one of the oldest of the big cat species, with ancestors that can be traced back more than five million years to the Miocene era.
- The cheetah is also the world's fastest land mammal that lives in Africa and Asia.

African Cheetah

- IUCN status – Vulnerable
- CITES status – Appendix-I of the List. This List comprises of migratory species that have been assessed as being in danger of extinction throughout all or a significant portion of their range.
- Habitat – Around 6,500-7,000 African cheetahs present in the wild.
- Physical Characteristics – Bigger in size as compared to Asiatic Cheetah.

Asian Cheetah

- IUCN Status – Critically Endangered.

- CITES – Appendix 1 of the list
- Habitat – 40-50 found only in Iran.
- Physical Characteristics – Smaller and paler than the African cheetah. Has more fur, a smaller head and a longer neck. Usually have red eyes and they have a more cat-like appearance.

Ramsar Site

Context:

India adds 11 more wetlands to the list of Ramsar sites to make total 75 Ramsar sites covering an area of 13,26,677 ha in the country in the 75th year of Independence.

Relevance:

GS III- Environment and Ecology

Dimensions of the Article:

1. 11 wetlands designated as Ramsar sites
2. What is a Ramsar Site?
3. Ramsar Convention
4. What are wetlands?

What is a Ramsar Site?

- A Ramsar site is a wetland site designated to be of international importance under the Ramsar Convention.
- Ramsar sites are recorded on the List of Ramsar wetlands of international importance.
- The Ramsar Classification System for Wetland Type is a wetland classification developed within the Ramsar Convention intended as a means for fast identification of the main types of wetlands for the purposes of the Convention.
- The countries with most sites are the United Kingdom with 175 and Mexico with 142. The country with the greatest area of listed wetlands is Bolivia.

Ramsar Convention

- The Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat is an international treaty for the conservation and sustainable use of wetlands.
- It is named after the city of Ramsar in Iran, where the Convention was signed in 1971.
- The 2nd of February each year is World Wetlands Day, marking the date of the adoption of the Convention on Wetlands.
- The Convention's mission is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world".
- Every three years, representatives of the Contracting Parties meet as the Conference of the Contracting Parties (COP), the policy-making organ of the Convention which adopts decisions (Resolutions and Recommendations) to administer the work of the Convention and improve the way in which the Parties are able to implement its objectives.

What are wetlands?

- A wetland is a distinct ecosystem that is flooded by water, either permanently or seasonally, where oxygen-free processes prevail.
- The primary factor that distinguishes wetlands from other land forms or water bodies is the characteristic vegetation of aquatic plants, adapted to the unique hydric soil.

- The main wetland types are swamp, marsh, bog, and fen; sub-types include mangrove forest, carr, pocosin, floodplains, mire, vernal pool, sink, and many others.
- The largest wetlands include the Amazon River basin, the West Siberian Plain, the Pantanal in South America, and the Sundarbans in the Ganges-Brahmaputra delta.

Importance of Wetlands

- Wetlands play a number of functions such as:
- Water storage (flood control)
- Groundwater replenishment
- Shoreline stabilisation and storm protection
- Water purification
- Reservoirs of biodiversity
- Pollination
- Wetland products
- Cultural values
- Recreation and tourism
- Climate change mitigation and adaptation
- Wetlands are also considered the most biologically diverse of all ecosystems, serving as home to a wide range of plant and animal life.

Wetland disturbances

- Wetlands, the functions and services they provide as well as their flora and fauna, can be affected by several types of disturbances - the predominant ones include the following:
- Enrichment/eutrophication
- Organic loading and reduced dissolved oxygen
- Contaminant toxicity
- Acidification
- Salinization
- Sedimentation
- Altered solar input (turbidity/shade)
- Vegetation removal
- Thermal alteration
- Dehydration/aridification
- Inundation/flooding
- Habitat fragmentation
- Other human presence

Human Activities that affect Wetlands:

- Drainage
- Development
- Over-grazing
- Mining
- Unsustainable water use
- Wetlands have historically been the victim of large draining efforts for real estate development, or flooding for use as recreational lakes or hydropower generation.

Eco-sensitive zones

Context:

- Union Minister of Environment, Forest and Climate Change has said the Ministry will file a review petition in the Supreme Court urging a relook into its judgment on eco-sensitive zones.

Relevance:

GS III- Environment and Ecology

Dimensions of the Article:

1. What are Eco-Sensitive Zones?
2. Activities Allowed in ESZs
3. How are they demarcated?

What are Eco-Sensitive Zones?

- Eco Sensitive Zones are fragile areas around protected areas declared by the Ministry of Environment, Forest, and Climate Change (MoEFCC).
- They are areas notified by the MoEFCC around Protected Areas, National Parks and Wildlife Sanctuaries.
- The purpose of declaring ESZs is to create some kind of “shock absorbers” to the protected areas by regulating and managing the activities around such areas.
- Among activities prohibited in the eco-sensitive zone are hydroelectric projects, brick kilns, commercial use of firewood and discharge of untreated effluents in natural water bodies or land areas.
- No new commercial hotels and resorts shall be permitted within 1 km of the boundary of the protected area or up to the extent of the eco-sensitive zone, whichever is nearer, except for small temporary structures for eco-tourism activities.

Activities Allowed in ESZs

- ***Prohibited activities:*** Commercial mining, saw mills, industries causing pollution (air, water, soil, noise etc), establishment of major hydroelectric projects (HEP), commercial use of wood, Tourism activities like hot-air balloons over the National Park, discharge of effluents or any solid waste or production of hazardous substances.
- ***Regulated activities:*** Felling of trees, establishment of hotels and resorts, commercial use of natural water, erection of electrical cables, drastic change of agriculture system, e.g. adoption of heavy technology, pesticides etc, widening of roads.
- ***Permitted activities:*** Ongoing agricultural or horticultural practices, rainwater harvesting, organic farming, use of renewable energy sources, adoption of green technology for all activities.

How are they demarcated?

- The term "Eco-Sensitive Zones" is not mentioned in the Environment (Protection) Act of 1986.
- Section 3(2)(v) of the Act, on the other hand, states that the Central Government has the authority to limit the areas in which any industry, operation, or process, or class of industries, operations, or processes, may be carried out or not, subject to certain safeguards.
- Besides to Rule 5(1) of the Environment (Protection) Rules, 1986 stipulates that the central government has the authority to ban or restrict the location of industries and the conduct of certain operations or processes based on specified factors.
- The government has declared No Development Zones based on the same grounds (NDZs).

Project Arth Ganga

Context:

The Director General of the National Mission for Clean Ganga, spoke about the Arth Ganga model during his virtual keynote address to the Stockholm World Water Week 2022.

Relevance:

GS III: Environment and Ecology

Dimensions of the Article:

1. About Project Arth Ganga
2. Features of the project:
3. Significance of the project
4. About National Ganga Council

About Project Arth Ganga

- PM Modi first introduced the concept during the first National Ganga Council meeting in Kanpur in 2019, where he urged for a shift from Namami Gange, the Union Government's flagship project to clean the Ganga, to the model of Arth Ganga.
- The latter focuses on the sustainable development of the Ganga and its surrounding areas, by focusing on economic activities related to the river.
- At its core, the Arth Ganga model seeks to use economics to bridge people with the river.
- The project has been assisted by the World Bank.

Features of the project:

- Under Arth Ganga, the government is working on six verticals.
- Zero Budget Natural Farming, which involves chemical-free farming on 10 km on either side of the river, and the promotion of cow dung as fertiliser through the GOBARdhan scheme.
- The Monetization and Reuse of Sludge & Wastewater, which seeks to reuse treated water for irrigation, industries and revenue generation for Urban Local Bodies (ULBs).
- Arth Ganga will also involve Livelihood Generation Opportunities, by creating haats where people can sell local products, medicinal plants and ayurveda.
- To increase public participation by increasing synergies between the stakeholders involved with the river.
- The model also wants to promote the cultural heritage and tourism of Ganga and its surroundings, through boat tourism, adventure sports and by conducting yoga activities.
- The model seeks to promote institutional building by empowering local administration for improved water governance.

Significance of the project

- The project is a holistic viewpoint of the Ganga rejuvenation project which seeks to promote sustainable livelihood of the population in this area.
- Inland Waterways being the most important part of the Arth Ganga project, will create huge economic activities while focusing on inclusive and sustainable livelihood.
- Trade and market access benefits, local community economic growth, and passenger convenience all have a big impact.
- According to the World Bank, this project's infrastructure-related operations will lead to the creation of 100–150 direct jobs per industry.
- The Arth Ganga project will also ensure large scale skills enhancement and public/private sector capability development.
- The ease of transportation and doing business will have a huge impact on the farmers especially horticulture farmers in the region.

About National Ganga Council

- In 2016, the government released a notification replacing the National Ganga River Basin Authority by a new body named "National Council for River Ganga" The National Ganga Council is one of the tiers of

the five-tier structure envisaged to prevent, control, and abate pollution under the Environment (Protection) Act, 1986.

- It is chaired by the Prime Minister.
- It has been given the overall responsibility for the superintendence of pollution prevention and rejuvenation of River Ganga Basin including Ganga and its tributaries.

African Rhinoceros

Context:

- Recently, a report has stated that Rhino poaching rates in Africa declined to 2.3% in 2021 from 3.9% in 2018.
- At least 2,707 rhinos were poached in Africa between 2018 and 2021, including critically endangered black rhino and near threatened white rhino.

Relevance: GS II: Environment and Ecology

Dimensions of the Article:

1. Key findings of the Report
2. About Black Rhino & White Rhino

Key findings of the Report

- The African and Asian Rhino Specialist Group (AfRSG), the Species Survival Commission (SSC), the International Union for Conservation of Nature (IUCN), and TRAFFIC put together the study.
- The thirteen nations that make up the rhino's range that the African Rhino Specialist Group (AfRSG) gathered data from are Botswana, Chad, Eswatini, Kenya, Malawi, Mozambique, Namibia, Rwanda, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe.
- From a peak of 5.3% of the total population in 2015 to 2.3% in 2021, rhinoceros were poached at a lower rate in Africa.
- 90% of all documented cases originated in South Africa, mostly affecting white rhinos in Kruger National Park.
- While there was no poaching in Kenya in 2020, South Africa lost 394 rhinoceros to the practise.

About Black Rhino & White Rhino:

Black Rhino:

- Black rhinos are the smaller of the two African Rhino species.
- The most notable difference between white and black rhinos is their hooked upper lip.
- While White Rhino has a square lip.
- Black rhinos are browsers rather than grazers, and their pointed lip helps them feed on leaves from bushes and trees.
- They have two horns, and occasionally a third, small posterior horn.

Habitat:

Semi-Desert Savannah, Woodlands, Forests, Wetlands.

Protection Status:

- IUCN Red List: Critically Endangered
- CITES: Appendix I
- Wildlife Protection Act 1972: N/A

White Rhino:

- White rhinos are the second largest land mammal after the elephant.
- White rhinos are also known as the square-lipped rhinoceros due to their square (not pointed) upper lip.
- Two genetically different subspecies exist, the northern and southern white rhino and are found in two different regions in Africa.

Habitat:

Long and short grass savanna areas in grasslands.

Protection Status:

- IUCN Red List: Near Threatened
- CITES: Appendix I & Appendix II
- Wildlife Protection Act 1972: N/A

Forever chemicals

Context:

- A recent study published in Environment Science and Technology has found that rainwater from many places across the globe is contaminated with “per- and polyfluoroalkyl substances,” (PFAs), which are called “forever chemicals” because of their tendency to stick around in the atmosphere, rainwater and soil for long periods of time.

Relevance:

GS III: Environment and Ecology

Dimensions of the Article:

1. What are PFAs?
2. What harm do PFAs cause?
3. How can these chemicals be removed from rainwater?

What are PFAs?

- According to the US Centre for Disease Control and Prevention (CDC), PFAs are manmade chemicals used to make nonstick cookware, water-repellent clothing, stainresistant fabrics, cosmetics, firefighting forms and many other products that resist grease, water and oil.
- PFAs can migrate to the soil, water and air during their production and use.
- Since most PFAs do not break down, they remain in the environment for long periods of time.
- Some of these PFAs can build up in people and animals if they are repeatedly exposed to the chemicals.

What harm do PFAs cause?

- The United States Environmental Protection Agency (EPA) lists a variety of health risks that are attributed to PFA exposure, including decreased fertility, developmental effects in children, interference with body hormones, increased cholesterol levels and increased risk of some cancers.
- Recent research has also revealed that long-term low-level exposure to certain PFAs can make it difficult for humans to build antibodies after being vaccinated against various diseases.

How can these chemicals be removed from rainwater?

- While there is no known method that can extract and remove PFAs from the atmosphere itself, there are many effective, albeit expensive, methods to remove them from rainwater that has been collected through various rainwater harvesting methods.

- One way to do this would be to use a filtration system with activated carbon. The activated carbon will need to be removed and replaced regularly.
- Also, the old contaminated material must be destroyed.
- Recently, Science reported a cheaper method that EPA researchers led by William Dichtel and Brittany Trang stumbled upon by chance.
- The researchers first placed a PFA compound in a solvent called DMSO (dimethyl sulfoxide).
- They then mixed it with sodium hydroxide (lye) in water.
- They found that when this mixture was heated up to boiling temperature, the PFA compound began to degrade.
- However, this method doesn't work for all PFAs and only works for certain PFA subsets.
- The scientists are now looking at ways to scale up their technique to include different types and also large amounts of PFAS.

Domestic Carbon Markets

Context

- The Energy Conservation (Amendment) Bill, 2022, which seeks to amend the 20-year-old Energy Conservation Act, was introduced in Parliament, and one of its significant provisions
- is the establishment of a domestic carbon market.

Relevance

- GS Paper 3: Conservation, environmental pollution and degradation, environmental impact assessment.

Mains Question

What exactly is carbon trading? What is the process of carbon trading? Is this a viable strategy for mitigating the effects of global warming? Examine critically. (150 Words)

Concerning carbon markets

- A carbon market converts emission reductions and removals into tradeable assets, creating incentives to reduce emissions or improve energy efficiency. Carbon markets can be either mandatory or voluntary.
- Demonstration: As a result, an industrial unit that exceeds emission standards stands to gain credits, allowing units that are struggling to meet their standards to purchase credits and demonstrate compliance with these standards.
- The unit that performed better on the standards earns money by selling credits, while the purchasing unit can meet its operating obligations.

India requires a carbon market

- With 2.88 gigatonnes of CO₂, India was named the world's third worst polluter in 2019. (Gt). China (10.6 Gt) and the United States (5 Gt).
- A carbon market would go a long way toward India's goal of becoming carbon-neutral by 2070.
- Carbon markets have proven to be one of the most effective drivers of emission reductions, providing the most cost-effective emission reductions.
- Incentives in the form of carbon credits for the deployment of clean technologies will encourage the private sector to participate in climate action.
- Carbon credits, according to reports, would incentivize entities with low reduction costs to reduce emissions beyond their mandate.
- It would encourage innovation and finance clean projects from Indian MSMEs, which have significant potential for reducing emissions.
- It will also increase the liquidity of Indian reduction certificates, encouraging more reductions globally.

Other carbon markets

- **Kyoto Protocol:** A carbon market was established on a global scale as part of the United Nations' Kyoto Protocol on Climate Change in 1997.
- The Kyoto Protocol's emissions trading allowed countries with leftover emission units, i.e. emissions permitted but not "used," to sell this excess capacity to countries that were over their targets.
- **For example**, if a developing country reduces its emissions by constructing a solar panel plant or planting trees, it may be able to sell a "credit" to a developed country.
- While this system worked well for a few years, the market collapsed due to concerns about environmental efficacy and a lack of demand for carbon credits.
- **Paris Agreement:** Under the Paris Agreement, a similar carbon market is being developed, but the details have not yet been finalised.
- **Regional carbon markets:** Both Europe and China have domestic carbon markets. In California, the government limits the amount of greenhouse gases that a given industry or sector of the economy can emit.
- **Indian context:** PAT (perform, achieve, and trade) is a similar scheme in India that allows units to earn efficiency certificates if they outperform the prescribed efficiency standards. The laggards can purchase these certificates in order to continue operating.

Background (Energy Conservation Act, 2001)

- **Description:** The Energy Conservation Act of 2001 fueled the first phase of India's transition to a more energy-efficient future by establishing the Bureau of Energy Efficiency (BEE) to promote the use of more energy-efficient processes and equipment.
- **Scope:** It established energy conservation and efficiency standards for a select group of industries and commercial complexes to follow. Equipment and appliances such as air conditioners and refrigerators were also required to meet efficiency standards.
- widespread adoption of LED bulbs resulted in massive energy savings over time.

2022 Energy Conservation (Amendment) Bill

- **Goals:** It aims to make green energy mandatory for a select group of industrial, commercial, and residential consumers.
- A certain percentage of the energy they use must come from renewable or non-fossil fuel sources, such as Green Hydrogen.
- It aims to create a domestic carbon market and facilitate the trade of carbon credits.
- **Broadens the scope:** It broadens the scope of energy conservation to include large residential buildings, which was previously only applied to industrial and commercial complexes.
- **New codes:** New sustainable building codes will be defined, which will apply to any building with a certain threshold of energy consumption, whether industrial, commercial, or residential, with the goal of saving 300 billion units of electricity by 2030.
- **Savings:** It is estimated that an additional cost of 3-5 percent for buildings will be recovered within 4-5 years through energy cost savings.

Delhi and Kolkata are the world's most polluted cities.*Context²*

- According to the United States-based Health Effects Institute's recent report titled Air Quality and Health in Cities, Delhi and Kolkata are the top two most polluted cities in terms of exposure to harmful fine particulate matter (PM2.5).
- The report looks at pollution and its effects on global health in over 7,000 cities around the world, focusing on two of the most dangerous pollutants: fine particulate matter (PM2.5) and nitrogen dioxide (NO2).

Relevance

GS Paper – 3: Environmental Pollution & Degradation

Mains Question

- Describe the key points of the World Health Organization's recently released revised Global Air Quality Guidelines (AQGs) (WHO). What makes these updates different from the last one in 2005? What changes are needed in India's National Clean Air Programme to meet revised standards? (250 Words)

The following are the overall findings of the Air Quality and Health in Cities report:

- Using data from 2010 to 2019, the report discovered that global patterns of exposure to the two key air pollutants (PM 2.5 and NO₂) were strikingly different.
- Particulate Matter (PM) (PM) 2.5 denotes a category of particulate pollutant with a size of 2.5 microns or less.
- PM 2.5 is particularly hazardous to human health because it can bypass many of our body's defences (nose hair, mucus) and enter our lungs, where it can eventually enter the bloodstream.
- Nitrogen dioxide (NO₂) is a gaseous air pollutant produced when high-temperature fossil fuels such as coal, oil, gas, or diesel are burned.
- Because city dwellers are more likely to live near busy roads with heavy traffic, they are frequently exposed to higher levels of NO₂ pollution than residents of rural areas.
- While exposure to PM_{2.5} pollution is higher in cities in low- and middle-income countries, exposure to NO₂ pollution is high in cities in both high- and low-income countries, according to the report.
- According to the report, most global cities far exceed WHO air pollution guidelines, posing a serious health risk.
- In 2019, 86% of the cities studied exceeded the WHO's NO₂ guideline of 10 g/m³ (microgram per cubic metre), affecting approximately 2.6 billion people.
- India has 41 of the 50 cities with the highest increase in PM_{2.5}, with Indonesia having nine.
- On the other hand, China has all 20 cities with the greatest reduction in PM_{2.5} pollution from 2010 to 2019.

Findings specific to India:

- When PM_{2.5} levels were compared, Delhi and Kolkata were ranked first and second in the top ten most polluted cities.
- In terms of impact, Delhi and Kolkata ranked sixth and eighth in terms of PM_{2.5}-related disease burden, with 106 and 99 deaths per lakh of population, respectively, due to PM_{2.5} exposure in 2019.
- However, when NO₂ levels were compared, no Indian city appeared in the top 20 polluted cities (Shanghai was at the top with an average annual exposure of 41 g/m³).

Why is there such a schism in India?

- According to the report, ground monitoring of air quality continues to be insufficient in many parts of the world, particularly in low and middle-income countries, masking the true extent of NO₂ pollution in places like India.
- For example, according to the 2022 WHO Air Quality Database, only two of the 20 cities with the steepest increases in PM_{2.5} exposures in the report (Satna and Varanasi in India) have an official ground-level monitoring station.
- Experts believe that the paradoxical situation (difference in PM_{2.5} and NO₂) in India was caused by the relatively low adoption of high-efficiency engine vehicles.
- Complete combustion of fuel produces more NO_x (nitrogen oxides), whereas incomplete combustion produces other types of emissions.

- Because of their highly reactive nature, nitrogen oxides aided in the formation of other pollutants such as ozone and particulate matter.
- NO₂ has a shorter lifetime than PM_{2.5} and other air pollutants.
- As a result, NO₂ levels vary greatly in space and time, and levels can vary significantly even within a few kilometres of the city.
- In comparison, at the fine scale, PM_{2.5} levels exhibit less spatial variation.

Ideas for Improving Air Quality and Health?

- Adopt or revise national air quality standards in accordance with the most recent WHO Air Quality Guidelines.
- Monitor air quality and look for sources of pollution.
- Encourage the use of clean household energy exclusively for cooking, heating, and lighting.
- Create safe and affordable public transportation systems, as well as pedestrian and bicycle networks.
- Implement stricter vehicle emissions and efficiency standards, as well as mandatory vehicle inspection and maintenance.
- Invest in energy-efficient housing and renewable energy generation.
- Improve waste management in industry and municipalities
- Reduce the incineration of agricultural waste, forest fires, and certain agroforestry activities (e.g. charcoal production)
- Include air pollution in health professional curricula and provide tools for the health sector to engage.

Indian cities: Way Forward

- More developed cities with PM₂ control
- The NO₂ problem has now gripped 5 exposures.
- As a result, according to the Centre for Science and Environment (CSE), Delhi and Kolkata require the most stringent time-bound multi-sector action to meet the clean air benchmark.
- Indian cities must also learn from Beijing, which, despite significantly lowering its PM_{2.5} exposures, still has the highest PM_{2.5}-related disease burden due to expanding and ageing populations.

The Way Forward

- **Following the WHO's Four Pillar Strategy:** The World Health Organization (WHO) passed a resolution (2015) to address the negative health effects of air pollution.
- There is a requirement to follow the roadmap outlined in this section.
- This four-pillar strategy calls for a more aggressive global response to the negative health effects of air pollution. These four pillars are as follows:
 - Increasing one's knowledge base
 - Reporting and monitoring
 - Global coordination and leadership
 - Institutional capacity building
- **Addressing Inequity:** There are huge injustices at the heart of the air pollution problem, as poor people are also the ones who are most affected by it.
- As a result, the Polluter Pays principle must be enforced, and an environment tax must be levied on polluting industries.

Ethanol blending

Context:

Prime Minister announced that India has achieved its target of blending 10% sugarcane extracted ethanol in petrol, ahead of schedule.

Relevance:

Dimensions of the Article:

1. What is Ethanol fuel?
2. What is ethanol blending?
3. Advantages of Ethanol Blending
4. Ethanol Blended Petrol Programme (EBP)
5. Roadmap for Ethanol Blending in India by 2025

What is Ethanol fuel?

- Ethanol fuel is ethyl alcohol, the same type of alcohol found in alcoholic beverages, used as fuel.
- It is most often used as a motor fuel, mainly as a biofuel additive for gasoline.
- Ethanol is commonly made from biomass such as corn or sugarcane.
- Bioethanol is a form of renewable energy that can be produced from agricultural feedstocks.
- It can be made from very common crops such as hemp, sugarcane, potato, cassava and corn.
- There has been considerable debate about how useful bioethanol is in replacing gasoline.
- Concerns about its production and use relate to increased food prices due to the large amount of arable land required for crops, as well as the energy and pollution balance of the whole cycle of ethanol production, especially from corn.

What is ethanol blending?

- Blending ethanol with petrol to burn less fossil fuel while running vehicles is called ethanol blending.
- Ethanol is an agricultural by-product which is mainly obtained from the processing of sugar from sugarcane, but also from other sources such as rice husk or maize.
- Currently, 10% of the petrol that powers your vehicle is ethanol.
- Though we have had an E10 — or 10% ethanol as policy for a while, it is only this year that we have achieved that proportion.
- India’s aim is to increase this ratio to 20% originally by 2030 but in 2021, when NITI Aayog put out the ethanol roadmap, that deadline was advanced to 2025.
- Ethanol blending will help bring down our share of oil imports (almost 85%) on which we spend a considerable amount of our precious foreign exchange.
- Secondly, more ethanol output would help increase farmers’ incomes.
- The NITI Aayog report of June 2021 says, “India’s net import of petroleum was 185 million tonnes at a cost of \$55 billion in 2020-21,” and that a successful ethanol blending programme can save the country \$4 billion per annum.

What are first generation and second generation ethanols?

- With an aim to augment ethanol supplies, the government has allowed procurement of ethanol produced from other sources besides molasses — which is first generation ethanol or 1G.
- Other than molasses, ethanol can be extracted from materials such as rice straw, wheat straw, corn cobs, corn stover, bagasse, bamboo and woody biomass, which are second generation ethanol sources or 2G.

Advantages of Ethanol Blending

- Use of ethanol-blended petrol decreases emissions such as carbon monoxide (CO), hydrocarbons (HC) and nitrogen oxides (NOx).
- The unregulated carbonyl emissions, such as acetaldehyde emission were, however, higher with E10 and E20 compared to normal petrol. However, these emissions were relatively lower.

- Increased use of ethanol can help reduce the oil import bill. India's net import cost stands at USD 551 billion in 2020-21. The E20 program can save the country USD 4 billion (Rs 30,000 crore) per annum.
- The oil companies procure ethanol from farmers that benefits the sugarcane farmers.
- Further, the government plans to encourage use of water-saving crops, such as maize, to produce ethanol, and production of ethanol from non-food feedstock.

Ethanol Blended Petrol Programme (EBP)

- Ethanol Blended Petrol (EBP) programme was launched in 2003- and this initiative is pursued aggressively in the last 4 to 5 years to reduce import dependence of crude oil as well as mitigate environmental pollution.
- The Ethanol Blending Programme (EBP) seeks to achieve blending of Ethanol with motor spirit with a view to reducing pollution, conserve foreign exchange and increase value addition in the sugar industry enabling them to clear cane price arrears of farmers.
- Although the Government of India decided to launch EBP programme in 2003 for supply of 5% ethanol blended Petrol, it later scaled up blending targets from 5% to 10% under the Ethanol Blending Programme (EBP).
- The Government of India has also advanced the target for 20% ethanol blending in petrol (also called E20) to 2025 from 2030.
- Currently, 8.5% of ethanol is blended with petrol in India.

Roadmap for Ethanol Blending in India by 2025

- The central government has released an expert committee report on the Roadmap for Ethanol Blending in India by 2025 that proposes a gradual rollout of ethanol-blended fuel to achieve E10 fuel supply by April 2022 and phased rollout of E20 from April 2023 to April 2025.
- The Ministry of Petroleum & Natural Gas (MoP&NG) had instituted an Expert Group to study the issues such as pricing of ethanol, matching pace of the automobile industry to manufacture vehicles with new engines with the supply of ethanol, pricing of such vehicles, fuel efficiency of different engines etc.

How have other countries fared?

- Though the U.S., China, Canada and Brazil all have ethanol blending programmes, as a developing country, Brazil stands out.
- It had legislated that the ethanol content in petrol should be in the 18-27.5% range, and it finally touched the 27% target in 2021.

Tilapia Aquaculture Project

Focus: Government policies and Interventions

Why in News?

- Inspired by Pradhan Mantri Matsya Sampada Yojana (PMMSY), the Technology Development Board (TDB) has extended support to the Tilapia Aquaculture Project with Israeli Technology.
- Technology Development Board (TDB) is a statutory body under the Ministry of Science and Technology.

About Pradhan Mantri Matsya Sampada Yojana

- Pradhan Mantri Matsya Sampada Yojana (PMMSY) was launched in 2020 to bring about Blue Revolution through the sustainable development of the fisheries sector over a period of five years (2020-2025).
- It is an umbrella scheme to develop the fisheries sector with a total outlay of Rs. 20050 crores.

It has two components

- The Central Sector Scheme (CS) component with a non-beneficiary-oriented scheme and a Beneficiary oriented scheme (Central Assistance for General Category – 40%; SC/ST/Women – 60%).
- A Central Sponsored Scheme (CSS) component also with a non-beneficiary-oriented scheme and Beneficiary oriented scheme. The different break-ups of funding are: Central Assistance for Northeastern States – 90%, Other States – 60%; and UTs – 100%.

The areas expected to be covered by the PMMSY are:

- Fish production
- Fisheries productivity
- Quality of fisheries and aquaculture sectors
- Post-harvest infrastructure and management
- Modernization of value chain
- Welfare of the fishers and fish farmers
- Fisheries management framework

The objectives of the PMMSY are:

- Develop fisheries and aquaculture sectors.
- Harness the potential of fisheries sector in a sustainable, responsible, inclusive and equitable manner
- Efficient use of land and water resources to enhance fish production and productivity.
- Modernize value chain considering post-harvest management and quality improvement.
- Double fishers and fish farmers' incomes Generate employment in the fisheries sector.
- Enhance fisheries sector's contribution to overall agricultural Gross Value Added (GVA) and exports.
- Provide social, economic and physical security to fish farmers and fishermen.
- Develop a robust fisheries management and regulatory framework.

What is Aquaculture?

- The term "aquaculture" broadly refers to the raising of aquatic organisms for any economic, recreational, or societal purpose in artificial aquatic settings.
- In various kinds of water settings, including ponds, rivers, lakes, the ocean, and man-made "closed" systems on land, plants and animals are bred, raised, and harvested.

Purposes:

- Food production for human consumption,
- Rebuilding of populations of threatened and endangered species,
- Habitat restoration,
- Wild stock enhancement,
- Production of baitfish, and
- Fish culture for zoos and aquariums.

What is Tilapia?

- One of the most successful and widely traded fish foods in the world is tilapia, sometimes known as aquatic chicken.
- Because of its fast development and simple cultivation, tilapia has gained commercial popularity throughout the world

Bhitarkanika National Park

Context:

Recently, the Bhitarkanika National Park have reached a saturation point in the population of crocodile which could lead to more human-Crocodile conflict.

Relevance:

GS II: Government policies and Interventions

Dimensions of the Article:

1. About Bhitarkanka National Park
2. What are the Issues?

About Bhitarkanika National Park

- In Orissa's Kendra Para district is Bhitarkanika, a special environment of mangrove forests laced with numerous streams and mud flats.
- Bhitarkanika is situated in the estuary of the Brahmani, Baitarani, and Dharma & Mahanadi River systems and is a Ramsar Site under the Ramsar Convention on Wetlands.
- The Gahirmatha Marine Sanctuary, which has the biggest population of Olive Ridley sea turtles in the world for congregating and nesting, receives nutrients from Bhitarkanika.
- Every winter, around 500,000 turtles come here.
- Bhitarkanika National Park is a prime habitat of leopard cat, fishing cat, jungle cat, hyena, wild boar, spotted deer, sambar, porcupine, dolphin, salt water crocodile including partially white crocodile, python, king cobra, water monitor lizards, terrapin, marine turtle, kingfisher, wood pecker, hornbill, bar headed geese, pintail, white bellied sea eagle, tern, sea gull, waders and a large variety of resident and migratory birds.

What are the Issues?

- Since 2012, crocodiles have killed around 50 individuals in and around the park, while 25 of them perished after getting into human settlements or getting tangled in fishing nets.
- Because crocodiles are territorial aquatic reptiles, it is impossible for too many of them to coexist in one location because there will be more rivalry for food, mates, and sunbathing spots.
- In 1991, the state forest department was ordered by the Union Ministry of Forest and Environment to discontinue the crocodile rearing operation in Bhitarkanika because the crocodile population had reached a saturation point.
- However, the government stopped funding for the crocodile breeding and rearing project in 1990.
- Additionally, the crocodile population in the park had increased from 94 in 1975 to roughly 1,000 by 1995, when the forest service terminated the programme for breeding and releasing crocodiles there.

New Climate Action Goals

Context

- The Union Cabinet recently approved India's revised climate pledge to the Paris Agreement,
- known as the Nationally Determined Contribution (NDC). The pledge will outline India's
- clean energy transition roadmap from now until 2030, and it will be shared with the UN
- Framework Convention on Climate Change (UNFCCC).

Relevance

Conservation, environmental pollution and degradation, environmental impact assessment.

Mains Question

- Discuss the schism between the developed and developing worlds in climate change negotiations and the development of a global collective action plan. (250 Words)

The Paris Accord

- It is a legally binding international treaty on climate change that was adopted by 196 countries at the Conference of the Parties COP 21 in Paris in December 2015.
- The Accord de Paris sur le Climat
- It was adopted by 196 countries in December 2015.
- The long-term temperature goal was intended to be achieved as part of the Paris Climate Accord's (PCA) intended outcomes.
- Countries have set the goal of reaching a global peak in greenhouse gas emissions as quickly as possible in order to realise their goal of a climate-neutral world by the middle of the century.
- The Paris Climate Accord has as its primary objective the reduction of global warming to well below 2 degrees Celsius and, preferably, to 1.5 degrees Celsius, compared to levels that existed before industrialization.

Positive Aspects

- Finally, an agreement, after earlier embarrassing performances in Cancun and Copenhagen
- More accountability has been able to be established given that countries have come out with their own national plan.
- The CBDR principle has been respected throughout the entirety of this agreement, and

Negative Aspects

- The absence of binding targets as of the Kyoto protocol is one of the negative aspects.
- Concerns have been raised about the developed countries' ability to provide financial assistance and technological support.
- Small Island Developing States (SIDS) nations believe that a temperature of 2 degrees Celsius is insufficient, and that for their survival, the temperature should be less than 1.5 degrees Celsius.

India's NDC

- Countries from all over the world had pledged to reach a new international climate agreement (Paris Agreement) by the end of the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP21) in Paris in 2015.
- The Paris Agreement is a global treaty in which over 200 countries agreed to collaborate to reduce greenhouse gas emissions and slow climate change.
- The agreement aims to limit global warming to less than 2°C, preferably 1.5°C, when compared to pre-industry levels.
- Countries have agreed to make public their Intended Nationally Determined Contributions (INDCs) for post-2020 climate action in order to meet Paris Agreement targets.
- The INDC is a non-binding national plan that emphasises climate change mitigation, including climate-related targets for reducing greenhouse gas emissions.
- India submitted its Intended Nationally Determined Contribution (INDC) to the UN Framework Convention on Climate Change (UNFCCC) in 2015.

India's First Pledge

- India's first pledge, also known as a Nationally Determined Contribution (NDC), had three primary targets.
- The first was to reduce the economy's emissions intensity (emissions per unit of GDP) by 33-35 percent below 2005 levels.
- The second goal was to have non-fossil-based energy resources account for 40% of installed electric power by 2030.
- The third goal was to increase forest and tree cover by 2030 to create an additional carbon sink of 2.5-3 gigatonnes of carbon dioxide equivalent (GtCO_{2e}).

- The Paris Agreement requires countries to 'update' their pledges every five years in order to make larger commitments to reduce GHG emissions.

Revised NDC

- India expressed its intention to intensify its climate action at the UNFCCC COP26 in Glasgow, UK in 2021 by presenting a 5-set of new targets (Panchamrit) for India's climate action.
- These were:
 - o India's non-fossil fuel energy capacity will be increased to 500 gigatonnes (GW) by 2030.
 - o It will meet 50% of its energy needs from renewable sources by 2030.
 - o Total projected carbon emissions will be reduced by one billion tonnes between now and 2030.
 - o Its economy's carbon intensity will be reduced to less than 45 percent.
 - o India will achieve its goal of net zero emissions by 2070.
- Three of the five targets were recently approved by the Union Cabinet.
- According to the revised climate action goals, India will
 - o Achieve approximately 50% cumulative electric power installed capacity from non-fossil-fuel-based (renewable and nuclear) energy resources by 2030.
 - o Reduce emissions intensity by 45 percent from 2005 levels by 2030.
 - o Contribute to India's long-term goal of reaching "net zero" emissions by 2070.

Key Highlights

- The NDC also emphasises India's goal of "sustainable lifestyles" and "climate justice" in order to protect the poor and vulnerable from the negative effects of climate change.
- India's updated NDC, which will be communicated to the UNFCCC soon, will be implemented by 2030 through programmes and schemes of relevant ministries and departments, as well as with the support of states and union territories (UTs).
- The updated NDCs seek to increase India's contributions to the Paris Agreement's goals of strengthening the global response to climate change.
- It will also help India transition to low-emission growth paths.
- However, India has stated unequivocally that it will achieve its goal of generating 50 percent of total electric power from non-fossil-fuel-based energy resources through technology transfer and low-cost international finance, particularly from the Green Climate Fund (GCF).
- The GCF is a fund established within the framework of the UN Framework Convention on Climate Change.
- As an operating entity of the Financial Mechanism, the GCF is tasked with assisting developing countries in climate change adaptation and mitigation efforts.

The Next Steps

- In order for the world to be climate-neutral by the middle of the century, the countries of the world should work toward reaching a global peak in the production of greenhouse gases as quickly as they possibly can in order to meet this long-term temperature goal.
- In order to achieve climate stability, the commitments made to achieve net zero emissions need to be credible, accountable, and fair. It is unrealistic to anticipate that all states will be able to commit to net-zero emissions, nor should we expect them to.
- However, every nation-state, including India, has the ability to make commitments to actions that are credible, accountable, and fair.
- Credible short-term commitments, with a clear pathway to medium-term decarbonization, that take into consideration the multiple challenges that states face, such as on air pollution and development, could very well be the choice that is more defensible for some people.

Rock agama study reveals urbanisation, conservation

Context

The presence of these ectotherms indicates warmer patches in the city, presence of insects.

Relevance

GS Paper 3: Biodiversity Conservation

Mains Question

What exactly is a wetland? Explain the Ramsar concept of "wise use" in relation to wetland conservation. Give two Ramsar sites in India as examples. (150 Words)

The Survey

- The Peninsular Rock Agama (*Psammophilus dorsalis*), a type of garden lizard, is common in southern India. The presence of the animal in urban areas has been impacted by habitat loss and other urbanisation-related factors.
- Researchers from the Indian Institute of Science (IISc), Bengaluru, conducted a study to characterise urbanisation in the region and to understand where the rock agama live in and around Bengaluru in particular.
- The implication is that conservation efforts must aim to preserve rocky areas while also revitalising landscapes through tree planting.

Look for warmth

- This lizard is a large animal with striking orange and black colouring.
- They do not produce their own body heat, so they must seek warmth from outside sources, such as a warm rock or a sunny spot on the wall.
- They are important in ecology for a variety of reasons, including the ability to show which parts of the city are warming and how the food web is changing.
- These lizards cannot live in areas where there are no insects because they eat them and are eaten by raptors, snakes, and dogs.
- "Because they provide so many services, including pollination, insects are essential components of a healthy ecosystem."
- So, while rock agamas are fascinating in their own right, they are also an excellent model system for understanding other aspects of the ecosystem.

Perspectives on urbanisation

- The study provided intriguing insights into Bengaluru's urbanisation.
- "Distance to city centre and proportion of built-up area are commonly used to understand urbanisation," says Nitya Prakash Mohanty, a postdoctoral fellow at the centre and one of the paper's authors.
- "After about 20 kilometres from the general post office, Bengaluru is a heterogeneous matrix of crops, plantations, and rocky habitats. Artificial light at night was closely linked with built-up areas in the city, but other ecological conditions such as the number of bird predators or habitat connectivity showed large variation and no clear patterns from the city centre."

Small animals are important

- Normally, biodiversity conservation conjures up images of large animals such as tigers, elephants, or even birds, but organisms such as the rock agama play an equally important role in the ecosystem.
- "There is a lot of flora and fauna that is rapidly disappearing in cities like Bengaluru." One such species is the rock agama, which is dependent on rocky scrub habitats that are being converted into buildings and plantations.
- The study, in addition to characterising Bengaluru's growth, emphasises that smaller fauna and flora may be key indicators of the health of the ecosystem and must be preserved as well.

PM IAS