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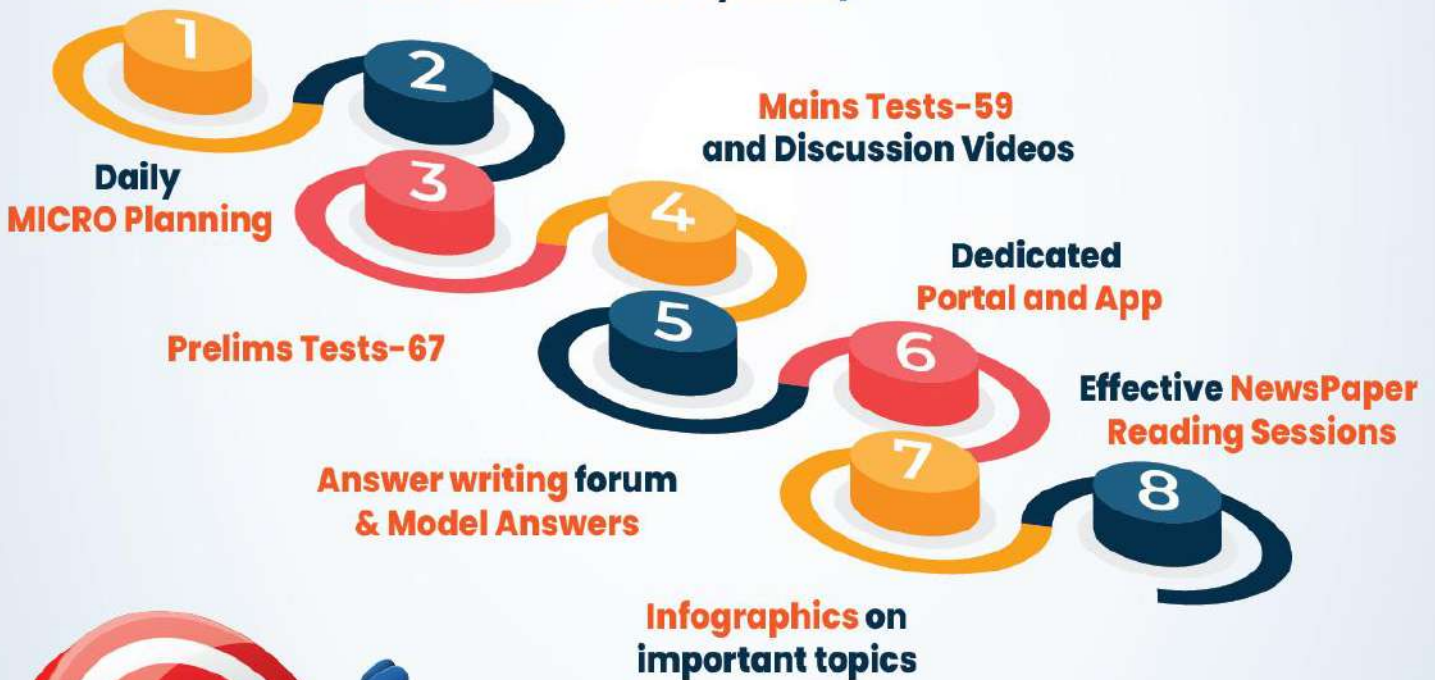


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PRELIMS



POLITY & GOVERNANCE



Porter prize

Context: The Union Health and Family Welfare Ministry received the Porter Prize 2023 recently.

About Porter prize:

- Porter Prize is named after award-winning economist **Michael E. Porter**.
- The award recognized the **Government’s strategy in managing COVID-19**, along with the approach, and involvement of various stakeholders, especially the involvement of **ASHA workers** in the industry to create PPE Kits.
- The award was presented to the Ministry of Health and Family Welfare (MoHFW) at an event organized by **Institute for Competitiveness (IFC) and Stanford University**.
- The theme of the two-day conference was **“The Indian Economy 2023: Innovation, Competitiveness, and Social Progress”**.

Court martial

About Court martial :

- Court-martial is a **procedure for trials of military personnel for violating military laws or making any military offences**.
- It is similar to civilian criminal trial proceedings but **conducted in a military court**.
- This is separately designed for the military personnel **only (army, navy, marine, air force and at times coast guards)**,
- **Purpose:** It tries them for the violation of military discipline and other misconduct.
- Court-martial **cannot trial civil proceedings**.
- When a person (in service) is accused to be an offender, the charges are investigated by his commander to find out the information regarding the offence, and the culpability (severity) of the offence.
- Post-investigation the commander can **let go of the accused, act** against him, give him non-judicial punishment, form charges against him or refer the case to the higher authority to form the charges.

Legal recourse , available to the accused:

- **Under the Army Act**, the accused can file a **pre-confirmation petition** as well as **post- confirmation petition**.
- A **pre-confirmation petition will go to the Army Commander**, who may look into its merits.
- A **post-confirmation petition must be filed with the government** since the officer is cashiered and his ranks are removed and he is dismissed from service after the confirmation of sentence by the Army commander.

	<ul style="list-style-type: none"> • After these options have been exhausted, the accused can approach the Armed Forces Tribunal, which can suspend the sentence. • The president of India, under Article 72 of the Constitution, can use his/her powers to pardon, reprieve, respite or remission of punishment or sentence given by a court martial. <p>Legal provisions related to court martial in India:</p> <ul style="list-style-type: none"> • The Army Act, of 1950: applies to members of the Indian Army. • The Navy Act, of 1957: applies to members of the Indian Navy. • The Air Force Act, of 1950: applies to members of the Indian Air Force.
Affinity test	<p>Context: In a recent judgement , the Supreme Court held that an affinity test cannot be the litmus test to decide a caste claim.</p> <p>About Affinity test:-</p> <ul style="list-style-type: none"> • Affinity Test is used to shift through anthropological and ethnological traits to link a person to a tribe. • There is the likelihood that contact with other cultures, migration and modernization would have erased the traditional characteristics of a tribe. • An affinity test mandates the study and preparation of a report by authorities on caste/tribe claims based on the peculiar anthropological and ethnological traits, deities, rituals, customs, mode of marriage, death ceremonies, methods of burial of dead bodies, etc, of the particular caste or tribe and the applicants knowledge of them. <p>Caste Claim:-</p> <ul style="list-style-type: none"> • Any person who claims to belong to a Scheduled Caste or a Scheduled Tribe or Other Backward Class has to produce a certificate to the Appointing Authority/Selection Committee/Board etc. in support of his claim . • This makes him eligible for reservation and various relaxations and concessions. • The Caste/Tribe/Community certificate issued by the appointing authorities in the prescribed form for SCs/STs and for OBCs is only accepted as proof in support of a candidate's claim as belonging to the Scheduled Caste or the Scheduled Tribe or the Other Backward Class.
Padma Awards	<p>Context: Recently, President Droupadi Murmu confers 54 Padma Awards for the year 2023.</p> <p>About Padma Awards:-</p> <ul style="list-style-type: none"> • The Padma Award are one of the highest civilian honours of India. • Padma Awards, which were instituted in the year 1954. • It is announced every year on the occasion of Republic Day except for brief interruption(s) during the years 1978 and 1979 and 1993 to 1997. • It is announced annually on the eve of Republic Day. • The Awards are given in three categories:- <ul style="list-style-type: none"> ○ Padma Vibhushan: for exceptional and distinguished service ○ Padma Bhushan: distinguished service of higher order

- **Padma Shri:** distinguished service.
- The award seeks to **recognize achievements in all fields of activities or disciplines where an element of public service is involved.**
- The Padma Awards are conferred on **the recommendations made by the Padma Awards Committee**, which is constituted by the **Prime Minister every year.**
- The **nomination process is open to the public.**
- Even **self-nomination** can be made.
- **Historical Background:-**
 - The Government of India instituted **two civilian awards-Bharat Ratna & Padma Vibhushan** in
 - The latter had three classes namely Pahela Varg, Dusra Varg and Tisra Varg.
 - These were subsequently **renamed Padma Vibhushan, Padma Bhushan and Padma Shri in 1955.**
- **Eligibility:-**
 - All persons **without distinction of race, occupation, position or sex** are eligible for these awards.
 - **Government servants** including those **working with PSUs, except doctors and scientists, are not eligible for these Awards.**
- The award seeks to recognize works of distinction and is **given for distinguished and exceptional achievements/service in all fields of activities/disciplines: Art, Social work, Public Affairs, Science & Engineering, Trade & Industry, Medicine, Literature & Education, Civil Service, Sports**
- The award is **normally not conferred posthumously.** However, **in highly deserving cases**, the Government could consider giving an award posthumously.
- The awards are **presented by the President of India.**
- The awardees are presented a **Sanad (certificate) signed by the President and a medallion.**
- The recipients are also given a **small replica of the medallion**, which they can wear during any ceremonial/State functions etc.
- The **total number of awards to be given in a year** (excluding posthumous awards and to NRI/foreigners/OCIs) **should not be more than 120.**
- The award **does not amount to a title and cannot be used as a suffix or prefix** to the awardees' name.

Selection Process:-

- The Padma Awards Committee is **headed by the Cabinet Secretary.**
- It includes **Home Secretary, Secretary to the President and four to six eminent persons as members.**
- The **recommendations of the committee are submitted to the Prime Minister and the President** of India for approval.

MUST READ: [Ramon Magsaysay Award](#)

Guilt by association doctrine

Context: Recently, the Supreme Court on Friday restored the doctrine of "guilt by association" in criminal jurisprudence in India

About Guilt by association doctrine:-

- It is also known as **the association fallacy**.
- It is officially defined as **“guilt ascribed to someone not because of any evidence, but because of their association with an offender.”**
- Thus, an individual can face criticism or backlash as a result of their likeness to an existing group or entity.
- Conversely, **honour by association** describes a situation **where someone is lauded as a result of their affiliation with groups that are perceived in a positive light**.
- The Supreme Court restored the doctrine of “guilt by association” in criminal jurisprudence in India.
- It overruled a bunch of its 2011 judgments and **declared that mere membership of a banned organisation will be a crime** under the country’s anti-terror law — Unlawful Activities (Prevention) Act (UAPA), 1967

MUST READ: [Misuse of UAPA and Increase in arrests under UAPA Act](#)

Bharat 6G Vision Document

Context: Recently, Prime Minister unveiled the India’s 6G vision document that eyes service rollout by 2030 .

About Bharat 6G Vision Document:

Source: <https://newgadgetsindia.com/pm-modi-unveils-bharat-6g-vision-document-and-launches-6g-rd-test-bed/>

- It outlines **India’s plan to launch 6G communication services by 2030**.



- The document was **developed by the Technology Innovation Group on 6G**.
 - It is a group of **experts from various ministries, research institutions, standardization bodies, telecom service providers, and industry**.
- The **6G test bed** was also launched.
- It is for providing a platform for

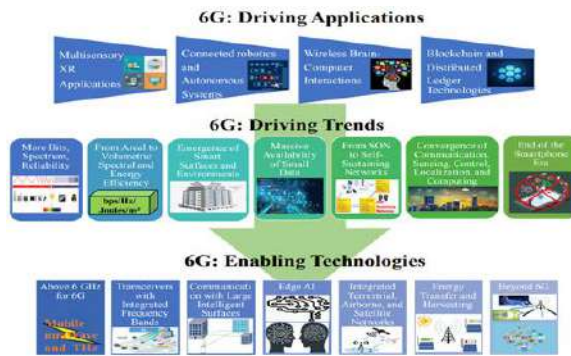
industry, academic institutions, and others to **test and validate emerging technologies**.

- The vision document highlights that **6G will provide ultra-low latency with speeds up to 1 terabit per second**.
- It is **1,000 times faster than the top speed of 5G**.
- While 5G technology promises a speed of 40-1,100 Mbps with the potential to hit maximum speeds of 10,000 Mbps, **6G will offer faster and more efficient communication services**.
- The **TIG-6G group’s members will develop a roadmap and action plans for 6G in India**.
- It will provide a clear direction for the development and adoption of 6G technologies in the country.

- India’s plan to launch 6G communication services by 2030 demonstrates **its commitment to adopting new technologies** and remaining at the forefront of the telecommunication industry.

About 6 G:

IMAGE SOURCE: 6G main Applications, trends, and technologies [24] | Download Scientific Diagram (researchgate.net)



- It is the **successor to 5G cellular technology**.
- It will be able to **use higher frequencies than 5G networks**.
- It provide substantially **higher capacity and much lower latency (delay)**.
- One of the goals of 6G internet will be **to support one microsecond-latency**

communication (delay of one-microsecond in communication).

- This is **1,000 times faster or 1/1000th the latency than one millisecond throughput**.
- It seeks to **utilize the terahertz band of frequency** which is currently unutilized.
 - **Terahertz waves** fall between infrared waves and microwaves on the electromagnetic spectrum.

MUST READ: 5G

City Finance Rankings 2022

Context: Recently, the Housing and Urban Affairs Ministry launched the ‘City Finance Rankings 2022’ under which urban local bodies in the country will be evaluated on the basis of their financial health.

About City Finance Rankings 2022:-

- It is conducted by the **Ministry of Housing & Urban Affairs** .
- The participating urban local bodies will be evaluated on **15 indicators across three key municipal finance assessment parameters** like:-
 - Resource mobilisation
 - Expenditure performance and
 - Fiscal governance.
- The evaluation will be done on the basis of the quality of **current financial health and improvement with time in financial performance**.
- **Top 3 cities in each population category will be rewarded**.

Significance:-

- It will **help ULBs to identify areas in their financial performance** where they can make improvements and able to deliver quality infrastructure and services to its citizens.

	<ul style="list-style-type: none"> • Rankings will motivate city/state officials and decision makers, to implement municipal finance reforms. <p>MUST READ: Climate Finance</p>
<p>Global Terrorism Index (GTI)</p>	<p>Context: Recently, the 10th edition of the Global Terrorism Index (GTI) has warned that Climate change has provided an opportunity for terrorist groups to raise funds, propagandize and recruit.</p> <p>About Global Terrorism Index (GTI):-</p> <ul style="list-style-type: none"> • It is a report published annually by the Institute for Economics and Peace (IEP), • The Institute for Economics and Peace (IEP), a global think tank. • It is headquartered in Sydney, Australia. • It is based primarily on the Global Terrorism Database (GTD) collated by the National Consortium for the Study of Terrorism and Responses to Terrorism (START) at the University of Maryland, besides other sources. • The index provides a comprehensive summary of the key global trends and patterns in terrorism since 2000. • GTI scores are directly used in the Global Peace Index, the Global Slavery Report. • It is also indirectly used in reports of the World Economic Forum’s Travel and Tourism Competitiveness and Global Competitiveness Indices and compilation of the Safe Cities Index by the Economist Intelligence Unit. <p>MUST READ: Terrorism & its financing</p>
<p>Compassionate Appointment</p>	<p>Context: In a recent judgment, the Supreme Court rejected some applications for ‘compassionate appointment’ that were filed by the dependents of deceased government employees in West Bengal.</p> <p>About Compassionate Appointment:</p> <ul style="list-style-type: none"> • The concept of compassionate appointments can be traced to the Indian Constitution’s Article 39. • Art 39 is under the Directive Principles of State Policy and talks about the right to livelihood. • Compassionate Appointment aims to provide employment on compassionate grounds to the dependent family members of a government servant who dies in harness or retires on medical grounds, leaving the family without any source of sustenance. • These appointments can only be made for “Group ‘C’ posts against the direct recruitment quota. <p>Eligibility:-</p> <ul style="list-style-type: none"> • Compassionate appointments can extend to dependent family members of a government servant who:- • Dies while in service (including death by suicide). • Retired on medical grounds.

The measure can also extend to the family members of an **Armed Forces employee** who:-

- Dies during service.
- Is killed in action.
- Is medically boarded out and is unfit for civil employment.
- The government servant must have been appointed on a “regular basis” and not on a daily wage, casual, apprentice, ad-hoc, contract, or reemployment basis.
- The deceased’s dependents can only be first[1]degree relations such as their spouse, son, or daughter (including adopted ones), etc.
- The applicant should also be eligible and suitable for the post.

Appointment Authority: –

- Compassionate appointments are made by either the **Joint Secretary** in charge of administration in the Ministry or the Department concerned or the **Head of the Department**.
- They can also be made by the **Secretary of a Ministry or Department in special cases**.

Supreme Court judgment:

- In its decision, the apex court **cited its rulings from 2008 and 2014** in the cases of “**Mumtaz Yunus Mulani vs, the State of Maharashtra and State Bank of India vs. Surya Narain Tripathi**” respectively, to say that “**the existence of a policy issued by the State Government is a sine qua non for making appointments on the compassionate basis**”.

MUST READ : [Fundamental Rights](#)

Grievance Appellate Committee (GAC) portal

Context: Recently, the Ministry of Electronics and Information Technology launched the Grievance Appellate Committee (GAC) portal.

About Grievance Appellate Committee (GAC):

- The Grievance Appellate Committee (GAC) is established under the **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 [“IT Rules”]**, made under the **Information Technology Act, 2000**.
- The IT Rules and GAC **aim to ensure a Safe & Trusted and Accountable Internet for Indian users**.
- The GAC is **an online dispute resolution mechanism**.
- The GAC **deals with the appeals of users (Digital Nagriks)** aggrieved by decisions of Grievance Officers of **social media intermediaries** and other intermediaries on complaints of users or victims against violation of the IT Rules and any other matters pertaining to the computer resources made available by the intermediaries.
- The Committee will try to respond to the **user’s appeal within 30 days**.
- Within 24 hours of receiving the complaint, this official is required to acknowledge it and offer a **resolution within 15 days**.

- It is required that complaints connected to **crimes against women be handled within 24 hours in specific situations.**

About the GAC portal :

- It will be a **virtual Digital platform** that will **operate only online and digitally**
- The **entire appeal process**, from the filing of the appeal to the decision thereof, shall be **conducted digitally through the new portal.**
- The new **portal lists detailed FAQs** for the convenience of users.
- The **appellants can track the status** of their appeal through the Appellant Login window.

Judicial custody vs police custody and Arrest vs custody vs detention

Context: Recently, the former Delhi Deputy Chief was sent to ‘judicial custody’ in a liquor policy case.

About Arrest vs Custody vs Detention :

Arrest: –

- The Term **Arrest is not defined either in the Code of Criminal Procedure Code or the Various Substantive Acts.**
- The word ‘Arrest’ is derived from the French word ‘Arret’ which means **“to stop or Stay”.**
- An arrest is a **restraint of the Liberty of the Person.**
- An arrest is an act of apprehending a person and taking them into custody, usually because they have been suspected of committing or planning a crime.

Detention	Arrest	Custody
The action of detaining someone or the state of being detained in official custody.	Seize (someone) by legal authority and take them into custody.	Merely surveillance or restriction on the movement of the person concerned.
Police only need reasonable suspicion to hold the suspect	Police need hard evidence to arrest someone	Holding a person in custody for further inquiry and investigation
Less serious	More serious	More serious
May lead to an arrest, if more evidence found.	May lead to jail time if convicted.	There are two types of custody, Police and judicial depending upon the circumstances.
Does not show up on criminal record	Does show up on criminal record	It has police record.
Usually for a short period of time. Then they have to be let go or arrested.	Can be held until bail is posted or until their case comes to court.	Police custody is of 15 days and Judicial custody is of 60-90 days depends upon the case.

Custody: –

- The control and care of a person or property, especially **when granted by a court.**
- Custody is the **state of being guarded, or kept in prison temporarily**, especially by the police.
- According to **Section 27 of the Indian Evidence Act, of 1872** the expression “in Custody” denotes **Surveillance or restriction on the movements of the person connected.**

Difference between Arrest and Custody:-

- An arrest is a mode of **formally taking a person into police custody.** Whereas ‘custody’ merely denotes **surveillance or restriction on the movement of the person concerned.**
- A person may be taken in **custody completely or even partially.**

- Thus, in **every arrest there is custody but the converse is not true.**

Detention:

- When the **police or any authority holds someone under suspicion** of any illegal act but has not charged them with a crime is known as Detention.
- The person is **detained against their will and their liberties** are revoked for a time being.
- The **police have the right to detain someone if they suspect them of unlawful activity** or any wrongdoing.
- However, the police **cannot detain somebody without reasonable suspicion**, and can **only** detain them **for a certain period of time** which varies from region to region.
- After the prescribed time, the police must either release or arrest the person according to the case.

About Judicial custody vs police custody :-

Police custody

- When a person is arrested by police for charges of committing a **heinous crime or on suspicion**, he is detained in police custody.
- A person is kept in police custody after he is arrested on the basis of an **FIR or suspicion**.
- **The period of detention is 15 days.**
- A person in police custody is kept in prison or a cell at that **particular police station**.
- The **investigating authority can interrogate a person**.
- The person has the **right to legal counsel, and the right to be informed** of the grounds which the police have to ensure.
- The rule to **produce a person before a magistrate within 24 hours of arrest** is given under Section 167 of the **Criminal Procedure Code, 1973**.
- The person arrested must be produced before the magistrate within 24 hours and **if charges are not proved, then he is granted bail**, or else he is sent back to police custody for further investigation and interrogation.
- The magistrate has been given the **power under Section 167 to remand a person in police custody**.
- He can **also order to change the custody from police custody to judicial custody**.
- In such a situation, **the time period of police custody is deducted from the total time period of judicial custody**.

Judicial custody

- It implies that the **accused is lodged in jail and is under the custody of a magistrate**.
- The person detained under the purview of the judicial magistrate is lodged in **central or state prison**.



- While in judicial custody, **officials need the permission of the court for questioning.**
- In the case of **non-bailable offenses**, punished with life imprisonment or imprisonment not less than 10 years, **the period of detention is 90 days**, and in **bailable offenses, the maximum period is 60 days.**
- A person in judicial custody is kept in **central jail.**
- The person is kept in judicial custody on the orders of the magistrate **until and unless he is granted bail.**
- A person is kept in judicial custody **after the public prosecutor makes the court believe** that such custody is necessary for further investigation.

Self-incrimination

Context: In a recent episode the Supreme Court refused to hear a plea by Delhi Deputy Chief Minister seeking bail in the excise policy case.

About Self-incrimination:

- It is a declaration or an act that occurs during an investigation where a person or witness incriminates themselves either explicitly or implicitly is known as self-incrimination.
- This right is based on the Latin maxim that '**No one is obligated to blame himself**'.

Provisions for self-incrimination in the Indian constitution :

- **Article 20-** grants protection against arbitrary and excessive punishment to an accused person, whether a citizen or foreigner or a legal person like a company or a corporation. It contains three provisions in that direction:
- It contains provisions related to **No ex-post-facto law, No double jeopardy, and No self-incrimination.**
- **No self-incrimination means no person** accused of any offense **shall be compelled to be a witness against himself.**
- The protection against self-incrimination **extends to both oral evidence and documentary evidence.**
- **Exceptions: It does not extend to** the compulsory production of material objects, the compulsion to give a thumb impression, specimen signature, blood specimens, and compulsory exhibition of the body.
- It extends **only to criminal proceedings and not to civil proceedings** or proceedings which are not of criminal nature.

Judicial rulings on self-incrimination :
The State of Bombay versus Kathi Kalu Oghad 1961:

- The Supreme Court ruled that obtaining **photographs, fingerprints, signatures, and thumb impressions** would not violate the right against self-incrimination of an accused.

Selvi v State of Karnataka case, 2010

- In this case the Supreme Court held that a **narcoanalysis test without the consent of the accused would amount to a violation of the right against self-incrimination.**

Ritesh Sinha versus State of Uttar Pradesh 2019:

- In this case, the Supreme Court broadened the parameters of **handwriting samples** to include voice samples, adding that this would not violate the right against self-incrimination.

SHRESHTA and SMILE scheme

Context: The implementation of the Scheme for Residential Education for Students in High Schools in Targeted Areas (SHRESHTA) and Support for Marginalised Individuals for Livelihood and Enterprise (SMILE) was reviewed recently.

About Scheme for Residential Education for Students in High Schools in Targeted Areas (SHRESHTA):-

- It is under **the Ministry of Social Justice and Empowerment.**
- **It is a Central Sector Scheme.**
- **Objective:** for the purpose of **providing seats for the meritorious SC boys and girls** in the best private residential schools in the country.
- Every year, it is expected that about (3000) students would be selected for **admission in Class 9 and Class 11 under the scheme.**
 - Admission will be provided in Class 9 and Class 11 of **CBSE-affiliated private schools.**
- Selection process: The selection will be done through a transparent mechanism which is known as **National Entrance Test for SHRESHTA (NETS).**
 - It will be conducted by **the National Testing Agency (NTA)** for admission in classes 9th and 11th.
 - **NTA:** it is a premier, specialist, an autonomous and self-sustained testing organization to conduct entrance examinations for admission/fellowship in higher educational institutions.
 - It was established as an **independent, autonomous, and self-sustained premier testing organization** under the **Societies Registration Act (1860)** by the **Ministry of Education (MoE).**
 - It is for conducting **efficient, transparent, and international standardized tests** in order to **assess the competency of candidates** for admission to **premier higher education.**

About Support for Marginalised Individuals for Livelihood and Enterprise (SMILE):-

- It is under **the Ministry of Social Justice and Empowerment.**
- It is a **Central Sector scheme.**
- **Objective:**
 - It seeks to strengthen and expands the reach of Rights that give necessary **legal protection** and secured life to the targeted group.

- It keeps in mind the **social security** required through multiple dimensions of **identity, education, medical care, shelter, and occupational opportunities**.
- It includes **two sub-schemes** –
 - **Comprehensive Rehabilitation for the Welfare of Transgender Persons** and
 - **Comprehensive Rehabilitation of persons engaged in the act of Begging**.

MUST READ: [Education & Nation Building](#)

Bar Council of India (BCI)

Context: Recently, the Bar Council of India (BCI) has allowed foreign lawyers and law firms to practise law in India on a reciprocity basis.

About the Bar Council of India (BCI):-

- It is a **statutory body** established by Parliament under the **Advocates Act, of 1961**.
- It performs the regulatory function by **prescribing standards of professional conduct and etiquette and by exercising disciplinary jurisdiction over the bar**.
- It also **sets standards for legal education and grants recognition to Universities** whose degrees in law will serve as qualifications for enrolment as an advocate.

Historical Background:-

- **In 1961, the Advocates Act was introduced to implement the recommendations** made by the ‘All India Bar Committee’ and ‘Law Commission’.
- The Bar Council was **initially against allowing foreign lawyers and firms from practicing in India**.
- However, based on the recommendations put forth in the **Joint Consultative Conferences between BCI, State Bar Councils** across the country and other stakeholders, the rules were changed.

New Rules:-

- The Bar Council of India has released **new rules and regulations for the registration of foreign lawyers and international law firms in India**.
- Through the **Bar Council of India Rules for Registration and Regulation of Foreign Lawyers and Foreign Law Firms in India, 2022** these lawyers would be able to practice in **non-litigious matters**.
- The **three major focus areas** for these lawyers would be **foreign law, international legal issues and arbitration matters**.

Areas where foreign lawyers and firms can practice:-

- **Transactional work, corporate work** such as joint ventures, mergers and acquisitions, intellectual property matters, drafting of contracts

- Provide legal advice and appear as a lawyer for a person, company, firm, corporation, trust, etc. which has its address in a foreign country.
- Provide legal advice and appear as a lawyer at bodies other than courts, tribunals, and boards, who are not legally entitled to take evidence on oath.
- Provide legal advice concerning the laws of the country of primary qualification and diverse legal issues.
- Registered lawyers and firms can open offices in India
- Form a partnership with one or more registered foreign lawyers and firms
- Foreign lawyers and foreign firms would not be allowed to practice in India without registering with the council first.
- Exception: However, this rule can be relaxed for the foreign lawyer or foreign law firm who are coming to India on a “fly in and fly out basis” for the purpose of giving legal advice to a client on foreign law or international legal issues.
- These lawyers or firms cannot have an office in India and practice law for more than 60 days in any period of 12 months.
- The registration fee for a foreign lawyer is \$25,000 (approximately Rs 20.64 lakhs) and for foreign firms, the registration fee stands at \$50,000 (approximately Rs. 41.28 lakhs).

MUST READ: [Digitisation of Court Records](#)

National Security Act

Context: Recently, the National Security Act has been invoked in the case of self-styled Sikh preacher and on-the-run Waris Punjab De chief Amritpal Singh.

About National Security Act:-

- It is a preventive detention law.
- It allows for the detention of alleged individuals for months if authorities are satisfied that a person is a threat to national security or law and order.
- Preventive detention is basically the detention of a person without a trial to prevent him/her from committing a crime.
- It was enacted in 1980 during the Indira Gandhi government.

Grounds for detention under NSA:-

- It can be invoked to prevent a person from acting in any manner prejudicial to the defence of India, relations of India with foreign powers or the security of India.
- It can also be applied to prevent a person from acting in any manner prejudicial to the maintenance of supplies and services essential to the community.

Constitutional Provisions:-

- Article 22 (3) (b) of the Constitution of India allows for preventive detention and restriction on personal liberty for reasons of state security and public order.
- Article 22(4) states that no law providing for preventive detention shall authorise the detention of a person for a longer period than three months unless:-

	<ul style="list-style-type: none"> ○ An Advisory Board reports sufficient cause for extended detention. <p>Period of detention:-</p> <ul style="list-style-type: none"> • An individual can be detained without a charge for a maximum period of 12 months. • The detained person can be held for 10 to 12 days in special circumstances without being told the charges against them. • The detention can be further extended by the state if it finds fresh evidence for the same. <p>Appeal against detention:-</p> <ul style="list-style-type: none"> • A detained person can appeal before a high court advisory board but they are not allowed a lawyer during the trial. <p>MUST READ: National Security Council (NSC)</p>
Justice Deepak Verma Committee	<p>Context: Recently, a high-powered committee, led by a former judge, was tasked with the procurement or welfare of wild animals by any rescue or rehabilitation centre or zoo.</p> <p>About the Justice Deepak Verma Committee :-</p> <ul style="list-style-type: none"> • It is set up under the chairmanship of former judge Justice Deepak Verma. <p>Objective: The HPC was initially constituted to oversee the transfer of captive wild elephants from the north-eastern States and its ambit was restricted to Tripura and Gujarat.</p> <ul style="list-style-type: none"> • The jurisdiction has been expanded to cater to all wild animals in need of rehabilitation or rescue anywhere in India. <p>MUST READ: Wildlife Protection and Environment Ministry reconstitutes Central Zoo Authority (CZA)</p>
Pre-arrest bail or Anticipatory Bail	<p>Context: Recently, the Supreme Court agreed to hear a petition filed by the Karnataka Lokayukta, challenging the pre-arrest bail granted to an MLA of Karnataka by the state High Court.</p> <p>About Pre-arrest bail or Anticipatory Bail:-</p> <ul style="list-style-type: none"> • Bail is the conditional release of a person from confinement or custody during investigation and trial. • The Code of Criminal Procedure (CrPC) defines a bailable offense as an offense that is shown as bailable in the First Schedule of the CrPC, or which is made bailable by any other law for the time being in force and a non-bailable offense means any other offense. • The provision for anticipatory bail was introduced under Section 438 of the CrPC after the 41st Law Commission Report in 1969 recommended the need for

a measure that protects against arbitrary violation of one's personal liberty, such as when politicians detain their opponents in false cases.

- It protects **individual liberty** (mentioned in **Art. 21** of the Indian constitution).
- Its practice is the very essence of **Art 22 (2)** of the Indian constitution.
- **Anticipatory Bail** is envisaged **under section 438 of the Code of Criminal Procedure (CrPC)**.
- It enables the accused to approach a session court or High court seeking a **direction to release him on bail** in case he is arrested on a **non-bailable offense**.
- The **Code of Criminal Procedure (CrPC) differentiates between "bailable" and "non-bailable" offenses**.
- It also **defines three kinds of bail** that can be granted — **regular bail** under Sections 437 and 439; interim bail or **short-term bail** which is given when regular or anticipatory bail application is pending before the court; **and anticipatory or pre-arrest bail**.

Conditions for granting an Anticipatory bail:-

- Nature and **gravity of the accusation**
- **Previous cases** of applicant
- The court can impose certain **terms and condition**
- Restriction on **travel abroad**
- It denied a **person can be arrested without a warrant**

MUST READ: [The Bail Laws](#)

Property Rights For Daughters

Context: Recently, a daughter's right to the family property was probed by the Goa Bench of the Bombay High Court.

About Property Rights For Daughters:-

- **Hindu Succession Act, 1956** governs property division within the Hindu undivided family.
- **The Mitakshara school of Hindu law**, a personal law, codified as **the Hindu Succession Act, 1956** used to govern the succession and inheritance of property in Hindus.
- Under this law, **only males were recognised as the legal heirs or coparceners** in the family
- In the **year 2005, Parliament amended and daughters were allowed to have equal rights**.
- **Section 6** of the Act was amended to make a daughter a **coparcener by birth** in her own right in the same manner as the son.

Prakash v Phulwati case, 2015

- In this case, the Supreme Court ruled that **the 2005 amendment could be granted only to the "living daughters of living coparceners"** as per the wording in the amended section.



- This implied that **only those daughters whose fathers were alive after** the cut-off date of **September 2005**, would be entitled to benefits under the amendment.

The 2018 judgments:

- This judgment extended the date further to 2001, but the cut-off was soon **retroverted to 2005**.
- **In February 2018**, contrary to the 2015 ruling, a two-judge Bench held that the **share of a father who died in 2001 will also pass to his daughters as coparceners**.
- Previously, the sons could inherit the property regardless of whether their father is 'living/deceased', daughters could only do that only if their father was alive after 2005.
- This was done so that coparcenary cases already settled would not be reopened.
- However, **in April 2018** yet another two-judge bench, headed by Justice RK Agrawal, **reiterated the position taken in 2015**.

Later, a three-judge Bench headed by Justice Arun Mishra ruled the following:-

- That a **Hindu woman's right to be a joint heir to the ancestral property is by birth**.
- Thus, it **does not depend on whether her father was alive or not** when the law was enacted in 2005.
- The **Hindu Succession (Amendment) Act, 2005 gave Hindu women the right to be coparceners** or joint legal heirs in the same way a male heir does.
- This applies to **even if they were born before the change or the father was not alive at the time of the amendment**.
- If the woman died before the amendment came into force, **her share may be passed on to her children**.

MUST READ: [Right to Property](#)

Greater Panna Landscape Council (GPLC)

Context: Recently, the Government of India has constituted Greater Panna Landscape Council (GPLC).

About Greater Panna Landscape Council (GPLC):

- It has been constituted under the chairmanship of the Chief Secretary, Govt of Madhya Pradesh (MP).
- **Objective:** To ensure systematic and time-bound implementation of the Greater Panna Landscape Management plan.

About Ken and Betwa Rivers:

- Ken and Betwa rivers **originate in MP** and are the **tributaries of Yamuna**.

- The river originates on the north-west slopes of **Kaimur Range** in the district of **Jabalpur**.
- Important tributaries of the Ken River: **Sonar, Bearma, Kopra, Bewas, Urmil, Mirhasan, Kutni, Kail, Gurne, Patan, Siameri, Chandrawal, Banne, and others.** **Sonar**, the longest tributary.
- Ken **meets with Yamuna in the Banda** district of UP and with **Betwa in the Hamirpur** district of UP.
- Ken River passes through the **Panna tiger reserve**.
- Betwa River, Sanskrit **Vetravati** (“Containing Reeds”), rises in the **Vindhya Range** just north of Hoshangabad, Madhya Pradesh.
- It flows generally northeast through Madhya Pradesh and Uttar Pradesh states and **empties into the Yamuna River just east of Hamirpur.**
- **The Jamni and Dhasan** rivers are the **main tributaries.**



About Panna Tiger Reserve:

- It is a national park located in **the Panna and Chhatarpur districts of Madhya Pradesh in India.**
- It was declared in **1994 as the twenty-second Tiger reserve of India** and the **fifth in Madhya Pradesh.**
- Panna was given the **Award of Excellence in 2007** as the best-maintained national park of India by the **Ministry of Tourism of India.**
- In 2020, **UNESCO included Panna National Park** of Madhya Pradesh under **its list of Biosphere reserves**
- Among the animals found here is the **tiger, leopard, chital, chinkara, nilgai, sambhar, and sloth bear.**



ECONOMY

Finance Bill
2023

Context: Recently, the Finance Bill 2023 was approved with amendments.

About Finance Bill 2023:-

Key Highlights of the bill:-

- **The withholding tax rate on royalties and fees for technical services** paid to non-residents has been **raised from 10% to 20%** This may increase the **cost of import of technology**.
- Options contracts will now attract **0.021% STT from 0.017%** earlier and futures will attract a levy of **0.0125%, up from 0.01%**
- The Finance Bill has paved the way for setting up **GST Appellate Tribunals** across the country, with a principal bench in New Delhi and several State benches.
- The Tribunal will be **headed by a former Supreme Court judge or a retired Chief Justice of a High Court**.
- The stock market has seen an increase in Securities Transaction Tax (STT) on futures and options contracts from April 1, 2023.
- It is to **discourage excessive trade in F&O**.

Money Bill vs Finance Bill:

- A Finance Bill is a bill that deals with the country's finances, as the name implies – it could be about taxes, government spending, government borrowings, revenues, and so on.
- The **Union Budget is enacted as a Finance Bill** because it deals with these issues.
- The finance bill is classified into two categories:
 - **Financial bill (I)**
 - **Financial bill (II)**
- Money Bills, as the name implies, are bills whose provisions are entirely concerned with all or any of the issues specified in **Article 110(1)**.
 - It includes issues such as **the imposition, repeal, and regulation of taxes, the control of government borrowing, the protection of Consolidated or Contingency Funds and the influx or outflow of money from any such funds, the allocation of money from the Consolidated Fund of India, and so on**.

Types of Financial Bills:-

- **Financial bills (I)–Article 117 (1)**

- A financial bill (I) is a measure that **includes not only any or all of the subjects stated in Article 110**, but also **other general legislative provisions**.
- A finance bill (I) is **comparable to a money bill in two ways**: (a) both can be introduced only in the Lok Sabha and not in the Rajya Sabha and (b) both can be introduced only on the president's advice.
- In all other ways, a finance bill (I) **follows the same parliamentary procedure as an ordinary bill**.
- **Financial bills (II)–Article 117 (3)**
 - A financial bill (II) has provisions affecting Consolidated Fund of India spending but **does not include any of the items enumerated in Article 110**.
 - It is **considered an ordinary bill** and is subject to the same parliamentary procedure as an ordinary bill in all aspects.
 - The single distinguishing element of this bill is that it **cannot be enacted by either House of Parliament unless the President has requested that the measure be considered by that House**.
 - As a result, **finance bill (II) can be filed in either House of Parliament, and the President's approval is not required**.
 - In other words, the President's suggestion is not necessary at the introduction stage but is required during the consideration step.
 - Either the House of Parliament has the option of **rejecting or amending it**.
 - If the two Houses disagree on such a law, the President might call a joint session of the two Houses to break the stalemate.
 - When the measure is given to the President, he can **either grant his consent to it, withhold his assent to it, or return it to the Houses for reconsideration**.

MUST READ: [Angel Tax](#)

Social Stock Exchange

Context: Recently, the National Stock Exchange of India received final approval from the markets regulator Securities and Exchange Board of India (SEBI) to set up a Social Stock Exchange (SSE).

About Social Stock Exchange:

- **Social Stock Exchange(SSE)** is a platform that allows investors **to invest in select social enterprises or social initiatives**.
- **The Union Budget (2019 –20)** proposed to initiate steps for creating a stock exchange under the market regulator's ambit.
- The Social Stock Exchange (SSE) is a novel concept in India and such a course is meant to **serve private and non-profit sector providers by channelling greater capital to them**.
- **Global Examples:** SSE exists in countries such as Singapore, and the UK among others. These countries allow firms operating in social sectors to raise risk capital.

Salient Features:



- Retail investors can **only** invest in securities offered by **for-profit social enterprises (SEs)** under the Main Board.
- In all other cases, **only institutional investors and non-institutional investors** can invest in securities issued by SEs.

Eligibility:

- Any **non-profit organization (NPO) or for-profit social enterprise (FPSEs)** that establishes the primacy of social intent would be recognized as a social enterprise (SE), which will make it eligible to be registered or listed on the SSE.
- NPOs can raise money either through the issuance of **Zero Coupon Zero Principal (ZCZP) Instruments** from private placement or public issue, or donations from mutual funds.

About Zero Coupon Zero Principal (ZCZP) Instruments :

- These are issued by a **Not-for-Profit Organisation (NPO)** which will be registered with the **Social Stock Exchange (SSE) segment** of a recognized stock exchange.
- The Finance Ministry has declared **zero coupons zero principal instruments (ZCZP) as securities for the purposes of the Securities Contracts (Regulation) Act, 1956.**
- These instruments will be governed by rules made by the **Securities and Exchange Board of India (SEBI)**

About Zero-coupon bond:

- It is a debt security that **does not pay interest but instead trades** at a deep discount, rendering a profit at maturity, when the bond is redeemed for its full-face value.
- The difference between the purchase price of a zero-coupon bond and the par value indicates the investor’s return.

Windsor Framework

Context: Recently, the UK government **reached a landmark deal with the European Union (EU)** on post-Brexit trade rules that will govern Northern Ireland.

About Windsor Framework:

- The ‘Windsor Framework’ will replace the **Northern Ireland Protocol**, which had proved to be among the thorniest of Brexit fall-outs, creating problems both economic and political.



The Northern Ireland Protocol:

- The Northern Ireland Protocol is a **trading agreement that was negotiated in 2020 between the U.K. and the E.U.**

	<ul style="list-style-type: none"> • Under the protocol, both the U.K. and E.U. agreed that the inspection of goods would be conducted between Great Britain and Northern Ireland. • Northern Ireland remained in the EU single market, and trade-and-customs inspections of goods coming from Great Britain took place at its ports along the Irish Sea. <p>Issues related to the Northern Ireland Protocol :</p> <ul style="list-style-type: none"> • The protocol has led to political division in Northern Ireland. • The checks made trade between Great Britain and Northern Ireland cumbersome, with food products, especially, losing out on shelf life while they waited for clearance. Some taxation and spending policies of the UK government could not be implemented in Northern Ireland because of EU rules. • The sale of medicines, too, was caught between different British and EU rules. <p>Salient features of the Windsor Framework:</p> <ul style="list-style-type: none"> • The framework has two crucial aspects: • Introduction of a green lane and red lane system – For goods that will stay in Northern Ireland and those that will go to the EU respectively. • The Stormont Brake – it allows Northern Ireland lawmakers and London to veto any EU regulation they believe affects the region adversely. • The two-lane system– British goods meant for Northern Ireland will use the green lane at the ports and will be allowed to pass with minimal paperwork and checks. • Physical checks will be conducted if the goods are deemed suspicious, in place of the routine checks now. • Goods destined for Ireland or the rest of the EU will have to take the red lane, with the attendant customs and other checks.
<p>The Special Window for Affordable and Mid-Income Housing (SWAMIH) Investment Fund</p>	<p>About The Special Window for Affordable and Mid-Income Housing (SWAMIH) Investment Fund :</p> <ul style="list-style-type: none"> • The Special Window for Affordable and Mid-Income Housing (SWAMIH) Investment Fund I is a social impact fund specifically formed for completing stressed and stalled residential projects. • Sponsors : the Ministry of Finance, Government of India, and is managed by SBICAP Ventures Ltd., a State Bank Group company. • This is a government-backed fund that was set up as a Category-II AIF (Alternate Investment Fund) debt fund • It is registered with SEBI in 2019. • Objectives: formed to complete construction of stalled, RERA-registered affordable and mid-income category housing projects which are stuck due to paucity of funds. <p>Eligibility criteria:</p>

- Real estate projects seeking last-mile finance from SWAMIH must be **registered under the Real Estate (Regulation and Development) Act (RERA)** and have been **halted due to a lack of sufficient money**.
- Each of these initiatives **must be on the verge of being completed**.
- They **must also fall into the category of ‘Affordable and Middle-Income Projects’** (any housing projects wherein housing units do not exceed 200 sq.m.).
- SWAMIH funding is also available for initiatives with **net worth-positive projects**.

MUST READ : [About Alternative Investment Fund \(AIF\)](#)

Annual Information Statement (AIS) and Taxpayer Information Summary (TIS)

Context: Recently, the Income Tax Department has launched a free of cost Mobile app namely AIS and TIS for taxpayers.

About Annual Information Statement (AIS):-

- The Annual Information Statement (AIS) is a **comprehensive view of the taxpayer’s information that appears on form 26AS**.
- Taxpayers can **also provide feedback on the information displayed in AIS**.
- AIS **shows both the reported value** (the value declared by the reporting entities) **and the converted value** (the value after considering the taxpayers’ feedback) for each information such as tax at source (TDS), statement of financial transactions (SFT) and other information. information etc.

Difference between AIS and Form 26AS:-

- AIS is an **extension of form 26AS**.
- Form 26AS shows details of **real estate purchases, valuable investments and TDS/TCS transactions** made during the financial year.
- AIS includes savings account interest, dividends, rents received, securities/property purchases and sales, foreign remittances, deposit interest, GST turnover, etc.

About Taxpayer Information Summary (TIS):-

- The Taxpayer Information Summary (TIS) is a **category-wise aggregated information summary for a taxpayer**.
- It **shows processed value** which means the value generated after deduplication of information based on pre-defined rules and derived value.
- It is the **value derived after considering the taxpayer feedback and processed value** under each information category, like salary, interest, dividend etc.
- The **derived information in TIS will be used for prefilling of return, if applicable**.
- The Taxpayer Information Summary is a **vital section in the AIS** which includes an important information summary of the taxpayer.

A person will be shown various details within the Taxpayer Information Summary, like:-

- Information Category
- Processed Value
- Derived Value

MUST READ: [Input Tax Credit \(ITC\)](#)



INTERNATIONAL RELATIONS



McMahon Line

Context: Recently, a bipartisan resolution has been introduced in the upper chamber of the US Congress reiterating that the US recognises the McMahon Line as the international boundary between China and India in Arunachal Pradesh.

About McMahon Line:-

IMAGE SOURCE: <http://chinamatters.blogspot.com/2016/11/the-myth-of-mcmahon-line.html>



- The McMahon Line serves as the **de facto boundary between China and India in the Eastern Sector.**
- It specifically represents the **boundary between Arunachal Pradesh and Tibet, from Bhutan in the west to Myanmar in the east.**
- **China has historically disputed the**

boundary and claims the state of Arunachal Pradesh as part of the Tibetan Autonomous Region (TAR)

Historical Background:-

- The McMahon Line was **drawn during the Shimla Convention of 1914**, officially described as the **Convention Between Great Britain, China, and Tibet.**
- The McMahon Line **delimited the respective spheres of influence of Tibet and British India in the eastern Himalayan region** in what is today **India's Northeast and northern Myanmar.**
- The border in this region was **undefined prior to the signing of the convention.**

The Shimla Treaty:-

- According to the Shimla Treaty, **the McMahon Line is the clear boundary line between India and China.**
- On behalf of India, the British rulers considered **the Tawang of Arunachal Pradesh and the southern part of Tibet as part of India** and which was also agreed by the Tibetans.
- Due to this, **the Tawang region of Arunachal Pradesh became part of India.**

Current status of the McMahon Line:-

- India recognizes the McMahon Line and considers it to be the 'Actual Line of Control (LAC)' between India and China.
- China does not recognize the McMahon Line.
- This land dispute between India and China is in Tawang (Arunachal Pradesh), which China considers as the Southern part of Tibet.
- According to the Shimla Agreement, it is a part of the Indian state of Arunachal Pradesh.

MUST READ: [India-China Tawang clash](#) and [India-China relations, a year after Galwan](#)

New Development Bank (NDB)

Context: Former Brazilian President Dilma Rousseff has been "unanimously elected" as the head of the New Development Bank (NDB) recently.

About New Development Bank (NDB):-

IMAGE SOURCE: [BRICS Culture Ministers Meeting \(10pointer.com\)](#)



- It is a multilateral financial institution set up by the five BRICS (Brazil, Russia, India, China, and South Africa)
- It was founded at the 6th BRICS Summit in Fortaleza, Brazil in 2014.
- It is headquartered in Shanghai, China.

- The NDB President is elected on a rotational basis from one of the founding members.
- K. V. Kamath, from India, is the first elected president of the NDB.
- The New Development Bank has an initial subscribed capital of US\$50 billion and an initial authorized capital of US\$100 billion.
- The initial subscribed capital is equally distributed among the founding members.
- However, the share of the BRICS nations can never be less than 55% of the voting power.
- The NDB's credit rating is AA+.

Major Projects funded by NDB in India:-

- Mumbai Metro rail
- Delhi-Ghaziabad-Meerut Regional Rapid Transit System and many Renewable Energy projects.
- The NDB has so far approved 14 Indian projects for an amount of nearly USD 4.2 billion.
- In 2020, India announced a 1 billion USD loan pact with NDB to boost rural employment and infrastructure.

MUST READ: [BRICS](#)

India, Brazil, South Africa (IBSA)	<p>Context : A recent report highlighted that India, Brazil, South Africa can play vital role in reforming digital governance.</p> <p>About IBSA :</p> <ul style="list-style-type: none"> • IBSA brings together India, Brazil, and South Africa, three large democracies and major economies from three different continents, facing similar challenges. • The grouping was formalized and named the IBSA Dialogue Forum when the Foreign Ministers of the three countries met in Brasilia in June 2003 and issued the Brasilia Declaration. • Five IBSA Leadership Summits have been held so far. • The 5th IBSA Summit was held in Pretoria in October 2011. • India convened the 6th IBSA summit under the theme “Democracy for Demography and Development” in 2021. • IBSA does not have a headquarters or a permanent executive secretariat. • IBSAMAR (IBSA Maritime Exercise) • The IBSA facility for poverty and hunger alleviation (IBSA Fund) was established jointly by India, Brazil, and South Africa in March 2004. • The IBSA Visiting Fellowships Program was instituted, with the financial support of the Ministry of External Affairs, Government of India in 2016.
Vienna Convention on Diplomatic Relations (1961)	<p>Context: Recently, the Ministry of External Affairs invoked the Vienna Convention after vandalism at Indian High Commission in London by pro-Khalistan protestors.</p> <p>About Vienna Convention on Diplomatic Relations (1961):</p> <ul style="list-style-type: none"> • It provides the framework for the establishment, maintenance and termination of diplomatic relations on a basis of consent between independent sovereign States. • The term “Vienna Convention” can refer to any of a number of treaties signed in Vienna. • The Vienna Convention on Diplomatic Relations (1961) entered into force in 1964. • It is nearly universally ratified, with Palau and South Sudan being the exceptions. • It codifies the longstanding custom of diplomatic immunity. • Under this, diplomatic missions are granted privileges that enable diplomats to perform their functions without fear of coercion or harassment by the host country. <p>MUST READ: Khalistan threat: Need for Constant vigilance</p>
United Nations Committee on Economic, Social, and Cultural Rights	<p>Context: The representatives of fugitive ‘godman’ Nithyananda’s self-proclaimed country, the United States of Kailasa (USK), attended a discussion conducted by the United Nations Committee on Economic, Social and Cultural Rights (CESCR) recently.</p> <p>About United Nations Committee on Economic, Social, and Cultural Rights:</p>

- The Committee on Economic, Social, and Cultural Rights (CESCR) is the **body of 18 independent experts** that monitors the implementation of the International Covenant on Economic, Social, and Cultural Rights by its States parties.
- It was established under **ECOSOC Resolution 1985/17** in 1985.
- All States parties are **obliged to submit regular reports** to the Committee on how economic, social, and cultural rights are being implemented.
- States must **report initially within two years of accepting** the Covenant and thereafter every five years.
- The Committee examines each report and addresses its concerns and recommendations to the State party in the form of “concluding observations”.
- The Optional Protocol to the International Covenant on Economic, Social and Cultural Rights, which entered into force in 2013, gives the Committee competence to receive and consider communications from individuals claiming that their rights under the Covenant have been violated.
- The Committee meets in **Geneva and normally holds two sessions per year.**





HISTORY AND ART & CULTURE



Akbar

Context: Recently, actor Naseeruddin Shah was in news for praising Akbar's 'broad-mindedness and tolerance of all faiths.'

About Akbar :

- **Dynasty:** Timurid; Mughal
- **Predecessor:** Humayun
- **Successor:** Jahangir
- **Biography:** Akbarnama; Ain-i-Akbari
- **Mausoleum :** Sikandra, Agra
- He was the **son of Nasiruddin Humayun and succeeded him** as the emperor in **the year 1556.**
- He was born in **Umarkot** (which is now in Sindh province, **Pakistan**), and died, in **Agra, India.**
- He extended Mughal power over most of the Indian subcontinent and he reigned from **1556 to 1605.**
- He established a centralized system of administration and adopted a **policy of marriage alliance and diplomacy.**
- **Biography by : Abul Fazal**

Administration

- The Emperor himself was the **supreme governor of the empire.**
- He retained ultimate judicial, legislative, and administrative power above anyone else.
- He introduced the **Mansabdari system** to effectively organize the Military.
- He was assisted inefficient governance by several ministers –
- **Vakil**-chief adviser to the King over all matters
- **Diwan**-minister in charge of finance
- **Sadar-i-sadur**– religious advisor to the King
- **Mir Bakshi**-the one who maintained all records
- **Daroga-i-Dak Chowki** – to oversee proper enforcement of law
- **Muhtasib**– to oversee the postal department.

Revenue System:

- The land was divided into four classes according to their productivity – **Polaj, Parauti, Chachar, and Banjar.**
- **Polaj** – Throughout the empire, Polaj was the ideal and best type of land. This land was always cultivated and was never left fallow.
- **Parauti** – This was the land that was temporarily kept out of cultivation in order to regain its fertility.



- **Chachar** – Chachar was a type of land that was allowed to lie fallow for three or four years before being cultivated again.
- **Banjar** – Banjar was the worst type of land that had been left uncultivated for five years or more.
- **Bigha** was the unit of land measurement.
- Land revenue was paid either in **cash or in kind**.
- **Dahsala system of land taxation** was introduced under the reign of Akbar.

Judicial Reforms:

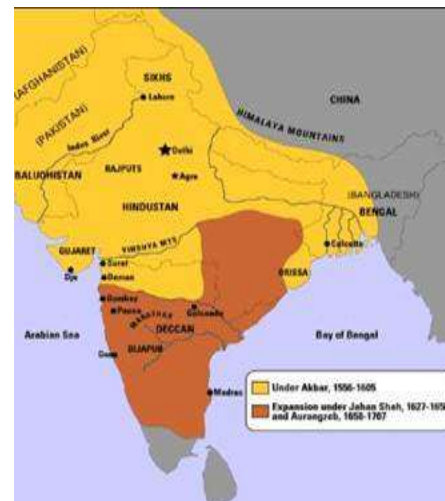
- **Hindu customs and laws were referred** to in the case of Hindu subjects for the first time during Akbar’s reign.
- The Emperor was the **highest authority in Law** and the power to give **capital punishment** rested solely with him.
- The major social reform introduced by Akbar was the abolition of the **Pilgrimage Tax for Hindus in 1563** as well as the **Jazia tax**.
- He **discouraged child marriage and encouraged widow remarriage**.
- He craved religious unity for his people and with that vision founded the sect **Din-i-Ilahi** (Faith of the Divine).

Architecture and Culture

- Among the architectural marvels commissioned during his rule are the **Agra Fort (1565–1574), the town of Fatehpur Sikri (1569–1574) with its beautiful Jami Masjid and Buland Darwaza, Humayun’s Tomb (1565-1572), Ajmer Fort (1563-1573), Lahore Fort (1586-1618) and Allahabad Fort (1583-1584)**.
- Akbar’s Nava Ratnas or the Nine Gems : **Abul Fazel, Faizi, Mian Tansen, Birbal, Raja Todar Mal, Raja Man Singh, Abdul Rahim Khan-I-Khana , Fakir Aziao-Din and Mullah Do Piazza**.

Important Conquests:

- He defeated Hemu in the **second battle of Panipat in 1556**. He consolidated his supremacy over **most of north and central India** and then over **Rajputana** by with **the Battle of Haldighati**.
- Akbar brought in **Gujarat (1584), (1585), Kashmir (1586-87), Sindh Bengal (1592), and Kandahar (1595)** within the Mughal territory.
- The Mughal army led by General Mausam also conquered parts of **Baluchistan** around Quetta and by 1595.



1576
Kabul (1591),
Mir
Makran

	<ul style="list-style-type: none"> By 1600, Akbar had captured Burhanpur, Asirgarh Fort, and Khandesh in Deccan.
Sisupalgarh	<p>Context: Recently, the ancient city of Sisupalgarh was in news due to the damages by the Land mafias.</p> <p>About Sisupalgarh:</p> <ul style="list-style-type: none"> It is located near the city of Bhubaneswar in Odisha. It was once the capital of Kalinga, which is the ancient name of Odisha. It dates back prior to the Mauryan period. It is a 2,000-year-old fortified city. It is considered one of the largest and best-preserved ancient fortifications in India. The remains of the fortification were discovered in 1948 by the Indian archaeologist B.B. Lal.
Rajinder Prasad	<p>About Rajendra Prasad:-</p> <ul style="list-style-type: none"> He was the first president of India, in office from 1952 to 1962. A supporter of Mahatma Gandhi, Prasad was imprisoned by British authorities during the Salt Satyagraha of 1931 and the Quit India movement of 1942 In the early 1920s, he became the editor of a Hindi weekly Desh and an English biweekly, Indian National Movement: <ul style="list-style-type: none"> He attended the 1906 Calcutta session of Indian National Congress. He joined the party in 1911 and later elected to the All India Congress Committee. He was highly impressed by Mahatma Gandhi and he supported Gandhi during the Satyagraha Movement against Indigo Planters in Champaran, 1917, Bihar. He later quit his lucrative career as a lawyer in 1920 and jumped into Freedom Struggle Movement and participated in the Non-Cooperation Movement. He led the Non-Cooperation Movement in Bihar He started the National College in Patna in 1921 to promote Swadeshi asking people to boycott foreign goods. He set up the Quetta Central Relief Committee in Sindh and Punjab under his own presidency after 1935 Quetta Earthquake. He was elected as the President of the Bombay Session of the Indian National Congress in 1934. He was also elected as the President for second time in 1939 after Subhash Chandra Bose resigned from his post He became president of INC the third time President of INC in 1947 when J.B.Kripalani resigned from his post. <p>Contribution to Constitution Making:-</p>

- In 1946, Rajendra Prasad joined the **Interim Government** of India as the **Minister of Food and Agriculture**.
- As a firm believer in the maximization of agricultural production, he crafted the slogan **“Grow More Food.”**
- He was elected as a member of the Constituent Assembly from the Bihar Province where he served as the **president of the Constituent Assembly from 1946 to 1950**.
- **On 24th January 1950**, at the last session of the Constituent Assembly, Prasad was **elected as the President of India**
- He has the distinction of being the **only President** to have been **re-elected for a second term**.
- **Committees of Constituent Assembly under the chairmanship of Dr. Prasad includes:**
 - Ad hoc Committee on the National flag
 - Committee on the Rules of Procedure
 - Finance and Staff Committee
 - Steering Committee

Literary Works:

- Satyagraha at Champaran (1922)
- India Divided (1946)
- Atmakatha (1946) his autobiography written during his 3 year prison term in Bankipur Jail
- Mahatma Gandhi and Bihar, Some Reminiscences (1949)
- Babu Ke Kadmon Mein (1954)
- Since Independence (1960)

MUST READ: [C.Rajagopalachari](#)

Vedic Heritage Portal

Context: Recently, the Vedic Heritage Portal created by the Indira Gandhi National Centre for the Arts was inaugurated.

About Vedic Heritage Portal:-

- The ‘Vedic Heritage Portal’ created by the **Indira Gandhi National Centre for the Arts (IGNCA)**.
- It is a one-stop solution for common users and researchers **seeking any information regarding ‘Vedic heritage**.
- It gives detailed information about **oral traditions, a textual traditions in form of published books/manuscripts or implements**.
- It aims to **communicate messages enshrined in the Vedas**.
- It will help common people to have a **general understanding of the Vedas**.
- The **audio-visual recording of four Vedas has been uploaded** on the Vedic Heritage portal.
- The portal has **over 18 thousand mantras of the four Vedas** with a duration of over 550 hours.

About Indira Gandhi National Centre for the Arts:-



- The IGNCA comes under of **Ministry of Culture**.
- It was established in **1987 as an autonomous institution**.
- The **founder trustees of IGNCA** were Shri Rajiv Gandhi, Shri R. Venkataraman, Shri P.V. Narasimha Rao, Smt. Pupul Jayakar, the Finance Minister of 1987, Shri H. Y. Sharada Prasad and Dr. Kapila Vatsyayan.
- It is a centre for **research, academic pursuit, and dissemination in the field of the arts**.
- The IGNCA has **six functional units**: –
 - **Kala Nidhi**, the multi-form library
 - **Kala Kosa**, devoted mainly to the study and publication of fundamental texts in Indian languages
- The IGNCA has a **trust (Board of Trustees), which meets regularly** to give general direction about the Centre's work.
- The Executive Committee, drawn from among the Trustees, **functions under a Chairman**.

About Kala Vaibhav:-

- It is a **virtual museum**.
- It is based on **64 arts**, through which,
- **Objective**: to make the world more familiar with India's architecture, painting, drama, music, and thereby the rich history of the country's glorious culture.

MUST READ: [Mandala Art](#)

Shaheed Diwas

Context: The Shaheed Diwas (martyrdom day of Shaheed Bhagat Singh, Sukhdev and Rajguru) was observed recently.

About Shaheed Diwas:-

- It is observed on **23rd March**.
- It is also known as **Martyrs' Day or Sarvodaya Day**.
- It was on this day that **Bhagat Singh, Sukhdev and Rajguru were executed by the British government in 1931**.
- They were hanged to death **for assassinating John Saunders**, a British police officer in 1928.
- They had mistaken him for British police superintendent **James Scott** who had **ordered lathi charge**, which eventually led to the death of **Lala Lajpat Rai**.

Nehru about Bhagat Singh:-

- Nehru had said, Whether I agree with him or not, my heart is full of admiration for the courage and self-sacrifice of a man like Bhagat Singh.
- Courage of the Bhagat Singh type is exceedingly rare

About Sukhdev:-

- He was a famous Indian revolutionary who played a major role in the India's struggle for Independence.



- He was a **member of the Hindustan Socialist Republican Association (HSRA)**.
- He **organized revolutionary cells** in Punjab and other areas of North India.
- He even went on to **educate the youth at the National College in Lahore**, greatly inspiring them about India’s glorious past. He along with other renowned revolutionaries **started the ‘Naujawan Bharat Sabha’** at Lahore
 - It was an organization involved in various activities, mainly gearing the youth for the freedom struggle and putting an end to communalism.
- Sukhdev himself took active part in several revolutionary activities like the **‘Prison hunger strike’ in 1929**.
- He was an accomplice of **Bhagat Singh and Shivaram Rajguru**.
- They were involved in the **assassination of Deputy Superintendent of Police, J.P. Saunders** in 1928, to avenge the death of veteran leader, Lala Lajpat Rai, owing to excessive police beating in the Conspiracy case.

About Shivaram Rajguru:-

- He joined the **Hindustan Socialist Republican Army (HSRA)**.
- Rajguru was born on 24 August 1908 at Khed to Parvati Devi and Harinarain Rajguru in a Marathi Brahmin family.
- He received primary education at Khed and later studied in New English High School at nana ka bara in Pune
- He was **an accomplice of Bhagat Singh and Sukhdev** who were charged for assassinating John Saunders, a British police officer in 1928.
- Rajguru was executed by the British government in **1931**.

MUST READ: [India’s Women Unsung Heroes of Freedom Struggle](#)

Battle of Bakhmut

Context: Bakhmut has been in news recently, regarding the Russian-Ukrainian war.

About the Battle of Bakhmut:

- Bakhmut is a city in the **eastern Ukraine region of Donetsk**
- Bakhmut is currently in ruins, having been the **focal point of Russian assaults** and a site of dogged defence by the Ukrainian military.
- The industrial city, is **known for its salt and gypsum mines**.
- It’s also the **site of a winery** established on the order of Soviet dictator Joseph Stalin in 1950.
- **Background** : Bakhmut has been caught up in conflict since 2014, when Russia-backed separatists launched a push to capture Donetsk. The separatists briefly seized parts of the city that year, before Ukrainian forces drove them out.
- Bakhmut is **proximate to multiple important roads** which may have some strategic value to the Russian advance.



- It's an **important transport hub**, a lot of supply lines go through there and Russia could use it as a base.

Spring Equinox & Celebration

Context: Recently , President Droupadi Murmu greeted citizens on the eve of Chaitra Sukladi, Ugadi, Gudi Padwa, Cheti Chand, Navreh and Sajibu Cheiraoba .



About Chaitra Sukladi:-

- It marks the beginning of the new year of the **Vikram Samvat**.
- Vikram Samvat is based on the day **when the emperor Vikramaditya defeated Sakas, invaded Ujjain and called for a new era**.
- Under his supervision, astronomers developed a new calendar based on the lunisolar system, which is still used in northern India.
- It is the first day of the moon's waxing phase (when the visible side of the moon grows larger every night) in Chaitra (the first

month of the Hindu calendar).

About Ugadi:-

- **The doors in homes are adorned with mango leaf decorations called toranalu or Torana in Kannada.**
- The festivals are celebrated by the people in the Deccan region including **Karnataka, Andhra Pradesh and Maharashtra**.
- The common practice in the celebrations is the **festive food that is prepared with a mix of sweet and bitter**.

About Gudi Padwa:-

- The festivals are celebrated by the people in the Deccan region including **Karnataka, Andhra Pradesh and Maharashtra**.
- A famous concoction served is jaggery (sweet) and neem (bitter), called **bevu-bella** in the South, signifying that life brings both happiness and sorrows.
- **Gudi is a doll prepared in Maharashtrian homes.**
- This day is also symbolic of the season of **Vasant or spring in India**.

About Cheti Chand:-

- **Sindhis celebrate the new year** as Cheti Chand.
- **Chaitra month is called 'Chet' in Sindhi.**
- The day **commemorates the birth anniversary of Uderolal/Jhulelal**, the patron saint of Sindhis.
- Cheti Chand is deemed to be highly beneficial and promising to start new endeavours.

- Sindhis conduct various rituals and pray for forty days. This offering is known as Chaliho.
- After this, they celebrate the grand fest of Cheti Chand.
- Many of them also conduct fasting on this day and break it once they complete the ceremonial offerings with fruits

About Navreh:-

- It is the **lunar new year** that is **celebrated in Kashmir**.
- It is the Sanskrit word '**Nav-Varsha**' from which the word '**Navreh**' has been **derived**.
- It falls on the first day of the **Chaitra Navratri**.
- On this day, Kashmiri pandits look at a bowl of rice which is **considered as a symbol of riches and fertility**.

About Sajibu Cheiraoba:-

- It is the great **ritual festival of Meiteis (an ethnic group in Manipur)**
- It is observed on the **first day of Manipur lunar month Shajibu**, which falls in the month of April every year.
- The festival is intended to strengthen the bond of love and **brotherhood among family members**.
- People arrange a family feast in which **traditional cuisines** are offered to local deities on plantain leaf at the entrance gates of the house.
- After the hearty meal, people climb up the **Cheirao Ching Hill in Chingmeirong** or atop a nearby hill in the afternoon to offer prayers. The belief is that it will elevate them to greater heights in their worldly life.

MUST READ: [Goa's Sao Joao festival](#)**Khandagiri and Udaygiri caves**

Context: Recently, the Archaeological Survey of India (ASI) has sealed the road between Khandagiri and Udaygiri caves.

About Khandagiri Udaygiri caves:-

- These caves had been created during the reign of Kalinga **King Kharavela in the first and second centuries BC**.
- There are **both man-made and natural caves** in the cave complex.
- **Udaygiri has 18 caves and Khandagiri has 15**.
- They were formerly known as the **Kattaka Caves or Cuttack Caves**.
- The **twin hills Udaygiri and Khandagiri** (Lat. 20.16 N; Long. 85.47E) are located in the vicinity of Bhubaneswar town. **National Highway No.5 passes through** the close proximity of the hills.
- These two hills represent one of the **earliest groups of Jaina rock-cut architecture in eastern India**.
- These hills are **honeycombed** with excavated rock-cut caves, essentially **meant for the dwelling retreats of the Jaina recluses**.
- On the basis of inscriptional evidence, these caves were **first excavated by king Kharavela of the Chedi dynasty** and his successors who were devout Jaina's during the first century B.C.

- The **Jain temple on the top of the Khandagiri hill** was constructed in the late 19th century and is under worship even at present, preserving the continuity and tradition of the glorious past of the hill.
- **Ranigumpha and Swargapuri-Manchapuri caves** are double-storied and the largest in size.
- **The Rani and Hathi Gumpha in the Udayagiri has description** of the culture of dance in Orissa- Odissi among others beyond the 2nd century B.C.
- **Ranigumpha** or the queen's palace is the architectural marvel of the entire complex.
- Architecturally the **Hathi gumpha is** insignificant but its historical importance lies in the famous inscription of king Kharavela engraved on its brow.
- The 17-line inscription records the expeditions of king Kharavela including the victory of Magadha and the retrieval of the Jaina cult image taken away by the Nanda king long before.
- The depiction of **24 Tirthankaras** along with **Sasanadevis** in the Barabhuji cave, **Surya Gajalaksmi** and Jaina symbols in the Ananta Gumpha of Khandagiri in relief are a notable achievement of early medieval Indian art.
- Besides, remains of an **apsidal structure** were unearthed in 1958 atop the Udayagiri is **the first earliest structure of its kind in eastern India**.

MUST READ: [Ancient rock paintings](#)

**Maharishi
Dayanand
Saraswati**

Context: Government to celebrate 200th birth anniversary of Maharishi Dayanand Saraswati.

About Maharishi Dayanand Saraswati:-

- Maharishi Dayanand Saraswati was an **Indian philosopher and social leader**.
- He was the **founder of the Arya Samaj**.
- **Arya Samaj:** was a reform movement of the Vedic dharma.
- He was the **first to give the call for Swaraj as "India for Indians" in 1876**.
- **Philosophy:** Denouncing idolatry and ritualistic worship, he worked towards reviving Vedic ideologies.
- He **believed in the infallible authority of the Vedas**.
- He advocated the **doctrine of Karma and Reincarnation**.
- **Dayananda's contributions:** promoting **equal rights for women**, such as the right to education and reading of Indian scriptures.
- He **translated the Vedas** and wrote three books :
 - **Satyartha Prakash** in Hindi,
 - **Veda Bhasya Bhumika:** an introduction to his Vedic commentary, and
 - **Veda Bhashya:** a Vedic commentary in Sanskrit on the Yajurveda and the major part of the Rig-Veda.
- He also **established Vedic schools for the education of girls and boys of all castes**.
- **The Shuddhi Movement** was introduced by Maharishi Dayanand to bring back the individuals to Hinduism who were either voluntarily or involuntarily converted to other religions like Islam or Christianity.

The ten tenets of the Arya Samaj are as follows:

- **God is the efficient cause of all true knowledge.**
- God is existent, intelligent and blissful. He **alone is worthy of being worshipped**
- The **Vedas are the scriptures of all true knowledge.** It is the **paramount duty of all Aryas** to read, teach, and recite them and to hear them being read.
- One should always **be ready to accept the truth and to renounce untruth**
- All acts should be performed **in accordance with Dharma** that is, after deliberating on what is right and wrong
- The prime object of the Arya Samaj is to do good to the world, that is, to promote the physical, spiritual and social good of everyone.
- Our **conduct towards all should be guided by love, righteousness and justice.**
- We should dispel **Avidya (ignorance)** and promote Vidya (knowledge).
- **One should look for his/her good in promoting the good of all.**
- One **should regard oneself under restriction to follow the rules of society** calculated to promote the well-being of all, while in following the rules of individual welfare all should be free.

MUST READ: [Swami Vivekananda](#)

Jhamarkotra and Zawar

Context: Recently, the need for better protection of India's geo heritage sites of Jhamarkotra and Zawar, in Rajasthan was voiced.

About Jhamarkotra:

- **Geoheritage** are sites that offer insights into the evolution of the earth that can be used for research, reference, and awareness.
- A fossil park at **Jhamarkotra, Rajasthan hosts stromatolites dating back 1.8 billion years.**
- These exhibit a **variety of textures and sizes.**
- **Stromatolite:** a layered **sedimentary rock formed by microorganisms.**
- stromatolite fossils **preserve the record of cyanobacteria**, commonly known as blue-green algae – the earliest life on the planet.
- **Cyanobacteria** developed the ability to photosynthesise and make their food through which they **pumped large quantities of oxygen into the atmosphere of primaeval earth, allowing most other life to evolve and flourish.**
- Jhamarkotra's fossils are **phosphate-rich because** the trapped sediments were mainly phosphate minerals.

About Zawar:-

- It lies in the **south of Udaipur.**
- It is the **world's oldest old known zinc-smelting site located in Udaipur.**
- It has had **numerous traces of zinc mining and smelting operations** since ancient times.
- These include **open stops, trenches, chambers, galleries, shafts, and open-pit mines.**
- The discovery here of earthen retorts – brinjal-shaped, long-necked vessels – is particularly significant as their presence here **suggests Zawar had a unique zinc-smelting legacy.**
- Zawar's zinc-smelting operations date back **2,000 years.**

<p>Sangita Kalanidhi award</p>	<p>MUST READ: 1st Biodiversity Heritage site in TN</p> <p>Context: Recently Carnatic vocalist Bombay Jayashri has been selected for the Sangita Kalanidhi award of the Music Academy for 2023.</p> <p>About Sangita Kalanidhi award :-</p> <ul style="list-style-type: none"> • It came into existence in 1942. • It is considered the highest award in the field of Carnatic music. • The award comprises a gold medal and a birudu Patra (citation). • In 1942, it was decided that the musician so invited would be conferred the title of Sangita Kalanidhi. • Lalgudi Shri GJR Krishnan and Smt Vijayalakshmi received the 2022 award. • Carnatic vocalist Bombay Jayashri has been selected for the 2023 award. <p>About Sangeetha Kala Acharya:-</p> <ul style="list-style-type: none"> • This award was instituted in 1993. • It is given to those who have contributed by bringing several disciples to the concert platform. • It is awarded to two senior musicians who have contributed by bringing several disciples to the concert platform. <p>About Natya Kala Acharya:-</p> <ul style="list-style-type: none"> • Instituted in 2012 by Dr Engikollai Krishnan and Dr Leela Krishnan in memory of Smt Meenakshi and Mysore Asthana Vidwan Engikollai Chidambara Ganapatigal. • It is conferred each year in January on a senior dancer at the inauguration of the annual dance festival. • It is awarded to a senior dancer at the inauguration of the annual dance festival. <p>MUST READ: Karakattam dance</p>
<p>Shri Shri Harichand Thakur</p>	<p>Context: Prime Minister Narendra Modi paid tribute to Sri Sri Harichand Thakur on his Jayanti recently.</p> <p>About Shri Shri Harichand Thakur:-</p> <ul style="list-style-type: none"> • Shri Shri Harichand Thakur worked among the untouchable people of the Bengal Presidency. • He came from a family of Vaishnavite Hindus. • He founded a sect of Vaishnavite Hinduism called Matua. • This was adopted by members of the Namasudra community. • Namasudra community: were then also known by the pejorative name of Chandalas and considered to be untouchable. • Philosophy: The sect was opposed to caste oppression and, inspired the community towards education and social upliftment. • According to historian Sekhar Bandyopadhyay, Thakur “experienced Atma darshan or self-revelation, through which he realized that he was the

incarnation of God himself, born in this world to bring salvation to the downtrodden”.

MUST READ: [Bhakti Movement](#)

Ancient Monuments and Archaeological Sites and Remains (AMASR) (Amendment) Bill

About Ancient Monuments and Archaeological Sites and Remains (AMASR) (Amendment) Bill :

- It is an Act to provide for the **preservation of ancient and historical monuments and archaeological sites** and remains of national importance, for the regulation of **archaeological excavations, and for the protection of sculptures, carvings, and other like objects.**
- It extends to the **whole of India.**
- The AMASR Act, of 1958, was amended in 2010 to **declare the 100-meter radius of protected monuments as prohibited areas and the next 300-meter radius as regulated areas.**

About the Ancient Monuments and Archaeological Sites and Remains (Amendment) Bill, 2017 :

- It was introduced to amend the **Ancient Monuments and Archaeological Sites and Remains Act, of 1958.**
The Act **defines a ‘prohibited area’** as an area of 100 meters around a protected monument or area.
- The **central government can extend** the prohibited area beyond 100 meters.
- The Act **does not permit construction in such prohibited areas**, except under certain conditions.
- The Act also **prohibits construction in ‘prohibited areas’** even if it is for public purposes.
- The Bill was intended to amend this provision to permit the construction of public works in ‘prohibited areas’ for public purposes.
- The Bill introduces a **definition for ‘public works.**
- **Procedure for seeking permission for public works:** As per the Bill, the relevant central government department, that seeks to carry out construction for public purposes in a prohibited area, should make an application to the **competent authority.**
- If there is any question related to whether a construction project qualifies as ‘public works’, it will be referred to **the National Monuments Authority.** This Authority will make its recommendations, with written reasons, to the central government.
- The **decision of the central government will be final.**
- If the decision of the central government differs from that of the Authority, it should record its **reasons in writing.**
- This decision **should be communicated** by the competent authority, to the applicant, **within 10 days** of receiving it.





GEOGRAPHY



River Nile

Context: As per recent document published in the journal **Earth's Future**, the large-scale pollution from untreated agricultural drainage and wastewater is putting existential pressure on the delta system of the Nile river.

About the Nile river:-

IMAGE SOURCE: [Nile River \(geography.name\)](https://www.geography.name)



- The River Nile is located in **Africa**.
- It **originates in Burundi**, south of the equator, and flows northward through northeastern Africa, eventually flowing through Egypt and finally draining into the **Mediterranean Sea**.
- **Source:** The source of the Nile is sometimes considered to be **Lake Victoria**, but the lake itself has feeder rivers of considerable size like the **Kagera River**.
- The Nile River is considered one of the **longest rivers in the world**.

- Nile basin includes parts of **Tanzania, Burundi, Rwanda, Congo (Kinshasa), and Kenya**.
- The Nile River **forms an arcuate delta** as it empties into the **Mediterranean Sea**.
- **Arcuate delta:** Deltas with triangular or fan-shaped are called **arcuate (arc-like) deltas**.
- The Nile is formed by **three principal streams: the Blue Nile, the Atbara, and the White Nile**.

MUST READ: [West Nile Virus](#) and [Lake Chad](#)

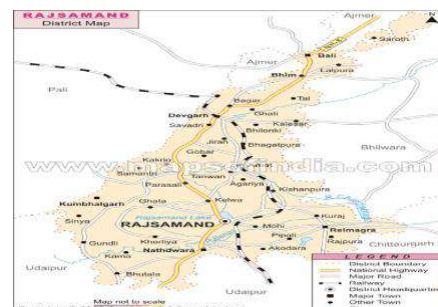
River Kothari

Context: Recently, the National Green Tribunal (NGT) directed the Rajasthan State Pollution Control Board (RSPCB) to recover environmental compensation from Bhilwara municipal council for its failure to take action to remedy the pollution of River Kothari.

About River Kothari:-

IMAGE SOURCE: [Kothari River – Jatland Wiki](#)

- It arises **from the Rajsamand district Rajasthan**.
- Source: **Aravalli hills near Devgarh (Rajsamand, Rajasthan)**.
- It is one of the **left-bank tributaries of Banas river**.
- This river **joins the river Banas at Nandrai in Kotri tehsil**.



of
the



	<ul style="list-style-type: none"> • The Meja dam on the Kothari river provides drinking water to the Bhilwara district. • River Pollution:- <ul style="list-style-type: none"> ◦ most open wells in villages near the Kothari river, which flows along the industrial belt, had chromium, lead, iron, zinc and sodium above the norms set by the Bureau of Indian Standards, Poisoned Water. <p>MUST READ: SC on National Green Tribunal (NGT) and State of Environment Report 2022</p>
Plastic rocks	<p>Context: Recently, plastic rocks have been found on the remote Brazilian island of Trindade.</p> <p>About Plastic rocks:-</p> <ul style="list-style-type: none"> • They are made of sedimentary granules and other debris held together by plastic. • These rocks are called “plastiglomerates” because they are made of a mixture of sedimentary granules and other debris held together by plastics. • They are considered a potential marker of the Anthropocene. • Anthropocene: an informal epoch of the Quaternary proposed by some social scientists, environmentalists, and geologists. • Plastiglomerate could potentially form a marker horizon of human pollution on the geologic record. • They may survive as future fossils. • Plastiglomerate may also conceivably be formed in plastic-polluted regions affected by lava flows or forest fires. • They have been found on the surface as well as beneath the sand.
Daylight Saving Time (DST)	<p>Context: Recently, Lebanon saw mass confusion after its government at the last minute delayed the start of daylight saving time by a month.</p> <p>About Daylight Saving Time (DST):-</p> <ul style="list-style-type: none"> • It is the practice of turning the clock ahead as warmer weather approaches and back as it becomes colder again. • The practice was first suggested by Benjamin Franklin in 1784. • India does not follow daylight saving time as countries near the Equator do not experience high variations in daytime hours between seasons. <ul style="list-style-type: none"> ◦ However, people of the Northeast have demanded a separate time zone to make up for the loss of daylight hours due to the longitudinal breadth of India. • Several countries, including Australia, Great Britain, Germany, and the United States, adopted Daylight Saving Time during World War I to conserve fuel by reducing the need for artificial light. • A group of Canadians in Port Arthur (Ontario) were the first to adopt the practice of setting their clocks an hour ahead in 1908.

- Among the biggest disadvantages is the disruption of the **body clock or circadian rhythm leading to health issues.**

Depleted Uranium

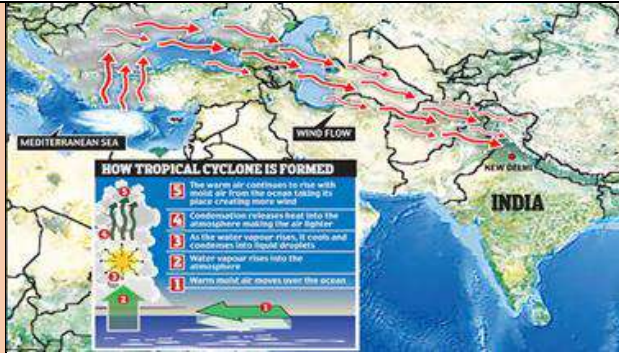
Context: Recently, UK committed to provide weapons containing depleted uranium to Ukraine.

About Depleted Uranium:-

- It is a **by-product of the process of creating enriched uranium**, which is used in nuclear reactors and nuclear weapons.
- In comparison to enriched uranium, depleted uranium is **much less radioactive.**
- It is **incapable of generating a nuclear reaction.**
- It is **denser than lead.**
- It is thus ,widely used in **weapons** as it can easily penetrate armour plating.
- Apart from the **US, Britain, Russia, China, France and Pakistan** produce uranium weapons.
- These are not classified as nuclear weapons, as per the International Coalition to Ban Uranium Weapons.
- **the International Coalition to Ban Uranium Weapons(ICBUW):-**
 - It **coordinates campaigning against Depleted Uranium ammunition** worldwide within the framework of the United Nations.
 - In particular, the campaign is **supported by the IPPNW** (International Doctors for the Prevention of Nuclear War) and **the IALANA** (Lawyers Against Atomic, Biological and Chemical Weapons).
 - It was **established in 2003 in Berlaar, Belgium.**
 - It has had special consultative status with the **UN Economic and Social Council (ECOSOC) since 2005.**
 - The Coalition provides the **framework for dealing with all aspects of the uranium weapons** issue and seeks to bring peace, human rights and environmental movements closer together on this issue.
 - The aim of the coalition is to **ban DU weapons, eliminate the environmental damage caused by uranium** weapons use, help the victims, and prevent future damage from such weapons and actions.
 - The coalition is **open to NGOs, groups and individuals** who wish to contribute to the realization of their goals.
- **Ingesting or inhaling them depresses renal function** and raises the risk of developing a range of cancers.
- Depleted uranium munitions which miss their target **can poison groundwater and soil.**

MUST READ: [Iran nuclear Programme](#)

Western Disturbances



Context: Recent studies suggest that Climate change is causing Western Disturbances to weaken.

About Western Disturbances:-

IMAGE SOURCE: [Ready to pack your woollens up? Think again!](#)

Extreme weather conditions in North-West India next week will chill you to the bone – India Today

- These are **low-pressure areas** embedded in the Westerlies.
- **Westerlies:** the planetary winds that **flow from west to east between 30°-60° latitude.**
- Disturbance in the name indicates an **area of “disturbed” or reduced air pressure.**
- Western disturbances are **formed naturally.**
- They are labelled as an **extra-tropical storms.**
- **Extra-tropical:** it means **outside the tropics.**
- As the WD **originates outside the tropical region,** the word “extra-tropical” is used for them.
- They originate in the **Mediterranean region** and travel over Iran, Iraq, Afghanistan and Pakistan to enter India loaded with moisture
- In India, **the Himalayas obstruct them,** causing rain and snow in the western Himalayas.
- They usually **bring mild rain during January-February,** which is **beneficial to the rabi crop.**
- Since **wheat is one of the most important Rabi crops** and is the staple diet of people in this region, winter showers **contribute to meeting India’s food security.**
- These are associated with a **cloudy sky, higher night temperatures and unusual rain.**
- **Excessive precipitation** due to western disturbances can **cause crop damage, landslides, floods and avalanches** over the Indo-Gangetic plains.
- They **occasionally bring cold wave conditions and dense fog.**

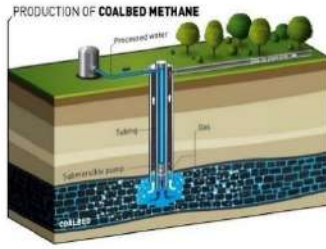
MUST READ: [NORTHEAST \(WINTER\) MONSOON](#)

Coal Bed Methane

Context: Recently, the Union Minister of Coal, Mines and Parliamentary Affairs spoke on the extraction of Coal Bed Methane in the Lok Sabha.

About Coal Bed Methane:-

IMAGE SOURCE: [Natural Gas Drilling Basics – Lawrence & Mercer ALLARM – A Citizen Science Initiative from Westminster College \(google.com\)](#)



- It is an **unconventional form of natural gas**.
- It is found in **coal deposits or coal seams**.
- It is formed during the process of **coalification, the transformation of plant material into coal**.

Extraction:-

- **Coal Bed Methane** is extracted from **unconventional gas reservoirs**
- **Unconventional gas reservoirs** are where **gas is extracted directly from the rock** that is the source of the gas
- **For example** shale in the case of shale gas and coal in the case of CBM

Process:-

- The **methane is held underground** within the coal and is **extracted by drilling** into the coal seam and **removing the groundwater**.
- The **resulting drop in pressure** causes methane to be released from the coal.

Uses of Coal Bed Methane:-

- It can be used in **Power generation**.
- It can be used as **Compressed natural gas (CNG) auto fuel**.
- It can be used as a **feedstock for fertilisers**.
- It can be used for **Industrial uses** such as **cement production**, rolling mills, steel plants, and **methanol production**.

Reserves in India:-

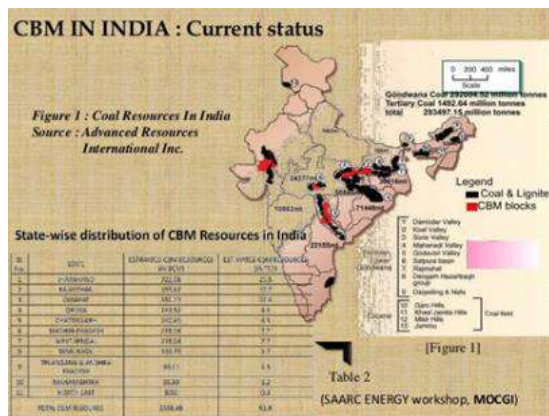


IMAGE SOURCE: [Coal Bed Methane IN INDIA MAP UPSC – Bing](#)

- The country's coal and CBM reserves are found in around **12 states of India**.
- The **Gondwana sediments of eastern India** hold the bulk.
- The **Damodar Koel valley and Son valley** are prospective areas for CBM development.

- CBM projects existing in **Raniganj coalfields**, the **Parbatpur block in Jharia coalfield** and the **East and West Bokaro coalfields**.
- The **Son valley** includes the **Sonhat North and Sohagpur East and West blocks**.

MUST READ: [Methane Emissions](#)

Yellowstone national park

Context: Recently, Yellowstone celebrated its 151st anniversary.

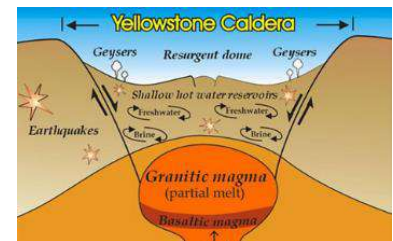
About Yellowstone national park :



- Yellowstone National Park is an **American** national park located in the **western United States**.

Salient features :

- Yellowstone National Park was the **first national park in the US** and is also widely held to be **the first national park in the world**.
- The park is known for its wildlife and its **many geothermal features**, especially the Old Faithful **geyser**, one of its most popular.
- The **subalpine forest is the most abundant**.
- It is part of the **South-Central Rockies forests ecoregion**.
- The rivers of the **Snake-Columbia basin, Green-Colorado basin, and Missouri River Basin** all begin as snow on the Continental Divide as it weaves across Yellowstone's peaks and plateaus.
- **Yellowstone Lake** is one of the **largest high-elevation lakes in North America** and is centered over the **Yellowstone Caldera, the largest supervolcanic** on the continent.
- **Caldera :**
 - **A large bowl-shaped volcanic depression** is more than one kilometre in diameter and rimmed by in facing scarps.
 - It is usually **formed by the collapse of the top of a volcanic cone** or group of cones because of the removal of the support formerly furnished by an underlying body of magma (molten rock).



Landslide Atlas of India

Context: Recently, ISRO released the Landslide Atlas of India.

About Landslide:-

- Landslide is a **rapid movement of rock, soil, and vegetation down the slope** under the influence of gravity.
- Landslides are caused due to three major factors: **geology, morphology, and human activity**.

Causes of landslide:-

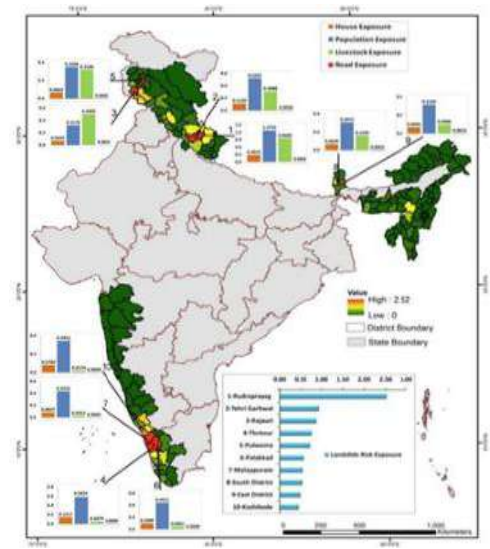
- **Rainfall and Snowfall-**
- **Earthquakes and Volcanic Eruptions**
- **Mining, Quarrying and Road cutting**
- **Loading by construction of houses**
- **Deforestation**

Landslide-Prone Areas in India: Himalayan tract, hills/mountains in sub-Himalayan terrains of North-east India, Western Ghats, the Nilgiris in Tamil Nadu Konkan .

About Landslide Atlas of India:-

CREDITS : [researchgate.net](https://www.researchgate.net)

- It is a **database of landslide-prone regions of India** based on events during 1998 – 2022.
- It is created by the **National Remote Sensing Centre, ISRO Department of Space, Government of India**
- In addition to aerial images, **high-resolution satellite images captured using ResourceSat-1 and 2, etc., were used to study the landslides.**
- This Atlas **provides the details of landslides present in Landslide provinces of India**
- The database **covers landslide-vulnerable regions in 17 states and 2 UTs of India** in the **Himalayas and Western Ghats.**
- The database **includes three types of landslide inventory – seasonal, event-based, and route-wise** for the 1998-2022 period.
- **The technology used:** Satellite data of **high to very high resolution** such as **IRS-1D PAN+LISS-III, Resourcesat-1, 2 and 2A LISS-IV Mx, Cartosat-1 and 2S, data from International satellites (Sentinel-1&2, Pleiades and Worldview) and Aerial images** were used in the mapping of landslides.
- **Vulnerability Ranking:** The database was used to **rank 147 districts in 17 states and 2 UTs of India for their exposure to landslides** in terms of key socio-economic parameters.



Steps taken by the government:-

- **The Geological Survey of India (GSI)** has done a **national landslide susceptibility mapping for 85%** of the entire 4,20,000 square km landslide-prone area in the country.
- The **areas have been divided into different zones** according to the propensity of the disaster.

MUST READ : [National Landslide Susceptibility Mapping \(NLSM\) programme](#) and [Joshimath Crisis](#)

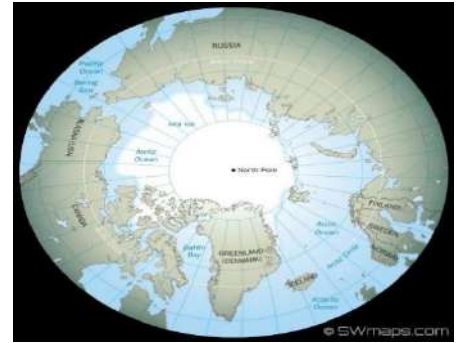
North Pole and South Pole

Context: Sea ice levels on both poles marked a record low, according to the recent reports of the United Nations meteorological agency.

About the North Pole:-

CREDITS

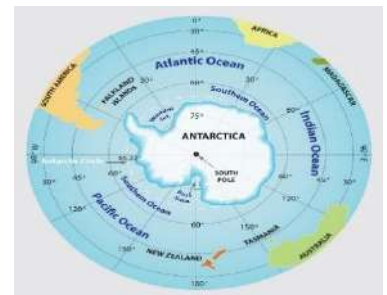
- The geographic North Pole is the **northern point of Earth's axis of rotation.**
- The North Pole is the **northernmost point on Earth.**
- Its latitude is **90 degrees north**, and **all lines of longitude meet there.**
- The North Pole is found in the **Arctic Ocean.**
- It is constantly shifting pieces of sea ice.
- The North Pole is **much warmer than the South Pole.**
- This is because sits at a **lower elevation (sea level)** and is **located in the middle of an ocean**, which is warmer than the ice-covered continent of Antarctica.
- In fact, the North Pole experiences **only one sunrise** (at the **March equinox**) and **one sunset** (at the **September equinox**) every year.
- The North Pole is **not part of any nation.**
- Ecosystem: **Polar bears** (*Ursus maritimus*), **Arctic foxes** (*Vulpes lagopus*), and other terrestrial animals rarely migrate to the North Pole.



About the South pole:-

CREDITS

- The South Pole is the **southernmost point on Earth.**
- Its latitude is 90 degrees south, and **all lines of longitude meet there (as well as at the North Pole).**
- The South Pole is located **in Antarctica.**
- It experiences **only one sunrise** (at the **September equinox**) and **one sunset** (at the **March equinox**) every year.
- From the South Pole, **the sun is always above the horizon in the summer and below the horizon in the winter.** This means the region experiences **up to 24 hours of sunlight in the summer and 24 hours of darkness in the winter.**
- Due to plate tectonics, the exact location of the South Pole is **constantly moving.**
- The habitat is far **too harsh for most organisms to survive.**



MUST READ: [India's operational research stations at the South Pole](#)

Mount Merapi volcano

In News: Mount Merapi in Indonesia erupted with avalanches of searing gas clouds and lava.

- Merapi is the most active of more than 120 active volcanoes in Indonesia and has repeatedly erupted with lava and gas clouds recently.
- Located on the border between the **province of Central Java and the Special Region of Yogyakarta, Indonesia.**

About Volcanoes:

- A volcano is an opening or rupture in the earth’s surface that allows magma (hot liquid and semi-liquid rock), volcanic ash and gases to escape.
- Movement of molten rock in the mantle, caused by thermal convection currents, coupled with gravitational effects of changes on the earth’s surface (erosion, deposition, even asteroid impact and patterns of post-glacial rebound) drive plate tectonic motion and ultimately volcanism.
- The volcanic eruption could have implications for the local and regional environment like earthquakes, landslides, lahars (mudflows), ash and thunderstorms.

Factors that lead to volcanism:

- **Plate Tectonics**
- **Ocean floor spreading**
- **Weak Earth Surface**
- **Faults**
- **Magma crystallization**
- **A decrease in external pressure**
- **Plate movement**

Major tribes in the Nilgiris

Context: Recently, more than 700 families, including Adivasis, were incentivised to leave the Mudumalai Tiger Reserve in the Nilgiris.

About major tribes in the Nilgiris:-

IMAGE SOURCE: [The Nilgiris : The Nilgiris \(thequeenofhillsnilgiris.blogspot.com\)](http://The Nilgiris : The Nilgiris (thequeenofhillsnilgiris.blogspot.com))

- The Nilgiri Hills is a region of **mountains, forests and tea plantations** located in southern India.
- The states of **Tamil Nadu, Kerala and Karnataka** meet here.
- The Nilgiri Hills are **home to some unusual tribal groups** including the Toda, Kota, Badaga and Kurumba.



Badaga:-

- The Badaga is a group that **lives in the Nilgiri Hills where Kerala and Tamil Nadu come together.**
- Their names mean “**northerner,**” a reference to the fact that they came from **the plains of the Mysore district** not too far to the north.
- The Badaga are **Hindus that practice hypergamy,** a system in which **women can marry into a caste that is higher** than the one they were born into, and **also marry into of lower caste.**

Irula:-

- The Irula are a **Scheduled tribe that lives in northern Tamil Nadu and the Nilgiri Hills.**
- They have **many animist beliefs** but have had enough contact with Hindus to **embrace many orthodox Hindu beliefs.**
- The Irula live in villages with **special “pollution huts”** for menstruating women, lots of mango and jackfruit trees, and ancestral temples with stones in them that represent the dead.

Kota:-

- The Kotas are a group thought to be **indigenous to the Nilgiri Hills of Tamil Nadu.**
- **Women have traditionally given birth in special huts.**
- The Kota practice **“green” and “dry” funerals.**

Kurumbas:-

- The Kurumbas are **another group that lives in the Nilgiri Hills.**
- The Kurumbas have traditionally been **hunters and gatherers.**
- The Kurumbas have a **reputation for being sorcerers.**

Nayaka:-

- The Nayaka are another group that lives in the Nilgiri Hills.
- Traditionally **regarded as honey collectors** and people of the forest.
- Nayaka have **no formal marriage ceremony.**

Hill Pandaram:-

- Hill Pandaram are a scheduled tribe that lives in rain forests of the **Western Ghats in the state of Kerala.**
- They are **nomadic foragers who speak dialects of Tamil and Malayalam** and **practice Hinduism** infused with beliefs of hill spirits, ancestral ghosts and other supernatural beings.

Kani and Their Magic Berry:-

- The Kani **people of the rainforest of Kerala.**
- They are **poor and live in thatch huts.**

MUST READ: [Betta-Kuruba tribe](#)**Low-Temperature Thermal Desalination technology**

Context: National Institute of Ocean Technology to set up a green, self-powered desalination plant in Lakshadweep soon.

About the National Institute of Ocean Technology:-

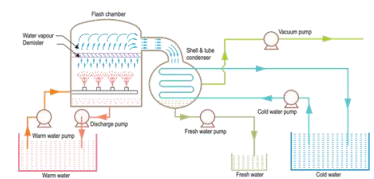
- It is an autonomous institute under the **Union Ministry of Earth Sciences (MoES)**.
- It was **established in 1993**.
- **Headquarters:** Chennai, Tamil Nadu

Objectives:-

- to **develop reliable indigenous technologies**
- to **solve various engineering problems associated with the harvesting of non-living and living resources in the Indian Exclusive Economic Zone.**

About Low-Temperature Thermal Desalination technology:-

IMAGE SOURCE: [Schematic diagram of low-temperature thermal desalination plant using... | Download Scientific Diagram \(researchgate.net\)](#)



- It is a **desalination process that uses low-grade thermal energy, typically below 70°C, to evaporate seawater and produce fresh water.**
- The technology is designed to be **efficient and cost-effective, in providing potable water.**

Working:-

- Low-Temperature Thermal Desalination **exploits the difference in temperature (nearly 15°C) in the ocean water at the surface and at depths of about 600 feet.**
- This **cold water is used to condense water at the surface.**
- The water **at the surface is warmer and is maintained at low pressure using vacuum pumps.**
- Water evaporates at ambient temperatures at such low pressures.
- This resulting vapour **when condensed with the help of cold water from the depth is free of salts and contaminants and is fit to consume.**

MUST READ: [Deep Ocean Mission \(DOM\) and Ocean Services, Modelling, Application, Resources and Technology \(O-SMART\)](#)

Important passes in Ladakh and Jammu and Kashmir

Context: Recently, the Zojila Pass connecting Kashmir with Ladakh opened in a record 68 days.

About important passes in Ladakh and Jammu and Kashmir:-

IMAGE SOURCE: [Image result for bara acha pass](#)
[| Mountain pass, Ias study material, Study materials \(pinterest.com\)](#)

Mintaka Pass:-

- It is located near Kashmir and China.
- It is the **trijunction of India-China and Afghanistan border.**

Parpik Pass:-

- It is located near Kashmir and China.
- It is at **East of Mintaka pass** on the Indo-China border

Khunjerab Pass:-

- **Kashmir and China.**
- It is located at the **Indo-China border.**

Aghil Pass:-

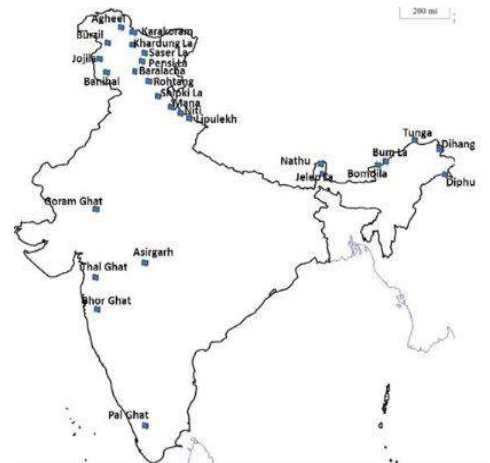
- It is near the **Ladakh region of India with the Xinjiang (Sinkiang) Province of China**
- It is **5000 m above sea level.**
- It is **north of K2 Peak** (the highest peak in India and the second-highest heat peak in the world)

Banihal Pass:-

- It is in **Jammu and Srinagar,**
- It is at **2832 m.**
- It is located across the **Pir-Panjal Range.**
- The **road from Jammu to Srinagar transversed Banihal Pass until 1956 when Jawahar Tunnel** was constructed under the pass.
- The road now passes through the tunnel and the **Banihal Pass** is no longer used for road transport.
- Another 11 km long tunnel provides a railway link **between Banihal and Kazigund.**
- It was thrown **open to railway transport in July 2013.**

Chang-La:-

- **It connects Ladakh with Tibet.**
- It is at an **altitude of 5360 m.**
- This has a temple dedicated to **Chang-La Baba** after whom the temple has been named.



Khardung La:-

- It is near Leh in the **Ladakh range**.
- It is at **5602 m**.
- The **world's highest motorable road passes through this pass**.
- It remains closed in winter due to heavy snowfall.

Lanak La:-

- It is located in **India and China (Akasai-Chin area of Jammu and Kashmir region)**.
- This pass provides a **passage between Ladakh and Lhasa**.
- A road to **connect Xinjiang Province with Tibet** has been constructed by the Chinese

Pir-Panjaj pass:-

- It is across the **Pir Panjal range**.
- It provides the **shortest and the easiest metal road between Jammu and Kashmir Valley**.
- But this route had to be closed down as a result of the partition of the subcontinent.

Qara Tag La:-

- It is at the **Indo-China border across the Karakoram Range**.
- It is located at an **elevation of over six thousand metres**.

Imis La:-

- Ladakh region of **India and Tibet in China**.

Pensi La:-

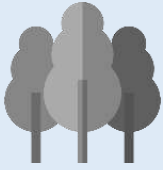
- It is a vital link between the **Kashmir Valley and Kargil**.
- It remains closed to traffic from November to mid-May due to heavy snowfall.

Zoji La:-

- It is an **important road link between Srinagar on one side and Kargil and Leh on the other side**.
- The road passing through this pass has been designated as the **National Highway (NH-1D)**.
- **Border Road Organisation (BRO)** is responsible for maintaining the road and cleaning it off the snow during winter.
- In spite of all these efforts, the road through this pass remains closed from December to mid-May.

MUST READ: [Ladakh](#)





ENVIRONMENT



Project Green Wall

Context: Afforestation Project Green Wall has been launched to revive the Aravallis recently.

About Project Green Wall:-

IMAGE SOURCE: [La muraglia verde africana: a che punto siamo – TimeForAfrica](https://www.timeforafrica.com/la-muraglia-verde-africana-a-che-punto-siamo/)

- The **Haryana government** recently launched an extensive afforestation and plantation project called the “**Green Wall**” in 75 villages .
- Aim: **to revive the Aravallis** that is under threat from rampant mining, dumping of waste and encroachments.
- The Aravalli range, has lost so much green cover that it is **losing its ability to act as a natural barrier against the heat and dust that blows in from the west.**
- The greener it remains, the less likely that the desert will expand into the rest of the Indian landmass.
- The project, was conceptualised on the lines of the **African Green Wall programme.**
- **African Green Wall programme** was launched in **2007 by the African Union**
 - Aim: **to restore Africa’s degraded landscapes** and transform millions of lives in one of the world’s poorest regions(the Sahel).
 - It aimed to increase the amount of arable land
 - It was an initiative **launched in the Sahel**, the region bordering Africa’s Sahara Desert.
 - It is a **symbol of hope** in the face of one of the biggest challenges of our time which is called **desertification.**



MUST READ: [Land Degradation and Desertification](#)

Decarbonizing India: Iron and Steel Sector report

Context: A new report by the Centre for Science and Environment (CSE) claims that India’s iron and steel sector can produce fewer emissions and increase its output at the same time.

About Decarbonizing India: Iron and Steel Sector report:

- The iron and steel sector is a hard-to-abate sector in terms of greenhouse gas emissions, but it is an equally **critical contributor to the economic development** of the country.
- India is the **second-largest producer of crude steel** in the world and plans to almost triple its production by 2030

- The report(Decarbonizing India: Iron and Steel Sector) was released by the **Centre for Science and Environment (CSE)**.
- According to it India's iron and steel sector can produce fewer emissions and increase its output at the same time.
- The analysis shows that it is possible to bring down carbon dioxide (CO₂) emissions from our iron and steel sector drastically by 2030, while more than doubling India's output of steel.
- emissions from crude steel production are estimated to grow to almost **2.5 times by 2030**.
- This **report provides a detailed insight** into the GHG emissions of the iron and steel sector and its future emission scenarios for 2030 -the report provides, based on available information, unit and company-wise data on emissions, which will help design the road ahead.
- The **report suggests a roadmap** for the sector, highlighting the pathways for GHG emissions reduction. The assessment clearly finds there are huge opportunities to bend the carbon dioxide curve for this emission-intensive sector, but it will need planning, technology and adequate funds.

About Iron and Steel Industry in India :

- **India surpassed Japan** as the second top steel producer in 2019.
- **India was the world's second-largest steel producer.**
- **China remains the world's largest crude steel producer .**
- **India is the largest producer of sponge iron** in the world and the **3rd largest finished steel consumer** in the world after China & USA.
- The Government has taken various steps to boost the sector including the introduction of the **National Steel Policy 2017** and allowing **100 per cent Foreign Direct Investment (FDI)** in the steel sector under the automatic route.
- The beginning of the Iron and steel industry was in **1907** with the setting up of the **TISCO plant at Jamshedpur**.
- The development of the Iron and Steel industry was envisaged during the first five-year plan (FYP), but it was **during the second FYP that three integrated projects were started at Bhilai (with erstwhile USSR technical and financial support), Rourkela (with German assistance) and Durgapur (with U.K assistance)**
- During **the third FYP, the Bokaro steel plant was started (production started in 1972)**
- **Steel Authority of India (SAIL) Established in 1973**, SAIL is a government undertaking and is responsible for the management of steel plants

Distribution of Iron ores:

- The **Chota Nagpur plateau** is home to all of India's major steel-making centres, which are spread across four states: **West Bengal, Jharkhand, Orissa, and Chhattisgarh.**

Major Steel Industries :

- TISCO -Jamshedpur, Jharkhand



- The Visvesvaraya Iron and Steel Plant -Bhadravati, Karnataka
- Bhilai Steel Plant – Chhattisgarh
- Rourkela Steel Plant-Odisha
- Durgapur Steel Plant- West Bengal
- Bokaro Steel Plant-Jharkhand
- Salem Steel Plant-Tamil Nadu
- Visakhapatnam Steel Plant- Andhra Pradesh

Methane Global Tracker report

Context: Recently, the International Energy Agency (IEA) released its annual Methane Global Tracker report.

About Methane Global Tracker report:

- It is an annual report published by the International Energy Agency (IEA).

Background :

- Methane is a **greenhouse gas responsible for 30%** of warming since preindustrial times, **second only to carbon dioxide**.
- Methane is **80 times more potent** at warming than carbon dioxide.

Key Findings of the report :

- The report shows that **75% of methane emissions** can be reduced with **cheap and readily available technology**.
- **Global Methane Pledge – 150 countries have joined the Global Methane Pledge which aims to reduce methane emissions from human activity by 30% from 2020 levels by 2030.**
- **India has committed to reducing the emissions intensity of its GDP by 33-35% below 2005 levels by 2030.**
- The energy sector **accounts for around 40%** of total average methane emissions.
- **80% of available options to curb methane emissions can be implemented at net zero cost.**
- Implementing methane reduction measures would **cost less than 3%** of the net income received by the oil and gas industry in 2022.
- Reduction of **75% of natural gas wastage** could lower global temperature rise by **nearly 0.1 degree Celsius by mid-century**.

About the International Energy Agency (IEA) :

- It is an **intergovernmental organization** established in **1974**.
- Headquarters: **Paris**
- The IEA is made up of **31 member countries**.
- Objective: **to promote reliable, affordable, and clean energy** for its member countries and the rest of the world.

- The Agreement on an **International Energy Program** (IEP Agreement) established the mandates and structure of the IEA under the umbrella of the **Organisation for Economic Co-operation and Development (OECD)**.

Eligibility Criteria for membership:

- A candidate country to the IEA must have **crude oil and/or product reserves (Strategic Oil Reserves) equivalent to 90 days of the previous year’s net imports**, to which the government has immediate access (even if it does not own them directly) and could be used to address disruptions to global oil supply.
- India became an **Associate member** of IEA in **2017**.
- India inked a **Strategic Partnership Agreement** with the IEA to strengthen cooperation in global energy security, stability, and sustainability in **2021**.
- **India’s current strategic oil reserves equal 9.5 days** of its requirement.
- **India is not a member of the OECD** but a key economic partner.
- IEA invited India to deepen its cooperation with IEA by becoming a full Member.

Key publications of IEA :

- **World Energy Outlook (WEO)**
- **Net Zero by 2050: a roadmap for the global energy sector**
- **Energy Technology Perspectives (ETP)**
- **Global EV Outlook (GEVO)**
- **Oil Market Report**
- **World Energy Investment**
- **Clean Energy Transitions Programme**

Sea horses

Context : Recent reports show that ‘Hippocampus kelloggi’ or sea horse, could be migrating toward coastal Odisha due to fishing pressures.

About Sea horses :



- A seahorse is any of **46 species** of small marine fish in the genus **Hippocampus**.

Characteristic feature :

- **Having a head and neck suggestive of a horse,**
- They also feature segmented bony armor, an upright posture, and a curled prehensile tail.

Habitat and Distribution across India :



- Seahorses are mainly found in shallow tropical and temperate saltwater throughout the world, from about 45°S to 45°N.
- They live in sheltered areas such as seagrass beds, estuaries, coral reefs, and mangroves.
- Seahorses range in size from 1.5 to 35.5 cm.
- They are named for their equine appearance, with bent necks and long-snouted heads, and distinctive trunks and tails.

- The species are distributed along the coasts of **eight States and five Union Territories from Gujarat to Odisha, apart from Lakshadweep and the Andaman and Nicobar Islands.**

Conservation status :

- IUCN status : **Vulnerable**
- CITES: Appendix II

E fuels

About E fuels:-

CEDITS : www.bellona.org

- Its production is based on the **extraction of hydrogen** by means of an **electrolysis process that breaks down water** (e.g. seawater from desalination plants) into its components of **hydrogen and oxygen**.
- This hydrogen is then combined with the carbon dioxide filtered from the air to **form methanol**.
- The methanol is then **converted into gasoline** using ExxonMobil-licensed technology.
- **The fuel shall be used in any cars.**
- They are made by **storing electrical energy from renewable sources in chemical bonds of liquid of gas fuels.**
- For this process and further production steps, **electricity is required.**
- These are the **emerging class of carbon-neutral fuels.**
- They are also called **Synthetic fuels.**
- They are seen as an **alternative to biofuels.**
- They are **made by storing electrical energy from renewable sources in chemical bonds of liquid or gas fuels.**
- E Fuels can make a **climate-neutral contribution** in all sectors where conventional fuels are currently used (e.g. transport or heating in buildings).
- They can solve two challenges of the energy transition: **the problems of storing and transporting renewable energies.**

E-fuels

Among the targets for the use of advanced biofuels is a process for synthetic fuels, also known as renewable liquid and gaseous transport fuels of non-biological origin. Before a proper environmental assessment, the fuels could prove to be more of a threat. For climate change mitigation, rather than a solution.

How are they made?

Electricity separates the molecules of water into hydrogen and oxygen. The hydrogen is then combined with carbon dioxide from the air to form methanol. Methanol is then converted into synthetic gasoline.

Why are these fuels a potential risk?

Greenwashing risk: Due to the complexity of the process, it is easy to mislead consumers with claims that the fuels are carbon-neutral, when in fact they are not. The carbon footprint for the production of synthetic fuels is still high.

Energy efficiency: Synthetic fuels require a lot of energy to produce. The current production process is very energy-intensive and expensive. The production cost is still high.

Resource: Synthetic fuels require a lot of energy to produce. The current production process is very energy-intensive and expensive. The production cost is still high.

Climate benefits: Synthetic fuels are climate-neutral, but they are not carbon-neutral. They are made from carbon dioxide from the air, but the production process still emits carbon dioxide. The production process is still energy-intensive and expensive.

How to mandate it: The amendment suggests that the European Commission and Member States should keep their word. Synthetic fuels are climate-neutral, but they are not carbon-neutral. They are made from carbon dioxide from the air, but the production process still emits carbon dioxide. The production process is still energy-intensive and expensive.

Other Electro fuels:-

- **E-diesel** is created from carbon dioxide, electricity, and water with a process powered by renewable energy.
- **E-gasoline** is a liquid **octane fuel**. It is a **carbon-neutral fuel** and is **free from sulfur and benzene**.

MUST READ: [Ethanol blending and fuel cell electric vehicles \(FCEV\)](#)

Biodiversity heritage site

Context: Gandhamardan hills were named the third biodiversity heritage site in Odisha recently.

About Gandhamardan hill:-

- The Gandhamardan hill (Gandhamardan Reserve Forest) spreads in **Bargarh and Balangir districts in Odisha**.
- This ecologically fragile ecosystem is rich in floral and faunal diversity and is protected under the Odisha Biodiversity Rules,2012.

About Biodiversity heritage site:-

- These are well-defined areas that are **unique, ecologically fragile ecosystems**.
- They have a **high diversity** of wild and domesticated species, the presence of rare and threatened species, and keystone species.
- Under **Section 37 of Biological Diversity Act, 2002** the **State Government** in consultation with local bodies may notify the areas of biodiversity importance as Biodiversity Heritage Sites.

They may comprise of any one or more of the following components:-

- richness of wild as well as domesticated species or intra-specific categories
- high endemism
- presence of rare and threatened species
- keystone species
- species of evolutionary significance
- wild ancestors of domestic/cultivated species or their varieties
- past pre-eminence of biological components represented by fossil beds
- having significant cultural, ethical or aesthetic values; important for the maintenance of cultural diversity (with or without a long history of human association with them)

Biodiversity Heritage Site in India:-

- There are **36 Biodiversity Heritage Site in India**.
- **Some of them are as follows:-**

Biodiversity Heritage Site (BHS)	District/State
• Nallur Tamarind Grove	Karnataka
• Hoglekan	Karnataka
• University of Agricultural Sciences	Karnataka
• Ambaraguda	Karnataka

- Glory of Allapalli Maharashtra
- Tonglu BHS and Dhotrey BHS under the Darjeeling Forest Division - Darjeeling, West Bengal
- Mandasaru Odisha
- Dialong Village Manipur
- Ameenpur lake Telangana
- Majuli Assam
- Gharial Rehabilitation Centre Uttar Pradesh
- Chilkigarh Kanak Durga West Bengal
- Purvatali Rai Goa
- Naro Hills Madhya Pradesh
- Asramam Kerala
- Schistura Hiranyakeshi Maharashtra
- Arittapatti Tamilnadu

MUST READ: [1st Biodiversity Heritage site in TN](#)
National Chambal Sanctuary

Context: Recently, Rajasthan, Madhya Pradesh and Uttar Pradesh have commenced joint action to stop illegal sand mining in the National Chambal Sanctuary.

About National Chambal Sanctuary:-

- It is a **tri-state protected area** in northern India.
- It is home to **the critically endangered gharial** (small crocodiles), **the red-crowned roof turtle** and the **endangered Ganges river dolphin**.
- It is said to have the **highest population of Gharials in India**.
- It is located on the **Chambal River** near the **tri-point of Rajasthan, Madhya Pradesh and Uttar Pradesh**.
- It was **first declared as a Protected Area in Madhya Pradesh in 1978**.
- It constitutes a long narrow **eco-reserve co-administered by the three states**.
- Within the sanctuary, the pristine **Chambal River** cuts through mazes of ravines and hills with many sandy beaches along its banks.

About Gharial:

- Gharials are a type of **Asian crocodilian distinguished by their long, thin snouts**.
- Crocodilians are a group of reptiles that includes **crocodiles, alligators, caimans, etc.**

Habitat of Gharials:

- **Natural Habitat:** Fresh waters of the northern part of India.
- **Primary Habitat:** Chambal river (a tributary of Yamuna).
- **Secondary Habitat:** Ghagra, Gandak river, Girwa river (Uttar Pradesh), the Ramganga river (Uttarakhand) and the Sone river (Bihar).

Conservation Status:-

- IUCN Red List- **Critically Endangered**
- Wild Life (Protection) Act, 1972: **Schedule I**

- CITES: **Appendix I**
- **Indicator Species:** They are also a crucial indicator of clean river water.
- **Distribution:**
- Gharials were once abundant in the main rivers and tributaries of the **Indus, Ganges, Brahmaputra, and Mahanadi-Brahmani river systems.**
- But they are now limited to only 14 widely spaced and restricted localities of **India and Nepal.**
- In India, Gharials are present in the Son River, the Girwa River, the Ganges, the Mahanadi River, and the Chambal River.
- The **Satkosia gorge in the Mahanadi is the southernmost limit of gharials.**

India has three species of Crocodylians namely:

- **Gharial:** IUCN Red List- Critically Endangered
- **Mugger crocodile:** IUCN- Vulnerable.
- **Saltwater crocodile:** IUCN- Least Concern.

MUST READ: [Saltwater crocodile and Chambal River](#)

Green Tug Transition Programme

Context: Recently, the Union Minister of Ports, Shipping & Waterways (MoPSW) and Ayush announced the Green Tug Transition Programme (GTTP).

About Green Tug Transition Programme:

- It is launched by the **Ministry of Ports, Shipping & Waterways.**
- The programme will start with 'Green Hybrid Tugs', which will be powered by Green Hybrid Propulsion systems and subsequently adopt non-fossil fuel solutions (like Methanol, Ammonia, and Hydrogen).
- **Objective:** to convert all tugboats working in the country into 'Green Hybrid Tugs'.
- **Green Hybrid Tugs:** tugboats running on non-fossil fuel.
- Green hybrid propulsion system-enabled tug boats will be in action across all major ports **by 2025.**
- **Target:** By 2030, 50% of the existing tugboat fleet will be replaced with green tugs.
- **National Centre of Excellence in Green Port & Shipping (NCoEGPS)** will act as the nodal entity for GTTP.
- India aims at becoming a 'Global Hub for Green Ship' building by 2030 with the launch of the Green Tug Transition Programme (GTTP).

About the National Centre of Excellence in Green Port & Shipping:-

- It is **India's first National Centre of Excellence for Green Port & Shipping (NCoEGPS).**
- It will work under the **Ministry of Ports, Shipping and Waterways.**
- It is situated in **Gurugram, Haryana.**

About The Energy and Resources Institute(TERI):-

- TERI is a **non-profit research institution.**

- It was established in 1974 as Tata Energy Research Institute.
- It was later renamed as 'The Energy and Resources Institute' in 2003.
- It aims to focus on formulating local and national level strategies for shaping global solutions to critical issues.
- It conducts research work in the fields of energy, environment and sustainable development.
- Headquarters: New Delhi

MUST READ: Green Ports & Green Shipping in India and GREEN MARITIME SECTOR

Mugger crocodiles

Context: According to a recent study, anthropogenic threats like illegal fishing and sand mining pose a threat to the mugger crocodiles (*Crocodylus plaustris*) of the Rapti river.

About mugger crocodiles :

- The mugger crocodile (*Crocodylus palustris*) is a medium-sized broad-snouted crocodile, also known as the mugger and the marsh crocodile.
- It inhabits [marshes](#), [lakes](#), [rivers](#), and artificial ponds.
- Geographic Range:
- They are found all over south Asia — India, Pakistan, Sri Lanka, Nepal, and Bangladesh — as well as south-eastern Iran.
- The mugger is found in 15 Indian states, with the largest populations in the middle Ganges (Bihar-Jharkhand) and Chambal (Madhya Pradesh, Gujarat, and Rajasthan) basins.



Conservation Status:

- CITES Appendix I
- IUCN Red List: Vulnerable

Conservation Projects:

- **Mugger Project At Ramatirtha**
- **Kakra Crocodile Trail:** it is going on in Terai Eastern Forest Division at **Khatima, Uttarakhand.**
- **The Indian Crocodile Conservation Project:** it was launched in 1975 in different states in the country.

Other crocodiles species in India

Saltwater or Estuarine Crocodile

- **Habitat:** Blackish and freshwater regions of eastern India, Southeast Asia, and northern Australia.
- IUCN Red List: **Least Concern**
- Wild Life (Protection) Act, 1972: **Schedule I**

Gharial (*Gavialis gangeticus*)

- It is the **longest** among all living crocodylians.
- IUCN Red List: **Critically Endangered**
- Wildlife Protection Act, 1972: **Schedule I**
- CITES : **Appendix I**

About Valmiki Tiger Reserve:

- Valmiki Tiger Reserve forms the **easternmost limit of the Himalayan Terai forests** in India.
- It is the **only tiger reserve in Bihar**.
- It is situated in the **Gangetic Plains bio-geographic zone** of the country; the forest has a combination of Bhabar and terai tracts.
- It lies in the north western portion of the **West Champaran district of Bihar**.
- **Wild mammals found** in the forests of Valmiki Tiger Reserve include **tiger, sloth bear, leopard, wild dog, bison, wild boar, etc.**

About Chitwan National Park:

- Chitwan National Park (CNP), **established in 1973, was Nepal's first National Park**.
- **It is located in the Southern Central Terai of Nepal**.
- The park is the **last surviving example of the natural ecosystems of the 'Terai' region** and covers subtropical lowland, wedged between two east-west river valleys at the base of the Siwalik range of the outer Himalayas.
- The **core area lies between the Narayani (Gandak) and Rapti rivers to the north and the Reu River** and Nepal-India international border in the south, over the **Sumeswar and Churia hills, and from the Dawney hills** west of the Narayani, and borders with **Parsa Wildlife Reserve to the east**.
- The Chitwan National Park (CNP) is a **world heritage property**. **Beeshazar** within it were designated as a wetland of international importance under the Ramsar Convention.
- In **2003**, and associated lakes the buffer zone

About the Gandak River :

- It is also known as the **Kali Gandaki and Narayani** after the confluence with the Trisuli river in Nepal.
- It is a **north-bank tributary of the Ganga** in India.
- Origin — It rises in **Tibet** near the Nepal border.
- It flows **southwest into India** and then **turns southeast along the Uttar Pradesh–Bihar state border** and across the Indo-Gangetic Plain.



About Rapti River:

- The **West Rapti River** is a **tributary of the Ghaghara River**.
- It has its origins in Nepal.
- The West Rapti River originates at a summit in the **Western Himalayas and the Mahabharat range** of mountains.
- It joins **Ganga River** near **Patna, Bihar**.
- **Lungri Khola, Jhimruk Khola, Ami River, Rohini River** are the **major left-bank tributaries of Rapti**.
- **Arun Khola** is the **right bank tributary of the Rapti**.

Namdapha National Park

Context: Recently, logs and a truck were seized from the core area of Namdapha National Park and Tiger Reserve in Arunachal Pradesh’s Changlang district.

About Namdapha National Park:-

- It is located in the **Changlang district of Arunachal Pradesh**.
- It is the **largest protected area in the Eastern Himalaya** biodiversity hotspot.
- It was **established as a national park in 1983**.
- It was **declared a Tiger Reserve in the same year 1983**.
- It is also **on the Tentative List of UNESCO World Heritage Sites in India**.
- It is **India’s easternmost tiger reserve**.
- It is near the **international border with Myanmar**.
- Its adjoining areas, are flanked by the **Patkai hills to the south and southeast and by the Himalayas in the north**.
- The area lies close to the **Indo-Myanmar-China trijunction**.
- Namdapha is in fact the name of a **river originating in the park** and it meets the **Noa-Dehing river**.
- **Noa-Dehing river** is a tributary of the **Brahmaputra** and flows in a North-South direction in the middle of the National Park.
- The park is **located between the Dapha bum range of the Mishmi Hills and the Patkai range**.
- It is the **fourth largest national park in India**.
- The first three are **Hemis National Park in Ladakh, Desert National Park in Rajasthan, and Gangotri National Park in Uttarakhand**.
- **Vegetation:** The vegetation is characteristic of **tropical evergreen forests (Tropical Rain Forests)**.

- **Fauna:** elephants, black bears, Indian Bison, several species of deer, reptiles and a variety of arboreal animals.
- Important bird species: **White-winged Wood Ducks**, a rare and endangered species, the **great Indian hornbills**, **jungle fowls** and **pheasants**.
- It is the only park in the World to have the **four Feline species** of big cat namely the **Tiger (Panthera Tigris)**, **Leopard (Panthera Pardus)**, **Snow Leopard (Panthera Uncia)** and **Clouded Leopard (Neofelis Nebulosa)**.
- It is also famous for **Critically Endangered species** like the **Namdapha flying squirrel**, species that was last spotted in 1981.
- **Hoolock Gibbons**, the only 'ape' species found in India is found in this National Park.

Other Protected Areas in Arunachal Pradesh:-

[Pakke Wildlife Sanctuary.](#)

About Mouling National Park:-

- It was established in 1972.
- It was the **second to be established in Arunachal Pradesh, after Namdapha National Park.**
- This park has a total land area of about 483 square kilometres and is **located west of the Dihang-Dibang biosphere** reserve.
- **Mouling Peak**, the park's highest peak, makes this an undulating area.
- **Rivers** such as the **Siyom** run through the park's western border.
- Mouling National Park offers the sight of various conserved animals including different types of **mammals and birds.**

About Kamlang Wildlife Sanctuary:-

- Kamlang Wildlife Sanctuary is situated in the **South-Eastern part of the Lohit District of Arunachal Pradesh.**
- The name comes from the **River Kamlang**, which flows through the Sanctuary and joins the Brahmaputra
- The local inhabitants are **Hishmi, Digaru, and Mizo.**
- They claim themselves as descendent of "King Rukmo" of "**Mahabharat**".
- This Wildlife Sanctuary contains **all four big cats (Tiger, Leopard, Clouded Leopard and Snow Leopard).**
- It also has the population of **endangered spp. like Hoolock gibbon, Sillorisiesies, Leopard cat, Himalayan palm civets etc.** The famous **pilgrimage centre, "Parasuram Kund"** can be approached from Wakro throughout the year at a distance of 20 km.
- **Fauna:** This Sanctuary has animals like, Elephant, Tiger, leopards, and Hoolock gibbons. Stump-tailed macaque, Capped Langur, Boar, Civets, Deer, Hornbills, Giant and flying squirrels etc.
- **Flora:** Canarium resiniferous (Dhuna), Terminalia chebula (Hillika), Gmelina arborea (Gamari), Ammora wallichii (Amari) etc.

About Itanagar Wildlife Sanctuary:-

- Itanagar Reserve Forest was **declared as Itanagar Wildlife Sanctuary**.
- It has a geographical boundary **with Pam River** in the East, Pachin in the South, **Neorochoi** on the North-East and **Chingke stream** in the North.
- The vegetation of this Sanctuary can be classified as **tropical semi evergreen and wet evergreen**.
- The **most common bamboos** found in these forest areas are (1) Bambusa palida (Bijuli) and (2) Dendrocalamus hamiltonii (Kako).
- **Tree species:** (1) Duabanga grandiflora (Khokan) (2) Amoora Wallichii (Aman) (3) Toona ciliata (Poma) (4) Magnolia spp. (Sopa) (5) Schima Wallichii (Makrisal) and Castonopsis indica (Hingori) etc.
- **Grass** : succharam procerum, S.Spontamum, Andropogon assimillis, phramites karka, Allpinia allugus.
- **Fauna:** Animals like Elephants, Tigers, Panthers, Sambar, Barking Deer and Bears were quite common.
- **Hornbills** were very common bird to sight. But now it is a chance to sight a Hornbill.

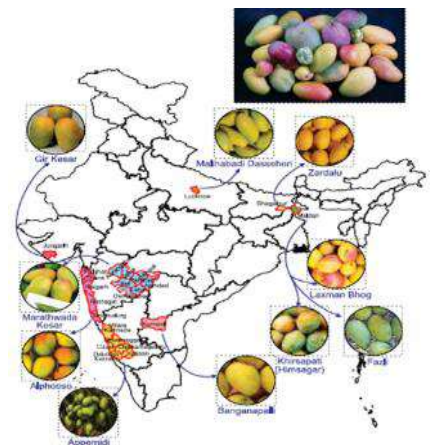
MUST READ: [Wildlife conservation in Arunachal Pradesh](#)

Mango varieties with GI tag and states

Context : Recent reports suggest that extended monsoon, warm winter may reduce Alphonso mango yield by 40%.

About Mango varieties with GI tag and states :

- Alphonso – (The Konkan region comprising Palghar, Thane, Raigad, Ratnagiri and Sindhudurg districts) Maharashtra
- Laxman Bhog – (Malda) West Bengal
- Khirsapati (Himsagar) – (Malda) West Bengal
- Fazli – (Malda) West Bengal
- Malihabadi Dusseheri – Lucknow (Malihabad, Mal, Kakori and Bakshi ka Talab along the banks of Gomti river) Uttar Pradesh
- Appimidi – (Shimoga, Uttara Kannada, Dakshina Kannada, Chikmagalur, Hassan and Udupi regions) Karnataka
- Gir Kesar – (Junagadh (Around Gir Forest) Gujarat
- Marathwada Kesar – (Marathwada Division (Aurangabad, Nanded, Parbhani, Latur, Beed, Hingoli, Jalna and Osmanabad) Maharashtra
- Banganapalle – (Banganapalli, Kurnool) Andhra Pradesh
- Zardalu- (Bhagalpur and surroundings of Banka and Munger district) Bihar
- Rataul – (Baghpat) Uttar Pradesh
- Salem Mango – (Krishnagiri, Salem, Namakkal, Dharmapuri) Tamil Nadu



Vembanad and Asthamudi lakes

Context: Recently, the National Green Tribunal (NGT), imposed a penalty of Rs 10 crore on the Kerala government for failing to protect the Vembanad and Ashtamudi lakes.

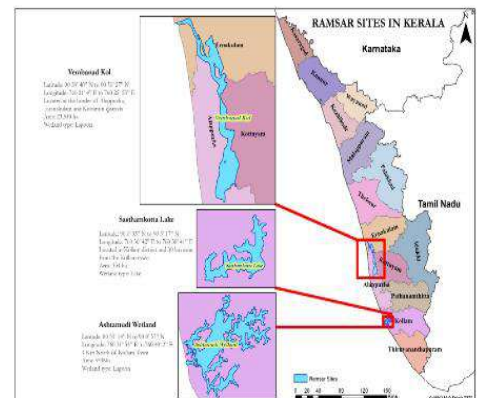
About Vembanad lake:-

- It is the **largest lake in Kerala** and the **longest Lake in India**.
- It is bound by **Alappuzha, Kottayam and Ernakulam**.
- It has its source in four rivers: **Meenachil, Achankovil, Pampa and Manimala**.
- It is separated from the **Arabian Sea** by a narrow barrier island and is a popular backwater stretch in Kerala.
- **Vallam Kali** (i.e Nehru Trophy Boat Race): a Snake Boat Race held every year in the month of August in Vembanad Lake.
- It was included in the list of wetlands of international importance, as defined by **the Ramsar Convention** in 2002.
- It is the **second-largest Ramsar site** in India only after the Sundarbans in West Bengal.
- The Government of India has identified the Vembanad wetland under the **National Wetlands Conservation Programme**.
- The **Kumarakom Bird Sanctuary** is located on the east coast of the lake.
- In 2019, **Willingdon Island**, a seaport was carved out.

About Ashtamudi Lake:-

IMAGE SOURCE: <http://www.kerenvis.nic.in/WriteReadData/userfiles/ramsar.jpg>

- It is a **freshwater lake** located in the **Kollam district of Kerala**, a state in **southern India**.
- It is an extensive estuarine system, the **second largest** in Kerala State.
- Ashtamudi means **'eight braids'** in the local Malayalam language.
- It has been recognized as a **Ramsar site**, a wetland site designated internationally important under the Ramsar Convention.
 - **The Ramsar Convention:** is an international treaty for the conservation and sustainable use of wetlands, and India is a signatory to this treaty.



MUST READ: [COP14 of Ramsar Convention on Wetlands](#)

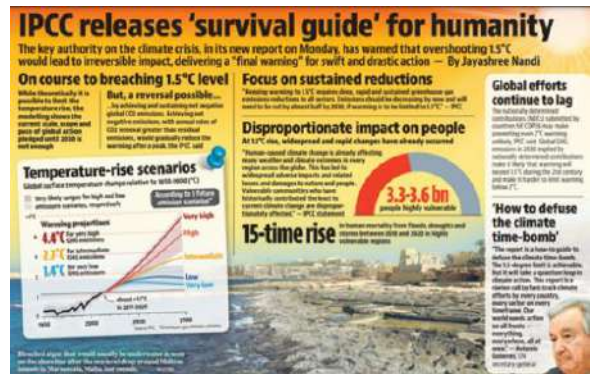
Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Synthesis Report

Context: Recently, the new Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Synthesis Report was released.

About Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Synthesis Report:

Source: Hindustan times

- The Report is the culmination of a cycle of reports (the Sixth Assessment) that have been published over the past five years.
- The report finds that it is likely that warming will exceed 1.5°C during the 21st century, despite progress in climate mitigation policies and legislation.
- The report also highlights the economic imperative for acting, finding that the global economic benefit of limiting global warming to 2°C exceeds the cost of mitigation in most assessed literature.
- The report demonstrates an undeniable scientific consensus about the urgency of the climate crisis, and the irreversible harm that will occur if warming surpasses 1.5°C, even temporarily.
- The report evaluates the physical science basis of climate change, impacts, adaptation and vulnerability, and mitigation of greenhouse gas emissions.
- It says the GreenHouse Gas(GHG) emissions will lead to increasing global warming in the near term, and it's likely this will reach 5°C between 2030 and 2035.
- The world is currently at around 1.1°C of warming, and current climate policies are projected to increase global warming by 3.2°C by 2100.
- To keep within the 1.5°C limit, emissions need to be reduced by at least 43% by 2030 compared to 2019 levels and at least 60% by 2035.



About adaptation gap report:-

- It is released by the **United Nations Environment Programme’s (UNEP)**.
- The report found some progress on adaptation plans from national governments, but they are not backed by finance.
- **A third of the 197 parties** to the United Nations Framework Convention on Climate Change (UNFCCC) have incorporated **quantified and time-bound targets on adaptation**.
- **90% of them have considered gender and disadvantaged groups**.
- **International adaptation finance flows are 5-10 times lower than required** and this gap continues to grow.
- Finance for adaptation increased to **USD 29 billion in 2020**, a 4% increase over 2019.

MUST READ: [Climate Finance](#)

Compensatory Afforestation Fund Act of 2016

About Compensatory Afforestation :

- It seeks to ensure that forest lands getting ‘diverted’ for non-forest purposes, like industrial or infrastructure development, is mandatorily accompanied by afforestation effort on at least an equal area of land.
- This compensatory afforestation was made a legal requirement through the **Compensatory Afforestation Fund Act of 2016**.

About THE COMPENSATORY AFFORESTATION FUND ACT, 2016 :

- The Compensatory Afforestation Fund Act was passed by the centre in **2016** and the related rules were notified in 2018.
- The Act was enacted to **manage the funds collected for compensatory afforestation**, which till then was managed by **ad hoc Compensatory Afforestation Fund Management and Planning Authority (CAMPA)**.
- **ad hoc Compensatory Afforestation Fund Management and Planning Authority (CAMPA)**
- A **temporary structure of CAMPA** functioning on the orders of the Supreme Court. **In 2002**, the Supreme Court of India observed that **collected funds for afforestation were under-utilized by the states** and it directed that an “ad hoc CAMPA” consisting of **three officials** and one representative of the Central Empowered Committee be set up till the final one is created.

Objective: It seeks to establish the **National Compensatory Afforestation Fund** under the **Public Account of India**, and a **State Compensatory Afforestation Fund** under the **Public Account of each state**.

These Funds will receive payments for:

- compensatory afforestation
- net present value of forest (NPV)
- other project-specific payments.
- The **determination of Net Present Value (NPV) will be delegated to an expert committee constituted by the central government.**
- **Net Present Value (NPV) quantifies the services provided by the forest** like goods and services (tourism and timber); regulating services (climate change); and non-material benefits (recreation).
- It seeks to **provide safety, security, and transparency** in the utilization of CAMPA funds which are currently kept in **Nationalized Banks** and managed by an ad-hoc body.
- The **National Fund will receive 10%** of these funds, and the State Funds will receive the remaining 90%.
- These funds would be brought under the focus of Parliament and State Legislatures by transferring them to **non-lapsable interest-bearing funds**.
- According to the recently revised calculations, **companies have to pay NPV at rates ranging between Rs 9.5 lakh and Rs 16 lakh per hectare, depending on the quality of forests getting diverted.**
- The Act also **establishes the National and State Compensatory Afforestation Fund Management and Planning Authorities** to manage the National and State Funds.

World Wide Fund for Nature and the report

Context: A Recent study reported that over 170 trillion plastic particles are floating in the oceans.

Key highlights of the study :-

- Oceans across the world are polluted by a growing plastic smog composed primarily of microplastics, according to the study.
- **Egypt, Nigeria, and South Africa are the largest contributors** to plastic leakage on the continent.
- **Algeria and Morocco** joined the list of **top 20 coastal countries contributing to marine plastic pollution**, said a 2022 report by **World Wide Fund for Nature**.
- **India**: the waste dumped in the south Asian seas daily is generated from **60 major Indian cities**, according to **UNEP**.

Policy interventions so far:-

- In 1988, the **International Convention for the Prevention of Pollution from Ships** added **Annex V**, which established **legally-binding agreements** among 154 countries **to end the discharge of plastics from naval, fishing, and shipping fleets**.
- These interventions were followed by the **United Nations Convention on the Law of the Sea in 1982** and the **Convention on the Prevention of Marine Plastic by Dumping of Wastes and other Matter in 1972**.
- In 1991, the **Plastic Industry Trade Association** launched 'Operation Clean Sweep' with the goal of **zero loss of plastic pellets, powders, and flakes from factories** with decreasing pellet ingestion in biota observed.

About World Wide Fund for Nature:-

- It is an **international non-governmental organization**.
- It is working in the field of **wilderness preservation** and reduction of human impact on the environment.
- It was **established in 1961**.
- It is headquartered in **Gland, Switzerland**.
- It is the **world's leading conservation organization** and works in more than 100 countries.
- **WWF aims to stop the degradation of the planet's natural environment** and build a future in which humans live in harmony with nature.
- Currently, its work is organized around these **six areas: food, climate, freshwater, wildlife, forests, and oceans**.
- **Publications: Living Planet Report**, every two years since 1998.

MUST READ : [Microplastics](#)

IQAir and the World Air Quality Report

Context: According to the recently released World Air Quality Report 2022, Delhi ranked fourth on a list of 50 of the world's most polluted cities.

About the World Air Quality Report:-

- It is prepared by **IQ Air**.
- This **2022 World Air Quality Report** presents PM2.5 air quality data from **7,323 cities across 131 countries, regions, and territories**.
- It incorporates the **2021 World Health Organization (WHO) air quality guidelines and interim targets** as a basis for data visualization and risk communication.

- The WHO guideline for annual PM2.5 levels is 5 µg/m³.
- Delhi had an average PM2.5 level of 92.6 µg/m³ in 2022, a little below the average of 96.4 µg/m³ in 2021.
- The most polluted city in the world was found to be Lahore, followed by Hotan in China, and Bhiwadi in Rajasthan.
- Chad is the most polluted capital city in the world.
- India is behind Chad, Iraq, Pakistan, Bahrain, Bangladesh, Burkina Faso and Kuwait on this list
- A total of 39 Indian cities (including 'Delhi' and 'New Delhi') are on the list of 50 of the world's most polluted cities in 2022.
- These include cities like Noida, Gurgaon, Bulandshahr, Meerut, Charkhi Dadri, Jind, Ghaziabad, Faridabad, and Greater Noida.

About IQAir:-

- It is a Swiss group that measures air quality levels based on the concentration of Particulate Matter (PM) 2.5.
- Objectives:-
- to engage, educate, and inspire governments, researchers, Non-Government Organisations, companies, and citizens to work together to improve air quality and create healthier communities and cities.
- to facilitate an informed dialogue and inspires action that improves air quality and the health of global communities and cities.

MUST READ: [IQ Air's Global air pollution Report 2021](#)

International Panel of Experts on Sustainable Food Systems (IPES-Food) Report

Context: The recent IPES report highlights the global hunger crisis amid high debt.

About the International Panel of Experts on Sustainable Food Systems (IPES-Food) Report:-

- It is released by IPES-Food.
- IPES-Food is an independent panel of experts shaping debates on how to transition to sustainable food systems around the world.
- It is a diverse and independent panel of experts guided by new ways of thinking about research, sustainability, and food systems.

Key Findings:-

- At least 21 countries including Afghanistan, Cameroon, Ethiopia, Haiti, Lebanon, Somalia, Sri Lanka, Sudan, and Zimbabwe were nearing catastrophic levels of both debt distress and rising hunger in 2022.
- The world's poorest countries saw the costs of servicing their debt increase by 35 percent in 2022.
- 62 developing countries spent more on debt payments than on healthcare during the first year of the COVID-19 pandemic.
- In 2022, poorer countries paid 47 percent of external debt payments to private lenders, 12 percent to China, 14 percent to other governments, and the remaining 27 percent to multilateral institutions like the International Monetary Fund.

- **Africa's food import dependency has tripled in recent decades**, leaving countries exposed to food price spikes like in 2022.
- **Import dependencies, extractive financial flows, boom-bust commodity cycles, and climate-vulnerable food systems** are combining to destabilize the finances of the world's poorest countries.

Concessions associated with LDC status include benefits in the areas of:

- **Development financing**, notably grants and loans from donors and financial institutions.
- Multilateral trading system, such as **preferential market access and special treatments**.
- **Technical assistance**, notably, toward trade mainstreaming (Enhanced Integrated Framework).

MUST READ: [Global Hunger Index](#)

Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)

Context: Recently, the Minister of state (independent charge) for science and technology and earth science stated that India will continue to support the efforts of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).

About the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR):-

- It was established by an **international convention in 1982** with the objective of conserving Antarctic marine life.
- **It is an international commission with 27 Members.**
- **Important members: Australia, Brazil, China, EU, Japan, UK, USA etc**
- **10 countries have acceded to the Convention so far.**
- **India is a member of the convention.**
- The CAMLR Convention entered into force on **7 April 1982**.
- CCAMLR's Secretariat is located in **Hobart, Tasmania, Australia**.
- CCAMLR's programs of research, monitoring and the application of conservation measures in the Convention Area make a **valuable contribution to Antarctic conservation**.

About United Nations 30×30 Framework:-

- It is a landmark agreement adopted by the **UN Biodiversity Conference, COP15**.
- **COP15:-**
 - It was held in **Montreal, Canada**.
 - It was originally set to be held in **Kunming, China**, in 2020 but was postponed due to the COVID-19 pandemic.
- United Nations 30×30 Framework aims to **protect 30 per cent of the planet's lands, coastal areas and inland waters by 2030**.
- The United Nations has designated the next 10 years "**The Decade on Restoration**" to halt ecosystem degradation.

- The 30×30 goal is particularly urgent because **it's easier to protect an environment from destruction than it is to regenerate** an environment that's already been degraded.
- An estimated **16.44% of land worldwide is currently protected**, along with **7.74% of the ocean**, according to the United Nations.
- Roughly three-quarters of all land environments and two-thirds of the ocean have been heavily degraded by human activities according to reports.
- The 30% conservation goal gives the planet **a chance to recover and could protect millions of species from extinction**.
- The countries can protect 30% of their land and marine spaces **through legislation**.

MUST READ: [Conserving Marine Resources](#) and [BIMSTEC & Maritime Protection](#)

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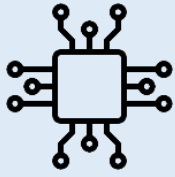
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SCIENCE & TECHNOLOGY

**Proton beam therapy**

Context: Recent studies talk about the inaccessibility of Proton beam therapy for many with cancer.

About Proton beam therapy treatment:

- Proton therapy is a type of radiation therapy, that **uses high-powered energy to treat cancer** and some noncancerous tumours.
- Proton therapy is a **newer type of radiation therapy** that **uses energy from positively charged particles (protons)**.
- Proton therapy has **shown promise in treating** several kinds of cancer.
- It may cause **fewer side effects** than traditional radiation since doctors can better control where the proton beams deliver their energy.
- Proton therapy accurately **targets very specific locations**, which may result in **less damage** to surrounding tissues while conventional radiation therapy is less targeted, and more “normal” cells in the region of a tumor may be damaged.
- Proton beam therapy is not one single type of treatment, but rather there are different types and methods.

Advantages :

- Precise delivery with less long-term damage
- It may allow a ‘Higher Radiation Dose’
- It causes less damage to surrounding tissues and fewer long-term risks
- Proton Beams are easier to control
- It can be well tolerated
- It can be used for inoperable Tumours

Disadvantages

- It **may miss cancer outside the radiation field**.
- At the current time, proton beam therapy is **roughly twice as expensive** as conventional radiation therapy.
- Challenges with proton therapy include **motion management** and changes in anatomy that take place before and during treatment.¹¹
- Limited **availability** of proton beam therapy centers.


Applications: Proton therapy is sometimes used to treat: Brain tumours, various cancer types including breast cancer, Lymphoma, Pituitary gland tumours etc.

Scrub typhus

Context: Recent studies reported that combination therapy can save more lives in Scrub typhus.

About Scrub typhus :

- Scrub typhus is also known as **bush typhus**.
- It is a disease caused by a bacteria called **Orientia tsutsugamushi**.
- Scrub typhus is **spread to people through bites of infected chiggers (larval mites)**.
- The most common symptoms of scrub typhus include **fever, headache, body aches, and sometimes rash**.
- **No vaccine is available** to prevent scrub typhus.

DANGER OF BEING UNDETECTED		
<p>CAUSED BY Bacteria called orientia tsutsugamushi</p> <p>CARRIED BY Mite called Leptotrombidium, also known as chigger</p> <p>SYMPTOMS Fever, muscle pain, cough, gastrointestinal symptoms, liver and spleen enlargement, and meningitis in extreme cases</p> <p>TREATMENT Doxycycline, fluids, supportive measures</p>		<p>WHERE DO CHIGGER MITES STAY?</p> <p>➤ Moist, grassy areas like fields, forests, lawns, lakes and streams</p>
		<p>BABY BITES</p> <p>➤ Adult chiggers do not bite. It's the babies, at the larval stage, that you have to watch out for</p> <p>➤ They're red, orange, yellow, or straw-coloured, no more than 0.3mm in length</p>

About Doxycycline :

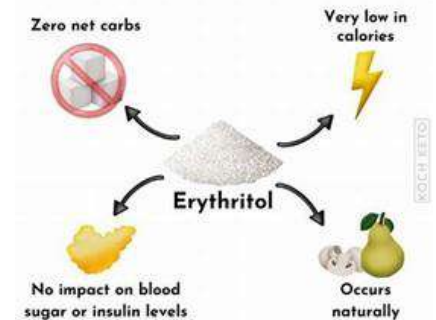
- **Doxycycline** is a broad-spectrum antibiotic used in the treatment of some **bacterial and parasitic infections** such as bacterial pneumonia, acne, chlamydia infections, Lyme disease, cholera, typhus, and syphilis.

Erythritol

Context: Recent studies show that the Artificial sweetener erythritol can increase heart attack risk.

About Erythritol :

- Erythritol is a **sugar alcohol** used as a **low-calorie sweetener**.
- Erythritol belongs to a class of compounds called **sugar alcohols**.
- Other sugar alcohols: **xylitol, sorbitol, and maltitol**.
- With only **6% of the calories** of sugar, it still contains **70% the sweetness**.



Natural Occurrence and Production

- Erythritol, just like **sorbitol and xylitol**, is a **sugar alcohol** that is **naturally found in many fruits, vegetables, and fermented foods**.
- It also occurs in **human body fluids** such as **eye lens tissue, serum, plasma, fetal fluid, and urine**.
- At the industrial level, it is **produced from glucose by fermentation with a yeast, Moniliella pollinis**.

Uses

- It is used in beverages such as coffee and tea, liquid dietary supplements, juice blends, soft drinks, and flavoured water product variations, with foods including confections, biscuits and cookies, tabletop sweeteners, and sugar-free chewing gum.

Advantages :

- It functions as **low-calorie sweeteners** in sugar-free or low-sugar products.
- It is found in small amounts in **nature, especially in fruits and vegetables.**
- It contains **almost no calories.**
- It **does not raise blood sugar** or insulin levels.
- Human studies show **very few side effects.**

Erythritol side effects:-

- About 90% of the erythritol is **absorbed into your bloodstream.**
- Due to their unique chemical structure, **the body can't digest them,** and they pass unchanged through most of the digestive system until they reach the colon.
- **In the colon, they're fermented by the resident bacteria, which produce gas as a by-product.**
- Consequently, eating large amounts of sugar alcohols may cause **bloating and digestive upset.**

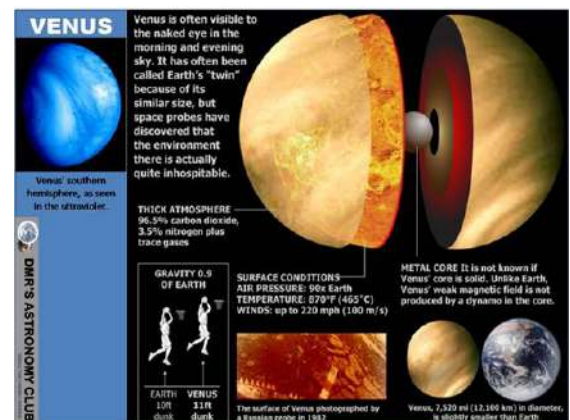
Venus

Context: Scientists got the first direct geological evidence of an active volcano on Venus recently.

About Venus:-

IMAGE SOURCE: [venus solar system – Bing images](#)

- Venus is the **second planet from the sun.**
- It is **Earth's closest planetary neighbour.**
- It is **similar in structure but slightly smaller than Earth.** Therefore, Venus has been called **Earth's twin.**
- Venus is wrapped in a **thick, toxic atmosphere filled with carbon dioxide that traps heat.**
- Venus is the **hottest planet in the solar system.**
- The temperature of Venus is too high, and its **atmosphere is highly acidic.**
- **Surface temperatures reach a scorching 880 degrees Fahrenheit (471 degrees Celsius),** hot enough to melt lead.
- On Venus, **the Sun rises in the west and sets in the East.**
- **One day on Venus is equivalent to 243 Earth days** because of its backward spinning, opposite to that of the Earth and most other planets.
- Venus **does not have a moon and no rings.**



MUST READ: [Shukrayaan I](#)

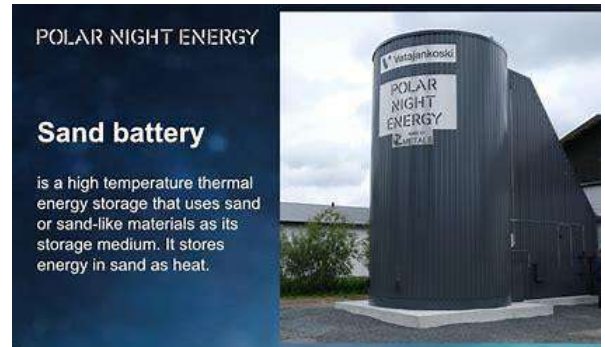
Sand Battery

Context: Recently, Finland has installed the world's first sand battery that can store heat from renewable energy sources for months.

About Sand Battery:-

IMAGE SOURCE: [What is a sand battery? — Polar Night Energy](#)

- A is a **high-temperature thermal energy storage that uses sand or sand-like materials as its storage medium.**
- It stores **energy in the sand as heat.**
- The sand battery is a battery system that **uses sand as a medium to store thermal energy.**
- The battery has a steel **container to store recycled sand.**
- **Working:-**The battery receives electricity from the grid through excess solar and wind power, which is converted to heat and transferred to the sand.
- The **air inside the battery is heated using resistors and the hot air is circulated using a fan** through a series of pipes, which releases the heat to the sand where it is preserved.
- The battery reservoir is so well-insulated from the outer environment that **it can retain temperatures up to 600 degrees Celsius and prevent heat losses over time.**
- The sand battery helps to ambitiously **upscale renewables production by ensuring there's always a way to benefit from clean energy**, even if the surplus is massive.
- Sand batteries **can store a significant extent of thermal energy and can aid Clean Energy Solutions.**



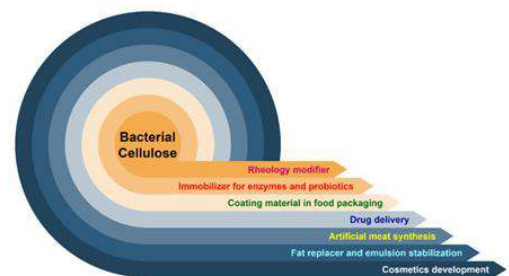
Bacterial cellulose

Context: Recent researches demonstrate how bacterial cellulose can help develop vegan leather and other environmentally safe material.

About Bacterial cellulose:-

IMAGE SOURCES: [Figure – PMC \(nih.gov\)](#)

- It is an **organic compound produced by certain types of bacteria.**
- It was discovered by **J. Brown in 1886.**
- The most used bacteria for producing it is
- Bacterial cellulose (BC) is recognized as a multifaceted, versatile biomaterial with abundant applications.



Special characteristics:-

- It is **free from impurities such as lignin and wax.**

- It shows **water retention capacity and other mechanical properties.**

Uses:-

- It can **replace leather in the making of products such as bags.**
- Its polymers can be used in other industries such as **biomedicine.**
- It can also be **used as a carrier for bioactive compounds such as antibiotics.**
- In developing **pure and environmentally safe functional materials.**
- Mechanical properties make it useful in **producing green composite** and in dealing with **tissue engineering, medical implants, and biofilm.**

Challenges:-

- Its **high cost of production** is a challenge in its commercial adoption.

MUST READ: [CRISPR biotechnology](#)

Piezoelectric effect

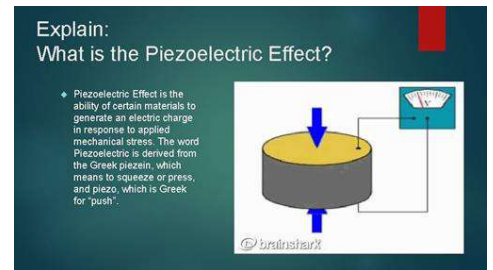
Context: Researchers have reported evidence of the Piezoelectric effect in liquids recently.

About Piezoelectric effect:-

IMAGE SOURCE: [i Piezo THE PIEZOELECTRIC EFFECT AS AN ALTERNATIVE \(slidetodoc.com\)](#)

- The Piezoelectric effect was discovered in **1880, in quartz, by Jacques and Pierre Curie.**
- Piezo' meaning to **press or to squeeze.**
- Piezoelectricity is the **generation of electric charges in certain solid materials in response to applied mechanical stress.**
- Piezoelectric property essentially is based on the **interplay between mechanical and electrical features of a material.**
- The bonds that keep materials together are **electrons** and these electrons are the basis for electricity.
- There exists a **connection between material mechanics and material electronics.**
- Therefore, changing one will impact the other.
- The effect has been known for 143 years and in this time has been observed **only in solids.**
- **Uses:-**
 - Piezoelectric materials are used in a variety of applications, such as in **sensors, actuators, and energy harvesting devices.**
 - Some examples of common piezoelectric materials include **quartz, ceramics, and certain types of crystals.**

MUST READ: [Lithium-Ion Batteries](#)



Uncontrolled Re-entry of satellites

Context: Recent studies show that aeroplanes may face a growing risk of being hit by uncontrolled re-entries of rockets used to launch satellites.

About Uncontrolled Re-entry of satellites:-

IMAGE SOURCE: [Everything about ISRO: History and Mission: Planets Education](#)



- In an **uncontrolled re-entry**, the rocket stage simply falls.
- Its path down is determined by its **shape, angle of descent, air currents and other characteristics**.
- It **disintegrates** as it falls.

Concerns:-

- As the **smaller pieces fan out**, the potential radius of impact will increase on the ground.
- **Some pieces burn up entirely while others don't.**
- But because of the **speed at which they're travelling, debris can be deadly.**
- If re-entering stages still hold fuel, **atmospheric and terrestrial chemical contamination is another risk.**

Regulations:-

- There is **no international binding agreement** to ensure rocket stages always perform controlled re-entries nor on the technologies with which they can be controlled.
- The **Liability Convention, 1972** requires countries **to pay for damages**, not prevent them.
 - These technologies include wing-like attachments, de-orbiting brakes, extra fuel on the re-entering body, and design changes that minimise debris formation.

MUST READ: [RISAT](#) and [RISAT-2B](#)

Bauxite Certified Reference Material (CRM)

Context: Recently, NALCO-BARC Released India's 1st Bauxite Certified Reference Material (CRM).

About Bauxite Certified Reference Material (CRM):-

- CRMs are **blocks of metal that come with certificates** indicating the concentration of their various constituent elements along with their uncertainty levels.
- CRMs are **used as calibration standards for analytical methods, instrument performance evaluation, and data quality control** in routine analysis of bauxite.

- The CRM was certified for nine property values – **Al₂O₃, Fe₂O₃, SiO₂, TiO₂, V₂O₅, MnO, Cr₂O₃, MgO and LOI** which are traceable to the international system of units.
- NALCO-BARC Released **India's 1st Bauxite Certified Reference Material (CRM)**.
- This is the **first of its kind CRM in India and 5th in the World**.
- **It is developed by NALCO** in joint collaboration with **Bhabha Atomic Research Centre (BARC)**.
- It has been named **BARC B1201**.
- The CRM will serve as a **standard for bauxite testing and analysis**, ensuring greater accuracy and consistency in testing.
- It exemplifies **India's commitment to building a robust and dependable testing infrastructure** for critical raw materials, which is critical for the country's economic growth and development.
- The National Centre for Certified Reference Materials (NCCRM), a division of India's National Physical Laboratory, has **certified** the bauxite CRM (NPL).
 - The certification process included extensive testing and analysis to ensure the CRM meets the highest accuracy and reliability standards.

National Aluminium Company Limited (NALCO):-

- It was established in **1981**.
- It works under the **Ministry of Mines, Govt. of India**.
- It is a **Schedule 'A' Navratna CPSE**.
- It has a registered office in **Bhubaneswar**.
- It is **one of the largest** integrated Bauxite-Alumina-Aluminium- Power Complex in the Country.
- It is the **country's leading** manufacturer and exporter of alumina and aluminium.

Bhabha Atomic Research Centre (BARC)

- **It is under the Department of Atomic Energy, Government of India.**
- It is a **multi-disciplinary research centre** with extensive infrastructure for advanced research and development covering the entire spectrum of nuclear science, chemical engineering, material sciences and metallurgy, electronic instrumentation, biology and medicine, supercomputing, high-energy physics and plasma physics and associated research for Indian nuclear programme and related areas.
- **Important Research Reactors in BARC:-**
 - **Apsara-U (Apsara-Upgraded):** indigenously developed Low Enriched Uranium (LEU) fuel in Uranium Silicide form is used in the reactor.
 - **APSARA** was the first research reactor in Asia to achieve criticality.
 - **ZERLINA** was a 100 Watt thermal reactor based on natural uranium metallic fuel and heavy water as both moderator and coolant.
 - **CIRUS** reactor (40 MWth) was built in collaboration with Canada and was commissioned in 1960.

- **DHRUVA** was conceived in the 1970s out of the need for a research reactor with higher neutron flux for research in basic sciences in addition to a growing demand for radioisotopes and advanced.
- **PURNIMA-I** was the first experimental fast reactor built in BARC with Plutonium Oxide as the fuel.
- **PURNIMA-II** was a 100 mW experimental thermal reactor in BARC that achieved criticality in 1984.
- **PURNIMA-III** was another 233U based 1 W thermal reactor built in BARC intended for mockup studies for the KAMINI reactor.
- **Critical Facility for Advanced Heavy Water Reactor (AHWR-CF)**

MUST READ: [Mali Parbat bauxite mine](#)

Ceramic Radome Technology

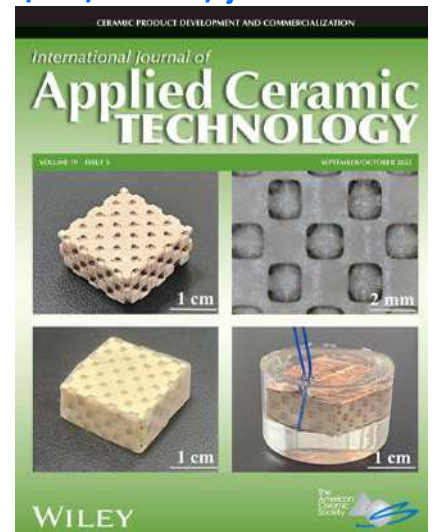
Context: Recently, the Murugappa Group-owned Carborundum Universal Limited (CUMI) announced that it has inked an MoU with DRDO’s RCI Laboratory for Ceramic Radome Technology.

About Ceramic Radome Technology:-

IMAGE

SOURCE: <https://ceramics.onlinelibrary.wiley.com/doi/abs/10.1111/ijac.14077>

- Ceramic radome is regarded as a **state-of-the-art technology for ballistic and tactical missiles and high-performance aircraft.**
- The ceramic radomes have been developed **indigenously by Research Centre Imarat (RCI).**
 - The Research Centre Imarat (RCI) has **developed India’s missile arsenal.**
 - It is **India’s premier DRDO laboratory.**
 - It carries out R&D in the technologies of **control engineering, inertial navigation, imaging infrared seekers, radio frequency seekers and systems, onboard computers and mission software**



Need for Ceramic radome:-

- Missiles undergo extremely high surface temperatures while travelling through the atmosphere, and while re-entering from space.
- To **withstand those temperatures**, radomes located at the tip of a missile are made of ceramic.

Ceramics:-

- They are classified as **inorganic and nonmetallic materials** that are essential to our daily lifestyle.
- They are **corrosion-resistant, hard, and brittle.**

- The majority of ceramics are also **excellent insulators** and can withstand high temperatures.

Radomes:-

- They are structures or enclosures designed **to protect an antenna and associated electronics** from the surrounding environment and elements such as rain, UV light, etc.

MUST READ: [DRDO's New Procurement Manual](#)

Fluorescence Microscopy
About Fluorescence Microscopy:-

- Fluorescence microscope combines the **magnifying properties of a light microscope with visualization of fluorescence.**
- Fluorescence microscope is a type of light microscope that **instead of utilizing visible light to illuminate specimens, uses a higher intensity (lower wavelength) light source that excites a fluorescent molecule called a fluorophore** (also known as fluorochrome).
- **Fluorescence:** a phenomenon that takes place when the **substances (fluorophore) absorb light at a given wavelength and emits light at a higher wavelength.**
- Fluorescence microscopy **combines the magnifying properties of the light microscope with fluorescence technology.**

Technique:-

- The setup consists of two plexiglass surfaces, an LED flashlight, three theatre stage-lighting filters, a clip-on macro lens, and a smartphone.
- The smartphone (with the lens attached) is placed on one surface that is suspended at a height (say, a foot above).
- The second sheet is placed below and holds the object.
- One of the stage-lighting filters is held between the flashlight and the object and the other two were held between the object and the smartphone.
- The sources of illumination were also LED flashlights emitting light of correspondingly different wavelengths.

Applications:-

- Fluorescence microscope is one of the most powerful techniques in **biomedical research and clinical pathology.**
- Fluorescence microscope allows the use of multicolour **staining, labelling of structures within cells, and the measurement of the physiological state of a cell.**
- Fluorescence microscope helps in **observing the texture and structure of coal.**
- To study porosity in ceramics, using a **fluorescent dye.**
- To **identify the Mycobacterium tuberculosis.**

MUST READ : [India's TB Elimination Programme](#)

**Integrated-
Disease-
Surveillance-
Programme**

Context: Recently, the Union Health Ministry gave a statement that it is keeping a close watch on the Seasonal Influenza situation, through the Integrated Disease Surveillance Programme network on a real-time basis.

About Integrated-Disease-Surveillance-Programme :-

- The Integrated Disease Surveillance Program (IDSP) was initiated with assistance from the **World bank**, in the year **2004**.
- The Programme continued during the 12th Plan (2012–17) under **National Health Mission**
- It works under the **Ministry of Health and Family Welfare**.
- The Central Surveillance Unit (CSU) at the National Centre for Disease Control (NCDC), **receives disease outbreak reports from the States/UTs on weekly basis**.
- The **surveillance data is collected on three specified reporting formats**, namely **“S” (suspected cases)**, **“P” (presumptive cases)**, and **“L” (laboratory confirmed cases)** filled by Health Workers, Clinicians, and Laboratory staff respectively.

About H3N2 Flu :-

- The flu is a **respiratory illness** that's caused by **the influenza virus**.
- There are **four types of influenza viruses: A, B, C, and D**.
- **Influenza A, B, and C can spread to humans**.
- However, **only influenza A and B cause the seasonal epidemics** of respiratory illness that occur every year.
- **Influenza A viruses** are classified according to both their HA and NA subtypes.
- Some influenza A subtypes include **H1N1** (sometimes known as swine flu) and **H3N2**.
- The H3N2 virus was **first discovered** in humans in **1968**.

Symptoms of H3N2: Cough, runny or congested nose, sore throat, headache, body aches and pains, fever, chills, fatigue, diarrhea AND vomiting.

Treatment:-

Common antiviral prescriptions for Influenza A include:

- zanamivir (Relenza)
- oseltamivir (Tamiflu)
- peramivir (Rapivab)

Vaccine for H3N2:-

- An **H1N1, H3N2, and influenza B** strain are included in the **trivalent vaccine**, while an **extra influenza B strain** is included in the **quadrivalent vaccine**.

MUST READ: [India's healthcare sector](#) and [Marburg virus disease \(MVD\)](#)



Multi-Angle Imager for Aerosols missions(MAIA)

Context: NASA recently announced that it is partnering with the Italian Space Agency ASI (Agenzia Spaziale Italiana) to build and launch the Multi-Angle Imager for Aerosols missions(MAIA).

About Multi-Angle Imager for Aerosols missions(MAIA):-

- It is a joint mission between **NASA and the** Italian Space Agency **ASI**.
- The MAIA observatory is set to launch **before the end of 2024**.

Aim: to investigate the **health impacts of air pollution** in the world’s most populated cities.

- It will consist of **the PLATiNO-2 satellite**, which will be provided by ASI, and a science instrument that will be built at NASA’s Jet Propulsion Laboratory (JPL).
- It includes a push broom **Spectro polarimetric camera** on a two-axis gimbal for multi-angle viewing, frequent target revisits, and inflight calibration.
- The **observatory, ground-based sensors, and atmospheric models** will all be used in the MAIA mission’s data collection and analysis.
- In order to better comprehend the connections that exist between [aerosol](#) pollutants and health issues such as adverse birth outcomes, cardiovascular and respiratory diseases, and premature deaths, researchers will **combine MAIA measurements with population health records** as part of the MAIA investigation.
- During the course of the **three-year mission**, MAIA will focus on **11 primary target areas** that include: **Los Angeles, Atlanta, Boston, Rome, Addis Ababa, Ethiopia, Barcelona, Spain, Beijing, Johannesburg, New Delhi, Taipei, Taiwan; and Tel Aviv.**

MUST READ: [Mission Shakti](#) and [Aditya-L1 mission](#)

Integrated Mobile Camouflage System

Context: Recently, the Indian Army procures Integrated Mobile Camouflage Systems from a start-up.

About Integrated Mobile Camouflage System:-

- Armoured fighting vehicles (AFVs) can **blend in with their surrounding terrain**.
- It **comprises low emissivity and/or CAM-IIR coatings and mobile camouflage system materials** that enable armoured fighting vehicles (AFVs) to **blend in with their terrain background**.
- It achieves a reduction in the detection range of AFVs when viewed through a **Hand Held Thermal Imager (HHTI)/Battle Field Surveillance Radar (BFSR) tank-based thermal camera** under given environmental and weather conditions.
- By regulating the object’s visual, thermal, infrared, and radar signatures, it **manages signatures**.
- For AFVs, it will significantly **improve their stealth capabilities**.
- This is the **Indian Army’s first-ever purchase order under the Innovations for Defence Excellence (iDEX) programme**.

Project for Defence Excellence (iDEX):-

- It was introduced under the iDEX project in **April 2018**.
- **Aim: achieve self-reliance and stimulate innovation and technology development in defence and aerospace** by involving industries like MSMEs, start-ups, individual innovators, and R&D institutes.

MUST READ: [Chaff technology by DRDO](#)



DEFENCE



FRINJEX-23

Context: The first-ever joint military exercise between the Indian and French Army, FRINJEX-23 began recently in Kerala.

About FRINJEX-23:

- It is the **first-ever joint military exercise between the Indian and French Army**.
- FRINJEX-23 will be conducted at Pangode Military Station, Thiruvananthapuram in **Kerala**.
- The exercise is unique in its concept and participation with the **largest ever contingent** being fielded by the
- Thiruvananthapuram-based Indian Army troops and the **French 6th Light Armored Brigade**.
- The theme for the exercise is based on **“Humanitarian Assistance and Disaster Relief Operations in a Contested Environment”**.

MUST READ: [India – France relations](#)

International Maritime Exercise/ Cutlass Express 2023 (IMX/CE-23) and INS Trikand

Context: INS Trikand will be participating in the International Maritime Exercise/ Cutlass Express 2023 (IMX/CE-23) which will be held in the Gulf region.

About International Maritime Exercise/ Cutlass Express 2023 (IMX/CE-23):

- IMX/CE-23 is **one of the largest multinational maritime exercises in the world**.
- This is **Indian Navy’s maiden IMX participation**.
- The International Maritime Exercise is coordinated by the US-led **Combined Maritime Forces (CMF)**.
- **Combined Maritime Forces (CMF)** – a **34-nation naval group** that seeks to promote security, stability, and prosperity.
- **India became an associate member of CMF in 2022**.

- It marks the **second occasion** where an Indian Naval ship is participating in an exercise conducted by the CMF.
- Earlier, **INS Trikand** had participated in the CMF-led **Operation Sea Sword 2** in **2022**.

About INS Trikand:

- 'INS Trikand' is a **Stealth Frigate**.
- It was commissioned into the Indian Navy in **2013**.
- It is the **last of the three "Follow On Talwar Class" frigates** built in the **Russian Federation**.
- The other ships of the class: **INS Teg and INS Tarkash**
- INS Trikand carries a **state-of-the-art combat suite** which includes **the supersonic BRAHMOS missile system, advanced Surface to Air missiles Shtil, upgraded A190 medium range gun, Electro-optical 30 mm Close-in Weapon System, Anti-Submarine weapons such as torpedoes and rockets and an advanced Electronic Warfare system.**
- The weapons and sensors are integrated through a Combat Management System '**Trebovanie-M**', which **enables the ship to simultaneously neutralize multiple surfaces, sub-surface and air threats.**
- The ship also incorporates innovative **features to reduce radar, magnetic, and acoustic signatures**, which have earned this class of ships the sobriquet of 'Stealth' frigates.
- The ship is powered by four gas turbines and is **capable of speeds in excess of 30 knots.**
- **The ship can carry an integrated Kamov 31 helicopter** which is best suited for airborne early warning roles.



MAINS



POLITY & GOVERNANCE



Jan Vishwas Bill

Context: The Union Government has tabled the **Jan Vishwas Bill, 2022** in Parliament with the objective of “**decriminalizing**” **183 offences across 42 legislations** and enhancing the ease of living and doing business in India.

Key Provisions of the Bill:

- **Decriminalizing Certain Offences:** Under the Bill, several offences with an imprisonment term in certain Acts have been decriminalized by imposing only a monetary penalty.
 - For example, under the **Agricultural Produce (Grading and Marking) Act, 1937**, counterfeiting grade designation marks is punishable with **imprisonment of up to three years and a fine of up to five thousand rupees**.
 - The Bill replaces this with a **penalty of eight lakh rupees**.
- **Revision of Fines and Penalties:** In certain Acts, offences have been decriminalized by imposing a penalty instead of a fine.
 - For instance, under **the Patents Act, 1970**, a person selling a falsely represented article as patented in India is subject to a **fine of up to one lakh rupees**.
 - The Bill replaces the **fine with a penalty, which may be up to ten lakh rupees**.
- **Appointing Adjudicating Officers:** As per the Bill, the central government may appoint one or more adjudicating officers for the purpose of determining penalties. The adjudicating officers may:
 - Summon individuals for evidence.
 - Conduct inquiries into **violations of the respected Acts**.
- **These Acts include:** the Agricultural Produce (Grading and Marking) Act, 1937, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, and the Public Liability Insurance Act, 1991.
- **Appellate Mechanisms:** The Bill also specifies the appellate mechanisms for any person aggrieved by the order passed by an adjudicating officer.
 - For instance, in the Environment (Protection) Act, 1986, appeals may be filed with the National Green Tribunal within 60 days from the order.

Significance of the bill:

- The government’s goal is to achieve “**Minimum Government Maximum Governance**” through **ease of living and ease of doing business reforms**.
- This involves **simplifying, digitizing, and rationalizing** compliances to reduce the compliance burden and improve the ease of living for people.
- The government aims to boost investor confidence and make India the most preferred global investment destination by **decriminalizing minor offences and replacing them with monetary penalties**.
- This will not **only make lives and businesses easier** but also reduce the judicial burden.

- The proposed bill includes the **rationalization of monetary penalties** based on the gravity of the offence and an **increase in the minimum amount of fine and penalty levied by ten percent after every three years.**
 - This will bolster trust-based governance.

Criticisms against the bill:

- The Bill might undertake ‘**quasi-decriminalisation**’.
- The **Observer Research Foundation’s** report titled **Jailed for Doing Business** found that there are **more than 26000 imprisonment clauses** in a total of 843 economic legislations, rules and regulations which seek to regulate businesses and economic activities in India.
- In this light, the **number of offences deregulated** under the bill seems to be a mere drop in **India’s regulatory framework.**
- The regulatory offences to be considered for ‘**decriminalisation**’ **need to be prioritised not only from the point of view of the ease of doing business** but also from the points of view of the ills that plague our criminal justice system itself.
- The bill conforms to the understanding of the government that **decriminalization should be limited to regulatory domains.**

Way Forward:

- Decriminalization of minor offences** will not only ensure that disproportionate punishment is not meted out for advertent and inadvertent wrong doings that could be considered ‘**minor**’, but would also **de-clog the courts.**
- In addition to the **Parliamentary Joint Committee** conducting meetings with stakeholders, multiple ministries and departments have been directed to engage with various associations and provide their inputs.
- While the current version of the **Jan Vishwas Bill is fairly comprehensive**, any necessary minor changes or additions may be made based on the feedback received.

One Rank One Pension (OROP) Scheme

Context: The Supreme Court recently asked the government to clear One Rank One Pension (OROP) dues of 10-11 lakh pensioners by February end of next year in three equal instalments.

About OROP scheme:

Source: Indian Express

- OROP means that **any two military personnel retiring at the same rank, with the same years of service, must get an equal pension.**
- Military personnel across the **three services fall under two categories**, the officers and the other ranks.
- The other ranks, which are **soldiers, usually retire at age 35.**
- Unlike **government employees** who retire close to **60, soldiers can thus miss out on the benefits from subsequent pay commissions.**
- Armed Forces Personnel who had retired till **30th June 2014** are covered under it.
- The implementation of the scheme was based on **recommendation of the Koshiyari committee.**

THE ABC OF OROP
ONE RANK, ONE PENSION SCHEME

WHAT IS OROP
 ➤ Payment of uniform pension to military personnel retiring in same rank with same length of service, irrespective of date of retirement
 ➤ Any hike in pension rates to be automatically passed on to past pensioners

THE NUMBERS INVOLVED	24.25 lakh Registered ex-servicemen	Over 13 lakh Serving military personnel	Rs 8,300cr Estimated cost of OROP
PROBLEMS	Financial: Grant of full OROP will further bloat the govt's pension bill	Administrative: Huge task to pass all the benefits, with no cut-off date, to all living ex-servicemen	Legal: Will lead to similar demands by other govt employees, especially paramilitary forces

Arguments in favour of OROP:

- The difference between the **pensions of present and past pensioners** has grown wide with every pay commission.
 - Veterans argue this is an **issue of justice, equity, honor and national security**.
- A **lower pay status** as compared to their **civilian counterparts** leads to the military personnel having lower morale.
 - This will also affect the **serving officers and soldiers**.
- Armed forces personnel typically have **shorter careers since about 80% of the soldiers compulsorily retire between the ages of 35 and 37**.
 - About **12% of soldiers retire between 40 and 54 years**.
 - This means they retire at far younger ages when compared to the usual 60 years in case of civilians.
 - Therefore, adequate support is required for military personnel to sustain a dignified life.

Arguments against OROP:

- The implementation of this scheme will increase **annual financial burden between 8,000 to 10,000 crore**.
- Some argue that the comparison with civilians is not correct as the armed forces receive many other allowances that are not given to civilians.
 - They get dedicated army schools, colleges, hospitals, subsidized food and beverages, quotas for children in universities and schools, etc. the equivalents of which are not accorded to civilians anywhere.
- Similar demands can also be made by the other paramilitary forces like **the CAPF, Assam Rifles, SSB, etc**.
 - The police forces have also started making similar demands as even their conditions of service are often tough.
- The implementation of this scheme can also be an **administrative challenge due to the lack of records going back decades**.

Way Forward:

- There is a need for implementation of Supreme Court of India's suggestion either the inclusion of **representation of armed forces in the central pay commission** or to constitute **separate armed forces pay commission**.
- The government should resolve the **issue of civil-military disparity as well as the combat, non-combat officers' disparity** in time bound manner.
 - This is necessary to honor the military and give them what is rightfully theirs.

On regulating online sale of drugs in India

Context: All-India Organisation of Chemists and Druggists threatens a country-wide agitation against e-pharmacies.

- Recently, the Ministry of Health has pulled up at least 20 companies including Tata-1mg, Flipkart, Apollo, PharmEasy, Amazon and Reliance Netmeds, by issuing them a show cause notice, for selling medicines online.

About E-Pharmacy:

- E-pharmacy, or online pharmacy, refers to a platform that allows customers to purchase medicines and other healthcare products online.
- E-pharmacies operate through websites or mobile apps where users can upload their prescriptions, select the products they need, and place orders.
- The products are then delivered to the customers' doorstep leading to such mode becoming increasingly popular due to their convenience, accessibility, and cost-effectiveness.
- However, they also pose regulatory challenges and concerns related to the safety, authenticity, and quality of medicines sold online.

**Draft e-pharmacy rules:**

- The draft e-pharmacy rules were introduced in 2018, and were intended to whip e-pharmacy businesses into shape, but were shoved into cold storage.
- E-pharmacies made a bang in the market in 2015 by offering hefty discounts on medicines and calling themselves facilitators of doorstep delivery.
- However, companies like PharmEasy are building a supply chain from the ground up by buying out big and small wholesale drug distributors.
- Since 2015, e-pharmacies have recorded losses year-on-year. Tata-1 Mg posted a loss of ₹146 crore in FY22, whereas PharmEasy's losses widened to ₹2,700 crore in the same fiscal.
- Both e-pharmacies and offline retail pharmacists have realized that it is futile to stick to any one way of doing business.

Associated concerns:

- The Centre is of the view that online sale of drugs without a doctor's prescription or even otherwise, poses threats to the public health including drug abuse, especially among youth. Many instances of drug abuse, especially among youth have surfaced lately.
- It's a great risk to national security as well as the online data can be misused for criminal activities by promoting addictive medicines.
- The government has been receiving various representations raising concerns regarding sale of drugs via online platforms in contravention to the Drugs and Cosmetics Act, 1940 & rules there under.
- Some drugs are also being sold online which are only allowed for sale by retail under a valid prescription of a registered medical practitioner and supplied under the supervision of a pharmacist.
- Not just adults, children too use the internet, and this may cause severe health hazards in case we don't put a ban on online sales.

Significance

- E-pharmacies are a part of the government's intent to build digital infrastructure as a key pillar driving India's long-term growth strategy.
- The potential of India's over \$344 million e-pharmacy market is promising and is expected to grow at an enviable 40-45% owing to its surging internet connectivity, mobile phone penetration, government initiatives, and rising investments.

- E-pharmacies can provide access to affordable and genuine medicines, especially in areas where traditional pharmacies may not be accessible.

Associated challenges:

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- Not just adults, children too use the internet, and this may cause severe health hazards in case we don't put a ban on online sales.

Laws regulating e-pharmacies:

- The Drugs Controller General of India (DCGI) first banned the online sale of medicines in 2015.
- The latest draft New Drugs, Medical Devices, and Cosmetics Bill, 2022, has comprehensive provisions including:
- Periodic inspections, complaint redressal mechanisms, monitoring e-pharmacies, and others.
- Indian regulations require that pharmacies, both online and offline, be registered with the central drugs regulator CDSCO and have permits from state regulators for sales and distribution.
- Previously, the Federation of Indian Chambers of Commerce and Industry developed a self-regulation code for e-pharmacies in 2016.

Way Forward:

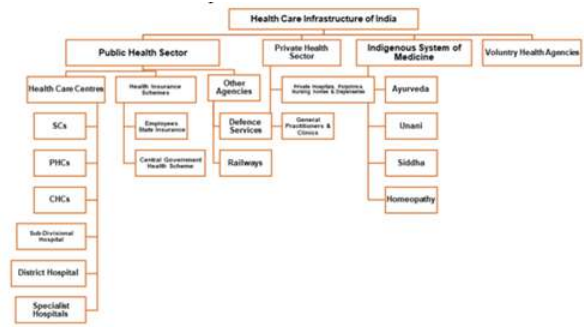
- In recent years, the **market penetration of e-pharmacies** has seen a growth from **3% to 5%**. It is an important option for consumers for buying chronic care **medicines for diabetes, high blood pressure, cardiac issues, and so on**.
- Hence, an outright ban on heaving e-pharmacies to the hellbox must be avoided. It goes against the **government's intent of building digital infrastructure** as a key pillar driving India's long-term growth strategy.
- Therefore, It is crucial for the **government and stakeholders** to work together towards ensuring that **e-pharmacies operate efficiently and legitimately**, while protecting the health and safety of the public.

India's Health Sector

Context: Recently the Government of India and World Bank signed two complimentary loans worth \$1 billion to support and enhance India's healthcare infrastructure.

About India's healthcare sector at glance:

- In the **Economic Survey of 2022**, India’s public expenditure on healthcare stood at **1% of GDP in 2021-22 against 1.8% in 2020-21 and 1.3% in 2019-20.**
- India had **7 physicians per 1,00,000 people in 2017** (in contrast to 98 in Pakistan, 100 in Sri Lanka and 241 in Japan).
- **53 beds per 1,00,000 people**(in contrast to 63 in Pakistan, 79.5 in Bangladesh, 415 in Sri Lanka and 1,298 in Japan).
- **7 nurses and midwives per 1,00,000 people**(in contrast to 220 in Sri Lanka, 40 in Bangladesh, 70 in Pakistan, and 1,220 in Japan).
- India has among the **highest out-of-pocket (OOP) expenditures** of all countries in the world- **62% of the total health expenditure in India is OOP.**
- According to the **World Health Organization (WHO)**, India ranks 184 out of 191 countries in health spending.
- The **US spends over 16% of its total GDP on healthcare**, while Japan, Canada, Germany etc. spend over 10% of their GDP on healthcare.



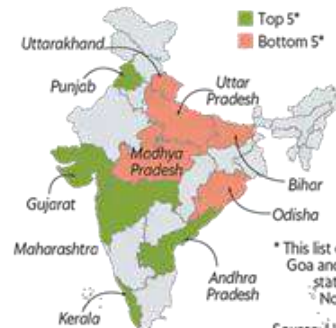
Health Index for states developed by Niti Aayog:

- The Health Index for States developed by **Niti Aayog in consultation with the health ministry and the World Bank** has rankings for large states, smaller states and Union territories.
- It is based on **23 health parameters** ranging from mortality rate and sex ratio to functioning cardiac care units.
- In 2019, **Kerala was the top performer followed by Andhra Pradesh and Maharashtra.**
- The index results indicated that states even with a lower economic output are performing better on health and well-being.

The performance report

In 2019, Kerala was the top performer followed by AP and Maharashtra. The best incremental change was seen in Haryana, Rajasthan, Jharkhand, AP and Assam.

State-wise health index score - 2019



How states improved their scores on healthcare

Change in scores between 2015-16 and 2017-18

► **Not improved****
Madhya Pradesh, Odisha, Uttarakhand, Uttar Pradesh, Bihar, West Bengal, Kerala, Punjab, Tamil Nadu

► **Least/moderately improved****
Chhattisgarh, Gujarat, Himachal Pradesh, Maharashtra, Jammu & Kashmir, Karnataka, Telangana

► **Most improved**
Rajasthan, Haryana, Jharkhand, Assam, Andhra Pradesh

** Some states may not have shown much improvement but were already in the NITI Aayog's "front runners" list (high scores).

Source: Health Index developed by Niti Aayog in collaboration with MoHFW

Challenges associated with India’s healthcare sector:

- **Low Budget Spending:** India’s public expenditure on healthcare is only 2.1% of GDP in 2021-22 while Japan, Canada and France spend about 10% of their GDP on public healthcare.
- **Unequal distribution:** India’s health care system is concentrated in urban areas with very little presence in the rural areas where majority of the population lives.
- **Lack of Medical Research:** In India, R&D and cutting-edge technology-led new projects receive little attention.
- **Low doctor-patient ratio:** The doctor patient ratio in India is about 1:1500 much higher than **the WHO norm of one doctor for every 1,000 people.**
- **Lack of Affordability:** The contribution of private sector in healthcare expenditure in India is around **80 percent while the rest 20 percent is contributed by Public Sector.**

- The private sector also provides for 58 percent of the hospitals and 81 percent of the doctors in India.

Govt of India Initiatives to improve healthcare sector in the country:

- **Pradhan Mantri-Ayushman Bharat Health Infrastructure Mission (PM-ABHIM):** it aims to strengthen India’s health infrastructure and improve the country’s primary, secondary and tertiary care services.
- **Ayushman Bharat :** Follows a two- pronged approach by Creation of health and wellness centres to bring health care closer to homes.
- formulation of a Pradhan Mantri Jan Arogya Yojana (PMJAY) to protect poor and vulnerable families against financial risk arising out of health episodes.
- **Ayushman Bharat Digital Mission:** aims to connect the digital health solutions of hospitals across the country. Under this, every citizen will now get a digital health ID and their health record will be digitally protected.
- **National Ayush Mission:** it is a centrally sponsored scheme for the development of traditional medicines
- **Pradhan Mantri Swasthya Suraksha Yojana (PMSSY):** aims to correct regional imbalances in the availability of affordable/reliable tertiary healthcare services and also to augment facilities for quality medical education in the country.

Way Forward:

There is an urgency to focus on all the three levels of primary, secondary and tertiary healthcare, it is imperative that the government look towards improving primary health care as a public good.

The lesson emerging most unequivocally from the pandemic experience is that if India does not want a repeat of the immeasurable suffering and the social and economic loss, we need to make public health a central focus.

There is also a need to declutter policy dialogue and provide clarity to the nomenclatures. India needs to move beyond the doctor-led system and Para medicalise several functions. India should focus on technology upgradation and preventive care to further its march towards healthy India.

The rise of the ESG regulations

Context: Over the last decade, regulators and corporations around the world have embraced the idea of ESG (Environmental, Social and Governance).

About ESG:

- ESG refers to three key factors considered by investors and stakeholders when evaluating a company’s sustainability and societal impact
- **Environmental factors :** It relate to a company’s impact on the natural environment, including energy use, greenhouse gas emissions, waste management, and resource consumption
- **Social factors:** It refer to a company’s impact on society, including relationships with employees, customers, suppliers, and communities



- **Governance factors:** It focus on a company’s management and decision-making structures, including board composition, executive compensation, and transparency.

How ESG differs from CSR?

Image source: researchgate.net

ESG – Outside In	CSR – Inside Out
The effects of the environment and society on a company	The effects of a company on the environment and society
A model used by investors to examine the sustainability of a company	A business model that affects organizational processes and company culture
Includes a set of criteria for assessing sustainability	Includes the activities that companies undertake to maximize their impact on the communities
Refers to the quantification of the risk	Refers to the quantification of the responsibility
Focuses on influencing financial performance	Focuses on dealing with stakeholders
The reporting is through ESG disclosures to borrowers and investors who examine whether the company is at risk from environmental and social factors	Reporting is through a corporate responsibility report for stakeholders that shows the full impact of the company on people and the planet

- India has a robust **corporate social responsibility (CSR)** policy that mandates that corporations engage in initiatives that contribute to the welfare of society.
- This mandate was codified into law with the passage of the 2014 and 2021 amendments to the **Companies Act of 2013** which requires:
 - Companies with a **net worth of Rs. 500 crore (approximately \$60 million) or a minimum turnover of Rs. 1,000 crore (approximately \$120 million)** or a net profit of Rs. 5 crore (approximately \$6,05,800) in any given financial year.
 - Companies spend at least 2% of their net profit over the preceding three years on CSR activities.

Significance of ESG:

- Companies demonstrating good ESG practices may **benefit from reduced operational costs, better risk management, and enhanced reputation** among consumers and investors
- Investors recognize the importance of ESG factors in **evaluating long-term sustainability and profitability of companies**
- Companies **neglecting ESG considerations** may face **reputational damage, regulatory scrutiny, and increased operational costs.**
- Many consumers and employees also consider ESG factors when making decisions about which companies to support or work for.
- The **Securities and Exchange Board of India (SEBI)** revised the annual **Business Responsibility and Sustainability Report (BRSR)**.
 - It was a notable departure from previous disclosure requirements.
 - New disclosures range from greenhouse gas emissions to the company’s gender and social diversity.
- India has long had a number of laws and bodies regarding **environmental, social and governance issues**, including:
 - the Environment Protection Act of 1986,
 - quasi-judicial organisations such as the National Green Tribunal,
 - a range of labour codes and laws governing employee engagement and corporate governance practices.
- Reserve Bank of India announced recently that it would be **auctioning ₹80 billion (\$981 million) in green bonds.**

Implications for Indian companies

- **Compliance:** In particular, compliance by Indian companies with the **ESG regulations of the U.S., the U.K., the European Union and elsewhere will be critical** if India is to take full advantage of

the growing decoupling from China and play a more prominent role in **global supply chains and the global marketplace overall**.

- **Due diligence:** As Indian companies look to expand their ESG risk management, thorough due diligence will play a key role. This can include:
 - looking at company records,
 - interviewing former employees and
 - making discreet visits to observe operations to ensure that the measures to comply with international ESG standards are in effect.
- Companies that wish to **maximise their opportunities** in the global economy need to embrace these new requirements and adjust their organisations accordingly.

Way Forward:

The evolution of ESG laws and regulations needs controls and disclosure that are a **hallmark of contemporary ESG regulation**. There is also a need to further bring legislation by the Indian government on ESG issues, which can be seen in India's more **active role in global climate forums and secure long-term growth in today's business landscape**.

Thus Environmental, Social, and Governance (ESG) factors are increasingly important considerations for **investors and stakeholders** when evaluating the sustainability and societal impact of a company.

Democratic Decentralisation

Context: 2023 is the 30th anniversary of the passing of the 73rd and 74th Amendments. These amendments are made in the constitution in order to promote the democracy at grassroot level.

About decentralisation in India:

- Democratic decentralization is the **process of devolving the functions and resources** of the state from the centre to the elected representatives at the lower levels so as to facilitate greater **direct participation of citizens in governance**.
- A major step towards decentralisation was taken in 1992 and the Constitution was amended to make the third-tier of democracy more powerful and effective.
- The **Constitution (73rd Amendment) Act, 1992** has **added a new part IX**.
- The Amendment envisages the **Gram Sabha** as the foundation of the Panchayat Raj System to perform functions and powers entrusted to it by the State Legislatures.
- It provides for a three tier **Panchayat Raj System** at the village, intermediate and district levels.

Significance of Decentralisation:

- It was the creation of an idealistic imagined space that would be above politics; that would free it from the usual give and take and contests of politics.
- Local government would be held to a higher standard than other tiers of governance.
 - For example, we take partisanship and competition to be central to politics elsewhere.
- But somehow, we expected panchayats to be this font of consensus (some states give incentives for election by consensus).
 - And, it has to be said, there was no serious demand side push for decentralisation.
- The **73rd and 74th amendments** did achieve a lot:
 - In some areas, they led to the state acquiring a distinct presence on the ground;

- they gave millions of citizens identities as representatives;
- they provided a conduit for sharing power;
- they created deliberative spaces, led to the creation of new norms, especially around the participation of women and a churn in local elites
- They slowly built up local capacities, and led to a wide range of functions being devolved to local government.

Key issues associated with local govt:

- Local governments remain hamstrung and ineffective; mere agents to do the bidding of higher level governments.
- Democracy has not been enhanced **in spite of about 32 lakh peoples'** representatives being elected to them every five years, with great expectation and fanfare.
- The constraint lies in the **design of funding streams** that transfer money to local governments.
- The **volume of money** set apart for them is **inadequate** to meet their basic requirements.
- Much of the money given is inflexible; even in the case of untied grants mandated by the **Union and State Finance Commissions**, their use is constrained through the imposition of several conditions.
- There is little investment in enabling and strengthening local governments to raise their **own taxes and user charges**.
- Local governments do not have the staff to perform even basic tasks.
 - Furthermore, as most staff are hired by higher level departments and placed with local governments on deputation, they do not feel responsible to the latter; they function as part of a vertically integrated departmental system.
 - The current Union government has further **centralised service delivery by using technology, and panchayats** are nothing more than front offices for several Union government programmes.
- **Criminal elements and contractors** are attracted to local government elections, tempted by the large sums of money now flowing to them.
 - They win elections through **bribing voters and striking deals** with different groups.

Suggestive Measures:

- Democratic decentralisation is barely alive in India and to curb existing issues **gram Sabhas and wards committees** in urban areas have to be revitalised.
- Consultations with the grama sabha could be organised through **smaller discussions where everybody can really participate**.
- Even **new systems of Short Message Services**, or social media groups could be used for facilitating discussions between **members of a grama sabha**.
- Local government organisational structures have to be strengthened.
- Panchayats are burdened with a **huge amount of work** that other departments thrust on them, without being compensated for the extra administrative costs.
- Local governments must be enabled to hold **State departments accountable and to provide quality, corruption free service to them**, through service-level agreements.
- India's efforts in decentralisation represent one of the largest experiments in deepening democracy.
- We can keep track of **corrupt local government representatives**; at the higher level

- Given diverse habitation patterns, political and social history, it makes sense to mandate States to assign functions to local governments.

Way Forward

- Gram Sabhas and wards committees in urban areas have to be strengthened in order to achieve the objective of people's participation in real terms.
- Maximum efforts should be made towards **recruitment and appointment of support and technical staff** to ensure the smooth functioning of panchayats.
- A comprehensive mechanism should be adopted for taxation at the local levels as **without local taxation, Gram Panchayats cannot be held accountable.**
- The **Ministry of Panchayati Raj** should monitor the **release and expenditure of Finance Commission grants** in order to ensure that there is no delay in their release.
- It should also be ensured that the allotted grants are utilised in a proper and effective manner.
- Panchayats should be encouraged to carry out local audits at regular intervals so that Finance Commission grants are not delayed.

ISRO's Space Tourism: Key takeaways

Context: ISRO plans to start 'Space Tourism' for passenger by 2030.

About Space Tourism:

- Space tourism is another niche segment of the aviation industry that seeks to give tourists the ability to become astronauts and experience space travel for recreational, leisure, or business purposes.
- Companies including Virgin Atlantic, SpaceX, XCOR Aerospace, Jeff Bezos's Blue Origin and Armadillo Aerospace are working on providing space tourism services to people.

Major highlights of the proposal:

- **Price:** The per ticket price is estimated to be around Rs 6 crore and People who take the trip will also be able to call themselves astronauts.
- **Type of Space Travel:** The module is likely to feature sub-orbital space travel which generally involves spending 15 minutes at the edge of space, experiencing a few minutes in a low-gravity environment before the spaceflight descends back to Earth.
- **Partnership with Private Firms:** ISRO is likely to partner with private firms for the development of the space travel module via the Indian National Space Promotion and Authorisation Centre (IN-SPACe).
- **Safety Measures:** ISRO will also be using the Reusable Launch Vehicle—Technology Demonstrator (RLV-TD) to gain more knowledge about the safety of the spaceflights as space experiences are being brought to the common people.

Advantages of the Space Tourism:

- **Boost to economy:** Space tourism will increase the commercial activity in the time of poor state of world economy.
- **Draw FDI Investors:** It will renew interest in space exploration. This will draw more investors for more financial backing to support more innovations in the industry.

- **Generate Employment:** Space tourism will give employment to thousands of people. Manufacturing of new and better spacecraft will give employment to many skilled people.
- **Pave ways to protect Earth:** It would also help in identifying potential hazards dangerous for our planet.
- **New resources:** Help to find new minerals and other precious materials in space and other planets. This will be of great help to the people of Earth where natural resources are depleting fast.
- **Adventure Tourism:** Open a new avenue for adventure tourists.
- **Technological advancement:** Opens avenues for advanced technology which can be applied to other domains apart from space missions.

Major challenges of space tourism:

- **Exposure to Sun's Radiation:** Space travel technology at the nascent stage can make entering space a dangerous venture.
 - Space travelers are likely to get exposed to harmful radiations from the sun.
- **Health: Spending long hours in zero gravity condition** can be dangerous for the person's cardiovascular and musculoskeletal system.
 - If people accidentally get exposed to high-energy ionizing cosmic rays, it may lead to cancer.
- **Safety:** Space tourism involves a high degree of risk, and safety will be a major concern for both tourists besides operators and the Spacecraft and launch vehicles must be reliable, and emergency procedures must be in place in case of any contingencies.
- **Exposure to harmful organisms:** We may unwittingly introduce some harmful microorganism from space into the atmosphere of Earth.
- **Inequity:** Space tourism is meant for the super-rich only.
 - For example, a single 2 ½ hour flight ticket in Virgin Galactic's upcoming space ship costs \$ 250,000.
- **Not a panacea:** It is great to imagine people walking on the surface of Mars. It would not be wise to consider the escape to space will help in escaping the problems of earth.
 - There is nowhere in the solar system where we can find the environment as congenial as that available on earth.

Space Tourism modules of other countries:

- **United States:** It is a leader in space tourism, with several private companies such as SpaceX, Blue Origin, and Virgin Galactic which has already completed several test flights, and plans to launch commercial flights in the near future.
- **Russia:** It has been involved in space tourism since 2001, and has sent several paying tourists to the International Space Station (ISS) on its Soyuz spacecraft.
- **United Arab Emirates:** The UAE recently sent its first astronaut to the ISS, and has expressed interest in developing space tourism as part of its efforts to diversify its economy.

Way Forward:

As a whole, ISRO's space tourism module, which is **both safe and reusable** is a significant step towards advancing India's space exploration programs and providing the public with an opportunity to experience space travel. As technology continues to advance, space tourism could become more

accessible and affordable, in future and thus allowing more people to experience the wonder and excitement of space exploration.

MUST READ: [IN-SPACE](#)



ECONOMY



Fisheries Sector in India

Context: Recently, the Union Minister of Fisheries launched three national flagship programmes for the development of the fisheries sector.

Recently launched schemes:

National Surveillance Programme for Aquatic Animal Diseases (NSPAAD) Phase-II:

- The Indian Economy loses about **7200 crores annually due to fish diseases** therefore, early detection and managing the spread is crucial for controlling the diseases.
- Government of India has implemented the **National Surveillance Programme for Aquatic Animal Diseases (NSPAAD)** since 2013 for strengthening the farmer-based disease surveillance system
- To continue the efforts with intensity, the Government has sanctioned the NSPAAD: Phase-II under the **Pradhan Mantri Matsya Sampada Yojana**.
- The phase-II will be implemented at pan-India, and all the State Fisheries Departments along with **Marine Products Export Development Authority (MPEDA)** are expected to play an important role

Genetic improvement program of Penaeus indicus (Indian white shrimp)-Phase-I:

- The farmed shrimp alone contributes about **70% of India's seafood exports worth Rs. 42000 crores**.
 - But the whole sector mostly depends on **one exotic Pathogen Free stock of Pacific white shrimp** (*Penaeus vannamei*) species which is quite risky
- To break this single species dependence and to promote indigenous species, the government has taken up the **genetic improvement programme of the Indian white shrimp** (*P. indicus*) as a national priority.
- This program will lead to **"Atamanirbharata"** for shrimp stock, which is at present imported from other countries.

Shrimp Crop Insurance product:

- Shrimp farming is labelled as a **"risky venture"** contrary to the fact that India achieved about **430% growth in shrimp production** during the last one decade.
- Majority of the aquaculture farmers are small farmers, own 2-3 ponds and face huge obstacles to raise working capital for the crop, due to lack of access to institutional credit and insurance

- **ICAR-CIBA developed a Shrimp Crop Insurance product** which charges a differential premium based on location and requirements of the individual farmer from 3.7 to 7.7 % of input costs
- Farmers will be compensated to the **tune of 80 % loss of input cost** in the event of total crop loss. i.e., **more than 70% crop loss.**

Fisheries Sector in India

- The fisheries sector is a direct source of livelihood for more than 20 million fishers and fish farmers; contributes INR 1.75 trillion annually to the gross value added to India's economy.
- 3rd largest fish producing country.
- With around 7.7% of the global fish production.
- Second largest aquaculture fish producer.
- Increased production from 5 lakh tons in 1950-51 to 142 lakh tons in 2019-20.
- The sector provides livelihood to about 16 million fishers.
- It has enough potential earn foreign exchange.
- Total GDP increased from 0.40% in 1950-51 to 1.07% in 2019-20
- It has been recognized as a 'Sunrise Sector'.

Pradhan Mantri Matsya Sampada Yojna (PMMSY)

Challenges faced by Indian fisheries

- **Sustainability:** The Food and Agriculture Organisation's State of World Fisheries and Aquaculture reports note that nearly 90 per cent of the global marine fish stocks have been fully exploited or over-fished.
- **Lack of access to credit:** Fisheries have been considered risky business and lack of access to formal credit has forced small farmers into debt at high-interest rates.
- **Lack of Infrastructure:** Lack of refrigeration facilities leads to spoilage of the huge catch. The use of formalin to keep the stock fresh has led to a ban on the export of fish.
- **Technical and managerial issues like:**
 - Limited availability of spawn, seedlings, and fingerlings during the necessary time frame.
 - Limited availability of feed and medicines.
 - Lack of access to the potential market.
 - Limited availability of working capital in the sector

Way Forward:

Fisheries drive the growth rate of the agricultural sector. Solving bottlenecks faced by the industry will help in improving the contribution of the agricultural sector to the economy and earning precious foreign capital.

Understanding IMF bailouts

Context: International Monetary Fund (IMF) recently confirmed a \$3 billion bailout plan for Sri Lanka's struggling economy.

- **Bailout** is a general term for **extending financial support to a company or a country facing a potential bankruptcy threat.**
- It can take the **form of loans, cash, bonds, or stock purchases.**
- A bailout may or may not require reimbursement and is often accompanied by greater government oversight and regulations.

About International Monetary Fund (IMF):

Source: [IMF](#)

- IMF was set up in 1945 out of the **Bretton Woods conference.**
- It is governed by and **accountable to the 190 countries** that make up its near-global membership.
- Headquartered in **Washington, D.C.**
- **India became a member in December 1945.**
- **Publications:**
 - World Economic Outlook
 - Global Financial Stability Report
 - Fiscal Monitor
 - Global Policy Agenda
- When a country borrows from the IMF, **the government agrees to adjust its economic policies to overcome the problems** that led it to seek financial assistance.
 - These policy adjustments are **conditions for IMF loans** and help to ensure that the country adopts strong and effective policies.

Functions of IMF

- **Financial assistance:** Providing loans to member countries that are experiencing actual or potential balance-of-payments problems is a core responsibility of the IMF.
- **Surveillance:** In order to maintain stability and prevent crises in the international monetary system, the IMF monitors member country policies as well as national, regional, and global economic and financial developments through a formal system known as surveillance.
- **Special Drawing Rights (SDRs):** The IMF issues an international reserve asset known as Special Drawing Rights, or SDRs, that can supplement the official reserves of member countries participating in the SDR Department (currently all members of the IMF).
- **Resources:** Member quotas are the primary source of IMF financial resources.
 - **A member's quota** broadly reflects **its size and position** in the world economy.
 - The IMF regularly conducts general reviews of quotas.
- **IMF Members:** Any other state, whether or not a member of the UN, may become a member of the IMF in accordance with IMF Articles of Agreement and terms prescribed by the Board of Governors.

Fast Facts About the IMF

1944	Year the IMF was established	\$1 trillion	Total amount the IMF is able to lend to its member countries
190	Member countries	29	Current lending arrangements
150	Nationalities represented by staff	80	Countries that received emergency financing as of January 29
24	Executive Directors representing 190 member countries	0%	Interest rate on loans to low-income countries
\$303 million	For hands-on technical advice, policy-oriented training, and peer learning		

- Membership in the IMF is a prerequisite to membership in the **International Bank for Reconstruction and Development**.

Reasons for nations seeking an IMF bailout:

- Countries seek help from the IMF usually when their economies face a major **macroeconomic risk, mostly in the form of a currency crisis**.
 - For instance in the **case of Sri Lanka and Pakistan**, both countries have **witnessed domestic prices rise rapidly** and the **exchange value of their currencies drop steeply against the U.S. dollar**.
- A rapid, **unpredictable fall in the value of a currency can destroy confidence** in said currency and affect economic activity as people may turn hesitant to accept the currency in exchange for goods and services.
- When a **country's domestic economic policies** can also have an adverse impact on its currency's exchange rate and foreign exchange reserves.
 - For example, economic policy that imperils productivity can affect a country's ability to attract the necessary foreign exchange for its survival.
- In the case of Sri Lanka, a **decrease in foreign tourists visiting the country** led to a steep fall in the flow of U.S. dollars into the nation.

Conditions laid out by IMF for recent bail-out

- The IMF is willing to support Sri Lanka but has some conditions regarding macroeconomic reforms.
- It wants Sri Lanka to be transparent about its debt situation.
 - The IMF usually **imposes conditions on countries** before it lends any money to them. For example, a country may have to **agree to implement certain structural reforms** as a condition to receive IMF loans.
- The IMF's conditional lending has been **controversial as many believe that these reforms are too tough on the public**.
 - Some have also accused the IMF's lending decisions, which are taken by officials appointed by the governments of various countries, to be **influenced by international politics**.
- Supporters of the IMF's lending policies, however, have argued that **conditions are essential for the success of IMF lending**.
 - For one, countries that seek an IMF bailout are usually in a **crisis due to certain policies adopted by their governments** that turned out to be inimical to economic growth and stability.
 - It may thus **not make sense for the IMF to throw money** at a country when the policies that caused its crisis remain untouched.
 - So, for instance, the **IMF may demand a country affected by high price inflation** to ensure the independence of its central bank.
- The IMF basically lends money, often in the **form of special drawing rights (SDRs), to troubled economies that seek the lender's assistance**.
 - SDRs simply represent a basket of five currencies, namely **the U.S. dollar, the euro, the Chinese yuan, the Japanese yen, and the British pound**.

Way Forward:

IMF's stated mission is working to foster global monetary cooperation, secure financial stability, facilitate international trade, promote high employment and sustainable economic growth, and reduce poverty around the world. Therefore, It is important for the Government of Sri Lanka in collaboration with the IMF to work for the **betterment of its economic and fiscal situation while securing transparency.**

Internationalisation of the Indian Rupee

Context: Recently Reserve Bank India Deputy Governor emphasizes the need for better rupee volatility management to deal with risks of internationalization.

About Internationalisation of Indian Rupee:

- Currency internationalization is the **widespread use of a currency** outside the borders of its original country of issue.
- It refers to the **process of making the Indian rupee a globally accepted currency**, similar to other major currencies like the **US dollar, Euro, and Japanese yen etc.,**
- This process aims to **promote India's economic growth and development** by increasing the **use of the rupee in cross-border transactions, foreign investment, and global trade.**
- It requires the **liberalization of India's capital account**, which means allowing free flow of capital in and out of the country without any restrictions.

Present Status of Indian Rupee

- Currently, Indian rupee totals **over 80 against USD.**
- The first country to open a **special Rupee Vostro account is Russia** followed by **Sri Lanka and Mauritius** which are expected to use the Indian rupee trade settlement mechanism.
- A further assessment says that by 2040, the **Rupee will challenge China's Renminbi as the strongest global currency.**

Advantages of Internationalization of rupee

- **Currency risk is reduced for Indian businesses** when using the Rupee in international transactions.
 - Protection from currency volatility improves business growth and lowers operating costs, increasing the likelihood that Indian companies will expand internationally.
- The requirement for **maintaining foreign exchange reserves decreases.**
 - Reserves have an impact on the economy even though they help control exchange rate volatility and project external stability.
- India becomes **less susceptible to outside shocks by reducing** its reliance on foreign currency.
 - For instance, **excessive foreign currency liabilities of domestic businesses** result in a **de facto domestic tightening** during phases of monetary tightening in the US and a strengthening dollar.
 - The **discomfort of reversing capital flows** would be significantly lessened by reduced exposure to currency risk.
- The **bargaining power of Indian business would increase** as the rupee's use increased, adding weight to the Indian economy and raising India's stature and respect internationally.

Challenges of Internationalisation of rupee:

- It requires integration with global financial markets, which can pose challenges in **terms of regulatory compliance, market infrastructure, and investor protection**.
- It is the **primary challenge of internationalising the rupee** as it can **create risks for businesses and investors** that operate in multiple currencies, leading to uncertainty and higher transaction costs.
- **India's financial markets** are still relatively **underdeveloped compared to other major economies**, which can limit the range of products and services available to international investors.
- **The rupee is not yet a widely traded currency**, which means there is limited liquidity in global markets making it difficult for investors to buy and sell rupee-denominated assets, which can limit the attractiveness of the currency.
- It requires a supportive regulatory environment that balances the need for openness with the need for **financial stability and regulatory oversight** which is challenging to achieve, especially given the complexities of global financial markets.

Steps taken for the Internationalisation of the Rupee

- Recently the RBI has introduced a mechanism to facilitate international trade in rupees.
 - Enabling external commercial borrowings in Rupees (**especially Masala Bonds**).
- **The Asian Clearing Union** is also exploring a scheme of using domestic currencies for settlement.
 - An arrangement, bilateral or among trading blocs, which offers importers of each country the choice to pay in domestic currency is likely to be favoured by all countries, and therefore, is worth exploring.
- **Promotion of offshore rupee markets:** The RBI has allowed Indian banks to participate in the **offshore non-deliverable market for rupee derivatives**, which has facilitated the development of offshore rupee markets.
- **Currency swap agreements:** The RBI has signed currency swap agreements with several countries, which allow for the exchange of rupee and foreign currency between the central banks of the two countries.
- **Bilateral trade agreements:** The government has signed several bilateral trade agreements with other countries, which has facilitated greater cross-border trade and investment and increased the use of the rupee in international transactions.

Way Forward:

Therefore, Any possibility of conversation on rupee internationalization must be backed by a **sustained and stable position of the Indian Rupee**. Scale, stability and liquidity can be achieved through **strong economic fundamentals and a process-driven regulatory environment**. Overall, increase in the international use of the Indian rupee will go a long way in positioning India as a more attractive destination for foreign investment and trade.

Governance of Essential Commodities under Essential Commodities Act, 1955

Context: Recently, the government announced the **formation of a committee to monitor the stock of tur dal held by importers, mills, stockists, and traders** in order to prevent hoarding and speculation.

- **Tur is a long-duration (180 days) pulses variety** that is grown in rainfed conditions. It is grown in many states of India including Karnataka, Maharashtra, Uttar Pradesh etc. India meets about 10-12% of its domestic consumption through imports.

About Essential Commodities:

- Essential commodities are **not specifically defined** in the Essential Commodities Act, 1955, but Section 2(A) of the act underlines that an “**essential commodity**” means a commodity mentioned in the Schedule of the Act.
- The **Union government derives its power to add or remove a commodity** specified in the schedule from this act.
 - If necessary, the Central Government in consultation with state governments can notify an item as essential.
- **Face masks and sanitisers** were added to the list on March 13, 2020 in the wake of the COVID-19 outbreak.
- The government can control the **production, supply, and distribution** of the **declared essential commodity and can also impose a stock limit**.

About Essential Commodities Act, 1955:

- The Centre has invoked the Essential Commodities Act of 1955 to ask States **to monitor and verify the stocks available with such traders**.
- Under the EC Act of 1955, if the Central government thinks that it is necessary to maintain or increase supplies of any essential commodity or make it available at **fair prices, it can regulate or prohibit the production, supply, distribution and sale of that commodity**.
- The Centre has the power to **add or remove any commodity in public interest** from this list of essential commodities.

The EC (Amendment) Bill 2020:

- It aims to **remove fears of private investors of excessive regulatory interference** in their business operations.
- The freedom to produce, hold, move, distribute and supply will lead to harnessing economies of scale and attract private sector/foreign direct investment into the agriculture sector.
- It will help drive up investment in cold storages and modernization of the food supply chain.

Issues Related to Essential Commodities Act 1955:

- The Economic Survey 2019-20 highlighted that government intervention under the ECA 1955 often **distorted agricultural trade** while being totally ineffective in curbing inflation.
 - Such intervention does **enable opportunities for rent-seeking and harassment**.
 - Rent-seeking is a term used by economists to describe unproductive income, including from corruption.
- **Traders tend to buy far less than their usual capacity and farmers** often suffer huge losses during surplus harvests of perishables.
- This led to farmers being **unable to get better prices due to lack of investment** in cold storage, warehouses, processing and export.
 - Owing to these issues, the Parliament passed the Essential Commodities (Amendment) Bill, 2020.
 - However, **due to farmers’ protest the Government had to repeal this law**.

Way Forward:

The ECA 1955 was brought when India was not self-sufficient in food grains production. However, now India has become surplus in most Agri-commodities, and the amendments to the ECA 1955 is an important step by the government to achieve its target of inflation of Agri commodities and ease of doing business in the market.



INTERNATIONAL RELATIONS

**Indo-German Relations**

Context: Recently, German Chancellor Olaf Scholz came to India on a bilateral visit.

Key outcomes of the bilateral meeting**Green and Sustainable Development Partnership (GSDP):**

- GSDP is an umbrella partnership that provides political guidance and steer to robust ties in climate action and SDGs.
- Under this, **Germany will place €10 billion** in new and additional commitments under their development **cooperation portfolio in India**.
- India-Germany agreed on a vision statement to **Enhance Cooperation in Innovation and Technology**.
- Under the framework of the Inter-Governmental Agreement on **'Cooperation in Scientific Research and Technological Development'**, the two countries share a long history of cooperation in science and technology, research and innovation.

Cooperation in Green Hydrogen:

- For this, the **Indo-German Green Hydrogen Task Force** was constituted in September 2022.

Triangular Development Cooperation:

- India and Germany agreed to work on development projects in third countries.
- Both sides concluded agreements on **"Digital Transformation, FinTech, IT, Telecom and Supply chains' diversification"**.

Indo – German Bilateral Relations:

- Germany is one of India's most important partners in Europe owing to the strength of bilateral relations, as also Germany's key role in the EU.
- India was among the first countries to establish diplomatic ties with the Federal Republic of Germany after the Second World War.
- On March 7, 2021, India and Germany marked the 70th anniversary of the establishment of diplomatic relations.

Trade and economic relations:

- Germany is India's largest trading partner in Europe, with a **total trade of USD 21.07 Billion in 2020-21**, occupying 17.4% of share in European Market.
- Germany is the **7th largest foreign direct investor in India** since April 2000.
 - Germany's total FDI in India from 2000 until 2019 amounted to US\$ 11.9 billion.
- Germany has a **Bilateral Trade and Investment Agreement (BTIA)** with India via the EU.

Multilateral Cooperation:

- Germany and India support each other on UNSC expansion within the **framework of the G-4**.
- Germany joined the **Coalition for Disaster Resilient Infrastructure (CDRI)** in February 2020 and participated in the first Governing Council meeting in March 2020.
- In April 2021, the German Federal Cabinet approved the signing of the amended framework agreement of the International Solar Alliance (ISA), and thereby Germany's accession to the ISA.

Defence co-operation:

- India-Germany Defence Cooperation Agreement (2006) provides a framework for bilateral defence cooperation.
- Both the countries signed the **Arrangement on Implementation of the Agreement, concerning Bilateral Defence Cooperation** which enables both the countries to share classified information with each other
- Indian and German navy ships regularly conduct anti-piracy operations in the Indian ocean.
- The first ever **Franco-Indian-German military exercise** is expected to take place in 2024.

Science and Technology:

- Bilateral Science and Technology cooperation is implemented under an Inter-Governmental Agreement on '**Cooperation in Scientific Research and Technological Development**' signed in May 1974.
- The **Department of Science and Technology (DST)** and the **German Federal Ministry for Education and Research (BMBF)** are the nodal agencies for overall coordination.
- An **apex Indo-German Committee on Science and Technology**, established in 1994 coordinates the implementation of cooperation and joint review of activities.

Culture and Indian diaspora:

- The **translation of Kalidas's 'Shakuntala'** in 1791 envisaged institution-based scientific research on sacred Indian texts for the quest of Indian philosophy and literature.
- **Max Mueller** was the first scholar of Indo-European languages to **translate and publish Upanishads and Rigveda**.
- There are around **03 lakh (December 2021) Indian passport holders and Indian-origin people** (about 1.60 lakh NRIs/Indian Passport holders and around 43,000 PIOs) in Germany.

Issues associated with bilateral relations:

- **Germany's low trade:** Germany's trade with India is less than ten percent of its trade with china.
- **Restrictive Policies:** Germany has an advanced defence manufacturing comparable to that of France, but the defence exports are less than potential because of restrictive arms export policy
- **Lack of a separate bilateral investment treaty** between the two countries hampers the commercial potential between two countries.
- **Germany is not confident about India's trade liberalization measures;** it bats for more liberal labour regulations.

Way Forward:

At present, in spite of various setbacks, the Indo-German relations have made a rapid stride. The **'policy of benign neglect'** had changed into a more **'vibrant partnership'**. Indo-German cooperation should be based on a win win situation so that both countries can help each other in improving their economic, technological, defence and political position in the international arena.

This is not a difficult task as **Germany and India are "natural allies"**. While Germany has surplus capital, modern technology and a demographic deficit, India has a deficit of capital, lacks modern technology and has exportable human capital.

India-Australia Relations

Context: The Australian Prime Minister (PM) on his visit, India and Australia signed an Audio-visual co-production agreement. The two Prime Ministers also discussed a range of domains to improve India-Australia relations.

Key highlights of the visit:

- Australia wants to work with India and build a relationship in the **areas of culture, economics, and security.**
- Both countries signed **memorandums of understanding (MoUs) for sports and audio-visual co-production agreements**, and they also talked about the terms of reference for the **Solar Taskforce between India and Australia.**
- India was worried about the damage done to **Hindu temples in Australia** by people who support the **Khalistan government.**
 - In reply, Australia agreed to protect and keep safe the Indian community in Australia.

Bilateral relations:

Historical Perspective:

- Australia and India for the first time established diplomatic relations in the pre-Independence period, when the Consulate General of India was first opened as a Trade Office in Sydney in 1941.
- India-Australia relations touched a historic low when the **Australian Government condemned India's 1998 nuclear tests.**
- In 2014, Australia signed a **Uranium supply deal with India**, the first of its kind with a country that is a **non-signatory to the Nuclear Non-Proliferation Treaty**, in recognition of India's **"impeccable" non-proliferation record.**

Bilateral Trade:

- India is the **5th largest trade partner of Australia** with trade in goods and services at A\$ 29 billion representing 3.6% share of the total Australian trade in 2017-18, with export at A\$ 8 billion and import at A\$ 21 billion.

LOOKING TO BRIDGE THE GAP



Major imports from Australia (\$ mn)		Major exports to Australia (\$ mn)	
Mineral fuels crude and processed	8,912.09	Mineral fuels crude and processed	628.4
Inorganic chemicals	607.95	Rail locomotives and parts	319.24
Gems and jewellery	519.93	Gems and jewellery	270.86
Wool	189.94	Pharmaceuticals	224.64
Aluminium and articles made from it	181.22	All types of apparels	176.59

Source: Department of Commerce

Defence:

- AUSINDEX:** The first-ever Bilateral Maritime Exercise, AUSINDEX, was conducted in Visakhapatnam (Bay of Bengal) in September 2015.
- Exercise Pitch Black:** In 2018, the Indian Air Force participated for the first time in the Exercise Pitch Black in Australia.
- Exercise of the Australian Navy:** INS Sahyadri participated in Kakadu, the biennial exercise of the Australian Navy held in 2018, in which 27 nations participated.
- AUSTRAHIND:** The 4th edition of AUSTRAHIND (Special Forces of Army Exercise) was held in recently.
- Joint military exercises:** In 2023, **India, Japan, and the US** will all take part in the **“Malabar” exercises**, which will be held in Australia.
 - India has been invited to join the **Talisman Sabre exercises in 2023.**

Multilateral Cooperation:

- Both are members of the **Quad, Commonwealth, Indian Ocean Rim Association (IORA), ASEAN Regional Forum, Asia Pacific Partnership on Climate and Clean Development**, and have participated in the East Asia Summits.
- Both countries have also been cooperating as members of the **Five Interested Parties (FIP) in the World Trade Organization context.**
- Australia is an important player in **Asia Pacific Economic Cooperation (APEC)** and supports India’s membership of the organisation.

Cooperation on Clean Energy:

- In February 2022, countries signed a Letter of Intent on New and Renewable Energy for cooperation to reduce the cost of renewable energy technologies, including ultra **low-cost solar and clean hydrogen.**
- India announced Australian Dollars(AUD) 10 million for **Pacific Island Countries under the International Solar Alliance (ISA).**
- Both the countries committed to USD 5.8 million to the **three-year India-Australia Critical Minerals Investment Partnership.**

Indian Diaspora:

- The Indian community in Australia continues to grow in size and importance, with a population of nearly half seven lakhs.
- India is now the **third-largest source of immigrants to Australia**, after the UK and New Zealand and the largest source of skilled professionals for Australia.
- There is a constant flow of students and tourists from India.

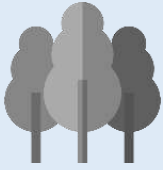
Challenges in India-Australia Relations:

- **China's Discontent:** China is unhappy with the growing security cooperation between Australia and India.
 - The Chinese government responded to the **Quadrilateral dialogue by issuing formal diplomatic protests to its members, calling it "Asian NATO"**.
- **India's stand on the Russia-Ukraine crisis:** Australia has criticized the Russian invasion of Ukraine and sided with the U.S. and western countries.
 - However, India has **refrained from criticizing Russia over the issue**. This can create differences in **bilateral discourse and the functioning of QUAD**.
- **Coal mine controversy:** There was controversy over the **Adani coal mine project in Australia**, with some activists protesting against it, which created a strain in the relationship between the two countries.
- **Visa issues:** There have been concerns over visa restrictions for Indian students and professionals seeking to work in Australia.
- **No Free Trade Agreement:** Both nations have been interacting and communicating with each other for decades but have failed to create a consensus on a Free trade agreement.
- **Lack of Uranium Supply:** The progress on uranium supply has been very low, despite efforts from both sides. In 2017, Australia had sent its first uranium shipment to India but that was cited as **"a small sample of uranium"** transferred "purely for testing purposes".
- **Violence with Indian Diaspora:** Attacks on Indian Diaspora and temples in the recent past by Khalistan supporters have been an issue of strain.

Way Forward:

On the whole, The India–Australia strategic partnership has seen impressive advancements in the last few years, but its potential and promise are yet to be fully realised. Hence, the need of dedicated attention and political leadership from both capitals to become more than a work in progress going forward.

MUST READ: [India-Australia Critical Minerals Investment Partnership](#)



GEOGRAPHY



States demand that lightning be declared a natural disaster

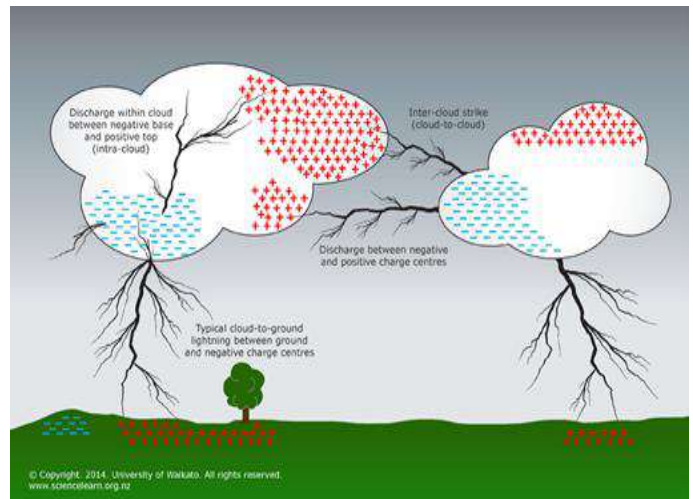
Context: Recently few States have demanded that “lightning” be declared as a “natural disaster” because deaths caused by it surpass any other disaster in India.

- Presently **Cyclone, drought, earthquake, fire, flood, tsunami, hailstorm, landslide, avalanche, cloudburst, pest attack, frost, and cold waves** are covered under the State Disaster Response Fund (SDRF) which is **75% funded by the Centre**.

About Lightning:

Source: Science Learning Hub

- It is the natural process of “**an electrical discharge of very little duration and high voltage between a cloud and the ground or within a cloud,**” accompanied by a bright flash, a loud sound, and occasionally thunderstorms.
- During a storm, colliding particles of rain, ice, or snow inside storm clouds increase the imbalance between storm clouds and the ground, and often negatively charge the lower reaches of storm clouds.
- Objects on the ground, like **steeple, trees, and the Earth itself**, become positively charged—creating an imbalance that nature seeks to **remedy by passing current between the two charges**.
- Cloud-to-ground lightning bolts are a common phenomenon with about 100 striking Earth’s surface every second.
- A typical **cloud-to-ground lightning bolt** begins when a step-like series of negative charges, called a **stepped leader**, races downward from the **bottom of a storm cloud toward the Earth** along a channel at about 200,000 mph (300,000 kph).



Lightning Strikes in India:

- According to a newly published yearly report on lightning from the **Lightning Resilient India Campaign (LRIC)**, India may have seen up to 18.5 million lightning strikes between April 2020 and March 2021.
- Each year, lightning claims the **lives of more than 2,500 Indians**.
- **Madhya Pradesh** had the highest number of lightning-related deaths (162), followed by **Maharashtra (121), Gujarat (72), Bihar (70), Rajasthan (49), and Chhattisgarh (40)**.
- India has experienced 90,632 deaths due to lightning strikes between 1972 and 2019.

- The **Accidental Deaths & Suicides in India 2021 report** confirms that 40.4% of deaths due to natural disasters took place due to lightning.
- 77% of farmers are killed due to lightning as they work in agricultural fields during the Kharif cropping season in the monsoon period.

Challenges of Lightning in India

- **Lack of awareness:** There is a lack of awareness among the general public about the dangers of lightning, which often leads to fatalities and injuries.
- **Poor lightning protection infrastructure:** Most buildings and structures in India are not equipped with lightning protection systems, making them vulnerable to lightning strikes.
- **High mortality rate:** Lightning strikes kill more than 2,000 people in India every year, making it one of the deadliest weather-related hazards in the country.
- **Climate change:** Climate change is expected to increase the frequency and intensity of thunderstorms, which could lead to more lightning strikes in the future.
- **Limited resources:** India has limited resources to invest in lightning protection infrastructure and research, which makes it challenging to mitigate the risks associated with lightning.
- **Limited lightning data:** There is limited data on lightning strikes in India, which makes it difficult to develop effective lightning protection policies and strategies.

Government steps for disaster management

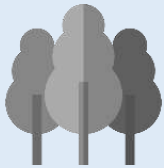
- **National Disaster Management Authority (NDMA):** It was established in 2005 to provide a comprehensive and integrated approach to disaster management in the country.
- **State Disaster Management Authorities (SDMAs):** Each state has a separate SDMA which works in coordination with the NDMA and other agencies to mitigate the impact of disasters.
- **Disaster Management Act, 2005:** The act provides a legal framework for the management of disasters in the country and lays down the responsibilities of various agencies and authorities and outlines the procedures for disaster management.
- **National Disaster Response Force (NDRF):** The NDRF is a specialized force created to respond to disasters and provide relief & rescue operations and comprises battalions stationed across the country.
- **Early Warning Systems:** The government has set up early warning systems for various disasters, such as cyclones, earthquakes, floods, and landslides. These systems use technology to provide timely warnings to people in the affected areas.
- **National Disaster Management Plan (NDMP):** It is a comprehensive plan developed by the government to address all aspects of disaster management, including prevention, mitigation, and response.

Way Forward:

Thus, the government should include lightning as a “natural disaster” to minimise lightning-related deaths. Mapping vulnerable populations with potential lightning hotspots, improving early warning systems, and installing lightning detection systems are critical measures.

Therefore, the government should prepare a database related to lightning strikes, gender-wise lightning deaths, and occupation-wise fatalities at the district, state, and central levels for devising an action plan against lightning strikes.

MUST READ: [Cloud bursts](#)



ENVIRONMENT



Landfill Fires

Context: The Kochi landfill site around Brahmapuram that caught fire earlier this month was a stark reminder that Indian cities need to be prepared for more such incidents as summer approaches.

About Landfill:

- A landfill site, also known as **rubbish dump, garbage dump, or dumping ground**, is a site for the **disposal of waste materials**. It is the oldest and most common form of waste disposal.
- US Environmental Protection Agency (EPA) has established specific guidelines regarding creation and management of the Landfills.
- But in India, landfills are managed under the **new Solid Waste Management Rules (SWM), 2016**. However, many of the guidelines are not adhered to rules.



Landfill fires: Surface and Underground fires

- **Surface fires:** It involves recently buried or uncompacted refuse, situated on or close to the landfill surface in the aerobic decomposition layer.
 - Surface fires generally burn at **relatively low temperatures and are characterized by the emission of dense white smoke and the products of incomplete combustion.**
- **Underground fires:** Underground fires in landfills occur deep below the landfill surface and involve materials that are months or years old.
 - The most common cause of underground landfill fires is an increase in the **oxygen content of the landfill, which increases bacterial activity and raises temperatures (aerobic decomposition).**
 - These so-called **“hot spots”** can come into contact with pockets of methane gas and result in a fire.

Reasons Landfills fire:

- India’s municipalities have been **collecting more than 95% of the waste generated** in cities but the **efficiency of waste-processing is 30-40% at best.**
- Indian municipal solid waste consists of about 60% **biodegradable material, 25% on-biodegradable material and 15% inert materials, like silt and stone.**

- The openly disposed waste includes **flammable material like low-quality plastics, which have a relatively higher calorific value.**
- In summer, the biodegradable fraction composts much faster, increasing the temperature of the **heap to beyond 70-80° C.**
- **Higher temperature + flammable material** = a chance for the landfill to catch fire.

Impact of Landfill Fires:

- **Air Pollution:** When a landfill fire burns, it releases harmful gases and particles into the air, including carbon monoxide, Sulfur dioxide, nitrogen oxides, and volatile organic compounds (VOCs).
 - These pollutants can cause respiratory problems, exacerbate asthma and other lung conditions, and contribute to smog and acid rain.
- **Health impact:** It causes health ailments in residents living nearby the landfill like sore throat, itchy eyes and breathing problems.
- **Groundwater Contamination:** Landfill fires can release toxic chemicals and heavy metals into the groundwater, which can contaminate nearby water sources and potentially harm aquatic ecosystems.
- **Soil Contamination:** Landfill fires can also release harmful chemicals and heavy metals into the soil, which can harm plant growth and contaminate crops.
- **Economic Impact:** Landfill fires can result in significant clean-up costs for local governments, as well as economic losses for nearby businesses and property owners.

Landfill fire prevention

- Fire prevention can **reduce property damage, injury, health, and environmental hazards of landfill fires.**
 - The cost of prevention is usually much less expensive than the cost of fighting and cleaning up a fire.
- **Effective landfill management:** Management measures include prohibiting all forms of deliberate burning, thoroughly inspecting and controlling incoming refuse, compacting refuse buried to prevent hot spots from forming, prohibiting smoking onsite, and maintaining good site security.
- **Monitoring the emission of methane:** If methane levels in or around the landfill become explosive, the landfill operator must take immediate steps to mitigate the danger.
- **Converting Landfill Gas to Energy:** The conversion of landfill gas to energy turns this landfill by-product into a marketable resource. The converted gas can be used to generate electricity, heat, or steam.

Govt Initiatives to prevent Landfill fires

- **Swachha Bharat Mission – Urban (SBM-U).**
- **Swaccha Survekshan:** An annual survey of cleanliness, hygiene and sanitation in cities and towns across India is undertaken. It has been launched as a part of the SBM-U under the Ministry of Housing and Urban Affairs (MoHUA).
- **Swachhata Hi Sewa Campaign:** It has been launched for ensuring cleanliness through the various stakeholders' engagement in the 'Jan Andolan'.
- **Compost Banao, Compost Apnao Campaign:** It is a multi-media campaign launched by MoHUA on waste-to-compost under SBM-(U).

Way Forward:

While these measures can help reduce the fires' damage, they're far from ideal and not long-term solutions. The **4 R's philosophy of Reducing, Reusing, Recycling, and Recovering Resources** should be actively encouraged. The permanent and essential solution is to ensure cities have a **systematic waste processing system** where wet and dry waste are processed separately and their byproducts treated accordingly.

Biotransformation Technology

Context: A UK-based startup claims to have developed a Biotransformation Technology that could alter the state of plastics and make them biodegradable without leaving behind any microplastics.

About Biotransformation technology:

Source: [polymateria](https://www.polymateria.com)

- Biotransformation technology is a **novel approach to ensure plastics that escape refuse streams** are processed efficiently and broken down.
- The tech was co-developed by the **Imperial College in London, UK, and a Britain-based startup, Polymateria.**
- Plastics made using this technology are given a **pre-programmed time during which the manufactured material looks and feels like conventional plastics without compromising on quality.**
- Once the product expires and is exposed to the external environment, it **self-destructs and bio-transforms into bioavailable wax.**
 - This wax is then consumed by microorganisms, converting waste into water, CO₂, and biomass.
- This biotransformation technology is the **world's first that ensures polyolefins fully biodegrade in an open environment causing no microplastics.**

**Significance for India:**

- **India is generating 3.5 billion kgs of plastic waste annually** and that the per capita plastic waste generation has also **doubled in the past five years.** Of this, a third comes from packaging waste.
- A joint research project by **Department of Management Studies, IIT Delhi, and Sea Movement** noted that **Amazon generated, nearly 210 million kgs (465 million pounds) of plastic from packaging waste in 2019.**
 - They also estimated that up to 10 million kgs (22.44 million pounds) of Amazon's plastic packaging ended up in the world's freshwater and marine ecosystems as pollution in the same year.

Applications

- **Food packaging and health care industries** are the two prime sectors that could use this technology to reduce waste.

- **Agriculture:** Plastic mulch films are extensively used in agriculture to conserve moisture and control weed growth.
 - Biotransformation technology can be used to develop biodegradable mulch films, reducing the environmental impact of plastic waste in the agriculture sector.
- **Textile industry:** Synthetic textiles like polyester and nylon are widely used in the textile industry and are a significant contributor to plastic waste.
 - Biotransformation technology can be used to develop biodegradable textiles that can break down naturally, reducing the environmental impact of plastic waste in the textile industry.
- **Automotive industry:** The automotive industry is a significant consumer of plastic products, including plastic components and packaging materials.
 - Biotransformation technology can be used to develop biodegradable plastic components and packaging materials, reducing the environmental impact of plastic waste in the automotive industry.
- **Construction industry:** Plastic products like PVC pipes and sheets are widely used in the construction industry and are a significant contributor to plastic waste.
 - Biotransformation technology can be used to develop biodegradable plastic products for the construction industry, reducing the environmental impact of plastic waste.

Steps taken by the Indian government to address the issue of plastic waste:

- Government introduced a **plastic waste management gazette** to help tackle the ever-growing plastic pollution caused by single-use plastics.
- In 2022, the Indian government **imposed a ban on single-use plastics** to bring a stop to their use in the country.
- The **National Dashboard on Elimination of Single-Use Plastic and Plastic Waste Management** brings all stakeholders together to track the progress made in eliminating single-use plastic and effectively managing such waste.
- An **Extended Producer Responsibility (EPR) portal** helps in improving accountability traceability and facilitating ease of compliance reporting in relation to EPR obligations of the producers, importers, and brand-owners.
- India has also developed a **mobile app to report single-use plastics grievances to check the sale, usage or manufacturing of single-use plastics in their area.**

Way Forward:

Other alternatives such as coir, bagasse, rice and wheat bran, plant and agricultural residue, banana and areca leaves, jute and cloth.-based packaging could potentially cut down plastic waste. This could also build sustainability within the paper industry, and save on the import bill on ethylene solutions. **Wooden packaging** is yet another alternative, but that will make the packaging bulkier and increase the cost.



SOCIAL ISSUES



Manual Scavenging in India

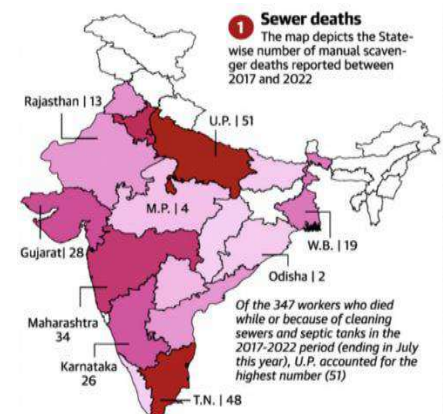
Context: Supreme Court has recently directed government to file report on steps taken to end manual scavenging.

About Manual Scavenging:

- Manual scavenging refers to the practice of manually cleaning, carrying, disposing or handling in any manner, human excreta or any kind of dry or wet waste from insanitary latrines, open drains, septic tanks or other similar places.
- Manual scavenging is a dehumanizing practice that involves the use of basic and often unsafe tools like brooms, buckets, and baskets, which can lead to serious health hazards, injuries, and even death.

Manual scavenging in India: A sad story

- As per 2011 Census of India, there were over 740,000 households in the country where manual scavenging was still being practiced.
- This practice is often associated with the caste system in India, where people from lower castes, such as Dalits, are forced to engage in manual scavenging.
- According to the National Commission for Safai Karamcharis, a total of 482 manual scavengers died while cleaning sewers and septic tanks across India between 2016 and 2019.
- The Safai Karamchari Andolan, an advocacy group working to eradicate manual scavenging, estimates that there are still around 1.8 million manual scavengers in India.
- Many manual scavengers suffer from various health problems, including skin diseases, respiratory issues, and even death due to exposure to toxic fumes in septic tanks and sewer lines.
- A total of 233 people died due to accidents while undertaking hazardous cleaning of sewer and septic tanks from 2019 to 2022.
- Haryana had the highest number of deaths at 13, followed by Maharashtra with 12 and Tamil Nadu with 10.
- The practice of manual scavenging is mostly carried out by people from lower castes, such as Dalits, and this perpetuates the cycle of caste-based discrimination and social exclusion.



Reasons for Persistence of Manual Scavenging:

There were many reasons why the programme proved to be ineffective:

- **Issue of Women:** Most of the provisions for the rehabilitation under the scheme were **not gender sensitive and directed towards men**, although around 95-98% of the individuals involved in manual scavenging are women.

- **Issue of Loan:** The key provision of the scheme was a loan provision with a subsidy.
 - Giving loans to the vulnerable communities, which were compelled to take up manual scavenging, **rooted in a caste system and face social, political and economic exclusion is not a sustainable solution.**
- **Defaulters:** Most of the loans under the Scheme for the **Rehabilitation of Manual Scavengers (SRMS)** were issued through **banks with 50% of a subsidy.**
 - However, most of the subsidy was spent on paying the chargeable interest to the bank and those not able to pay it become **“defaulters”.**
- **Rural Areas:** According to SRMS Survey, around 60% of those involved in manual scavenging are in rural areas (larger villages and settlements).
 - However, the focus of the **scheme was on urban areas.**
- **Caste aspect:** Government programmes have emphasised the financial aspect of rehabilitation and failed to address the caste-based oppression and related social conditions that have perpetuated this practice for centuries.
- **Corruption:** SRMS survey found that in **district of Madhya Pradesh** there were more than 165 women involved in manual scavenging but not a single name was included in the list of beneficiaries.
 - Only districts with more than 302 women were included.
 - **only 10% of those involved in manual scavenging** were actually included in the list.
 - This resulted in many eligible individuals not reaching the benefits and those not eligible benefiting of the scheme.

Challenges of stopping manual scavenging:

- **Social stigma:** Manual scavenging has been associated with certain castes and communities, which has resulted in social discrimination and stigmatization of people engaged in manual scavenging.
- **Lack of awareness:** There is a lack of awareness among people about the health hazards associated with manual scavenging, which has resulted in people continuing to engage in this practice.
- **Insufficient implementation:** While laws and regulations have been put in place to prohibit manual scavenging, their implementation has been poor in many areas.
- **Poor infrastructure:** In many parts of India, there is a lack of proper sanitation infrastructure, which has resulted in people engaging in manual scavenging to clean the sewage.
- **Inadequate rehabilitation measures:** Many of the rehabilitation schemes have not been implemented properly, which has resulted in people not being able to find alternative sources of livelihood.

Steps taken by the government to curb manual scavenging:

- The government has formulated **the NAMASTE scheme or National Action Plan for Mechanised Sanitation Ecosystem** in an effort to stop deaths due to hazardous cleaning of sewers and septic tanks,
- **The Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993** was introduced to ban manual scavenging.
- **The Prohibition of Employment as Manual Scavengers and Their Rehabilitation Act, 2013** to further reinforce the ban and to provide for the rehabilitation of people employed as manual scavengers.
- In 2014, the **Supreme Court** directed the government to take several measures including:

- One-time cash assistance to people employed as manual scavengers
- Houses for manual scavengers
- Training in livelihood skills for at least one member of their families
- Concessional loans to prop them up financially and find an occupation
- Payment of ₹10 lakh in compensation in the case of sewer deaths
- Despite the legal prohibition and government efforts to eradicate manual scavenging, the practice still persists in various parts of the country.

Way Forward:

- **Socio-Economic Rehabilitation:** A viable and formidable rehabilitation scheme should be developed which must include **provision for social and economic rehabilitation of families liberated from scavenging.**
 - Providing adequate provision for compensation, education, accommodation and employment
- **Gender Aspect:** All rehabilitation schemes and programmes must be totally redesigned for the women that make up **98% of the workforce and are enslaved by this exploitative tradition.**
- **Government Appointments:** In the appointment of workers, assistants and cooks in ICDS (Anganwadi) centres, **only women from Dalit communities should be appointed.**
 - Among Dalits, the manual scavenging community should be preferred.
- **Dalit Muslim and Dalit Christian Manual Scavengers:** Non-scheduled castes such as **Dalit Muslim and Dalit Christian communities** engaged in manual scavenging should receive similar facilities and security to manual scavengers from scheduled castes.
- **Indian Railway:** The Indian Railway is the largest institution in the country that use dry latrines.
 - The Railway Ministry must immediately prohibit this practice and for the next three years present progress reports in every session of Parliament.
 - This, so that the Government of India can **ensure total abolishment of scavenging in Indian Railway in stipulated time.**
- **Priority to Manual Scavengers Community:** Inclusion of manual scavengers' families and those families who have **left manual scavenging in the priority list of all government schemes and entitlement.**
- **Adopting Technology to End Manual Scavenging:** It is not going to be possible to eliminate manual scavenging unless we create the right technologies.

Protection of Domestic Workers in India

Context: Recently, social workers rescued a 14-year-old girl from a Gurugram home where she was employed as a domestic worker. The incident has highlighted the quality of paid domestic work in urban India, where people risk abuse and exploitation in an unregulated sector.

About Domestic Workers:

- **According to International Labour Organisation, domestic workers are those workers who perform work in or for a private household or households.** They provide **direct and indirect care services**, and as such are key members of the care economy.
- **According to ILO, domestic work** refers to housework such as sweeping, cleaning utensils, washing clothes, cooking, caring of children and such other work which is carried out for an employer for remuneration.

A brief about Domestic Workers in India:

- Domestic work is the fastest-growing sector of women and girls' employment in urban India.
 - Official estimates show that as of 2012, **39 lakh people were employed as domestic workers, of which at least 26 lakh were women.**
- Independent estimates such as one by the International Labour Organisation (ILO) place the count **anywhere between 20 million and 90 million workers.**
- Most people come from **marginalised castes and underprivileged locations.**
 - A Bengaluru-based study in 2016 found **75% of domestic workers were from Scheduled Castes, 15% from OBCs and 8% from Scheduled Tribes.**
- A large number of girls and women (mostly unmarried) migrate from States like **Jharkhand, Bihar, Bengal and Orissa** – regions with a sizeable population living below the poverty line.
- More than 12.6 million domestic workers in the country are minors, with 86% of them being girls.
 - Moreover, 25% of underage domestic workers were below 14 years, according to the data available.

Condition of domestic work:

- The informal nature of work within homes means people are **both unpaid and underpaid.**
- There is **no legal contract, translating into ill-defined work hours, discrimination and violence, sexual harassment, and exploitation** at the hands of placement agencies and/or traffickers.
- Between 2010 and 2012, reported cases of violence against domestic workers increased from 3,422 to 3,564, according to the **Press Information Bureau of India.**
- There is **“widespread abuse and exploitation of women working as domestic workers, including trafficking of children for domestic servitude”**, a 2016 report by Anti-Slavery International concluded.

Trafficking and forced labour:

- It is difficult to **demarcate victims of trafficking** from people who migrate across State for employment.
- **ILO** has defined domestic work as a **“modern slavery”** practice, where domestic workers, including minors, **“remain vulnerable to abuse, exploitation, forced labour and trafficking”**.
- The **ILO Forced Labour Convention, 1930** defines forced labour as work which is **“exactd from any person under the menace of any penalty”** and which is **“not offered voluntarily”**.

Challenges faced by Domestic Workers in India:

- **Poor Working Conditions:** Domestic workers are denied minimum wages. They lack any social security cover.
 - Many workers are exploited to work for long hours and live-in workers are more vulnerable to physical abuse and harassment.
- **Lack of Laws to Protect Rights:** The National Commission for Women had drafted the Domestic Workers (Registration, Social Security and Welfare) Bill in 2008-10. However, the Bill wasn't passed.
 - Similarly, the Draft Policy on Domestic Workers has been waiting for approval since 2017.
- **Issues in Implementation:** Domestic work was added to the **list of scheduled employment under the Minimum Wages Act, 1948**, which coincided with the 2011 ILO convention 189.

- However, the implementation remains poor, with most domestic workers working below minimum wage level.
- **Only 13 States/UTs** have passed legislation requiring minimum wages for domestic employees.
- **Insufficient Data:** There is lack of reliable data regarding number of domestic workers.
 - There is large variation among estimates, with **number of workers varying from 4 million to 50 million.**
 - The absence of data acts as a barrier to the **formulation of appropriate plans and the allocation of resources** for the improvement of the conditions of domestic workers.
- **Informal Placement Agencies/Housekeeping Companies:** The companies that provide domestic workers in urban areas themselves function in an informal manner.
 - They are more focused on their own profits and care little about the rights of the workers.
- **Neglect of Domestic Labour Rights:** Legislation pertaining to workers such as the **Industry Disputes Act, 1947, the Employee's Provident Fund Act, 1952, and the Factories Act, 1948,** do not recognise the labour performed by domestic workers in private households as 'work'.

Measures taken by Indian government: There is no dedicated law or policy to regulate people working in the domestic work sector.

- **Unorganized Sector Social Security Act, 2008** – The Act provided the first legal recognition meant to provide social welfare to workers—including domestic workers.
- **Code on Social Security, 2020** – The code replaced the Unorganized Sector Social Security Act, 2008 and is yet to take effect.
- **Child Labour Act, 1986** – The Indian government prohibited minors from entering domestic housework in 2006, listing it as a form of “hazardous child labour”.
- **Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013** – Includes domestic workers as a specific category of workers – with the house as a designated workplace.
- **Minimum Wages Act, 1948** – Only certain States such as Andhra Pradesh, Jharkhand, Karnataka, Tamil Nadu and Tripura have included domestic workers in the schedule of Minimum Wages Act.
- **Domestic Workers (Registration, Social Security and Welfare) Bill in 2008** – The National Commission of Women proposed the bill.
- **Domestic Workers' Welfare Bill 2016** – Recognised a private household as a workplace, and broader definition of “wages”.
 - Both the 2008 and 2016 bill have not been passed yet.
- **National Domestic Worker Policy** – Proposed by the Labour Ministry in 2019 to regulate placement agencies and include domestic workers under existing laws.
- **India is a signatory to ILO's 189th convention**, known as Convention on the Domestic Workers but has not ratified it yet.

International measures to protect domestic worker:

- **Domestic Workers Convention (No. 189)** – ILO enacted Domestic Workers Convention (No. 189) in 2011 to protect domestic workers.
- **International Domestic Workers Day** – June 16th, celebrating the 2011 passage of the International Labor Organization Convention 189 for Decent Work for Domestic Workers.
- **Your Work Is Important** – ILO has launched a campaign “Your Work Is Important” to generate public awareness.

Way Forward:

There is a need to give protection to informal sector workers via social welfare schemes so that the disruption they are facing does not lead to a permanent fall in demand. Therefore, the Government of India's intervention in regulating the engagement between domestic workers and their employers is need of the hour to resolve the issue of modern slavery.

Same-sex marriages can rock societal values: Centre

Context: A recent petition in the supreme court on same-sex marriage was transferred to the Constitutional Bench of five judges.

About Same-Sex Marriage:

- It is the practice of marriage between two men or between two women.
- Same-sex marriage has been regulated through law, religion, and custom in most countries of the world.
- As of 2023, marriage between same-sex couples is **legally performed and recognized in 34 countries**, constituting some 1.35 billion people (17% of the world's population), with the **most recent being Andorra**.

Government's stance on same-sex marriages:

- The government has a stance that same-sex marriage is not compatible with the concept of an **"Indian family unit"**, which it said consists of **"a husband, a wife, and children**.
- It necessarily presupposes a biological man as a **'husband'**, a **biological woman as a 'wife'**, and the children born out of the union between the two – who are reared by the biological man as a father and the biological woman as a mother"
- Despite the **decriminalization of Section 377 of the Indian Penal Code**, the petitioners cannot claim a **fundamental right for same-sex marriage** to be recognized under the laws of the country.

Petitioner's Arguments:

- Petitioners argued that the **non-recognition of same-sex marriage** amounted to discrimination that struck at the **root of the dignity and self-fulfilment of LGBTQ+ couples**.
- It demanded that the **Special Marriage Act, 1954** should grant same-sex couples the same protection it allowed inter-caste and inter-faith couples who want to marry.

Legal status of same-sex marriage in India:

- Marriages in India are categorized under Hindu Marriage Act, Christian Marriage Act, Muslim Marriage Act, and Special Marriage Act.
- None of this permits marriage between same-sex couples.

Various supreme court verdicts for the LGBTQ community:

- **2014:** The Supreme Court of India laid the **groundwork by giving legal recognition** to non-binary or transgender persons as a **"third gender."**
- **2017:** It strengthened the **right to privacy**, and also recognized sexual orientation as an essential attribute of an **individual's privacy and dignity**.

- **2018:** The 2018 **Navtej Singh Johar judgment** decriminalised homosexuality, but it **did not mention/legitimise same-sex marriage**.
 - The court, while **decriminalising homosexuality**, had never accepted same-sex marriage as part of the **fundamental right to life and dignity under Article 21 of the Constitution**.
 - It decriminalized homosexual sex, overturning a British colonial-era law, and expanded **constitutional rights for LGBTQ people**.
- **2022:** It instituted protections for what it called “**atypical**” families. It’s a broad category that includes **single parents, blended families or kinship relationships — and same-sex couples**.
 - Such non-traditional manifestations of families are equally deserving of benefits under various social welfare legislation.

Arguments in favour of legalising Same-Sex Marriage:

- **Fundamental Right:** Right to marry a person of one’s choice is a fundamental right guaranteed under the **Article 21 of the Constitution of India**.
 - Members of the LGBTQ+ community have the same human, fundamental and constitutional rights as other citizens.
- **The Special Marriage Act of 1954:** It provides a civil form of marriage for couples who cannot marry under their personal law.
- **Right to equality:** The petitioners have argued that barring them from marriage violates their right to equality.
- **Global practice:** According to global think tank Council of Foreign Relations, same sex marriages are legal in at least 30 countries, including the United States, Australia, Canada and France.

Arguments against Same Sex Marriage:

- **Social Stigma:** Apart from the harsh legal scenario, homosexuals face social stigma.
 - Any instance of sexual relations between a couple of the same sex draws hatred and disgust.
 - Intimacy of any sort is not approved of unless it is legitimized in the form of marriage where socially approved sexual access takes place.
- **Patriarchal Society:** Indian society is patriarchal which believes that heterosexual marriage was the norm throughout history and are “foundational to both the existence and continuance of the state.
- **Rising activism:** Campaigns for lesbian and gay rights taken on an increasingly radical character, arguing for an end to all forms of discrimination against homosexuality.
- **Progeny Issues:** Gay and lesbian couples are also not allowed to have children born with the help of an Indian surrogate mother.
 - An LGBTQ+ person can apply to the Central Adoption Review Authority for adoption only as a single parent.

Way Forward:

- Petitioners have argued that denying the community the same rights as heterosexual couples violates a clutch of fundamental rights **on life and liberty including Articles 14, 19 and 21 of the Constitution and Article 16 of the Universal Declaration of Human Rights**, to which India is a signatory.

- Legalizing same-sex marriages would have a **profound bottom-up effect** being felt in the social structure, starting from the **individual level and couple level**, followed by the **family, community, and finally at the level of society**.
- By legalising same-sex marriage, **India can join the 30-odd countries** which allow it, and lead from the front in Asia **where only Taiwan has legalised it**.
- As people's relationships change, and society undergoes transformation, **constitutional rights on freedoms and liberties must extend to every sphere, including a same-sex couple's life**.



ETHICS



Corruption in India

Context: The impact of corruption is especially heavy on common citizens and even more on poorer and vulnerable persons in communities.

About Corruption:

- Corruption refers to misusing public power for personal gain.
- It can be done by an elected politician, civil servant, journalist, administrator of a school, or anyone in authority.
- Apart from public corruption, we also have private corruption between individuals and businesses.
- Thus, the corruption definition applies to different forms.

Corruption Statistics in India

- The **annual Kroll Global Fraud Report** noted that India has among the highest national incidences of corruption (25%).
- The same study also noted that India reports the highest proportion reporting procurement fraud (77% as well as corruption and bribery (73%).
- India has the **highest rate of bribery** and **use of personal links** to access public services such as healthcare and education in Asia, according to a survey released by global civil society **Transparency International**.
- India is in the 85th position among 180 countries in the **Corruption Perception Index, 2021**.
- It uses a scale of 0 to 100, where **0 is highly corrupt and 100 is very clean**.

Reasons for Corruption:

- **Personal gains and self-preservation:**
 - The corrupt want to **accumulate power and wealth**, which they believe will perpetuate their lineage in the world meeting **self-preservation and existential needs**.
- **Criminality of outcomes:**
 - Public money is **siphoned off and welfare schemes** do not reach the beneficiaries.

- It borders on criminality when poor people are forced to shell out money for **jobs, education, and even primary healthcare.**
- **Allocation of national resources** to cronies for a price creates economic disparities, destroys level playing fields, discourages free markets and competition, and deters foreign investors.
- **Low rate of conviction:**
 - The progress of investigations and rate of conviction in high-profile cases initiated by the **Central Bureau of Investigation (CBI) and Enforcement Directorate (ED)** do not inspire much confidence in the public to believe that there has been any substantive change in this situation.
- **Corruption during elections:**
 - **Economists and political pundits** believe that it will not be possible to eradicate corruption till a solution can be **found for funding of elections.**
 - Legitimising political donations was a minuscule beginning. The much-maligned **Electoral Bonds (EBs)** was a step in the right direction.
 - Though far from fool proof, it is certainly a **cleaner method of mobilising funds** rather than **black money transferred through hawalas.**
- **Changing nature of Corruption:**
 - Since liberalisation in India, the **nature of corruption** has become more complex.
 - With technological development, there are opportunities to prevent corruption but also areas where corruption can be much more difficult to trace, **particularly in fields like cryptocurrency.**

Government Initiatives:

- Indian government has constituted a **Special Investigation Team (SIT)** on black money.
- It has enacted a comprehensive and more stringent new law – the **Black Money (Undisclosed Foreign Income and Assets) and Imposition of Tax Act, 2015.**
- There's also a **Benami Transactions (Prohibition) Amendment Act, 2016**, which empowers the authorities to attach and confiscate Benami properties.
- Law enforcement agencies such as CBI have done a great deal to reduce corruption.

Right To Information Act, 2005:

- The intent behind the enactment of the Act is to promote transparency and accountability in the working of Public Authorities.

Prevention of Corruption Act:

- The Prevention of Corruption Act, 1988 is an **Act of the Parliament of India** enacted to combat corruption in government agencies and public sector businesses in India.

Amendment to the Act:

- As the **Prevention of Corruption Act** saw limited success in preventing corruption in Government departments and prosecuting and punishing public servants involved in corrupt practices, an amendment was enacted (Amendment Act) and brought into force in 2018.

- The Amendment Act attempted to bring the Prevention of Corruption Act in line with **United Nations Convention against Corruption 2005**, which was **ratified by India in 2011**.

Whistle Blowers Protection Act, 2014:

- The Act seeks to protect whistleblowers, i.e. persons making a public interest disclosure related to an act of corruption, misuse of power, or criminal offence by a public servant.
- It is provided by the **Right To Information Act, of 2005**, and it has been an important weapon for whistleblowers in previous years.
- The RTI Act, 2005 is also called a **‘twin sister’ of whistleblowing**.

The Lokpal and Lokayukta Act, 2013:

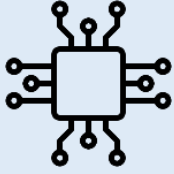
- The Lokpal and Lokayukta Act, 2013 provided for the establishment of Lokpal for the Union and Lokayukta for States.
- The Lokayukta is an **anti-corruption authority** constituted at the state level.
- It investigates allegations of corruption and maladministration against public servants and is tasked with the speedy redressal of public grievances.

The Lokpal and Lokayuktas (Amendment) Bill, 2016:

- The Bill amends the **Lokpal and Lokayuktas Act, 2013** in relation to the declaration of assets and liabilities by public servants.
- It requires a public servant to declare his assets and liabilities, and that of his spouse and dependent children.

Way Forward:

Corruption encourages dysfunctionality in government, perpetrates economic inefficiency and can be a serious threat to national security. The problem is complex and there cannot be a **“one size fits all” solution**. There must be different strokes for different people as it were.



SCIENCE & TECHNOLOGY



Digital India Act, 2023

Context: The Union government outlined the Digital India Act, 2023 which is a broad overhaul of the decades-old Information Technology Act, 2000.

Main objective of the Digital India Bill:

- The Digital India Bill aims to ensure that the **internet in India is open, free from user harm and criminality** and that there is an **institutional mechanism of accountability**.
- The legislation will cover emerging technologies, **algorithms of social media platforms, artificial intelligence, and user risks**, as well as the **diversity of the internet and the regulation of intermediaries**.

Provisions under Digital India Act 2023:

Freedom of Expression:

- **Social media platforms'** own moderation policies may now be reduced to constitutional protections for freedom of expression and Fundamental speech rights.
 - **Recent amendment to the IT Rules, 2021** says that platforms must respect **users' free speech rights**.
- Three **Grievance Appellate Committees** have now been established to take up content complaints by social media users.
 - These are now likely to be **subsumed into the Digital India Act**.

Online Safety:

- The Act will cover **Artificial Intelligence (AI), Deepfakes, cybercrime, competition issues** among internet platforms, and data protection.
- The government put out a draft **Digital Personal Data Protection Bill in 2022**, which would be one of the four prongs of the **Digital India Act, with the National Data Governance Policy** and amendments to the **Indian Penal Code** being others, along with rules formulated under the Digital India Act.

New Adjudicatory Mechanism:

- A new "**Adjudicatory Mechanism**" for criminal and civil offenses committed online would come into place.

Safe Harbour:

- The government is reconsidering a **key aspect of cyberspace — 'safe harbour'**, which is the principle that allows social media platforms to avoid liability for posts made by users.

- The term has been reined in recent years by regulations like the **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021**, which require platforms to take down posts when ordered to do so by the government, or when required by law.

Constitutional and legal Protection:

- **Fundamental speech rights (Art 19)** cannot be violated by any platform.
 - However, **social media platform's own moderation** policies may violate constitutional protections for freedom of expression.
- There is certainly a case that can be made that **weaponization of disinformation** is not the same as free speech, and that needs to be addressed.
- **IT Rules, 2021**: It says that platforms must respect users' free speech rights.
 - **Three Grievance Appellate Committees** have now been established to take up content complaints by social media users.
 - Since the appellate committee portal's launch, seventeen appeals have already been filed.

The need for a New Act:

- Since the IT Act of 2000 was enacted, there have been many revisions and amendments (IT Act Amendment of 2008, IT Rules 2011).
- However, because the IT Act was originally designed **only to protect e-commerce transactions and define cybercrime offenses**, it did not deal with the nuances of the current cybersecurity landscape adequately nor did it address data privacy rights.
- Without a complete replacement of the governing digital laws, the IT Act would **fail to keep up with the growing sophistication and rate of cyber-attacks**.
- The **new Digital India Act** also envisages to act as catalysts for Indian economy by enabling more innovation, more startups, and at the same time **protecting the citizens of India in terms of safety, trust, and accountability**.

Way forward

Regulation of **hate speech and disinformation** on the Internet is a must and intermediaries, including digital news media and social media platforms, have an accountable role to play.

Currently, there are more than **760 million internet users** in the country and this is to touch **1.2 billion in coming years**. Though the **internet is good and aids in connectivity**, there are several user harms around it. Therefore, it is essential to bring in laws that will provide new frames on the rights and duties of the citizens and also speaks about the obligation to collect data.

MUST READ: [Need for safety on Digital Space](#)

OneWeb Constellation

Context: Recently The Indian Space Research Organisation (ISRO) rocket carried 36 OneWeb broadband satellites toward low Earth orbit (LEO) which is a circular path about 280 miles (450 kilometers) above Earth.

About OneWeb Constellation:

- OneWeb Constellation is a satellite-based network that aims to provide high-speed, low-latency internet connectivity worldwide.

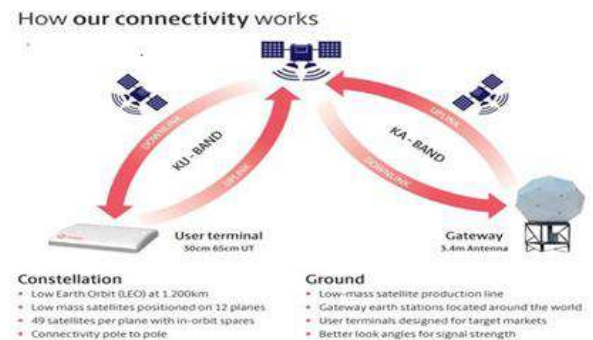
- It is a collaborative project between the UK-based OneWeb Group and the Indian Space Research Organisation (ISRO), in partnership with NewSpace India Ltd(NSIL).

OneWeb Satellites Connectivity:

Source: <https://www.electronicweeky.com>

Significance:

- OneWeb Constellation already provides connectivity solutions in various key locations worldwide and continues to expand its network to bring more areas online.
- The high-speed, low-latency solutions offered by OneWeb will help connect communities, businesses, and governments around the world, demonstrating the immense potential of LEO connectivity.
- The constellation will bring secured solutions not only to enterprises but also to towns, villages, municipalities, and schools, including the hardest-to-reach areas across India.



Advantages of OneWeb broadband:

- Global Coverage:** Space-based broadband systems can provide coverage to even the most remote and isolated areas of the world, which is often not possible with traditional ground-based broadband systems.
- High Speeds:** Space-based broadband systems can provide high-speed internet connectivity to users, which is crucial for many applications, such as video conferencing, cloud-based services, and real-time data transfer.
- Bridging the Digital Divide:** Affordable and high-speed broadband connectivity to remote and underserved areas that currently lack reliable internet access will help to bridge the digital divide.
- Low Latency:** Space-based systems can significantly reduce latency compared to traditional satellite-based systems, which can make a significant difference in many applications, such as online gaming and virtual reality.
- IoT and Machine-to-Machine Communication:** It can support the growing number of Internet of Things (IoT) devices and enable machine-to-machine communication, which is becoming increasingly important in industries such as agriculture, transportation, and logistics
- Disaster Response:** The system can be quickly deployed to provide emergency communication services in the aftermath of natural disasters, such as hurricanes, earthquakes, and floods thus helping to save lives and coordinate relief efforts more effectively.
- Scalability:** Space-based broadband systems can be scaled quickly and easily to meet increasing demand, which is essential in areas experiencing rapid population growth or where there is a sudden surge in demand due to an emergency or disaster
- Redundancy:** It can provide a redundant connection to users in areas where traditional broadband systems are unavailable, which is critical in emergency situations.
- Improved Connectivity for Air and Sea Travel:** Low latency, high-speed of space-based broadband network can improve connectivity for air and sea travel, enabling passengers to stay connected during their journey and improving safety for ships and planes.

Major challenges of space-based broadband projects:

- **Cost of the project:** Launching satellites into orbit is expensive, and the cost of building, launching, and maintaining a constellation of satellites can be very high.
- **Technical issues:** Satellites must be able to communicate with ground stations and with each other, and there are many technical challenges associated with designing, building, and operating a constellation of satellites.
- **Orbital debris:** The increasing amount of debris in space can pose a risk to satellites and their operations.
- **Environmental concerns:** The deployment of large constellations of satellites can have an impact on the space environment, potentially increasing the risk of collisions and contributing to the accumulation of orbital debris.
- **Regulatory issues:** Space-based broadband projects must comply with national and international regulations governing the use of space, including regulations related to radio frequency interference, orbital debris, and spectrum allocation.

Way Forward:

OneWeb will bring secured solutions not only to enterprises but also to towns, villages, municipalities and schools, including the hardest-to-reach areas across the country. Overall, the OneWeb broadband system has the potential to transform the way we connect and communicate, and make the benefits of the internet accessible to everyone, regardless of where they live or work.



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PRACTICE QUESTIONS



Q.1) Consider the following statements regarding administrative system during Akbar's reign:

1. He introduced the Mansabdari system to effectively organize the Military.
2. Dahsala system of land taxation was introduced under the reign of Akbar.
3. He abolition of the Pilgrimage Tax for Hindus in 1563.

Which of the statements given above are correct?

- a. **1 2 and 3**
- b. 2 and 3 only
- c. 1 and 3 only
- d. 1 and 2 only

Q.2) Consider the following:

1. Planes
2. mobile phones and smartwatches
3. Electric Vehicles
4. Clocks

The Lithium finds its application in which of the above items?

- a. 1 2 and 4 only
- b. 2 3 and 4 only
- c. 1 2 and 3 only
- d. **1 2 3 and 4**

Q.3) Consider the following pairs:

Major steel industry and state

1. Bokaro Steel Plant –Chhattisgarh
2. Bhilai Steel Plant – Jharkhand

3. The Visvesvaraya Iron and Steel Plant – Karnataka
4. Rourkela Steel Plant – Odisha

How many pairs given above is/are correctly matched?

- a. One pair only
- b. **Two pairs only**
- c. Three pairs only
- d. All four pairs

Q.4) which of the following country is the largest crude steel producer in the world?

- a. India
- b. USA
- c. **China**
- d. Russia

Q.5) The Northern Ireland Protocol is often mentioned in the news related to

- a. **Trade deal between the United Kingdom and The European Union**
- b. Peace process between Ukraine and Russia
- c. Earthquake relief programme for Turkey and Syria
- d. None of the above

Q.6) Consider the following statements regarding Social Stock Exchange(SSE):

1. It is a platform that allows investors to invest in select social enterprises or social initiative The SSE would function as a

separate segment within the existing stock exchange s.

2. Reserve Bank of India regulates SSE in India.

Which of the statements given above is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Q.7) Protection in respect of conviction for offenses is guaranteed under which of the following articles?

- a. Article 19
- b. Article 20**
- c. Article 21
- d. Article 22

Q.8) Consider the following countries:

1. India
2. Sri Lanka
3. Pakistan
4. Nepal
5. Myanmar

Which of the above are part of Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)?

- a. 1 2 3 and 4 only
- b. 1 2 4 and 5 only**
- c. 2 3 and 5 only
- d. All of the above

Q.9) The construction of site was based on JalaDurga(Water Fort) concept, which is known as

the GadaKhai concept. It is identified with Kalinganagara of Kharavela and Tosali of Ashoka. The gates were elaborate structures made of brick and stone. There is evidence of stone-lined reservoirs that were likely used for harvesting rainwater. Intelligent traffic management, pedestrian-friendly pathways, grand gateways with guard houses, wide roads, and a vast open space are other features of the site.

Which of the following sites described in the above passage?

- a. Sisupalgarh**
- b. Rakhigarhi
- c. Vadakkupattu
- d. Adichanallur

Q.10) Consider the following statements regarding Bureau of Indian Standards(BIS):

1. BIS is the National Standard Body of India established under the BIS Act 2016.
2. It works under the Ministry of Commerce and Industry.
3. BIS has its Headquarters in Mumbai.

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. 2 only
- c. 1 only**
- d. 2 and 3 only

Q.11) Consider the following statements regarding the International Energy Agency (IEA):

1. It is an intergovernmental organization established in 1974.
2. Presently the IEA has 61 member countries.

3. India became a member of IEA in 2017.

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. 2 only
- c. **1 only**
- d. 1 and 3 only

Q.12) The Yellowstone national park often mentioned in the news is in

- a. Australia
- b. **United States of America**
- c. Japan
- d. Brazil

Q.13) It forms the easternmost limit of the Himalayan Terai forests in India. It is the only tiger reserve in Bihar. It is situated in the Gangetic Plains bio-geographic zone of the country; the forest has a combination of Bhabar and terai tracts.

Which of the following tiger reserves is described in the above passage?

- a. Pakke Tiger Reserve
- b. **Valmiki Tiger Reserve**
- c. Dudhwa Tiger Reserve
- d. Buxa Tiger Reserve

Q.14) Consider the following species:

- 1. Gharials
- 2. Mugger crocodile
- 3. Saltwater crocodile

Which of the above finds natural habitat in India?

- a. 1 and 2 only
- b. 2 and 3 only

c. 1 and 3 only

d. **1 2 and 3**

Q.15) With reference to India, consider the following statements:

- 1. Judicial custody is arresting a person by police for charges of committing a heinous crime or on suspicion and producing him before the magistrate.
- 2. Police custody implies that the accused is lodged in jail and is under the custody of a police.

Which of the statements given above is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. **Neither 1 nor 2**

Q.16) Consider the following statements regarding National Consumers Cooperative Federation of India Limited (NCCF):

- 1. NCCF is an apex organization for Consumer Cooperatives.
- 2. It works under the Ministry of Consumer Affairs, Food and Public Distribution.

Which of the statements given above is/are correct?

- a. 1 only
- b. 2 only
- c. **Both 1 and 2**
- d. Neither 1 nor 2

Q.17) Consider the following pairs:

GI tagged mango variety and Region

- 1. Laxman Bhog – Malda

2. Banganapalle – Kurnool
3. Rataul – Lucknow
4. Malihabadi Dusseheri – Baghpat

How many pairs given above is/are correctly matched?

- a. One pair only
- b. Two pairs only**
- c. Three pairs only
- d. All four pairs

Q.18) Consider the following statements:

1. Food Corporation of India is a statutory body set up in 1965.
2. Commission for Agricultural Costs and Prices (CACP) was created simultaneously in 1965 to recommend remunerative prices to farmers.
3. CACP is an attached office of the Ministry of Agriculture and Farmers Welfare.

Which of the following statements given above is/are correct?

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only
- d. 1 2 and 3**

Q.19) Consider the following statements regarding Asiatic Lion:

1. Its range has been restricted to Gir National Park and the surrounding areas only.
2. The species has been listed as Schedule II of Wildlife (Protection) Act 1972.

Which of the statements given above is/are correct?

- a. 1 only**
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Q.20) The president of India, under which of the following article, can use his/her powers to pardon, reprieve, respite or remission of punishment or sentence given by a court martial?

- a. Article 32
- b. Article 72**
- c. Article 76
- d. Article 123

Q.21) Consider the following statements regarding Global Greenhouse Gas Monitoring Infrastructure (GGGMI):

1. It is endorsed by the World Meteorological Organization (WMO) Executive Council.
2. It will establish an internationally coordinated approach to observing network design, and to the acquisition, international exchange, and use of the resulting observations.

Which of the statements given above is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2**
- d. Neither 1 nor 2

Q.22) Consider the following statements regarding National Assessment and Accreditation Council (NAAC):

1. It's an autonomous body under the University Grants Commission (UGC).

2. It functions under the Ministry of Skill Development.
3. It conducts assessment and accreditation of Higher Educational Institutions (HEI) in India

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. 2 only
- c. 3 only
- d. **1 and 3 only**

Q.23) The Kalakkad–Mundanthurai Tiger Reserve is in

- a. Kerala
- b. Karnataka
- c. Andhra Pradesh
- d. **Tamil Nadu**

Q.24) Consider the following statements regarding World Wide Fund for Nature (WWFN):

1. It is an international inter-governmental organization.
2. It is headquartered in Gland, Switzerland.
3. It aims to stop the degradation of the planet's natural environment and build a future in which humans live in harmony with nature.

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. **2 and 3 only**
- c. 1 and 3 only
- d. 1 2 and 3

Q.25) Consider the following statements regarding the National Platform for Disaster Risk Reduction (NPDRR):

1. It is chaired by the Prime Minister of India
2. It is a statutory body
3. The Vice-Chairman of, the National Disaster Management Authority acts as the Vice-Chairperson of the NPDRR.

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. 2 only
- c. 3 only
- d. **1 and 3 only**

Q.26) Which of the following short documentary has won Oscars award 2023 from India?

- a. **The Elephant Whisperers**
- b. Jallikattu
- c. All That Breathes
- d. Chhello Show

Q.27) Which of the following can be effects of increased carbon footprint in the atmosphere?

1. Greenhouse gas effect
2. Climate Change
3. Melting of Polar Caps
4. Depletion of resources
5. Changes in food supply

Select the correct answer using the code given below:

- a. 1 2 4 and 5 only
- b. 2 4 and 5 only

- c. 1 3 and 4 only
- d. All of the above**

Q.28) Consider the following :

1. Plate tectonics
2. Ocean floor spreading
3. Magma crystallization

Which of the above factors causes volcanic activities?

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only
- d. 1 2 and 3**

Q.29) With reference to India, consider the following statements:

1. Supplementary Grant is the amount that has been spent on any service during a financial year in excess of the amount granted for that service in the budget for that year.
2. Exceptional Grant is a special purpose and forms no part of the current service of any financial year.
3. Excess Grant is the amount authorised by the Parliament through the appropriation act for a particular service for the current financial year is found to be insufficient for that year.

Which of the statements given above is/are correct

- a. 1 and 2 only
- b. 2 only**
- c. 3 only
- d. 1 and 3 only

Q.30) Consider the following:

1. Haemophilia
2. Thalassemia
3. Sickle-cell Anaemia
4. Pompe disease
5. Hirschsprung disease

Which of the above are examples of rare diseases as per National Consortium for Research and Development on Therapeutic for Rare Diseases?

- a. 1 3 and 4 only
- b. 2 4 and 5 only
- c. 1 2 and 5 only
- d. 1 2 3 4 and 5**

Q.31) With reference to India, consider the following statements:

1. Anticipatory Bail is envisaged under section 438 of the Code of Criminal Procedure (CrPC).
2. The Code of Criminal Procedure (CrPC) clearly differentiates between “bailable” and “non-bailable” offenses.
3. Anticipatory Bail enables the accused to approach a session court or High court seeking a direction to release him on bail in case he is arrested on a bailable offense.

Which of the statements given above are correct?

- a. 1 and 2 only**
- b. 2 and 3 only
- c. 1 and 3 only
- d. 1 2 and 3

Q.32) Which of the following are minor tectonic plate boundaries?

1. Antarctic Plate

2. Eurasian Plate
3. Arabian plate
4. Cocos plate

Select the correct answer using the code given below:

- a. 1 and 2 only
- b. 2 and 3 only
- c. 3 and 4 only**
- d. 1 and 4 only

Q.33) Barda Wildlife Sanctuary is often mentioned in the news is in

- a. Rajasthan
- b. Assam
- c. Punjab
- d. Gujrat**

Q.34) With reference to the Bar Council of India (BCI), consider the following statements:

1. It is a constitutional body established under the Advocates Act, of 1961.
2. It performs the regulatory function by prescribing standards of professional conduct and etiquette and by exercising disciplinary jurisdiction over the bar.

Which of the statements given above is/are correct?

- a. 1 only
- b. 2 only**
- c. Both 1 and 2
- d. Neither 1 nor 2

Q.35) Consider the following:

1. Tanzania
2. Burundi

3. Rwanda
4. Kenya

Which of the above countries comes under the Nile river basin?

- a. 1 3 and 4 only
- b. 1 2 and 3 only
- c. 2 3 and 4 only
- d. 1 2 3 and 4**

Q.36) Consider the following statements regarding the National Institute of Ocean Technology:

1. It is an autonomous institute under the Union Ministry of Science and Technology
2. It aims to solve various engineering problems associated with the harvesting of non-living and living resources in the Indian Exclusive Economic Zone.

Which of the statements given above is/are correct?

- a. 1 only
- b. 2 only**
- c. Both 1 and 2
- d. Neither 1 nor 2

Q.37) Consider the following statements regarding the Atal Jyoti Yojana:

1. The scheme was launched in 2016 as a sub-scheme under the Off-Grid and Decentralized Solar Application Scheme.
2. It is under the Ministry of Power
3. The scheme is implemented by the Energy Efficiency Services Limited

Which of the statements given above is/are correct?

- a. 1 and 2 only

- b. 2 only
- c. 3 only
- d. 1 and 3 only**

Q.38) Consider the following statements regarding Project Unnati:

1. It was launched by the Ministry of Skill development and Entrepreneurship
2. It aims at enhancing the beneficiaries of the Mahatma Gandhi NREGA's skill base and enhancing their quality of life.

Which of the statements given above is/are correct?

- a. 1 only
- b. 2 only**
- c. Both 1 and 2
- d. Neither 1 nor 2

Q.39) Consider the following statements regarding the International Criminal Court (ICC):

1. It is the principal judicial organ of the United Nations (UN).
2. It is headquartered in the Hague.
3. India is a party to Rome Statute which is a founding treaty of ICC.

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. 3 only
- c. 2 only**
- d. 1 and 3 only

Q.40) Consider the following:

- a. Banihal Pass
- b. Khardung La

- c. Qara Tag La

Which of the above passes is/are come across the pir Panjal range?

- a. 1 and 2 only
- b. 2 only
- c. 1 only**
- d. 1 and 3 only

Q.41) Consider the following statements regarding the Warehousing Development Regulatory Authority (WDRA):

1. The WDRA is a Statutory Authority
2. It works under the Department of Food and Public Distribution, Government of India.
3. Its Headquarters is in Kolkata.

Which of the statements given above are correct?

- a. 1 and 2 only**
- b. 2 and 3 only
- c. 1 and 3 only
- d. 1 2 and 3

Q.42) Recently, the 10th edition of the Global Terrorism Index (GTI) was released by

- a. World Bank
- b. Institute for Economics and Peace**
- c. Peterson Institute for International Economics
- d. The Centre for Strategic and International Studies

Q.43) The Sixth Assessment Synthesis Report is often mentioned in the news released by

- a. Intergovernmental Panel on Climate Change**
- b. World Bank

- c. United Nations Environment Programme
- d. Global Green Climate Fund

Q.44) Consider the following statements regarding International Telecommunication Union (ITU):

1. It is the United Nations' specialized agency for information and communication technologies.
2. It currently has a membership of 200 countries.
3. It is headquartered at Geneva, Switzerland.

Which of the statements given above are correct?

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only**
- d. 1 2 and 3

Q.45) Consider the following statements regarding Maharishi Dayanand Saraswati:

1. He was the founder of the Brahmo Samaj.
2. He believed in the infallible authority of the Vedas.
3. He introduced the Shuddhi Movement to bring back the individuals to Hinduism who were either voluntarily or involuntarily converted to other religions like Islam or Christianity.
4. He was against the doctrine of Karma and Reincarnation.

Which of the statements given above are correct?

- a. 1 and 2 only
- b. 2 and 3 only**
- c. 1 and 4 only
- d. 3 and 4 only

Q.46) The terms Annual Information Statement (AIS) and Taxpayer Information Summary (TIS) are often mentioned in the media launched by

- a. Income Tax Appellate Tribunal
- b. The Income Tax Department**
- c. NITI Aayog
- d. The Central Board of Indirect Taxes & Customs

Q.47) Consider the following statements regarding the National Programme for Dairy Development (NPDD) scheme:

1. The scheme is designed to provide technical and financial assistance for the dairy development.
2. It works under the Minister of Agriculture and Farmers Welfare.

Which of the statements given above is/are correct?

- a. 1 only**
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Q.48) With reference to the National Security Act, which of the following statements are correct?

1. It is a preventive detention law which allows detention of alleged individuals if authorities are satisfied that a person is a threat to national security or law and order.
2. It was enacted in 1980 during the Indira Gandhi government.
3. A detained person can appeal before a high court advisory board but they are not allowed a lawyer during the trial.

Select the correct answer using the code given below:

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only
- d. 1 2 and 3**

Q.49) Dachigam National Park is often mentioned in the media is in

- a. Jharkhand
- b. Assam
- c. Jammu and Kashmir**
- d. Karnataka

Q.50) Consider the following statements regarding Pradhan Mantri Formalisation of Micro food processing Enterprises (PMFME) Scheme:

1. It is a central sector scheme
2. It is under the Ministry of Micro, Small and Medium Enterprises
3. It aims to provide support to Farmer Producer Organizations, Self Help Groups, and Producers Cooperatives along their entire value chain.

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. 3 only**
- c. 2 only
- d. 1 and 3 only

Q.51) He was a famous Indian revolutionary who played a major role in the India's struggle for Independence. He was a member of the Hindustan Socialist Republican Association (HSRA). He was involved in the assassination of Deputy Superintendent of Police, J.P. Saunders in 1928, to

avenge the death of veteran leader, Lala Lajpat Rai, owing to excessive police beating in the Conspiracy case. He along with other renowned revolutionaries started the 'Naujawan Bharat Sabha' at Lahore.

Who among the following freedom fighters described in the above passage?

- a. Chandra Shekhar Azad
- b. Khudiram Bose
- c. Sukhdev**
- d. Ashfaqulla Khan

Q.52) With reference to India, Which of the following is not a constitutional provisions for the disqualification of a member of the Parliament?

- a. If he holds any office of profit under the Union or state government (except that of a minister or any other office exempted by Parliament).
- b. A person will be disqualified if convicted and sentenced to imprisonment for two years or more.**
- c. If he is not a citizen of India or has voluntarily acquired the citizenship of a foreign state or is under any acknowledgement of allegiance to a foreign state
- d. If he is of unsound mind and stands so declared by a court.

Q.53) consider the following statements regarding Western Disturbances:

1. These planetary winds that flow from east to west between 30°-60° latitude.
2. They originate in the Bay of Bengal region
3. They usually bring mild rain during January-February, which is beneficial to the rabi crop.

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. 2 only
- c. 1 and 3 only
- d. 3 only**

Q.54) With reference to India, consider the following statements:

1. All money bills are financial bills, but not all financial bills are money bills.
2. A bill shall be deemed to be a Money Bill if it contains only provisions dealing with all or any of the matters mentioned in the article 112 of the constitution.
3. The President of India is authorised to decide whether the Bill is a Money Bill or not.

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. 3 only
- c. 1 only**
- d. 1 and 3 only

Q.55) Consider the following statements regarding the Khandagiri Udayagiri caves:

1. These caves are located near Pune, Maharashtra
2. These caves built by the Kalinga emperor Kharavela in first century B.C.
3. The Rani and Hathi Gumpha in the Udayagiri has description of the culture of Odissi.

Which of the statements given above are correct?

- a. 1 and 2 only
- b. 2 and 3 only**

- c. 1 and 3 only
- d. 1 2 and 3

Q.56) Consider the following statements regarding the International Council on Monuments and Sites (ICOMOS):

1. ICOMOS is a United Nations specialised organisation.
2. It is the only global organisation, which is dedicated to promoting the application of theory, methodology, and scientific techniques to the conservation of architectural and archaeological heritage.

Which of the statements given above is/are correct?

- a. 1 only
- b. 2 only**
- c. Both 1 and 2
- d. Neither 1 nor 2

Q.57) Consider the following statements regarding Depleted Uranium:

1. It is a by-product of the process of creating enriched uranium, which is used in nuclear reactors and nuclear weapons.
2. In comparison to enriched uranium, depleted uranium is much less radioactive.
3. International Coalition to Ban Uranium Weapons(ICBUW) coordinates campaigning against Depleted Uranium ammunition worldwide within the framework of the United Nations.

Which of the statements given above are correct?

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only

d. 1 2 and 3

Q.58) Consider the following pairs:

Biodiversity Heritage Site (BHS) and State

1. Gandhamardan hills – West Bengal
2. Nallur Tamarind Grove – Karnataka
3. Arittapatti and Meenakshipuram villages – Kerala
4. Ameenpur lake – Telangana

How many pairs given above is/are correctly matched?

- a. One pair only
- b. Two pairs only**
- c. Three pairs only
- d. All four pairs

Q.59) Sanjay Gandhi National Park is located in

- a. Maharashtra**
- b. Gujrat
- c. West Bengal
- d. Jharkhand

Q.60) Consider the following statements regarding Aravalli Range in India:

1. It spreads across four states only
2. It is one of the oldest block mountains of the world
3. Mt. Abu is the highest peak in the range

Which of the statements given above is/are correct?

- a. 1 and 2 only
- b. 2 only
- c. 3 only**
- d. 1 and 3 only

Q.61) Consider the following statements regarding iDEX scheme:

1. It is an initiative of the Ministry of Science and Technology
2. It aims to create an ecosystem which fosters innovation and encourages technology development in Defence

Which of the statements given above is/are correct?

- a. 1 only
- b. 2 only**
- c. Both 1 and 2
- d. Neither 1 nor 2

Q.62) Operation Interflex and Operation Orbital are often mentioned in news related to

- a. British-led military operations to support Ukraine**
- b. Space programmes launched by NASA
- c. Humanitarian assistance by Indian govt during Turkey–Syria earthquake
- d. None of the above

Q.63) Consider the following statements regarding the Employees' Provident Fund Organization (EPFO):

1. It is a statutory organisation
2. It is under the administrative control of the Ministry of Labour and Employment.

Which of the statements given above is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2**
- d. Neither 1 nor 2

Q.64) Consider the following statements regarding the Sukanya Samriddhi Scheme:

1. It is implemented under the Ministry of Education.
2. It is a small deposit scheme for girl children, launched as a part of the 'Beti Bachao Beti Padhao' campaign.
3. Parents or legal guardians can open deposits on behalf of a girl child (including an adopted girl child) for up to 2 daughters aged below 10.

Which of the statements given above are correct?

- a. 1 and 2 only
- b. 2 and 3 only**
- c. 1 and 3 only
- d. 1 2 and 3

Q.65) Consider the following pairs:

Wetland/Lake:	Location
1. Vembanad lake	Tamil Nadu
2. Asthamudi Lake	Kerala
3. Sasthamkotta Lake	Karnataka

How many pairs given above are correctly matched?

- a. Only one pair**
- b. Only two pairs
- c. Only three pairs
- d. None