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Tele-Law programme	**Context:** According to recent reports, the **Tele-Law programme** has achieved a new milestone with 40 lakh beneficiaries across the country. **About the Tele-Law programme:-** • The Tele-Law programme was launched in **2017. (UPSC CSE: Tele-Law)** • **Ministry/ministries: Ministry of Law and Justic** • **e** and **Ministry of Electronics and Information Technology (MeitY)**. • **Objective:** the programme **connects the disadvantaged** section with a panel of lawyers through an **e-interface platform.** • It **uses video conferencing facilities and telephone services** to connect lawyers to litigants who need legal advice. • It is to facilitate the delivery of legal advice through a panel of lawyers stationed at the **State Legal Services Authorities (SALSA) and CSC (Common service centres). (UPSC CSE: NALSA)** • The service is **free** for those who are eligible for free legal Aid under **Section 12 of the Legal Services Authority Act, 1987**. For all others, a nominal fee is charged. **MUST READ: Citizens' Tele-Law Mobile App** **SOURCE: AIR**

World's largest grain storage plan	**Context:** Recently, the Union Cabinet approved a programme for "**world's largest grain storage**".
	
	About World's largest grain storage plan:-
	• This scheme intends to **construct grain storage facilities in the cooperative sector**.
	• **Every block** will have a dedicated **godown with a capacity of 2,000 tonnes.**
	• **Objective:** to revolutionize the storage and distribution of food grains, ensuring their preservation and availability across the country.
	• **Supervision of the scheme:** an inter-ministerial committee will oversee implementation.
	Schemes identified for convergence under the Plan:-
	• **Ministry of Agriculture and Farmers Welfare**:-
	   o Agriculture Infrastructure Fund (AIF)
	   o Agricultural Marketing Infrastructure Scheme (AMI)
	   o Mission for Integrated Development of Horticulture (MIDH)
	   o Sub Mission on Agricultural Mechanization (SMAM)
	• **Ministry of Food Processing Industries:-**
	   o Pradhan Mantri Formalization of Micro Food Processing Enterprises Scheme (PMFME)
	   o Pradhan Mantri Kisan Sampada Yojana (PMKSY)
	• **Ministry of Consumer Affairs, Food and Public Distribution:-**
	   o Allocation of food grains under the National Food Security Act
	   o Procurement operations at Minimum Support Price
	Benefits:-
	• The plan aims to address not just the **shortage of agricultural storage infrastructure. (UPSC MAINS: Evaluate the storage mechanism for agricultural produce in India.)**

	• Functioning as **Procurement centres** for State Agencies/ Food Corporation of India (FCI) • **Creation of decentralised storage capacity-** it would **reduce food grain wastage** and strengthen the food security of the country. • **Providing various options to the farmers-**, it would **prevent the distressed sale of crops**, thus enabling the farmers to realise better prices for their produce. • **Reduce the cost incurred in the transportation** of food grains to procurement centres. **MUST READ: Free Food grain Scheme** **SOURCE: THE HINDUSTAN TIMES**

Mission Vatsalya	**Context:** Recently, a consultation meeting of the functionaries of Child Care Institutions was held to review the effective implementation of **Mission Vatsalya.**
	About Mission Vatsalya:-
	• It's an **umbrella scheme for child protection services** in the country.
	• Ministry: **Ministry of Women and Child Development.**
	• Prior to 2009, the Ministry of women and child development Implemented three schemes for children in need of protection,
	    I. The juvenile justice programme for children in need of care and protection as well as children in conflict with the law,
	    II. The integrated programme for street children,
	    III. The scheme for assistance to children's homes.
	• **In 2010,** these were merged into a single plan known as the Integrated Child Protection Scheme.
	• **In 2017,** it was renamed "Child Protection Services Scheme," and again in **2021-22 it was renamed as Mission Vatsalya.**
	• It is one of the new triad of schemes along with Mission Shakti, and Poshan 2.0.
	• It aims at **securing a healthy and happy childhood** for every child. (UPSC MAINS: Measures to promote the rights and interests of the girl child)
	Components:-
	• **Strengthening service delivery** structures
	• **Upscaling institutional care** and services
	• Encouraging **non-institutional community-based child care**
	• **Emergency outreach** services
	• **Training and capacity building**
	Objectives:-
	• To secure a **healthy and happy childhood for each** and every child in the country.
	• To ensure opportunities **to enable them to discover their full potential.**
	• To assist States/UTs in **delivering the mandate of the Juvenile Justice Act 2015. (UPSC CSE: The Juvenile Justice (Care and Protection of Children) Amendment Bill, 2021)**

- To **achieve the Sustainable Development (SDG)goals**.
- It **promotes family-based non-institutional care** of children in difficult circumstances.

Implementation:-
- Under the mission, the Government plans to **partner with the private sector** as well as volunteer groups.

MUST READ: Early Childhood Care and Education (ECCE)
SOURCE: PIB

Article 299	**Context:** Recently, the Supreme Court gave judgement on the claims of immunity while entering into a contract in the President's name under **Article 299** of the Constitution.

About Article 299:-
- Article 298 grants the Centre and the state governments the **power to carry on trade or business, acquire, hold, and dispose of property, and make contracts for any purpose**.
- Article 299 delineates the **manner in which these contracts will be concluded**.
- **Article 299** of the Constitution provides that "**all contracts** made in the exercise of the executive power **of the Union or of a State** shall be expressed **to be made by the President or by the Governor** of the State" and that **all such contracts and "assurances** of property made in the exercise of that power shall be executed" on behalf of the President or the Governor by persons in a manner as directed and authorised by them. (UPSC CSE: Governor)
- The phrase '**expressed to be made and executed'** under Article 299 (1) means that **there must be a deed or contract in writing** and that it should be executed by a person duly authorised by the President of the Governor on their behalf.
- As per the '**Chatturbhuj Vithaldas Jasani v. Moreshwar Parashram & Ors'(1954), there must be a definite procedure according to which contracts must be made** by agents acting on the government's behalf; otherwise, public funds may be depleted by unauthorized or illegitimate contracts.
  - It implies that **contracts not adhering to the manner given in Article 299(1) cannot be enforced** by any contracting party.
- **Article 299 (2)** says that essentially, **neither the President nor the Governor can be personally held liable for such contracts.**

MUST READ: Responsibilities of President
SOURCE: THE INDIAN EXPRESS

Necrophilia	**Context:** Recently, the Karnataka High Court observed that "**necrophilia**" is an erotic attraction to corpses.

About Necrophilia:-
- It is a **psychosexual disorder**, classified under the **DSM-IV,** among a group of disorders, called **"paraphilias".**
- **Paraphilias:** include disorders like paedophilia, exhibitionism, and sexual masochism.
- Necrophilia could be the result of **rage, experimentation, or lust rather than sexual necessity or habit.**
- As of date, the **IPC does not list "necrophilia" as a specific offence under sexual offences** mentioned in the code.

- The court mentioned that **it could be brought under Section 297** as causing "indignity to any human corpse" if someone trespasses into a place for performing funeral rites or a depository for the remains of the dead.
- **Section 297 of IPC:-**
  o The knowledge that **any person's feelings are likely to be wounded or their religion is likely to be insulted** by such an act **will make it an offence under Section 297.**

The ruling of Karnataka High Court in Rangaraju @Vajapeyi vs State of Karnataka" case:-
- It held that **having sexual intercourse with a woman's dead body would not attract the offence of rape, punishable under Section 376** of the Indian Penal Code, as there is no provision in the IPC for it. (UPSC CSE: Rape and sexual crimes law in India)
- The provisions of **Sections 375 and 377** of the Indian Penal Code make it clear that the **dead body cannot be called a human or person.**
- Hence, it **is not a punishable offence** under **Section 376 (punishment for rape).**
- The court clarified that sexual intercourse on a dead body is nothing but necrophilia.
- The **court invoked the 2021 advisory of NHRC, which** states that **there cannot be any physical exploitation or discrimination** in the treatment of the body.
- It also **asked the Centre to amend the law.**

Recommendation of Karnataka High Court to the centre:-
- To a**mend Section 377** of IPC
  o To **include dead bodies** of men, women, and animals.
  o To **protect the dignity of the dead.**
- **Criminalising necrophilia**: It also offered an alternative that the Centre brings in a separate penal provision to criminalise necrophilia with **life imprisonment up to 10 years with a fine.**

The ruling of Supreme Court in Parmanand Katara, Advocate vs Union of India (1989):-
- The court relied on and held that the **dignity of a dead body must be maintained**.
- It established **a corresponding duty on the state to ensure decent cremation** is served to the person.
- The **right to dignity and fair treatment under Article 21** of the Constitution of India is not only available to a living man but **also to his body after his death.**

Status in India:-
- India **does not have any specific provision punishing necrophilia**.
- The Karnataka High Court **made recommendations** to the Central government for **including it under Section 377** of the IPC or as a new provision.

MUST READ: Marital Rape
SOURCE: THE INDIAN EXPRESS

District Legal Services Authority	**Context: District Legal Services Authority** in West Tripura recently organized Door-to-Door Legal Aid Campaign**.** **About District Legal Services Authority:-** • Legal Services Authorities are **statutory bodies** that are formed in the various states of India under **the Legal Services Authorities Act, of 1987.**

- **Objective:** to provide free legal aid and services to the weaker sections of this society to make sure that opportunities for securing justice are not denied to any citizen because of economic or other disabilities.
- It is organized **at the district level to provide effective monitoring of legal aid programmes** and their composition.
- **Related Constitutional provision:**
  - **Article 39-A**: Deals with the provision of providing free legal services to the citizens of India.
  - The provision **applies to the citizens if they are unable to bear the expenditure of legal services**.
  - It also helps the defendant by **appointing a lawyer** to act for him in legal aspects.

Composition of DLSA:-
- The State Government in consultation with the Chief Justice of the High Court constitutes it. **(UPSC CSE: Judicial appointments)**
- **Chairman**: **District Judge**
- **Other members:** must have the **experience and qualifications** as prescribed by the State Government.
- The Government in consultation with the Chief Justice of the High Court may nominate these members**.**
  - The person to be appointed **shall belong to the State Judicial Service** and **not lower than rank than that of a Subordinate Judge or Civil Judge** posted at the seat of the District Judiciary as Secretary of the District Authority.
  - **Member Secretary of the District Authority: Assistant Commissioner** of the concerned District
  - The officers and other employees of the District Authority are entitled to **salary and allowances** and shall be subject to such **other conditions of the services** as **the State Government in consultation with the Chief Justice of the High Court prescribes.**

Legal Services Institutions at Various Levels:-
The Legal Services Authorities Act, of 1987 mandates the establishment of the following at various levels;
National Level: National Legal Services Authorities (NALSA)
- The NALSA was founded in 1995 under the **Legal Services Authorities Act of 1987**.
- **Objective:** to monitor and review the effectiveness of legal aid programs and to develop rules and principles for providing legal services under the Act.
- **Patron-in-Chief: Chief Justice of India**
- It **distributes funding and grants to state legal services authorities** and **non-profit organisations** to help them execute legal aid systems and initiatives.

State Level: State Legal Services Authority
- **Patron-in-Chief: Chief Justice of the State High Court**
At District Level: District Legal Services Authority.
- ex-officio Chairman: District Judge of the District
At Taluka/Sub-Division Level: Taluka/ Sub-Divisional Legal Services Committee.
- A senior Civil Judge heads it**.**
Nyaya Bandhu's (Pro Bono Legal Services)

- It is a primary initiative to establish a framework for the dispensation **of pro bono (free of cost) legal services** across the country.
- Under Nyaya Bandhu, **practising advocates, interested to volunteer** their time and services, **are connected, via mobile technology, with eligible marginalised beneficiaries.**
- **Nyaya Bandhu Mobile application** has been developed in collaboration with **technical partner Common Services Centres (CSC) e-Governance Pvt. Ltd.**
- **Nyaya Bandhu Mobile application** has been on boarded on the **UMANG platform.**
- **UMANG (Unified Mobile Application for New-age Governance)** is developed by the **Ministry of Electronics and Information Technology (MeitY)** and the **National e-Governance Division (NeGD).**

MUST READ: Judicial Accountability
SOURCE: PIB

National Institutional Ranking Framework (NIRF) Rankings 2023

Context: The **National Institutional Ranking Framework (NIRF) Rankings 2023** were released recently.

About National Institutional Ranking Framework (NIRF) Rankings 2023:-

 IMAGE SOURCE:
findhow.net

- The National Institutional Ranking Framework (NIRF) is a **methodology to rank institutions of higher education** in India.
- **Ministry: Ministry of Human Resource Development (MHRD)**
- **Objective:** help universities to improve their performance on various ranking parameters and identify gaps in research and areas of improvement.

Name	City	State	Rank
Indian Institute of Technology Madras	Chennai	Tamil Nadu	1
Indian Institute of Science	Bengaluru	Karnataka	2
Indian Institute of Technology Delhi	New Delhi	Delhi	3
Indian Institute of Technology Bombay	Mumbai	Maharashtra	4
Indian Institute of Technology Kanpur	Kanpur	Uttar Pradesh	5
All India Institute of Medical Sciences, Delhi	New Delhi	Delhi	6
Indian Institute of Technology Kharagpur	Kharagpur	West Bengal	7
Indian Institute of Technology Roorkee	Roorkee	Uttarakhand	8
Indian Institute of Technology Guwahati	Guwahati	Assam	9
Jawaharlal Nehru University	New Delhi	Delhi	10
Banaras Hindu University	Varanasi	Uttar Pradesh	11
Jamia Millia Islamia-New Delhi	New Delhi	Delhi	12
Jadavpur University	Kolkata	West Bengal	13
Indian Institute of Technology Hyderabad	Hyderabad	Telangana	14
Amrita Vishwa Vidyapeetham	Coimbatore	Tamil Nadu	15
Manipal Academy of Higher Education-Manipal	Manipal	Karnataka	16
Vellore Institute of Technology	Vellore	Tamil Nadu	17
Anna University	Chennai	Tamil Nadu	18
Aligarh Muslim University	Aligarh	Uttar Pradesh	19
University of Hyderabad	Hyderabad	Telangana	20

- There are **separate rankings for different types of institutions depending on their areas of operation** like universities and colleges, engineering institutions, management institutions, pharmacy institutions and architecture institutions.
- **Five broad categories** of parameters identified in the NIRF: **Teaching, learning and resources (TLR); research and professional practice; graduation outcome; outreach; and inclusivity and perception.**

Key findings of NIRF 2023:-
- **Indian Institute of Technology Madras:** retains its first position in **Overall Category and Engineering.**

	• **Indian Institute of Science, Bengaluru:** tops the **Universities Category** and stood first in **Research Institutions Category.** • **IIM Ahmedabad:** tops in **Management** subject retaining its first position. • **All India Institute of Medical Sciences (AIIMS), New Delhi**: top slot in Medical. • **National Law School of India University, Bengaluru:** retains its first position. • **Indian Agricultural Research Institute, New Delhi:** takes the top slot in Agriculture and Allied Sectors. • Three distinct additions to the 2023 edition of India Rankings are as follows:- ○ **Introduction** of a new subject namely **Agriculture & Allied Sectors. (UPSC CSE: Agriculture Reforms)** ○ **Integration** of the **"Innovation"** ranking to reduce the burden on institutions of providing similar data to two different agencies. ○ **Expansion** of scope of **"Architecture" to "Architecture and Planning"** to include institutions imparting courses in Urban and Town Planning. (UPSC CSE: Transforming Indian Cities) • With the addition of these, the existing portfolio of India Rankings **has increased to 13 categories** and subject domains that have been ranked in India Rankings 2023. • It ranks **Overall, Universities, Colleges, and Research Institutions & Innovation.** • It ranks 8 subject domains: **Engineering, Management, Pharmacy, Architecture & Planning, Medical, Law, Dental Agriculture and Allied Sectors.** **MUST READ: Education & Nation Building** **SOURCE: THE INDIAN EXPRESS**
National food safety index	**Context:** Kerala has secured the first position in the recently released **national food safety index**. **About the national food safety index:-** • The first State Food Safety Index was published in 2018-19. • It was announced on the **first-ever World Food Safety Day on 7th June 2019.** • **World Food Safety Day: The World Health Organization (WHO)** and **the Food and Agriculture Organization of the United Nations (FAO)** jointly facilitate the observance of World Food Safety Day. (UPSC CSE: WHO) • **Objective of Food safety index:** creating a competitive and positive change in the food safety ecosystem in the country. • **Developed by: FSSAI** (Food Safety and Standards Authority of India) (UPSC CSE: FSSAI) • **The Parameters include** Human Resources and Institutional Data, Compliance, Food Testing – Infrastructure and Surveillance, Training & Capacity Building and Consumer Empowerment. (UPSC CSE: Food Security) • The food safety index, at the national level, is **determined based on enforcement activities.** ○ **These include** food safety checks, sample collection, sample examination prosecution cases, number of NABL-recognised food safety labs in the State etc. **Food Safety and Standards Authority of India (FSSAI)** • It is an autonomous **statutory body** established under the **Food Safety and Standards Act, 2006 (FSS Act).** • **Ministry: Ministry of Health & Family Welfare** • **Headquarters: Delhi**

	• FSSAI is responsible for **protecting and promoting public health** through the regulation and supervision of food safety**.** • **Composition:** The FSSAI comprises of a **Chairperson and twenty-two members. One-third** of the members are to be **women.** • The Central Government appoints the Chairperson of FSSAI**.** **MUST READ**: FSSAI releases draft notification on a star rating for packaged food **SOURCE:** THE HINDU
VAIBHAV fellowship programme	**Context:** Recently, the Government launched the **Vaishvik Bhartiya Vaigyanik (VAIBHAV) fellowship programme**. **About Vaishvik Bhartiya Vaigyanik (VAIBHAV) fellowship programme:-** • This fellowship programme is to foster collaboration and knowledge sharing between the Indian diaspora scientists and academic institutions in India. • **Starting date: 15th June 2023** • **Implementing Agency: Department of Science and Technology (DST), Ministry of Science and Technology.** • **Objective:** to connect the Indian STEMM (Science, Technology, Engineering, Math and Medicine) diaspora with Indian academic and R&D institutions for collaborative research work leading to sharing of knowledge, wisdom, and best practices in the frontier areas of science & technology. **Implementation:-** • Under this program, **75 selected fellows would be invited to work in 18 identified knowledge verticals.** • **18 verticals include quantum technology, health, pharma, electronics, agriculture, energy, computer sciences, and material sciences amongst others.** **Eligibility:-** • The applicant should be a **Non-Resident Indian (NRI), Person of Indian Origin (PIO) and Overseas Citizen of India (OCI), currently living abroad.** • The applicant must have obtained a **Ph.D./M.D/M.S degree from a recognized University.** • Applicant must be a researcher **engaged in an overseas academic / research / industrial organization** with a proven track record of research & development working in the **top 500 QS World University Ranking.** • **Eligibility (for Institutions):** Higher Educational Institutions / Universities ranked in the top 200 in NIRF overall rankings and have NAAC 'A' grades (3.0 and above) and scientific institutes. **Funding:-** • Fellowship would include **a fellowship grant (INR 4, 00,000 per month),** international and domestic travel, accommodation and contingencies. **SOURCE:** PIB
Article 370	**Context:** The Home Minister Amit Shah said that Article 370 was a **big impediment in the development of Jammu and Kashmir.** He further claimed that its **abrogation has ensured full integration of** J&K with the Union, and unprecedented development in the region. **About Article 370:-**

IMAGE SOURCE: blogspot.com

- **Article 370** of the Indian constitution dealt with the provision of certain **special powers to the state of Jammu and Kashmir.**
- It grants a **'temporary' autonomous status** to the state of **Jammu & Kashmir** (J&K).
- The article was an outcome of Kashmir's accession to Indian after the Independence.

Historical Background:-

- Post independence, **Jammu & Kashmir** (J&K) acceded to the Dominion of India by signing the **Instrument of Accession on 26 October 1947** with certain special provisions.
- On the same line, Article 370 was added to the Indian constitution in 1949.
- It was added as a **'temporary provision'**, giving certain **exemptions to the state of Jammu & Kashmir**. (UPSC CSE: Jammu and Kashmir: Role of Media)

Provisions of Article 370:-

- **Article 370** permitted J&K to **draft its own Constitution.**
- It further **restricted the Indian Parliament's legislative powers** in the state.
- **Except for Defense, Foreign Affairs Finance and Communications**, the Indian Government was required State Government's nod to apply all other laws.
- The **central govt. had no power to impose financial emergency** in the state.
- Emergency could be imposed **only on the grounds of internal disturbances** and imminent danger from a **foreign enemy.**
- Indian nationals belonging to other states **cannot buy land or property in the state of J&K.**
- **Woman who marries a person belonging to any other state loses her right** to ownership.
- These provisions gave the **state government control on how it needs to govern** the state without worrying about the consent of the central government.

Removal of Article 370

- In accordance with the authority afforded by **Clause (1) of Article 370** of the Indian Constitution, the **President of India issued the Constitution** (Implementation to Jammu and Kashmir) Order, 2019 on **August 5, 2019**, repealing the special status previously accorded to Jammu and Kashmir.
- Jammu and Kashmir **no longer has its own constitution, flag, or anthem**.
- Its population **no longer has dual citizenship** as a result of the repeal of Article 370.
- Jammu and Kashmir **now abide by all legislative amendments made by the parliament**, including the Right to Information Act and the Right to Education Act.
- Jammu & Kashmir is **fully covered by the Indian Constitution** and all 890 Central legislation.

MUST READ: Judicial remedies for the Jammu and Kashmir net restrictions

SOURCE: AIR
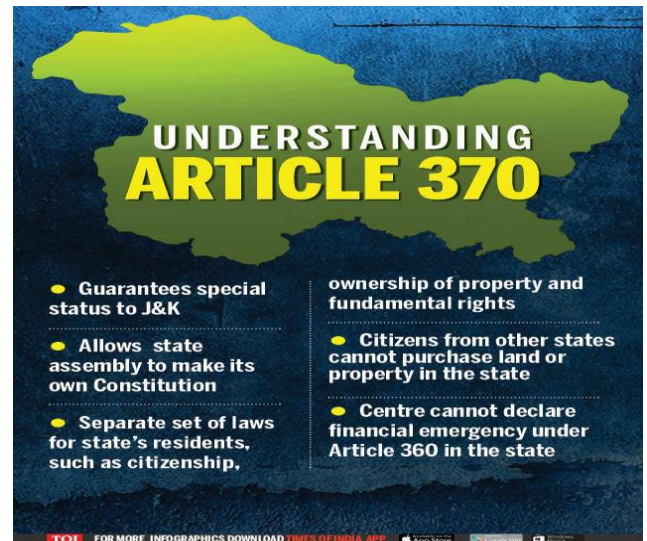
Grievance Redressal Assessment and Index (GRAI) 2022	**Context: Grievance Redressal Assessment and Index (GRAI) 2022** was launched recently.
	
	About Grievance Redressal Assessment and Index (GRAI) 2022:-
	• **Designed by**: **Department of Administrative Reforms and Public Grievances (DARPG), Govt. of India.** [(UPSC CSE: Alternative Dispute Resolution (ADR) Mechanisms)](#)
	• **Objective:** to present an organization-wise comparative picture and provide valuable insights about strengths and areas of improvement regarding the grievance redressal mechanism.
	• **Eighty-nine Central Ministries and Departments were assessed** and ranked based on a comprehensive index in the dimensions of:-
	   o Efficiency
	   o Feedback
	   o Domain and
	   o Organisational Commitment and corresponding 12 indicators.
	• The **Centralised Public Grievance Redressal and Management System (CPGRAMS)** was used for this purpose.
	Key Findings:-
	• There has been a **decline of almost 50% in the average disposal time** for Central Ministries/Departments from 32 days in 2021 to 18 days in 2023.
	• The **progress in May, 2023** alone showed 1,16,734 grievances redressed by Central Ministries/ Departments, with an **average disposal time of 16 days per grievance.**
	• The **number of disposed Public Grievance cases has consistently increased**, crossing 1 lakh cases per month multiple times.
	• The adoption of the **10-Step CPGRAMS reforms resulted in a significant decrease** in the average time for grievance disposal.
	   o These reforms have enhanced the **efficiency, accountability, and accessibility** of the grievance redressal process.
	Centralized Public Grievances Redress and Monitoring System (CPGRAMS)
	• CPGRAMS is an **online platform** that allows citizens **to lodge their grievances** related to service delivery to public authorities.
	• **Developed by**: **National Informatics Centre** (Ministry of Electronics & IT [MeitY]), **Directorate of Public Grievances** (DPG) and **Department of Administrative Reforms and Public Grievances (DARPG).**
	• **Launched by: Department of Administrative Reforms & Public Grievances (DARPG) under the Ministry of Personnel, Public Grievances & Pensions.**
	• It is **available 24×7** for citizens to access.
	• It serves as a **single portal that is connected to all Ministries/Departments** of the Government of India as well as the State governments.
	• This **enables seamless communication** and grievance redressal between citizens and the government.
	• Each Ministry and State has **role-based access to CPGRAMS**, allowing them to **effectively address and resolve grievances** in their respective areas of responsibility.
	• It is also **accessible to citizens through a mobile application.**
	• The **status of the grievance** filed in CPGRAMS can be tracked with the **unique registration ID** provided at the time of registration of the complainant.
	• CPGRAMS also provides **appeal facility** to the citizens if they are not satisfied with the resolution by the Grievance Officer.
	• **Process of appeal:-**

o After closure of grievance if the complainant is not satisfied with the resolution, he/she can **provide feedback.**
o If the rating is 'Poor' the **option to file an appeal is enabled**.
o The **status of the Appeal can be tracked** by the petitioner with the grievance registration number.

MUST READ: Grievance Appellate Committees (GACs)

SOURCE: PIB

Smart City Mission	**Context:** Union Minister for Housing and Urban Affairs hailed the progress of the **Smart City Mission.**
	Background:-
	
	• The Smart City Mission has **completed eight years recently.**
	• Union Minister Hardeep Singh Puri **appreciated the achievements** of the Smart City Mission.
	
	About Smart City Mission:-
	
	• **Launched in 2015. (UPSC CSE: SMART CITY MISSION @ 100)**
	• **Ministry: Ministry of Housing and Urban Affairs.**
	• Smart Cities Mission is a **joint effort** of the **Ministry of Housing and Urban Affairs (MoHUA), and all state and union territories (UT) governments.**
	• It is an innovative and new initiative by the Government of India to drive **economic growth and improve the quality of life of people.**
	
	Objectives of Smart Cities Mission:-
	
	• To **promote cities that provide core infrastructure** and give a decent quality of life to its citizens, a clean and sustainable environment and application of Smart Solutions.
	• To drive **economic growth and improve quality of life** through comprehensive work on social, economic, physical and institutional pillars of the city.
	• The focus is on **sustainable and inclusive development** through the creation of replicable models, which act as inspirations to other aspiring cities.
	
	Financing:-
	
	• The Smart City Mission is a **Centrally Sponsored Scheme (CSS).**
	• The **Central Government gives financial support to the Mission** to the extent of Rs. 48,000 crores over five years i.e. on an average of **Rs. 100 crore per city per year.**
	• An equal amount, on a matching basis, will have to be contributed by the State/ULB.
	
	Implementation:-
	
	• The implementation of the Mission at the City level will be done by a **Special Purpose Vehicle** (SPV).
	• **SPV:** A special purpose vehicle, also called a special purpose entity (SPE), is a subsidiary created by a parent company to isolate financial risk.
	   o The SPV is promoted by the state/Union Territory and the urban local body, with a **50% equity shareholding each.**
	   o The SPV formed as a limited company is governed by the Companies Act, 2013.
	• **Duration:-**

o The Mission was to cover 100 cities and its duration will be **five years (FY2015-16 to FY2019-20).**
o It was aimed to be completed by 2019-20 but has since **been extended.**

Smart city is envisaged to have four pillars:-

- Social Infrastructure.
- Physical Infrastructure.
- Institutional Infrastructure (including Governance).
- Economic Infrastructure.

MUST READ: Smart Cities and Academia Towards Action & Research (SAAR)
SOURCE: AIR

INTERNATIONAL RELATIONS

Sabang port	**Context:** Recently, India and Indonesia have completed a joint feasibility study on developing the **Sabang port.**

About Sabang Port:-

- Sabang Port is located in the **Aceh Province of Indonesia. (UPSC MAINS: India-Indonesia relationship)**
- It is roughly 700 km from the Andaman and Nicobar Islands.
- Sabang is at the **entrance of the Strait of Malacca**.
- **Malacca Straits:** a narrow stretch of the sea between Indonesia and Malaysia.
- It is considered a **key global choke point.**
- The successful development of this vital port would allow India **easier access to the Malacca Straits**.
- It could **bolster India's military position vis-a-vis China in the Indian Ocean.**
- **During Prime Minister Narendra Modi's visit to Indonesia in 2018**:-Both countries had decided to cooperate in **connectivity between Andaman & Nicobar Island and Aceh Province of Indonesia**.
- It was also decided to set up a **joint task force** for undertaking projects **for port-related infrastructure around the Sabang. (UPSC CSE: Indian Ports Association)**

MUST READ: Indo-Pacific Relations
SOURCE: THE MINT

Asian Development Bank (ADB)	**Context:** Recently, the **Asian Development Bank (ADB)** stated that it would contribute to India's urban-focused flagship programmes and schemes.
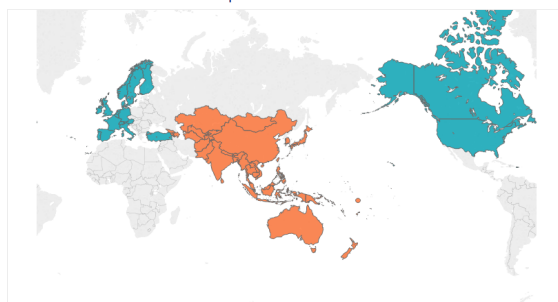
About Asian Development Bank (ADB):-

IMAGE SOURCE: CORPORATEFINANCEINSTITUTE.COM
- Asian Development Bank (ADB) is a **regional development bank.**
(UPSC MAINS: Differences between the World Bank and the Asian Development Bank (ADB).)
- It was established in **1966.**
- **First President:** Takeshi Watanabe

- **HQ: Manila, Philippines**
- **Objective:** to promote social and economic development in Asia. (UPSC CSE: Multi-tranche financing facility)
- **Membership:-**
  - The bank admits members of the United Nations Economic and Social Commission for Asia and the Pacific **(UNESCAP) and non-regional developed countries.**
  - From 31 members at its establishment in 1966, ADB has grown to encompass **68 members**
  - 49 of these are within **Asia and the Pacific**.
- **Shareholders:** Japan and the United States (each with 15.6% of total shares), the People's Republic of China (6.4%), India (6.3%), and Australia (5.8%).
- **Voting rights:** votes are distributed **in proportion with members' capital subscriptions.**
- ADB is official **United Nations Observer.**
- **Roles and functions:-**
  - It is dedicated to **reducing poverty in Asia and the Pacific** through inclusive economic growth, environmentally sustainable growth, and regional integration.
- **Key Publications:-**
  - **ADB Annual Report 2022**
  - **Asian Development Outlook April 2023**
  - **Asian Economic Integration Report 2023: Trade, Investment, and Climate Change in Asia and the Pacific**
  - **Key Indicators for Asia and the Pacific 2022**

India and ADB
- **India is a founding member of ADB.**
- India is the **bank's fourth largest shareholder.**
- ADB operations promote **private sector development, gender empowerment, regional integration, knowledge solutions, and capacity development.**
- ADB supports India's priorities for robust, **climate resilient, and inclusive growth,** aligned with ADB's Strategy 2030 and the forthcoming **country partnership strategy, 2023–2027.**
- **ADB Projects in India:-**
  - **Visakhapatnam-Chennai Industrial Corridor Development Program (Tranche 2)**
  - **Himachal Pradesh Subtropical Horticulture, Irrigation, and Value Addition Project**
  - **Nhava Sheva Container Terminal Financing Project**
  - **Strengthening Vocational High Schools in South Asia**
  - **Olam Global Agri Food Security Support Project**
  - **Improving Bengaluru's Livability Through Transit-Oriented Development**
- **Proposed projects:-**
  - **State Road Safety Incentive Program**
  - **Manipur State Road Connectivity Investment Program**
  - **Nashik Metro Neo Project**
  - **Road Sector Development in Tripura**
  - **Promoting Disaster Risk Insurance**

MUST READ: Loan Agreements between Govt. & Asian Development Bank to Boost the infrastructure sector in India

Bangkok vision 2030	**Context:** The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) summit end of this year will adopt a **Bangkok Vision 2030** as announced by the Ministry of External Affairs (MEA)recently.

About Bangkok Vision 2030:-

- The Bangkok Vision 2030 was **proposed by Thailand**.
- **Objective:** to propel BIMSTEC towards a prosperous, resilient, and open region, fostering sustainable and balanced growth. (UPSC CSE: BIMSTEC)
- **Vision:** to advance BIMSTEC as a prosperous, resilient, and open region.
- It emphasizes **sustainable and balanced growth, adapting to rapid changes in regional and global architecture.**
- It aims to further promote BIMSTEC as a region of **peace, stability, and economic sustainability.**
- The goals are in line with the **United Nations' Sustainable Development Goals** and Thailand's bio-circular-green economic model.

Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) summit

- It is a **regional organization.**
- **Objective:** Creating an enabling environment for the rapid economic development of the sub-region.
- **Established:** 1997, by the signing of the **Bangkok Declaration.**
- **Member countries: Bangladesh, India, Myanmar, Sri Lanka, Thailand, Bhutan and Nepal.**

- Initially, it was formed with **four Member States** with the acronym 'BIST-EC' (Bangladesh, India, Sri Lanka and Thailand Economic Cooperation).
  - It became **renamed 'BIMST-EC' in 1997**, following the **inclusion of Myanmar.**
  - With the **admission of Nepal and Bhutan in 2004**, the name of the grouping was changed to 'Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation' (BIMSTEC).
- **Chairmanship of BIMSTEC:** rotates according to the alphabetical order of the English names of the Member States.
- **Current chair: Thailand.**
- **Secretariat: Dhaka, Bangladesh.**
  - It was established **during the third BIMSTEC Summit(2014).**

MUST READ: BIMSTEC after the Colombo summit
SOURCE: THE HINDU

Iran and Afghanistan water conflict	**Context:** The long-standing issue of **Iran and Afghanistan's water conflict** arose again as clashes broke out along the border recently.
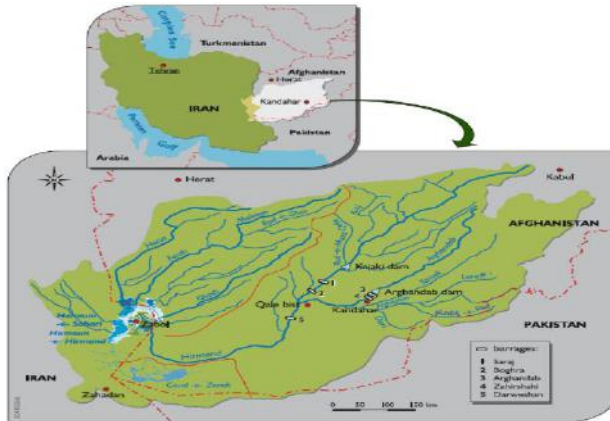
About Iran and Afghanistan's water conflict:-

IMAGE SOURCE: ResearchGate

Background:-

• Afghanistan and Iran signed **the Helmand River Treaty** in 1973.

• **Objective:** to regulate the allocation of river water.

• However, the accord was **neither ratified nor fully implemented**, causing disagreements and tensions to persist.

- **Disagreements:-**
  - **Iran accuses Afghanistan of violating water rights:** Iran has consistently accused Afghanistan of infringing upon its water rights, claiming that it receives significantly less water than agreed upon in the 1973 treaty.
  - **Afghanistan blames climatic factors for reduced water flow:** Afghanistan has refuted Iran's allegations, citing climatic factors such as reduced rainfall and diminished river water volumes as the primary causes of the current situation.
  - **Concerns over Afghanistan's dam and irrigation projects:** Iran expresses concerns over Afghanistan's construction of dams, reservoirs, and irrigation systems along the Helmand River, fearing that these initiatives negatively affect water flow into Iran.

Current situation:-

- **Water shortages and other problems**: Sistan-Baluchistan region of Iran faces severe water shortages, contributing to economic and social difficulties in one of Iran's poorest areas.
- **Setting up an inquiry commission:** to address the recent border clash, **Iran and Afghanistan have agreed to establish a commission of inquiry** to investigate the incident.
- **Short-term focus on internal problems:** Both Iran and the Taliban **prioritize short-term solutions** and focus on internal issues rather than actively resolving the water dispute.
  - Both Iran and the Taliban show **little interest in addressing the mismanagement of water resources** and environmental challenges in the region.

River Hirmand/Helmand

- The Helmand is **Afghanistan's longest river.**
- **Origin:** near **Kabul (Afghanistan) in the western Hindu Kush mountain range. (UPSC CSE: India-Afghanistan)**
- **Drainage:** It flows in a **south-westerly direction** through desert areas.
- It empties into **Lake Hamun**, which straddles the Afghanistan-Iran border.
  - Lake Hamun is the **largest freshwater lake in Iran. (UPSC CSE: Chabahar port)**
  - The Lake has experienced a **drastic decline in water levels**, attributed to factors such as **drought and the construction of dams**.
  - **Economic Importance:** Lake Hamun supports agricultural activities, livelihoods, and economic sectors in the surrounding areas.

MUST READ: India, Iran and Afghanistan
SOURCE: THE INDIAN EXPRESS

OPEC+	**Context:** The **OPEC+** agreed on a new oil output deal recently.

About (OPEC+):-
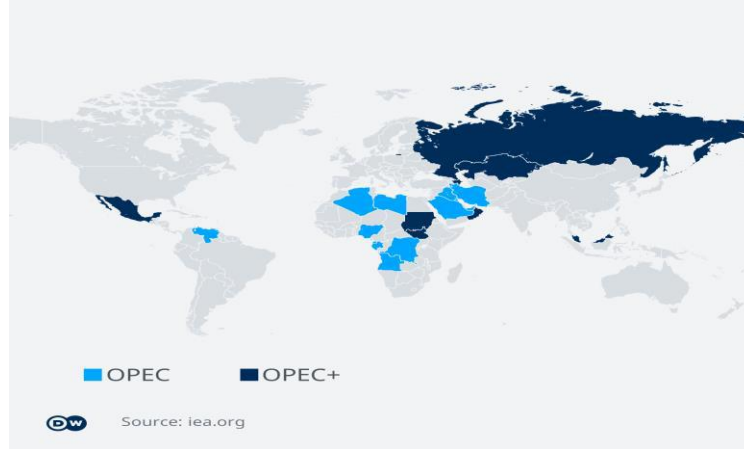
IMAGE SOURCE: watchers. ie
The Organization of the Petroleum Exporting Countries (OPEC)

- **It** is a permanent, **intergovernmental organization**.
- It was created at the **Baghdad Conference in 1960.**
- **Founding members: Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela.**
- **Objective:** to manage the supply of oil in an effort to set the price of oil in the world market, in order to avoid fluctuations that might affect the economies of both producing and purchasing countries.
- **HQ: Vienna, Austria.**
- Membership: OPEC membership is open to any country that is a substantial exporter of oil and which shares the ideals of the organization.
  - **It has 14 members: Saudi Arabia, Iran, Iraq, Kuwait, and Venezuela (1960)**, **Qatar (1961), Indonesia (1962), Libya (1962), Abu Dhabi (1967), Algeria (1969), Nigeria (1971), Ecuador (1973), Angola (2007), Equatorial Guinea (2017), and the Republic of the Congo (2018).**
- OPEC's 14 members control 35 per cent of global oil supplies and 82 per cent of proven reserves.
- With the addition of the 10 Non-OPEC nations, notable among them Russia, Mexico and Kazakhstan, those shares increase to 55 per cent and 90 per cent respectively. (UPSC CSE: OPEC)

OPEC+

- **OPEC+ includes the Organization of the Petroleum Exporting Countries (OPEC) and its allies.**
- **It pumps around 40% of the world's crude.**
- OPEC-plus countries include **Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan and Sudan.**

MUST READ: Oil for Emergencies
SOURCE: THE ECONOMIC TIMES

Shangri-La Dialogue	**Context:** The 20th edition of the **Shangri-La Dialogue**, concluded in Singapore recently.

About Shangri-La Dialogue:-
- The Shangri-La Dialogue (SLD) is an **inter-governmental security forum.**

- Originally known as the Asia Security Summit was initiated in 2002 in response to the evident need for a forum where Asia-Pacific defence ministers could engage in dialogue aimed at building confidence and fostering practical cooperation.
- It is a **Track 1** inter-governmental security forum.
- It is held every year in **Singapore since 2002**.
- **Organised by:** International Institute for Strategic Studies (IISS).
- **IISS** is a London-based independent think tank.
- Defence ministers, permanent heads of ministries and military chiefs of 28 Asia-Pacific states attend it**.**
- The ministers **debate the region's most pressing security challenges** engage in important bilateral talks and come up with fresh approaches together.
- The forum gets its name from the **Shangri-La Hotel in Singapore** where it has been held **since 2002.**
- It is **Asia's largest annual security forum**. (UPSC CSE: Indo-Pacific Relations)
- The **2023 event** took place in **Singapore.**
- **Australia's Prime Minister Anthony Albanese** delivered the **Keynote Address** at the Shangri-La Dialogue 2023. (UPSC CSE: Prime Minister's Key Note Address at Shangri La Dialogue)

Different levels of Diplomacy:
- **Track 1 Diplomacy:** Official discussions typically involving high-level political and military leaders.
- **Track 2 Diplomacy:** Unofficial dialogue and problem-solving activitiesInvolving influential academic, religious, and NGO leaders and other civil society actors who can interact more freely than high-ranking officials can.
- **Track 3 Diplomacy:** People-to-people diplomacy undertaken by individuals and private groups.

MUST READ: Raisina Dialogue
SOURCE: THE INDIAN EXPRESS

Kosovo - Serbia Conflict	**Context:** In the recent aftermath of the escalation of tensions between Kosovo and Serbia, the **North Atlantic Treaty Organization (NATO)** sent 700 more of its peacekeeping troops to Kosovo. **Kosovo -Serbia Conflict** **Kosovo:** is a small**, landlocked** country in the Balkans. **Bordering countries**: Albania, North Macedonia, Montenegro and Serbia. - Many Serbs consider it the birthplace of their nation **Historical Background:-** - After the **break-up of Yugoslavia in the 1990s**, Kosovo which was a province of the former country **sought independence.** **Serbia responded with a brutal crackdown** against ethnic Albanians seeking independence. - This **ended in 1999, with a NATO bombing campaign against Serbia**. **Serbian forces withdrew from Kosovo** but for many Kosovo Albanians and Serbs, the conflict has never been resolved. - The **NATO-led Kosovo Force (KFor) is still based in Kosovo**.

- o **In 2008, Kosovo** unilaterally **declared independence.**
- **UN Members who recognize Kosovo's independence:-**
  - o A total of **99 out of 193 United Nations countries** now recognize Kosovo's independence.
  - o These include the **US, the UK** and **22 out of 27 EU countries.**
  - o **Russia, India & China** do not recognize Kosovo as an independent state
- **Current Situation:-**
  - o The relationship between the **Albanian-dominated government and the Serb minority** has been **strained for years.**
  - o In 2022, tensions **led to civil disobedience.**

IMAGE SOURCE: [THE HINDU](#)

Kosovo erupts in violence
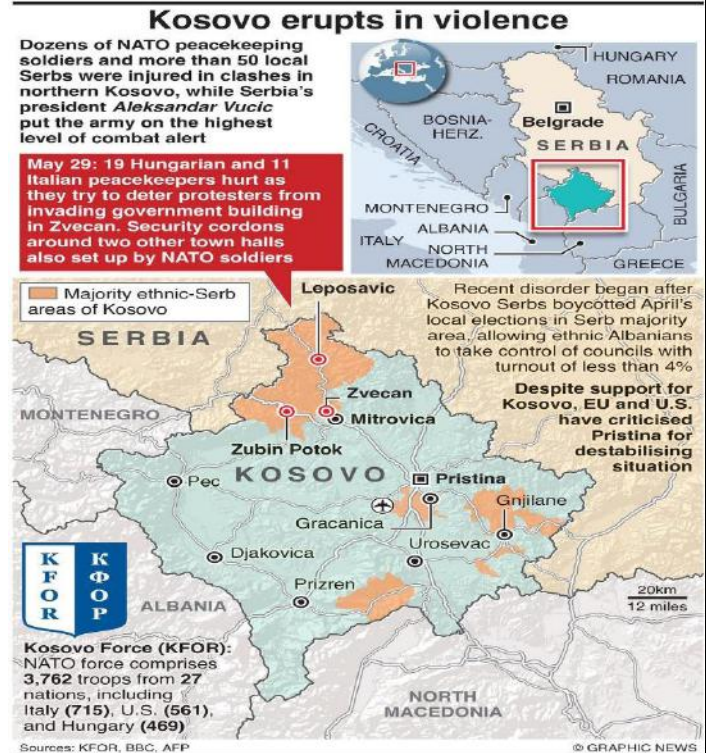
- o
- o In the summer, **ethnic** Serbs in the northern region of Kosovo, barricaded roads and some men reportedly fired shots in **protest against a new law.**
- o **EU-mediated talks** to resolve the dispute **failed.**

India's Stand on Kosovo-Serbia Conflict:-
- **India** has **refused to recognize Kosovo as a separate state since it declared independence from Serbia in 2008.**
- Further, India has, on Serbia's request, opposed Kosovo's membership of international bodies, UNESCO, Apostille Convention, Convention for the Pacific Settlement of International Disputes, and Egmont Group of Financial Intelligence Units.
- **India and Serbia are co-founders** of the **Non-Aligned Movement** and have traditionally enjoyed a close partnership for decades.

MUST READ: [Turkey's Peace with Sweden and Finland Joining NATO](#)
SOURCE: [THE HINDU](#)

Supreme Audit Institutions of G20 countries Summit (SAI20)	**Context:** The second **Supreme Audit Institutions of G20 countries Summit (SAI20)** was organized in Goa recently. **About Supreme Audit Institutions of G20 countries Summit (SAI20) :-** • It is a forum where SAIs from G20 countries can engage with each other to **share their experiences and expertise in auditing public policies** and governance practices. • **Objective of the G20 SAI Summit:** to promote cooperation among the SAIs in addressing global challenges and fostering accountability in governance.

- The group meets annually to discuss important issues related to public auditing and to develop joint initiatives to promote good governance and accountability in their respective countries.
- **Chairmanship: Shri Girish Chandra Murmu**, the **Comptroller & Auditor General of India (CAG)** will chair SAI20. (UPSC CSE: CAG and ILO)

Top Priority areas for SAI20 deliberations Under India's presidency

- Two priority areas have been selected for SAI20 deliberation:
  - **Blue Economy**
  - It is defined by the World Bank as the **Sustainable use of ocean resources** for economic growth, improved livelihoods, and jobs while preserving the health of the ecosystem.
  - **Responsible Artificial Intelligence**
  - **Artificial intelligence (AI): the** ability of a computer or a robot controlled by a computer to do tasks that are usually done by humans.

Important functions of Supreme Audit Institutions (SAIs):-

- **Independent audits:** SAIs conduct independent audits of government finances and operations.
  - They ensure that public funds are being used in accordance with the law and that government agencies are operating effectively and efficiently.
- **Promoting transparency and accountability:** SAIs promote **transparency and accountability** by making audit reports publicly available.
- **Improving governance**: By identifying weaknesses and inefficiencies in government operations, SAIs can help to improve governance.
- **Supporting the legislative branch**: SAIs support the legislative branch by **providing information and analysis that can help lawmakers make informed decisions** about government programs and policies.
- **Ensuring compliance with laws and regulations**: SAIs ensure compliance with laws and regulations by reviewing government operations and financial statements.
- **Fostering international cooperation**: SAIs collaborate and share best practices with their counterparts in other countries to **promote good governance and accountability globally**.

Comptroller and Auditor-General of India (CAG)

- CAG is an **independent authority** under the Constitution of India.
- He is the **head of the Indian audit & account department**.
- He is the **chief Guardian of the Public purse.**
- **Appointment:** the President appoints him by warrant under his hand and seal.
- **Tenure:** 6 years or 65 years of age, whichever is earlier.
- **Removal:** by the **President** only in accordance with the procedure mentioned in the Constitution that is the manner same as the removal of a Supreme Court Judge.
- He is **ineligible to hold any office**, either under the Government of India or of any state, **once he retires/resigns as a CAG.**
- **Article 148**: it broadly deals with the CAG **appointment, oath and conditions of service.**

MUST READ: Summit
SOURCE: BUISINESS LINE

UNESCO	**Context:** Recently, the **United Nations Educational, Scientific and Cultural Organization (UNESCO)** announced that the United States will rejoin it after 4 years. **About United Nations Educational, Scientific and Cultural Organisation (UNESCO):-**

- It is a **specialised agency of the United Nations (UN).**
- **Objective: promoting world peace and security** through international cooperation in education, the sciences, and culture.
- **HQ: Paris, France.**
- **Members:-**
  - It has 193 member states and 11 associate members, as well as partners in the nongovernmental, intergovernmental, and private sectors.
  - UNESCO member states not UN members: **Cook Islands, Niue, and Palestine**.
  - UN member states not UNESCO members: **Israel, Liechtenstein, and United States.**

Functions of UNESCO:-

- Ensuring an inclusive and equitable **quality education for all.**
- Safeguarding **cultural heritage.**
- Advancing **scientific research and collaboration.**
- Promoting **freedom of expression**.
- Fostering **intercultural dialogue.**

Notable Programs and Activities of UNESCO:-

- **World Heritage Program:** Designates and preserves sites of outstanding universal value.
- **Education for All Program:** Ensuring inclusive and equitable quality education for all.
- **International Hydrological Program:** Promoting sustainable water management and cooperation.
- **Man and the Biosphere Program:** Promoting sustainable development and Conservation of natural resources.
- **Intangible Cultural Heritage Program:** Safeguarding and promoting intangible cultural heritage. (UPSC MAINS: world heritage sites)

Issue of USA Leaving UNESCO

- In 2011, **UNESCO inducted Palestine as a member.**
- This led to the **US halting the agency's funding**, worth millions of dollars, under **then-President Barack Obama.**
- **Reason to stop funding UNESCO:-**
  - Israel and the United States termed the **inclusion of Palestine and** UNESCO's naming of what Israel claims were ancient Jewish sites as Palestinian heritage sites as examples of **anti–Israel bias**.
  - **US laws**, owing to the country's historical ties with Israel, **prohibit funding to any UN agency that implies recognition of the Palestinians' demands for their own state.**
- Consequently, in **2019** the **US and Israel pulled out of UNESCO** citing bias in the organization in the Palestine issue.
  - The US had pulled out of UNESCO once earlier **in 1984** and then **rejoined in 2003.**
- **Recent Developments:** it was negotiated recently through an agreement in 2022 that the USA will begin giving UNESCO funds again.

India and UNESCO

- India has been a **founding member** of UNESCO.
- It had ratified UNESCO's Constitution in 1946, while still under colonial rule.
- India has been **continuously re-elected to the UNESCO Executive Board** since 1946.
- **Recently,** India won the re-election to the executive board of the UN's cultural and education organization for the **2021-25 term.**

Objectives of UNESCO's Mission in India:-

- Attaining **quality education for all** and lifelong learning. (UPSC CSE: UNESCO fund for languages)
- **Mobilizing science knowledge** and policy for **sustainable development**.
- Addressing emerging **social and ethical challenges**.
- Fostering **cultural diversity, intercultural dialogue** and a culture of peace.
- Building **inclusive knowledge societies** through information and communication.

Indian National Commission for Cooperation with UNESCO (INCCU)

- It is a **governmental body.**
- **Establishment:-**
  - o **Initially set up in 1949**, it is a governmental body functioning under the Department of Secondary and Higher Education in the Ministry of Human Resource Development.
  - o A **permanent Commission** was established in **1951.**
- **Ministry: Department of Secondary and Higher Education in the Ministry of Education.**
- **Objective:** to advise the Government in matters relating to UNESCO.
- **President of the Commission:** Minister of Human Resource Development.

MUST READ: Seabed
SOURCE: THE INDIAN EXPRESS

Lines of Credit (LoCs)	**Context:** Recent reports suggest that India's future **Lines of Credit (LoCs)** to Africa could focus on defense exports to meet the requirements of the continent.
	About Lines of Credit (LoCs):-
	• It is a **credit facility** extended **by a bank or any other financial institution** that enables the customer to draw the **maximum loan amount.**
	• **Lender:** it can be given **by a bank or any other financial institution.**
	• **Borrower:** it can be given **to a government, business or individual customer.**
	• **Time limit:** the **set borrowing limit** can be tapped into at **any time.**
	• **Transaction Limit:** the borrower **can take money out until the maximum limit is reached.**
	• **Usage in international relations:** it is **a soft loan** provided **on concessional interest rates** to developing countries.
	   o It is **not a grant** and **has to be repaid** by the borrowing government.
	• **Types of credit lines:** personal, business, and home equity, among others.
	• **Advantages:** it has built-in flexibility, which is its main advantage.
	   o Borrowers can request a certain amount, but they **do not have to use it all.**
	   o They can **tailor their spending from the LOC to their needs.**
	   o They **owe interest only on the amount that they draw**, not on the entire credit line.
	• **Disadvantages:** high-interest rates, penalties for late payments, and the potential to overspend**.**
	
	India-Africa Relations:-
	Historical Ties
	• India's **trade relations** with Africa date back several centuries. (UPSC CSE: India-Africa: Challenges & Way Ahead)
	• The **presence of Indians in East Africa** is documented in the **'Periplus of the Erythraean Sea'** or Guidebook of the Red Sea by an ancient Greek author written in 60 AD.

- **Mahatma Gandhi**: he began his political career in South Africa. (UPSC CSE: India and Mahatma Gandhi)
- **Non-Alignment Movement (NAM):** India was a forerunner as a champion of the interests of the developing countries from Africa among other third-world countries. (UPSC CSE: NAM)

Importance of Africa

- Africa is home to over half a dozen of the **fastest-growing countries** in the world.
- African continent has a **population** of over one billion with a combined GDP of 2.5 trillion dollars making it a **huge potential market.**
- Africa is a **resource-rich nation** dominated by commodities like crude oil, gas, pulses and lentils, leather, gold and other metals, all of which India lack in sufficient quantities.
  - o India is seeking **diversification of its oil supplies away from the Middle East** and Africa can play an important role in India's energy matrix.

India's Initiatives in Africa

- **India Africa Forum Summit** is the **official platform** for African-Indian relations.
  - o It was launched in 2008.
- India is investing in **capacity building providing** more than $1 billion in technical assistance and training to personnel under the **Indian Technical and Economic Cooperation (ITEC) program.**
  - o **ITEC:** is the leading capacity-building platform of the Ministry Of External Affairs.
  - o Instituted in **1964.**
  - o **Have trained** more than 200,000 officials from 160+ countries in both the civilian and the defense sectors.
- India has invested $100 million in the **Pan-African E-Network**.
  - o **Objective:** to bridge the digital divide in Africa, leveraging its strengths in information technology.
- **Indian military academies offer training** to military officers from a number of African states.
- **Asian Africa Growth Corridor**: jointly prepared by **Indian and Japanese** think tanks.
  - o The corridor will focus on Developing **Cooperation Projects, Quality Infrastructure and Institutional Connectivity, skill enhancement, and People-to-People Partnerships**.

MUST READ: Credit in the Economy
SOURCE: THE ECONOMIC TIMES

International Energy Agency (IEA)	**Context:** Recent reports from the **International Energy Agency (IEA)** show that India and China bought 80% of Russia's oil. **About International Energy Agency (IEA):-** - It is an **autonomous Intergovernmental Organization.** (UPSC CSE: IEA) - **Established: in 1974** - **HQ: Paris, France.** - **Historical Background:** it was established in the wake of the **oil crisis of 1973-1974**, to help its members respond to major disruptions in oil supply. - **Objective:** it ensures reliable, affordable and clean energy for its member countries and beyond. - It **focuses on its energy policies**, which include economic development, energy security and environmental protection. **IEA's Membership:-**

- It has **30 member countries.**
- It also includes **eight association countries**.

Eligibility Criteria:-

- A candidate country to the IEA **must be a member** country of the **Organization for Economic Co-operation and Development (OECD).**
  - **OECD:** an international organization, founded in **1961** to stimulate economic progress and world trade.
- 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.
- The **government must have immediate access** (even if it does not own them directly) to use them to address disruptions to the global oil supply.

Major Reports:-

- **World Energy Outlook Report.**
- **World Energy Investment Report.**
- **World Energy Statistics.**
- **World Energy Balances.**
- **Energy Technology Perspectives.**
- **India Energy Outlook Report.**

India and IEA

- **2017:** India became an **Associate member** of IEA.
- **2021:** India also inked a **Strategic Partnership Agreement** with the IEA.
  - It aimed to strengthen cooperation in global energy security, stability and sustainability.
- IEA **invited India to become a full Member.**

MUST READ: The Breakthrough Agenda Report 2022

SOURCE: THE INDIAN EXPRESS

Nova Kakhovka dam	**Context:** The **Nova Kakhovka dam** in Ukraine collapsed recently.

About Nova Kakhovka dam:-

- It was **built in 1956** as part of the **Kakhovka hydroelectric power plant.**
- The dam was **built in the Soviet era**.
- It is built on the **Dnipro River.**
  - **Dnipro:** is **one of the major transboundary rivers of Europe**.
  - It is the **longest river in Ukraine and Belarus.**
  - It is the **fourth-longest river in Europe,** after the Volga, Danube, and Ural rivers.
  - It rises in the **Valdai Hills near Smolensk, Russia**.
  - It flows through **Belarus and Ukraine** into the **Black Sea. (UPSC CSE: Loss of the 'Moskva' & Black Sea)**
  - **Black Sea:** is an **inland sea** located between **Eastern Europe and Western Asia.**
  - The Turkish straits system - **the Dardanelles, Bosporus and the Marmara Sea** forms a transitional zone between **the Mediterranean and the Black Sea.**
  - The Black Sea is also connected to the **Sea of Azov by the Strait of Kerch.**
  - **Bordering countries** of the Black Sea are **Russia, Ukraine, Georgia, Turkey, Bulgaria and Romania.**
- The dam holds back a huge reservoir, which locals call the **Kakhovka Sea.**
- **Volume:** the dam holds back around **18 cubic kilometers of water** in the Kakhovka Reservoir.

- It lies in the **Kherson region**. (UPSC CSE: Perspectives on Russia-Ukraine War)
  - **Russia occupies the left, or southern, bank** while **Ukraine controls the right or northern, bank.**
- **Distribution:** it supplies water to the **Crimean Peninsula and to the Zaporizhzhia nuclear plant.**
- The reservoir also provided water for the cooling system of the **Zaporizhzhia nuclear power plant**.
  - **Zaporizhzhia nuclear power plant** of Ukraine: it is the **largest in Europe.**

MUST READ: Black Sea Grain Initiative

SOURCE: AIR

Initiative on Critical and Emerging Technology (iCET).	**Context**: India and the United States recently unveiled a roadmap for enhanced collaboration in **high-technology areas** under the **Initiative on Critical and Emerging Technology (iCET).** **About Initiative on Critical and Emerging Technology (iCET):-** • The iCET is a partnership between **India and the US to work together** in developing important and **new technologies.** • **Objective:** to **increase the technology interaction between the US and India** while also potentially adding additional strategic depth and breadth to their growing partnership. • **Areas of collaboration under iCET:** quantum computing, semiconductors, 5G and 6G wireless infrastructure, and civilian space projects such as lunar exploration. (UPSC CSE: India-USA: Trade and Climate) • **Supervision:** the **Prime Minister's Office** in Delhi and the **White House** in Washington will oversee and direct the iCET. **Significance of iCET for India:-** • Growing convergence of Indian and US interests can help in managing the security, economic, and technological **challenges presented by China.** • It can help secure an alternative for India and **reduce dependence on Russian military technology.** • It would help **boost India's technological capabilities** and provide India with access to cutting-edge technology and expertise in areas that are critical and emerging in nature. • It will help **India's economic growth** by having more business with the US. • It will help them **bring more investment and employment opportunities**. **MUST READ: India's growing defence diplomacy footprint** **SOURCE: THE HINDU**
Order of the Nile	**Context:** Recently, Egypt's '**Order of the Nile**' was conferred to Prime Minister Modi. **Background:-** • Prime Minister Narendra Modi received the 'Order of the Nile' award. • It is the **Egypt's highest state honour**. • Prime Minister Modi is on a **two-day state visit to Egypt**. • He also visited the historic 11th-century Al-Hakim Mosque in Cairo, which was restored with the help of **India's Dawoodi Bohra community.** o **Dawoodi Bohras**: a religious denomination within the Islamic branch of Shia Islam.

o   Their largest numbers reside in **India, Pakistan, Yemen, East Africa, and the Middle East.**

About Order of the Nile:-

- It is **Egypt's highest state honour**. (UPSC MAINS: collaboration between India and Egypt)
- **Instituted: in 1915.**
- **Presented by: State of Egypt.**
- It is conferred upon **Heads of state, Crown Princes, and Vice-Presidents** who offer Egypt or humanity invaluable services.
- **Decoration:** it is a **pure gold collar** consisting of **three-square gold units** comprising **Pharaonic symbols**.
    o   **Pharaonic symbols:** these were numerous symbols in the life of ancient Egyptians and varied in their symbols, rituals, and use.

MUST READ: India-Africa: Challenges & Way Ahead
SOURCE: THE INDIAN EXPRESS

ECONOMY

Small Finance Banks	**Context:** Recent reports suggest that **Small Finance Banks** have revolutionized banking services in rural and semi-urban areas.

About Small Finance Banks:-

IMAGE SOURCE: tnpscthervupettagam.com

- Small Finance Banks are the financial institutions, which **provide financial services to the unserved and unbanked region of the country.**
- They are **registered** as a public limited company **under the Companies Act, 2013.**
- **Minimum paid-up capital**- Rs. 100 cr.
- Capital adequacy ratio - **15% of risk-weighted assets**.
- **Foreign shareholding** capped at **74% of paid capital**.
- **Foreign Portfolio investment (FPIs)** cannot be more than **24%.**
- **Priority sector lending requirement** of **75%** of total adjusted net bank credit. (UPSCE MAINS: Micro finance has the ability to unleash rural India's entrepreneurial zeal.)
- The idea of Small Finance Bank was framed on the recommendation of **NachiketMor Committee on financial inclusion (2013).**
- The main customers of small finance banks include micro industries, small and marginal farmers, unorganized sector entities and small business units.
- They are licensed under Section 22 of the Banking Regulation Act, 1949 and are governed by the provisions of RBI Act, 1934 and FEMA.

Eligibility Criteria:-
- **Resident individuals/professionals**, **having at least 10 years of experience** in banking and finance can start Small Finance Banks with the approval of RBI.
- **Existing Non-Banking Finance Companies (NBFCs), Micro Finance Institutions (MFIs), and Local Area Banks (LABs)** in the private sector. (UPSC CSE: Digital Banks)
- Indian residents and have a successful record of accomplishment of running their businesses for at least a period of five years must control these**.**
- **Joint ventures** for setting up small finance banks are **not permitted.**

Functions:-
- Take **small deposits** and **disburse loans.**
- Distribute **mutual funds, insurance products** and other simple third-party financial products.

- **Lend 75%** of their total adjusted net bank credit to **priority sector**. (Revised Priority Sector Lending Guidelines).
- **Maximum loan size would be 10% of capital funds** to single borrower, **15% to a group.**
- **Minimum 50%** of loans should be **up to 25 lakhs.**

MUST READ: Inclusive Growth
SOURCE: THE PRINT

| Credit Information Bureau India Ltd (CIBIL) | **Context:** Recently, the Kerala High Court held that an education loan application should not be rejected based on a low **Credit Information Bureau India Ltd (CIBIL)** score.

About Credit Information Bureau India Ltd (CIBIL):-
- Credit Information Bureau (India) Limited is **one of the Credit Information Companies in India.**
- It is involved in keeping the documentation of every **credit-related action of individuals and companies**.
- Different financial institutions and the banks, **submit their individual information to CIBIL.**
- CIBIL provides **CIR (Credit Information Report) and the credit scores**.(UPSC CSE: Credit Rating agencies)
- The **reports on CIBIL accommodate** the information in detail about the credits an individual is taking like car loans, credit cards, home loans, personal loans, etc.
- **Two types of CIBIL reports are available:-**
  - **CIBIL Report on Company Credit**- CIBIL CCR is a record of your company's credit history. This is created from data submitted to CIBIL by lending institutions across India. The past payment behaviour of a company is a strong indication of its future behaviour
  - **Credit Information Report**- it is created for **individuals** and contains **in-depth information about credit behaviour in past** and a score of CIBIL.

Importance of Credit Rating:
For Lenders;
- **Better Investment Decision**: No bank or money lending companies would like to give money to a risky customer. With credit rating, they get an idea about the creditworthiness of a company (that is borrowing the money) and the risk factor attached with them. By evaluating this, they can make a better investment decision.
- **Safety Assured:** High credit rating means an assurance about the safety of money and that it will be paid back with interest on time.

For Borrowers;
- Easy Loan Approval: With a high credit rating, you will be seen as a low/no risk customer. Therefore, banks will approve your loan application easily.
- **Competitive Rate of Interest:** You must be aware of the fact that every bank offers loans in a particular range of interest rates. One of the major factors that determine the rate of interest on the loan you take is your credit history. Higher the credit rating, lower the rate of interest.

Credit Information Companies (CICs):-
- At present, **there are four CICs.** |

- They are provided with a **Certificate of Registration**.
- These include **Equifax Credit Information Services Private Limited**, **CRIF High Mark Credit Information Services Private Limited, Credit Information Bureau (India) Limited, and Experian Credit Information Company of India Private Limited.**
- Credit Information Companies in India are licensed by the **Reserve Bank of India** and governed by the Credit Information Companies Regulation Act, 2005.

MUST READ: Financial Services Institutions Bureau (FSIB)
SOURCE: TIMES OF INDIA

RBI-lightweight 'payments system	**Context:** Recently, the Reserve Bank of India (RBI) announced the conceptualization of the **'lightweight' payments system**. **About RBI's lightweight' payments system:-** - The lightweight' payment system is to **ensure uninterrupted digital payments during emergencies** such as natural calamities or war. **Background:** the RBI is working on **strengthening the oversight framework** for Centralised Payment Systems as part of the **Utkarsh 2.0 initiative**. **Salient Features:-** - This system will **operate independently** of existing payment technologies like **UPI(**Unified Payment Interface), **NEFT** (National Electronic Funds Transfer), and **RTGS**(Real-Time Gross Settlement (RTGS)) - It **can be operated from anywhere.** - It requires **minimal staff** during emergencies. - It will **process critical transactions,** such as **bulk payments and interbank payments,** during extreme and volatile situations. - The system operates on **minimalistic hardware and software.** - It is **activated only when needed.** **Lightweight' payments system v/s UPI(**Unified Payment Interface) - UPI and other conventional systems **prioritise handling large transaction volumes** and require a **stable and robust infrastructure. (UPSC CSE: UPI)** - On the other hand, the lightweight system is designed to **operate even in volatile and extreme conditions** when regular payment systems may not be accessible. **Utkarsh 2.0:** - In January 2023, the Reserve Bank of India (RBI) launched Utkarsh 2.0, which is the second phase of **its medium-term strategy for strengthening regulatory and supervisory mechanisms.** - Utkarsh 2.0 builds upon the foundation laid by Utkarsh 0.1, which was launched in July 2019 and covered the period from 2019 to 2022. - Utkarsh 2.0 will guide the RBI over the period from **2023 to 2025 and includes six vision statements** that are designed to improve the performance of the RBI's statutory and other functions, enhance its relevance and significance at the national and global levels, and improve its internal governance, infrastructure, and human resources. **MUST READ:** Bharat Bill Payment System (BBPS) **SOURCE:** THE INDIAN EXPRESS

| **Duty-free quota-free (DFQF) scheme** | **Context:** As per recent reports, about 85 per cent of 11,000 products offered at zero tariffs by India to least developed countries (LDCs) under the **duty-free quota-free (DFQF) scheme** of the World Trade Organization (WTO) remains unutilized. |

About the duty-free quota-free (DFQF) scheme:-

IMAGE SOURCE: BUSINESS STANDARD

STATUS CHECK
Utilisation of India's preferential scheme by LDCs with covered imports higher than $60 mn

Country	Utilisation rate (in %)	Preference margin (percentage points)
Bangladesh	0	17
Afghanistan	0	24
Guinea	8	15
Burkina Faso	8	15
Myanmar	18	21
Sudan	32	17
Togo	60	16
Zambia	63	9
Madagascar	70	21
Tanzania	78	14
Guinea–Bissau	81	18
Mozambique	87	12
Senegal	87	13
Benin	98	25

Source: WTO

- **Background:** The decision to provide duty-free quota-free (DFQF) access for least developed countries (LDCs) was first taken at the **WTO Hong Kong Ministerial Meeting in 2005.**
  - **Least developed countries (LDCs):** The WTO recognizes as least-developed countries (LDCs) those countries, which have been **designated as such by the United Nations**.
    - There are at present **48 LDCs on the UN list**.
      - 31 of these are members of the WTO.
- It requires all developed and developing country members to provide **preferential market access for all products originating from all LDCs.**
- **India became the first developing country** to extend this facility to LDCs in 2008.
  - It provided **market access to 85% of India's total tariff lines.**
  - It aimed to **integrate LDCs into the global trading system** and **improve their trading opportunities.**
- The **scheme was expanded in 2014** providing preferential market access on about **98.2%** of India's tariff lines to LDCs.
- India offers 11,506 preferential tariff lines to LDCs of which 10, 991 are **duty-free.**
  - Of the duty-free tariff lines, **1,129 are agricultural goods** and the **remaining** 9,862 are **non-agricultural goods.**

Key findings of WTO data for 2020:-
- **85% of India's tariff lines** show a **zero utilisation rate** compared to **64% by China.**
  - Among the remaining, only **8% demonstrate a utilisation rate of above 95%** against 17% by China.
- Noteworthy amounts of **LDC exports are entering under non-preferential (most favoured nation) tariff routes** into India even though they are covered by the Indian preference scheme.
- There is a **significant variation between the beneficiary LDCs**.
- **Guinea and Bangladesh**: show the **highest amount of eligible imports** simultaneously.
- **Benin**: reports a **utilisation rate of 98%, the highest** of all beneficiary countries.
- **Afghanistan**: **Fruits and nuts** worth $325 million **exported were entered under the most-favoured-nation (MFN) despite** the preference margin of 28 percentage points being offered under the Indian preference scheme.
  - **Most-favoured-nation (MFN):** treating other people equally.

- Under the WTO agreements, **countries cannot normally discriminate between their trading partners**.
- If a country grants someone a **special favour** (such as a lower customs duty rate for one of their products), **they have to do the same for all other WTO members.**
- This principle is known as **most-favoured-nation (MFN) treatment.**
- **Chad:** exports of **mineral fuels, oils and products, etc,** of a value of $48 million are entering India under MFN.

MUST READ: Reviving WTO
SOURCE: BUSINESS STANDARD

| Price support scheme | **Context:** The government recently announced the removal of the procurement ceiling for tur, urad and masur dal under the **price support scheme**.

About the Price support scheme:-
- The scheme is for **procurement, through NAFED.**(UPSC CSE: NAFED and APMC)
- Under PSS, NAFED undertakes procurement of oil seeds, pulses and cotton when prices **fall below the MSP**
- Procurement under PSS is continued until prices stabilize at or above the MSP.
- Farmers can avail the benefit of the scheme by **selling their produce at support price in Agricultural Produce & Livestock Market Committee (APMC) centres.**
- The **Central Government reimburses the loss incurred by NAFED in undertaking such operations.**

NAFED:-
- It was **established in 1958.**
- It is registered under the **Multi-State Co-operative Societies Act, 2002.**
- It is the **apex organization of marketing cooperatives for agricultural produce** in India.
- It undertakes the procurement as and **when prices fall below the MSP.**
- It is at present, **one of the largest procurement as well as marketing agencies** for agricultural products in India.

Objectives:-
- To **organize, promote and develop marketing, processing, storage of agricultural, horticultural,** and forest produce.
- To **distribute agricultural machinery**, implements and other inputs.
- To act and assist for **technical advice** in agricultural production.

Minimum Support Price (MSP)
- The MSP are announced at the beginning of the sowing season crops based on the recommendations of the Commission for Agricultural Costs and Prices (CACP). CACP: is an attached office of the Ministry of Agriculture and Farmers Welfare
- It is **at least one-and-a-half times the cost of production** incurred by the farmers.
- **Objective**: to **support the farmers from distress sales** and to procure food grains for public distribution.
- Cabinet Committee on Economic affairs declares MSP**.** |

- **Crops under MSP:-**
  - The Centre currently fixes MSPs for 23 farm commodities based on the CACP's recommendations.
  - **7 cereals:** paddy, wheat, maize, bajra, jowar, ragi and barley
  - **5 pulses**: chana, arhar/tur, urad, moong and masur
  - **7 oilseeds**: rapeseed-mustard, groundnut, soyabean, sunflower, sesamum, safflower and nigerseed
  - **4 commercial crops**: cotton, sugarcane, copra and raw jute
  - **Fair and remunerative price (FRP)** for sugarcane

MUST READ: Minimum Support Prices (MSP) for copra season 2023
SOURCE: TIMES NOW

Securities Appellate Tribunal (SAT)	**Context:** Recently, the **SAT** quashed an order of SEBI, which had earlier cancelled license of Brickwork Ratings', a credit rating agency. .
	
	About Securities Appellate Tribunal (SAT):-
	• It is a **statutory body** created under the provisions of the **SEBI Act, 1992.**
	• It has only one bench, which sits in **Mumbai.**
	• **Jurisdiction:** the whole of India
	• **Composition of the SAT:** It consists of a **Presiding Officer** and **two other members.**
	   o **Appointment of the Presiding Officer:** by the **Central Government** in consultation with the **Chief Justice of India or his nominee.**
	• **Powers:** it has powers **similar to a civil court**.
	   o Appeals from its orders **can be challenged in the Supreme Court.**
	• **Key Functions:-**
	   o To hear and dispose of a**ppeals against orders passed by the Securities and Exchange Board of India (SEBI) or by an adjudicating authority under the Act. (UPSC CSE: SEBI)**
	   o To **exercise jurisdiction, authority and powers conferred on the SAT by or under this Act** or any other law for the time being in force.
	   o To hear and dispose of **appeals against orders passed by the Pension Fund Regulatory and Development Authority (PFRDA). (UPSC CSE: NPS)**
	
	Pension Fund Regulatory and Development Authority (PFRDA):-
	• It is a **pension regulatory authority**, which was **established in 2003.**
	• It is a **statutory body** established under **PFRDA Act, 2003**.
	• **Ministry: Ministry of Finance**
	• **HQ: New Delhi**
	• Function: It **promotes old age income security** by establishing, developing and regulating pension funds.
	• It protects the interests of subscribers to schemes of pension funds and related matters.
	• To hear and dispose of **appeals against orders passed by the Insurance Regulatory Development Authority of India (IRDAI).**
	
	Insurance Regulatory Development Authority of India (IRDAI):-
	• It is an **autonomous and statutory body** established under the **IRDA Act 1999.**
	• The apex body **supervises and regulates the insurance sector in India.**

- **Objective:** To protect the interests of policyholders, to regulate, promote and ensure orderly growth of the insurance industry in India.
- **Nodal Ministry: Ministry of Finance**
- **Head Office: Hyderabad.**
- **Composition:** IRDAI is a **10-member body**. It has **a Chairman**, **five full-time members**, and **the Government of India appoints four part-time members.**

Functions:-
- To have a **fair regulation of the insurance industry** while ensuring financial soundness of the applicable laws and regulations.
- **Registering and regulating** insurance companies.
- **Protecting policyholders' interests.**
- **Licensing and establishing norms** for insurance intermediaries.
- **Regulating and overseeing premium rates** and terms of non-life insurance covers.

MUST READ: Securities and Exchange Board of India (SEBI) extends trading ban on Agri commodities
SOURCE: BUISINESS STANDARD

Prepaid Payment Instrument (PPI) holders

Context: Recently, an RBI-appointed committee has recommended the extension of Deposit Insurance and Credit Guarantee Corporation (DICGC) cover to **Prepaid Payment Instrument (PPI) holders.**

About Prepaid Payment Instrument (PPI) holders:-
- PPIs are **instruments that facilitate the purchase of goods and services**.
- These include **financial services, remittance facilities, etc. (UPSC CSE: Bharat Bill Payment System (BBPS))**
- Prepaid instruments **can be issued as smart cards, magnetic stripe cards, internet accounts, internet wallets, mobile accounts, mobile wallets, paper vouchers and any of the instruments** used to access the prepaid amount. (UPSC CSE: Non-Bank PSPs to Join Centralised Payment System)
- **Three types Types of PPIs:-**
1. **Closed System PPIs:** These PPIs are issued by an entity for **facilitating the purchase of goods and services from that entity only.**
   - They **do not permit cash withdrawals**.
   - The operation of such instruments **does not require approval by the RBI.**
   - The most common example of a closed system PPI is **a brand-specific gift card.**
2. **Semi-closed System PPIs**: banks (approved by RBI) and non-banks (authorized by RBI) issue these PPIs**.**
   - They are for the **purchase of goods and services at merchant locations, which have a specific contract** with the issuer to accept the PPIs as payment instruments.
3. **Open System PPIs:** These PPIs are issued **only by banks (approved by RBI).**
   - These are **used at any merchant** for the purchase of goods and services.
   - **Cash withdrawal at ATMs / Points of Sale (PoS) terminals / Business Correspondents (BCs) is allowed** through such PPIs.

Deposit Insurance and Credit Guarantee Corporation (DICGC)

- The merger of **Deposit Insurance Corporation (DIC) and Credit Guarantee Corporation of India Ltd. (CGCI)** in **1978** resulted in the formation of DICGC.
- It is a **statutory body** under the **Deposit Insurance and Credit Guarantee Corporation Act, 1961**.
- It serves as a **deposit insurance and credit guarantee for banks** in India. It protects deposit accounts up to a INR 5 lakh per bank account holder.If a deposit balance of a bank account holder in a single bank exceeds INR 5 lakh, the DICGC will pay up to INR 5 lakh, comprising interest and principal, if the bank goes bankrupt.
- It is a **fully owned subsidiary** of **RBI.**
- The RBI governs it**.**
- **Coverage of DGCI:-Banks including regional rural banks, local area banks, foreign banks** with branches in India, and **cooperative banks**, are mandated to take deposit insurance cover with the DICGC.
- **Types of Deposits Covered:-**DICGC insures **all bank deposits**, such as saving, fixed, current, recurring, etc**.** The following types of deposits are not covered under DICGC:-
  - o Deposits of **foreign Governments.**
  - o Deposits of **Central/State Governments.**
  - o **Inter-bank deposits.**
  - o Deposits of the **State Land Development Banks** with the State co-operative banks.
  - o Any **amount due on account** of any **deposit received outside India**.
  - o Any **amount which has been specifically exempted** by the corporation with the previous approval of the **RBI.**

MUST READ: UPI and NPCI Regulation
SOURCE: INDIAN EXPRESS

India's Fisheries Sector	**Context:** Recently, the Union Minister for Fisheries, Animal Husbandry and Dairying stressed the need for strengthening marketing in the **fisheries sector**, by evolving a system similar to that of agriculture marketing.
	About India's Fisheries Sector:-
	• India is the **third-largest fish producer** and the **second-largest aquaculture producer** globally.
	• The Indian **Blue Revolution** has led to a major improvement in the fishing and aquaculture industries.
	  o **Blue Revolution:** it refers to the time of intense growth of the worldwide aquaculture industry from the mid-1960s to the present day.
	  o It was **launched in India during the seventh Five Year Plan (FYP),** from **1985 to 1990.**
	• These industries are regarded as **sunrise sectors** and are anticipated to have a big impact on the Indian economy.
	  o **Sunrise sectors:** is a term used for a sector that is just in its infancy but shows promise of a rapid boom.
	
	Recent trends in the Fisheries sector:-

- In the recent past, Indian fisheries have **witnessed a paradigm shift from marine-dominated fisheries to inland fisheries**, with the **latter emerging as a major contributor** to fish production **from 36%** in the mid-1980 **to 70%** in the recent past.
- The Fish production reached an **all-time high** of 16.25 MMT **during FY 2021-22**.
- The **marine exports touched Rs. 57,586 Crores. (UPSC CSE: Agreement on Fisheries Subsidies (Agreement))**
- **Top Fish Producing States:-**
  - **Andhra Pradesh** is the largest producer of fish in India followed by **West Bengal.**

Challenges of the Fisheries Sector:-
- **Illegal, Unreported, and Unregulated (IUU) fishing:** it exacerbates overfishing and undermines the sustainability of the sector.
  - IUU fishing involves activities such as **fishing without proper licenses, using banned gear, and disregarding catch limits**.
- **Inadequate Infrastructure and Technology**: Outdated fishing vessels, gear, and processing facilities hinder the efficiency and productivity of the sector. Insufficient cold storage and transportation infrastructure **result in post-harvest losses.**
- **Climate Change and Environmental Degradation**: Rising sea temperatures, ocean acidification, and changing currents have a **profound impact on marine ecosystems and fish populations**.
- **Socio-Economic Issues**: a large number of small-scale and artisanal fishers who face multiple socio-economic challenges characterizes the fisheries sector in India.
  - These challenges include **low incomes, lack of access to credit and insurance, inadequate social security measures** etc.
- **Gender disparities** and the marginalization of women in fisheries also pose challenges.
- **Market Access and Value Chain Inefficiencies**: Despite India's significant fish production, there are challenges in accessing domestic and international markets.

MUST READ: Agriculture Reforms
SOURCE: AIR

First Loss Default Guarantee (FLDG) system	**Context:** The Reserve Bank of India (RBI) has recently allowed the **First Loss Default Guarantee (FLDG) system** in the digital lending space. **About the First Loss Default Guarantee (FLDG) system:-** • First Loss Default Guarantee (FLDG) is also known as **default loss guarantee (DLG).** • It is a safety-net arrangement among banks, non-banking finance companies (NBFC), and fintech players in the digital lending space. • FLDG is a **lending model between a fintech and a regulated entity such as banks or NBFCs.** ○ **Financial technology** (fintech): It is a new technology that seeks to **improve and automate** the delivery and use of **financial services. (UPSC CSE: Fintech Regulation in India)** • Under this, **the fintech company guarantees to compensate** up to a certain percentage of default if a borrower fails to repay the loan to the banks or NBFCs. • The **credit risk is borne by the fintech companies sometimes also known as Lending service providers (LSPs).** **Lending service providers (LSPs)** • They are new-age players who **use technology platforms in the lending space**.

	• They are **agents of a bank or NBFC**. (UPSC CSE: RBI suggests a tougher regulatory framework for NBFCs) • They **carry out one or more of a lender's functions** (in part or full) in customer acquisition, underwriting support, pricing support, disbursement, servicing, monitoring, and recovery of specific loans or loan portfolios as per the outsourcing guidelines of the RBI. **MUST READ: Empowering Rural Women FINTECH** **SOURCE: THE INDIAN EXPRESS**
SANKALP programme	**Context:** Recently, Ministry of Skill Development & Entrepreneurship (MSDE) certified Trainers trained in the cluster-based Training of Trainers project under the **Skill Acquisition and Knowledge Awareness for Livelihood Promotion (SANKALP) programme**. About SANKALP programme:- **IMAGE SOURCE: IASBABA** • It is a **Centrally sponsored scheme**. • **Tenure: 2018-2023**.(UPSC CSE: SANKALP Scheme) • **Ministry: Ministry of Skill Development & Entrepreneurship (MSDE).** • **Objectives**: to **improve short-term skill training** through **strengthening institutions**, bringing in **better market connectivity** and **inclusion of marginalised sections** of society. • **Eligible age:** candidate needs to be **18 years old.** • It aims to implement the mandate of the **National Skill Development Mission (NSDM).** • It receives loan assistance from the **World Bank. (UPSC CSE: World Bank and International Finance Corporation)** o **World Bank**: an international organization dedicated to providing financing, advice, and research to developing nations to aid their economic advancement. **3 Key Areas of SANKALP:-** • **Institutional Strengthening** at the Central, State and District level. • **Quality Assurance** of skill development programmes. • **Inclusion of marginalized populations** in skill development programmes. **National Skill Development Mission (NSDM)** • It aims to **create convergence across various sectors and different States** in terms of activities relating to skill training. • **Launched: 2015. (UPSC CSE: NSDM)** • **Ministry: Ministry of Skill Development & Entrepreneurship (MSDE).** **Objectives of NSDM:-** • to **consolidate efforts of skill training and development** across sectors and states. • to help **expedite steps** to achieve various skilling efforts at scale at a fast pace. • to **create an end-to-end framework** which promotes sustainable livelihoods for citizens. **Institutional mechanisms:-** • The MSDE has set up institutional mechanisms at **three tiers** namely:- • **Governing Council :** at the apex level for policy guidance • **Steering Committee**

- **Mission Directorate**
- **The Mission Directorate** is supported by **three additional institutions** functioning horizontally. These include:-
- **National Skill Development Agency (NSDA):-**
  - o NSDA was established to **coordinate and harmonize** the **skill development** efforts of the **government and the private sector.**
  - o It focuses on **policy research**, **quality assurance** and implementation of **quality standards** across all skilling agencies etc.
- **National Skill Development Corporation (NSDC):-**
  - o NSDC is Public Private Partnership (PPP) under the Ministry of Skill Development & Entrepreneurship (MSDE) to create **training capacity** in the country, **fund vocational training initiatives** and **create a market ecosystem** for skill development.
  - o It **overlooks training, and capacity-building aspects** of trainers – both **public and private**, leads the engagement with industries, and drives the sector's skills councils.
- **Directorate General of Training (DGT):-**
  - o DGT is the **apex organisation** for development and coordination at the National level for the **programmes relating to vocational training**.
  - o It maintains the skill training **structures of training Institutes,** advises on training policies, trains instructors, provides technical support, runs women-centric training institutes, etc.

MUST READ: [Year End Review of Ministry of Skill Development and Entrepreneurship](#)
SOURCE: [PIB](#)

Execution-only platform (EOP)	**Context:** Recently, the Securities and Exchange Board of India (SEBI) directed existing Mutual Funds '**Execution-Only Platforms' (EOPs)** to obtain registration within three months. **About Execution only platform (EOP):-** **Execution-only platform (EOP)** is a **digital or online platform which facilitates transactions** such as subscription, redemption and switch transactions in direct plans of schemes of **mutual funds.** **Historical Background:-** - Until now, there was **no specific framework available for technology/digital platforms** to provide execution-only services in direct plans of mutual fund schemes. **Current Status:-** - As per the new SEBI's new guidelines, no entity would be allowed to operate as an EOP without **obtaining registration from SEBI or the Association of Mutual Funds in India (AMFI).** **AMFI**: nodal association of mutual funds across India. **Categories of EOP** - The capital markets regulator has divided EOPs into **two categories:-** **Category 1 EOPs:-** - These would **need to be registered with AMFI**. - Under this category, **the EOPs would act as an agent** of asset management companies (AMCs) and integrate their systems with AMCs and/or Registrar and Transfer Agents (RTAs) authorized by AMCs to facilitate transactions in mutual funds.

	o These **entities may act as an aggregator of the transactions** in direct plans of schemes of mutual funds and provide services to investors or other intermediaries.
	• **Category 2 EOPs:-**
	    o These would need to be **registered as a stockbroker with SEBI.**
	    o It can operate as **an agent of investors**.
	    o It can **operate only through the platforms** provided by the stock exchanges. **(UPSC CSE: SEBI)**
	
	MUST READ: Mutual Funds (MF) Risk-o-meter becomes effective
	SOURCE: BUISINESSSLINE

Willful defaulters	**Context:** Recently, the Reserve Bank of India (RBI), allowed **willful defaulters** involved in frauds to go in for a compromise settlement with respective banks to settle their dues.
	About Willful defaulters:-
	• Willful Defaulter is an entity or a person that has not paid the loan taken back to the bank despite having the ability to repay it. Willful defaulters are acted against comprehensively. (UPSC CSE: Time for 5th generation banking reforms)
	• **As per the RBI a willful default occurs when:-**
	    o The unit has **defaulted in meeting its payment/repayment obligations** to the lender **when it has the capacity** to honor these commitments.
	    o The **funds are not utilized for the specific purpose** for which finance was availed but rather have been **diverted for other purposes.**
	    o Those that have disposed of or removed movable fixed assets or immovable property given for the purpose of securing a term loan.
	Steps By Government:-
	• **SARFAESI Act (Securitization and Reconstruction of Financial Assets and Enforcement of Securities Interest Act, 2002):-**
	    o Under the provisions of this act, many cases involving secured assets have been initiated.
	    o **SARFAESI Act, 2002:** allows banks and other financial institutions for auctioning commercial or residential properties to recover a loan when a borrower fails to repay the loan amount.
	• **RBI Instructions:-**
	    o As per the instructions provided by the Reserve Bank of India (RBI), willful defaulters are not sanctioned any additional facilities by banks/financial institutions, their unit is **debarred from floating new ventures for 5 years**.
	    o Even **criminal proceedings are initiated** wherever necessary.
	• **SEBI Regulations:-**
	    o Willful defaulters and companies who have willful defaulters as either promoters or directors have been **debarred from accessing capital markets to raise funds.**
	• **Insolvency and Bankruptcy Code (IBC), 2016:** it has **debarred willful defaulters** from participating in the insolvency resolution process.
	    o **IBC 2016:** it is India's bankruptcy law, which seeks to consolidate the existing framework by creating a single law for insolvency and bankruptcy.
	• **Fugitive Economic Offenders Act, 2018:** the act was enacted for effective action against willful defaulters who flee Indian jurisdiction.
	    o It **provides for attachment and confiscation of property of fugitive offenders** and to disentitle them from defending any civil claim.

	o **Fugitive Economic Offenders Act, 2018:** it seeks to **confiscate the properties of economic offenders who have left the country to avoid facing criminal prosecution** or refuse to return to the country to face prosecution.
	• **Public Sector Banks (PSB):** the government has also advised all PSBs to decide on **publishing photographs of all concerned willful defaulters**.
	    o **It further suggested** obtaining a certified copy of the passport of promoters/directors and other authorized signatories **of companies availing loans of over ₹50 crores**.
	    o PSBs: banks owned or controlled by the **government of India,** which holds **more than 50% of their shares.**
	
	MUST READ: [Non-Performing Assets (NPAs)](#)
	SOURCE: [THE INDIAN EXPRESS](#)

Greedflation	**Context:** There is a growing consensus across the world that **corporate greed** is spiking inflation even as workers are doubly penalized by low wage increases and higher interest rates.
	About Greedflation:-
	
	IMAGE SOURCE: [THE INDIAN EXPRESS](#)
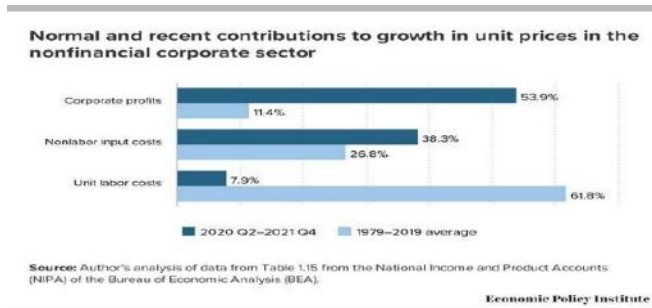	
	• Greedflation simply means (corporate) **greed is fuelling inflation.** [(UPSC CSE: INFLATION)](#)
	• It is the phenomenon where **corporate greed becomes a significant factor in fueling inflation.**
	• It implies that **companies exploited the inflation** that people were experiencing by **putting up their prices way beyond just covering their increased costs.**
	    o This was then **used to maximize their profit margins.**
	Disadvantage:-
	• The increased prices may further **contribute to inflationary pressures in the economy.**
	• It **disrupts the traditional understanding** of the wage-price spiral and **emphasizes the influence of corporate behavior on inflation dynamics.**
	• Excessive price hikes by companies contribute to an inflationary cycle, **exacerbating the overall inflation levels.**
	
	Effects of Greedflation:-
	• **Greedflation in non-essential products:** the consumers can **simply opt to go without** that particular item or service because it is not a necessity.
	• **Greedflation on a wide scale:** its impact will be similar to traditional inflation.
	    o Consumers may **not be able to avoid the higher prices** because they genuinely need the affected products or services.
	
	Greedflation and India:-
	• The Indian corporate sector has **generated superlative profits** in the post-pandemic period.
	• Profits during recent times have been **nearly thrice the profits corporates earned earlier.**
	• The Higher profits than can come from:-
	    o Higher sales (with the same profit margins).

o Higher profit margins (with the same level of sales).
o Or a combination of higher sales and higher profit margins.

MUST READ: Inflation Targeting as Monetary Policy
SOURCE: THE INDIAN EXPRESS

CHAMPIONS 2.0 Portal	**Context:** Recently, the Union Minister for the Ministry of Micro, Small & Medium Enterprises, Shri Narayan Rane launched the '**CHAMPIONS 2.0 Portal'.**
	 Background:-
	 • On International MSME Day, The Ministry of Micro, Small & Medium Enterprises, MSME launched the 'CHAMPIONS 2.0 Portal'.
	    o **MSME Day:** The United Nations General Assembly designated 27 June as "Micro-, Small, and Medium-sized Enterprises Day".
	    o **Objective:** to raise awareness of the tremendous contributions of MSMEs to the achievement of the United Nations Sustainable Development Goals (SDGs).
	 About CHAMPIONS 2.0 Portal:-
	 • Champions portal is **a single-window grievance redressal portal for Micro, Small & Medium Enterprises(MSME).**
	 • **Launched: June 1, 2020.**
	 • **Ministry: Ministry of Micro, Small & Medium Enterprises.**
	 • **Nomenclature:** The CHAMPIONS stands here for the **Creation and Harmonious Application of Modern Processes for Increasing Output and National Strength**.
	 • It is created in a **Hub & Spoke Model.**
	    o **Hub-and-spoke model:** a transportation or distribution system that uses a central hub or node as a focal point for the movement of goods, people, or information to and from various spokes or peripheral locations.
	    o **Hub:** situated in New Delhi in the Secretary MSME's office.
	    o **Spokes:** will be in the States in various offices and institutions of the Ministry.
	 Objectives:-
	 • **Addressing the challenges faced** by MSMEs in managing their cluster projects efficiently.
	 • **Ensuring a speedy, convenient, and effective redressal** of MSME's grievances.
	 • **Handholding and helping MSMEs** in their navigation of various government schemes/policies.
	 • **Providing guidance and advisory services** in areas of Finance, Marketing, Technology, Raw Material, Labour, Infrastructure and Capacity Building. (UPSC CSE: MSME sector issues and concern)
	 • **Connecting MSMEs with key officials** of the Ministry, State Governments, Lending Institutions and Government agencies.
	 • **Dissemination of information** and details of all schemes of the Ministry of MSME.
	
	 New Features:-
	 • The revamped portal will now **incorporate AI-driven chatbots.**
	 • It will be **available in 11 languages**, including Hindi, Gujarati, Bengali, and Kannada.
	 • The portal will also have a **real-time feedback mechanism** for its analysis.
	    o Geo tagging through the mobile application will enable real-time monitoring, tracking, and evaluation of projects, ensuring transparency and effective resource utilisation.
	    o **Geotagging:** is the process of adding metadata that contains geographical information about a location to a digital map.
	    o The data usually consists of **latitude and longitude coordinates.**
	 MUST READ: Empowering MSMEs digitally
	 SOURCE: PIB

GEOGRAPHY

Barents Sea	**Context:** Recently, an underwater volcano erupting with mud and fluids from Earth's interior was discovered in the **Barents Sea.** **About Barents Sea:-** • The Barents Sea is a marginal sea of **the Arctic Ocean.** • It is located along the **northern coasts of Norway and Russia**. • It borders the **Norwegian and Greenland Seas** in the west, **the Arctic Sea** in the north and the **Kara Sea** in the east. • The Barents Sea is **divided between Russia and Norway** by the **United Nations Convention on the Law of the Sea (UNCLOS).** • The sea was known **to Vikings** and medieval Russians as the **Murmean Sea.** • The current name of the sea is after the **historical Dutch navigator Willem Barentsz.** • **Boundary with island landforms:-** o It is bounded by the **Svalbard archipelago** in the northwest, **Franz Josef Land islands** in the northeast, the **Novaya Zemlya archipelago** in the east, **the Norwegian Sea and the Greenland Sea** in the west, and the **Kola Peninsula** in the south. (UPSC MAINS: landforms formed by Volcanic eruption) • It is separated from the Kara Sea by the **Kara Strait** and the Novaya Zemlya archipelago. • The sea's deepest point is 600 m at the **Bear Island Trench**. (UPSC MAINS: What is volcanism) **MUST READ: India – Russia Relations** **SOURCE: INDIA TODAY**
Salt caverns	**Context:** Recently, a Government-owned engineering firm studied the prospects of developing petroleum reserves in Rajasthan's **salt caverns.** **About salt caverns:-** **IMAGE SOURCE: ResearchGate** • Salt caverns are created by **dissolving salt deposits with water, and then pumping out the brine (salt water) to create a hollow space.** • This process is much **faster and cheaper than excavating rock caverns** and can be done in flat or low-lying areas where salt deposits are found.
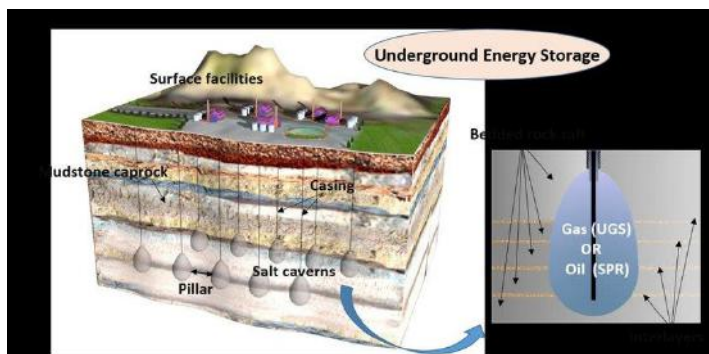
o **Rock caverns**: created by **excavating hard rock formations**, such as granite or basalt, using explosives or mechanical methods.

Advantages:-
- Salt caverns are **naturally well sealed**.
- The salt lining acts as a natural barrier against liquid and gas migration, **preventing oil from escaping or contaminating groundwater. (UPSC CSE: Groundwater Mapping)**
- They have **low oil absorbency**, which **prevents leakage and contamination** of the stored oil.
- They are relatively **easy and cheap** to create and operate.
- The process of solution mining is **faster and simpler** than excavating rock caverns, which requires more time, labour, and equipment.
- They are **suitable for storing natural gas, compressed air and hydrogen. (UPSC CSE: LNG & its climate impact)**
- Salt caverns can also be located closer to the surface than rock caverns, which **reduces the drilling costs and the risk of leakage.**
- Salt caverns can **withstand high pressure and temperature variations,** allowing for faster filling and emptying of oil.
- This makes them **ideal for emergencies or market fluctuations** when the oil needs to be released or stored quickly.

Disadvantages:-
- Salt caverns **require a large amount of water.**
- The **water used** for solution mining **has to be treated** to prevent corrosion and bacterial growth, which **adds to the operational costs.**
- The **water also has to be disposed of safely** after extracting the brine (water with dissolved salt), which can pose **environmental challenges.**
- The **brine can contain harmful substances such as heavy metals or radioactive elements**, which have to be removed before discharging into surface water or injecting into deep wells.
- Salt caverns are **limited by the availability and quality** of salt deposits.

MUST READ: Strategic Petroleum Reserves (SPR)
SOURCE: THE INDIN EXPRESS

Kilauea

Context: Kilauea, one of the most active volcanoes in the world, began erupting recently.

About Kilauea:-
- Kilauea volcano is **located in Hawaii Volcanoes National Park** on the **southeastern part of the island of Hawaii, U.S.A.**
- It is **one of the world's most active volcanoes**.
- It has **erupted 34 times since 1952.**From **1983 to 2018**, it erupted almost continuously.
- It is an active **shield volcano**.
- **Shield volcanoes:** these are formed where a volcano produces **low viscosity, runny lava, spreading far from the source and forming** a volcano with gentle slopes.

Features of Kilauea volcano:-
- It has an **elongated dome-shaped structure.**
- It has a **caldera.**

- **Caldera:** a depression formed after a volcano releases the bulk of its magma in an explosive eruption.

IMAGE SOURCE: CBC.ca
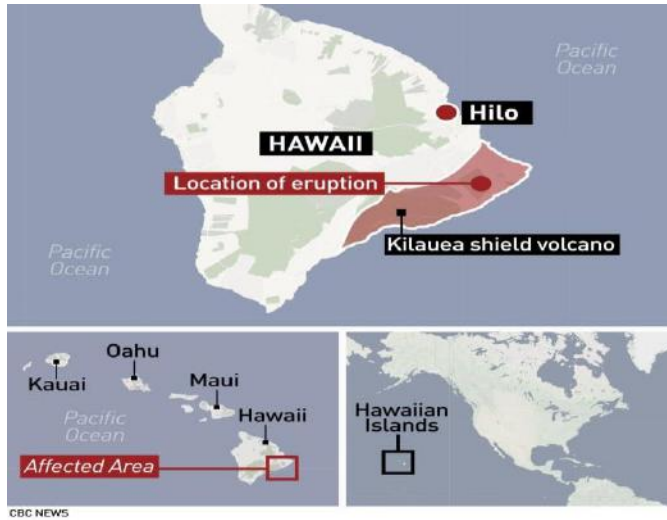
- It has a **lava lake.**
- **Lava Lake:** a lake produced by the build-up of water over the caldera.
- Its slopes merge with that of the adjacent volcano, **Mauna Loa.(UPSC CSE: Mt. Mauna Loa)**

Volcanoes in India:-
- **Barren Island:** Andaman Islands (India's only active volcano)
- **Narcondam:** Andaman Islands
- **Baratang:** Andaman Islands

- **Deccan Traps:** Maharashtra
- **Dhinodhar Hills**: Gujarat
- **Dhosi Hill:** Haryana

MUST READ: Volcanic Eruption at Mount Semeru
SOURCE: THE HINDU

Biparjoy

Context: Recently, a cyclonic storm **Biparjoy** formed over the east-central Arabian Sea.

About Biparjoy:-

IMAGE SOURCE: Swarajya
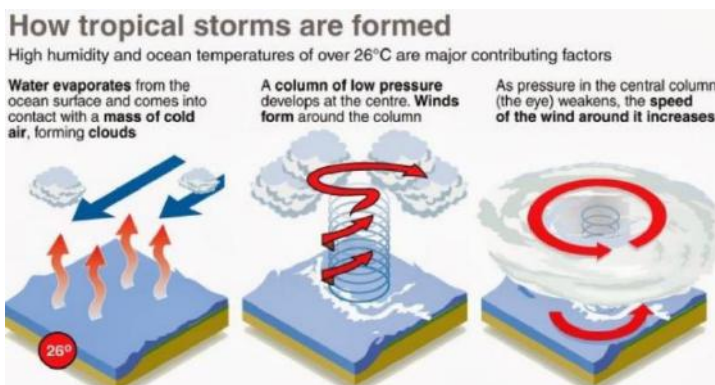
- Biparjoy was a **deep depression formed over the southeast Arabian Sea, which** intensified into a cyclonic storm.
- The **name 'Biparjoy'** was given by **Bangladesh.** It means **'calamity' or 'disaster'.**

Naming of Cyclones:
- In 2000, a group of nations called **WMO/ESCAP (**World Meteorological Organisation/United Nations Economic and Social Commission for Asia and the Pacific), which comprised **Bangladesh, India, the Maldives, Myanmar, Oman, Pakistan, Sri Lanka and Thailand**, decided to start naming cyclones in the region.
- The WMO/ESCAP expanded to include **five more countries in 2018** — **Iran, Qatar, Saudi Arabia, United Arab Emirates and Yemen.**
- After each country send their suggestions, the WMO/ESCAP Panel on Tropical Cyclones (PTC) finalises the list of names of Cyclones.
- The list of 169 cyclone names released by IMD in April 2020 were provided by these countries — 13 suggestions from each of the 13 countries.

Guidelines to adopt names of cyclones:
- The proposed name should be neutral to (a) politics and political figures (b) religious believes, (c) cultures etc.
- Name should be chosen in such a way that it does not hurt the sentiments of any group of population over the globe.
- It should not be very rude and cruel in nature
- It should be short, easy to pronounce.
- The maximum length of the name will be **eight letters.**
- The proposed name should be provided with its pronunciation and voice over.
- The names of tropical cyclones over the north Indian Ocean will not be repeated. Once used, it will cease to be used again.

World Meteorological Organization (WMO)
- It is a **specialized agency of the United Nations**.
- It is dedicated to **meteorology (weather), climatology (climate), operational hydrology (water)** and other related **geophysical sciences** such as oceanography and atmospheric chemistry.
- **International Meteorological Organization (IMO)**, founded in 1873 was its predecessor organization.
- **Membership:** it has 192 Member States and Territories. **India is a member of WMO.**
- **HQ: Geneva, Switzerland**
- **Reports:-**
  - **Greenhouse Gas Bulletin.**
  - **Status of the World Climate.**

MUST READ: [More Cyclones in the Arabian Sea](#)
SOURCE: [DOWN TO EARTH](#)

Proterozoic Eon	**Context:** Recently discovered molecular fossils from the **Proterozoic Eon** may open the window to the 'lost world' of primordial life.
	 About Proterozoic Eon:-
	 • **Proterozoic Eon** was the last aeon of the **Precambrian supereon.**
	     o **Precambrian era:** it spans **Era (4500–544 Ma) and includes** almost 90% of Earth's history.
	     o **Eon (or aeon):** is a term in Earth science for the **longest periods.**
	 • It spans from the **time of the appearance of oxygen** in Earth's atmosphere to just **before the proliferation of complex life (such as corals)** on the Earth.
	
	 Major Events in the Proterozoic Eon:-
	 • **Bacteria began producing oxygen**, leading to the sudden rise of life forms.
	 • **Eukaryotes (have a nucleus), emerge**, including some forms of **soft-bodied multicellular.**
	 • Earlier forms of **fungi formed** around this time.
	 • The **early and late phases of this aeon** may have undergone **Snowball Earth periods.**
	     o **Snowball Earth periods:** when Earth **suffered below-zero temperatures**, extensive glaciation and as a result drop in sea levels.
	 • It was a very **tectonically active period** in the Earth's history. (UPSC CSE: PLATE TECTONICS)

- It featured the **first definitive supercontinent cycles** and modern mountain buildings. (UPSC MAINS: principles of plate tectonics)
- It is believed that **43% of modern continental crust was formed** in the Proterozoic, 39% formed in the Archean and only 18% in the Phanerozoic.
- In the late Proterozoic (most recent), the **dominant supercontinent was Rodinia**.

MUST READ: Abnormal' dinosaur egg in India
SOURCE: THE INDIAN EXPRESS

Anak Krakatau volcano

Context: Indonesia's **Anak Krakatau volcano** erupted recently.

About Anak Krakatau volcano:-
IMAGE SOURCE: ABC News

- It is an island in a **caldera** situated in the **Sunda Strait** between the islands of **Java and Sumatra in Indonesia.**
- **Caldera:** It is a large depression formed when a volcano erupts and collapses.
- **Origin: Anak Krakatau, which means the child of Krakatau,** is the offspring of the famous **Krakatau volcano**, whose **monumental eruption in 1883** triggered a period of global cooling.
- In 1927, Anak Krakatoa emerged from the caldera formed in 1883 by the explosive volcanic eruption that destroyed the island of Krakatoa. (UPSC CSE: Volcanic eruption at Mount Semeru)
- It is part of the **Ujung Kulon National Park**, listed in **UNESCO's World Heritage site.(UPSC CSE: Dholavira: India's 40th World Heritage Site)**

Ujung Kulon National Park

- It is a national park on the island of Java, in the province of Banten, Indonesia.
- It is best known as the **last refuge of the one-horned Javan rhinoceros.**
- A remote area of low hills and plateaus, with small lagoons and coastal dunes, it occupies 475 square miles (1,229 square km) on a peninsula and some islands at the extreme western tip of Java.
- The park faces the **Sunda Strait,** separating Java from Sumatra, and includes Panaitan Island, about 6 miles (10 km) northwest of the peninsula.
- It was set aside as a nature reserve in 1921; the national park was proposed in 1980 and formally established in 1992.
- **The area was designated a World Heritage site in 1991.**
- The park today contains the last remaining low-relief forest on Java; typical trees are of the genera Ficus and Barringtonia.
- Fewer than 60 Javan, or **lesser one-horned, rhinoceroses** (Rhinoceros sondaicus) remain alive, although the animals once thrived throughout the islands of Java, Borneo, and

Sumatra, the Malay Peninsula, and other areas of Southeast Asia. Poaching and disease are the gravest threats to the remaining Javan rhinoceroses.
- Additional species in the park include bantengs (a type of wild cattle), Javan gibbons, langurs (leaf monkeys), muntjacs (barking deer), chevrotains (mouse deer), crocodiles, green turtles, green peacocks, and jungle fowl. In the late 20th century Javan tigers, which had inhabited the area, were considered extinct.

MUST READ: Rhinos
SOURCE: THE INDIAN EXPRESS

Nutri Garden project	**Context:** The **Nutri Garden project** of Lakshadweep has turned out to be a big success. **About the Nutri Garden project:-** • Nutri garden is a **method of planting and harvesting nutrient-rich crops** in **residential houses or in their vicinity** to meet the requirements of the family all year round. • It is a **cost-effective model** to grow nutrient-rich crops for personal or community consumption to promote good health and well-being. • **Ministry: Ministry of Women and Child Development** • **In urban areas:** Nutri kitchen gardening can be promoted in the form of **rooftop gardening, terrace gardening, vertical gardening and container gardening. (UPSC CSE: Urban farming)** • **In rural areas:** Nutri kitchen gardens can be promoted in the **backyard of the houses.** **Benefits of Nutri Garden:-** • It **increases the availability of food** and nutrient sources. • It can act as a **source of supplementary income.** • The crops harvested are **Fresh and Safe (chemical-free). (UPSC CSE: Natural Farming)** • It **helps tackle both under-nutrition and over-nutrition** by adopting **a sustainable life cycle approach.** **Challenges:-** • **Lack of availability of vacant land**, water and other necessary infrastructure to create a nutri-garden. • **Insufficient funds** from the administration. **MUST READ: Nutrition Smart Village** **SOURCE: TIMES OF INDIA**

Jellyfish galaxy JO206	**Context:** Recently, Hubble telescope captured a **jellyfish galaxy JO206** lying 700 million light-years away.
	About jellyfish galaxy JO206:-
	• It is a galaxy located approximately **700 million light-years away from Earth.**
	• It displays **a colorful star-forming disk surrounded by a pale, luminous cloud of dust.**
	• It is situated in the **constellation Aquarius.**
	• **Origin of the name:** "Jellyfish" is given to galaxies that **resemble their marine counterparts**.
	   o This resemblance is **evident in the image of JO206.**
	   o At the bottom right in the image, "**tentacles" of bright star** formation that trails the main disc of the galaxy are visible.
	• The image was taken with the **Hubble telescope.**
	• **Hubble Space Telescope:** it is a large, space-based observatory by NASA/ESA.

o It is deployed since **1990.**

Aquarius constellation

- It is **one of the 12 zodiac constellations.**
- It belongs to the **Zodiac family of constellations**, along with Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpius, Sagittarius, Capricornus, and Pisces.
  - o **Zodiac constellations**: the Sun appears to pass through these constellations over the course of a year.
- **Origin of the name:** it is derived from Latin, meaning "**the water-bearer" or "cup-bearer."**
  - o Aquarius lies in the **region of the sky** which is sometimes referred to as the **Sea,** because it contains a number of **other constellations** with names associated with water like Pisces (the fish), Eridanus (the river), and Cetus (the whale), among others.
- Aquarius is the **10th largest constellation**.
- **Area:** It covers an area of 980 square degrees.
- Aquarius contains the **famous supergiant stars Sadalsuud (Beta Aquarii) and Sadalmelik (Alpha Aquarii).**

MUST READ: India's Space Economy
SOURCE: THE INDIAN EXPRESS

Enceladus

Context: Recently, NASA's Cassini spacecraft discovered 'phosphorous', a key element for life, on Saturn's moon **Enceladus.**

About Enceladus:-

- Enceladus is the **sixth-largest** moon of Saturn.

Global Ocean on Saturn's Moon ENCELADUS — Ice crust, Global ocean, Rocky core, South polar region with active jets * Thickness of layers is not to scale
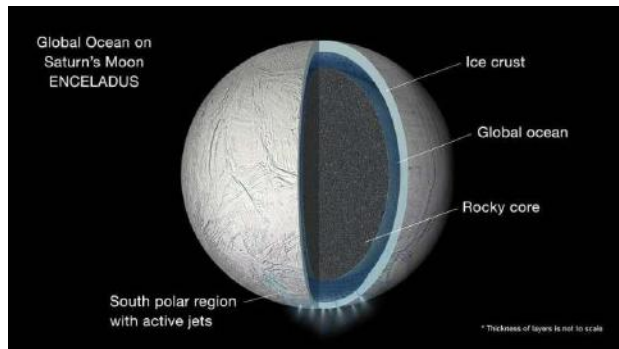
- **Discovery:** it was discovered in 1789, by the **English astronomer William Herschel**.
- **Origin of the name:** it was named for **one of the Giants (Gigantes)** of Greek mythology.
- **Surface features:** ranging from old, heavily cratered regions to young, tectonically deformed terrains.
- It is mostly **covered by fresh, clean ice**, making it **one of the most reflective bodies of the Solar System.**
- It is the **second nearest** to the major regular.
- It is the **brightest** of all moons of Saturn. (UPSC CSE: Methane in the Moons of Saturn)
- It is **an active moon** that hides a global ocean of liquid salty water beneath its crust. (UPSC CSE: UAE's Hope Mission)

Major Revelations:-

- **2005:** the Cassini spacecraft discovered **water-rich plumes** venting from the **south polar region.**
  - o According to NASA scientists, the plumes are **similar in composition to comets**.
- **2014:** NASA reported that **Cassini found evidence for a large south-polar subsurface ocean of liquid water**.
  - o It had a thickness of around 10 km.
- **2021:** astronomers reported **detecting substantial amounts of methane.**
  - o It could be a **possible sign of microbial life**, on Enceladus.

	Cassini spacecraft
	• **Launched in 1997** [(UPSC CSE: Jupiter and Saturn to be seen in Great Conjunction)](#)
	• **Launched by: National Aeronautics and Space Administration (NASA)**
	    o It is an independent agency of the U.S. federal government responsible for the civil space program, aeronautics research, and space research.
	• **Time Period of mission:** It orbited Saturn from **2004 to 2017**, circling the planet 294 times.
	• It measured the **structure of Saturn's atmosphere and rings**, as well as how they interact with the planet's moons.
	• It **also discovered six named moons** and revealed Enceladus and Titan as promising locations to search for extraterrestrial life.
	    o **Titan:** Saturn's **largest moon**.
	    o It is the only moon in the solar system with a **substantial atmosphere.**
	
	MUST READ: [Gaganyaan](#)
	SOURCE: [HINDUSTAN TIMES](#)

Hindu Kush Himalayas region	**Context:** Recent reports from the International Centre for Integrated Mountain Development (ICIMOD) suggest that Climate change is severely affecting biodiversity in the **Hindu Kush Himalayas region**. **About Hindu Kush Himalayas region:-** **IMAGE SOURCE:** [THE THIRD POLE](#) • Hindu Kush is a huge mountain system of **Central Asia.** • It spans across **Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan.** • It is **one of the great watersheds of Central Asia**. • It forms a part of the **vast Alpine zone** that stretches across **Eurasia from east to west**. • It **runs northeast to southwest** and **divides the valley of the Amu Darya** (the ancient Oxus River) to the north from the **Indus River valley to the south.** • **To the east the Hindu Kush:** lies the **Pamir range** near the point where the borders of China, Pakistani-controlled Kashmir, and Afghanistan meet. • **On the southwest:** it runs through **Pakistan and into Afghanistan**, finally merging into minor ranges in **western Afghanistan.** • The **highest peak is Mount Tirich Mir.** o It rises near the Pakistan-Afghanistan border to 25,230 feet (7,690 meters). • **The Third Pole**: the region is called 'The Third Pole'**because** it **stores more snow and ice than anywhere else in the world outside the polar regions.** • It contains some of the **world's highest mountains.** • It is the source of **10 major rivers and forms a formidable global ecological buffer.** • The region contains 1,106 **Important Bird Areas (IBAs), covering about 11% of its total area.**
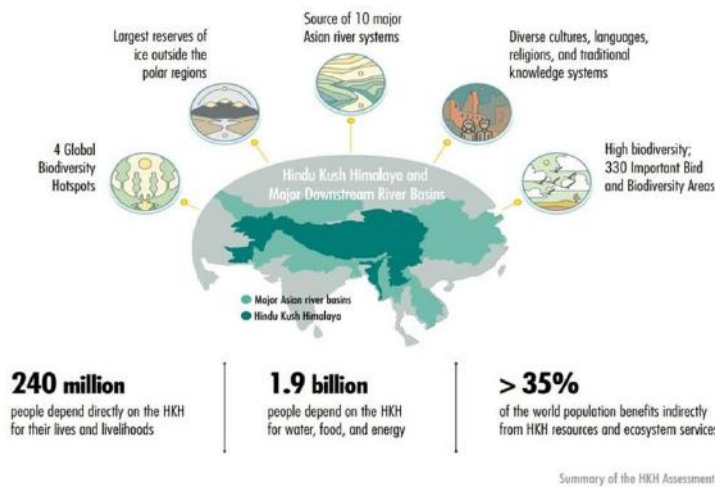
- o **IBA:** most important sites for the conservation of birds identified using standard scientific criteria.

Significance:-

- **Socioeconomic and cultural diversity:** it is home to many **different ethnic communities** speaking more than 600 languages and many more dialects.
- **Ecology:** It is endowed with **rich natural resources** and contains all or part of **four global biodiversity hotspots**. (UPSC CSE: Mitigating Climate Change)
  - o These include **Himalaya Hotspot, Indo-Burma Hotspot, Mountains of Southwest China and Mountains of Central Asia.**
- **Local Economy:** The mountain resources provide a wide range of **ecosystem services** and the basis for the **livelihoods** of the people living in the region.
- **Originating Rivers:** Many people benefit from the **food and energy produced** in these river basins that have their origin in the mountains.

Impacts of climate change on Hindu Kush Himalayas region:

- **The timing of leaf-fall and fruiting has altered.**
  - o This has led to a **decrease in the survival of plants and threatened the vulnerability of species.**
- **Advanced and delayed flowering of Himalayan rhododendron has been observed in Nepal and nearby HKH region.**
- The **change in snowfall patterns** due to rise in temperatures has resulted in the **shifting of the tree line as well.**
- **Many plant species** have **shifted upwards at the rate** of 11 to 54 meters per decade in the western Himalayan regions of India.
- **About 90 per cent of the endemic species in the Sikkim Himalayas** have **displaced at the rate of 27.53 to 22.04 meters per decade.**
- Many **species, found in the northwest Himalayas** of eastern Ladakh, **have moved upwards by about 150 meters above the plant distribution limit.**
- **5 per cent of 26 invasive plant species** will expand while 25 per cent will contract, thereby threatening biodiversity and food security while causing heavy economic losses.
  - o **An invasive or alien species** is an introduced species to an environment that becomes overpopulated and harms its new environment.
- **Declining fauna is observed.**
- **Mammals, insects, microbes, birds, amphibians and fishes are becoming extinct or are experiencing genetic and behavioral changes.**
- **Himalayan musk deer, golden snub-nosed monkeys and Himalayan grey langurs have already experienced range shifts with declining populations.**
- **Monocled and king cobras in the Sikkim Himalayas** have moved higher from 1,000 meters to 1,700 meters.
- **In Pakistan, 14 species of butterflies known to dwell in the Murree hills and neighboring** areas are reported to have disappeared.

International Centre for Integrated Mountain Development (ICIMOD)

- ICIMOD is an **intergovernmental knowledge and learning center.**
- **Established: 1983.**

- **HQ: Lalitpur, Nepal.**
- **Objective:** it develops and **shares research, information, and innovations** to empower people in the eight regional member countries of the Hindu Kush-Himalayan region.
- **Members: Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan**.

Functions of ICIMOD:-

- It serve the region through **information and knowledge generation**.(UPSC CSE: Intergovernmental Panel on Climate Change (IPCC))
- It is involved in sharing to find **innovative solutions to critical mountain problems.**
- It acts as a bridge between the **policies and on-the-ground practices**.
- It provides a **regional platform** where experts, planners, policymakers, and practitioners can **exchange ideas and perspectives** towards the **achievement of sustainable mountain development.**
- It **facilitates knowledge exchange across the region**.
- It helps **customize international knowledge** and tailor it to the region's needs.
- It helps to bring **regional issues to the global stage.**

MUST READ: Water bomb in the Himalayas
SOURCE: DOWN TO EARTH

| Lake Victoria | **Context:** Recent reports suggest, that heavy rains, windstorms, and floods threaten the survival and water access of the communities living in the **Lake Victoria Basin (LVB),** East Africa. |

About Lake Victoria Basin (LVB):-
IMAGE SOURCE: Britannica
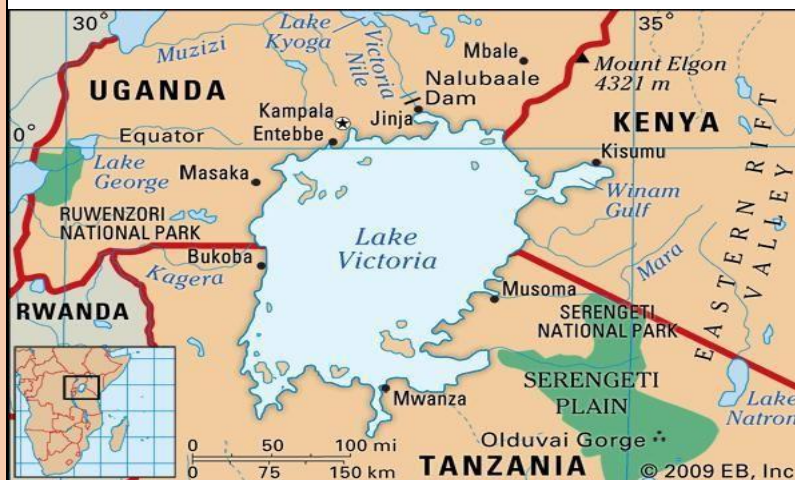
- The Lake Victoria Basin (LVB) is located in the **upper reaches of the Nile River basin. (UPSC CSE: Chilika Lake)**
- It comprises **one of the world's greatest complexes of lakes, wetlands, and rivers**.
- **Catchment area: approximately 194,200 km2.**
- It traverses through **five East African Countries** including **Tanzania (44%); Kenya (22%); Uganda (16%); Rwanda (11%) and Burundi (7%).**

Significance:-

- The basin plays a major **ecological, social and economic role** and is central to the development and regional integration of the East Africa Community (EAC).
- It is **rich in resources** such as fishery, biodiversity, extensive networks of rivers and wetlands, forests, fertile soils, wildlife, minerals, tourism, multimodal transport and communication.

- The basin **provides livelihood** to locals who directly or indirectly rich natural resources around the basin.
- The basin has huge **investment potential.**

Lake Victoria

- It is the **world's second-largest** lake.
- It is the **largest freshwater lake in Africa.**
- It is one of the most important landmarks. [(UPSC CSE: Managing Water Quality of Lake Victoria)](link)
- It is the chief reservoir of the **river Nile.**
  - **Nile: longest river in the world.**
- **Bordering countries**: Kenya (6%), Tanzania (51%) and Uganda (43%).
  - Its catchment also **touches Burundi and Rwanda.**
- It is known for its **high level of unique biodiversity.**

MUST READ: [Lake Sawa](link)
SOURCE: [DOWN TO EARTH](link)

Mahadayi River	**Context:** Recently, tenders floated for the Kalasa Banduri project on the **Mahadayi River** have not shown success. **Background:-** • Tenders for implementation of the controversial Kalasa Banduri scheme were floated by the previous BJP government minutes before the Karnataka Assembly elections were announced. • They were put out **without obtaining forest and environment clearance**. • The tenders are open for bidding till 21st August 2023 but are unlikely to find takers. **About Mahadayi River:-** **IMAGE SOURCE: [MapsofIndia](link)**
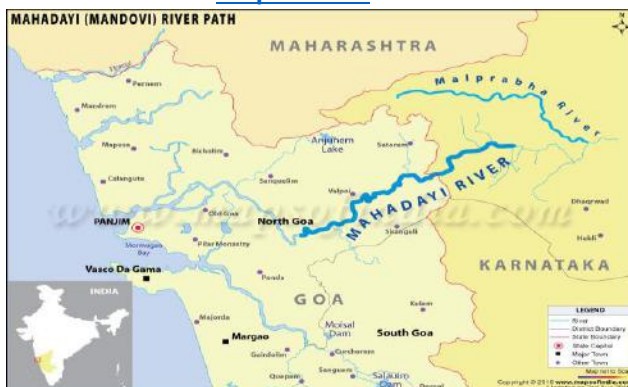
- The Mahadayi River is also known as the **Mandovi River.**
- **Origin:** It originates in the **Western Ghats** from the **Bhimgad Wildlife Sanctuary** in **the Belgaum district of Karnataka.**
- **End point:** It flows for about 81 km before emptying into the **Arabian Sea.**
- The river is formed by the confluence of two rivers: **the Daddi and the Markandeya**.
- **Left Bank Tributaries**: Daddi River, Malaprabha River, and Markandeya River.
- **Right Bank Tributaries:** Tambaraparani River, Bainganga River, Wardha River.
- **Dams on the Mahadayi River:-**
  - **The Hidkal Dam:** Located in the Belagavi district of Karnataka.
  - **The Hidkal Dam:** Located in the Belagavi district of Karnataka.
  - **The Selaulim Dam:** Located in South Goa.
- **The Virdi Dam: Located in the Belagavi district of Karnataka**
- The **Salim Ali Bird Sanctuary** is situated on the island of Chorao, which is located in the Mandovi River.

- **Significance:** The Mahadayi River is of great importance to the states of Goa and Karnataka, serving as a **source of water for drinking, irrigation, and tourism.**

Kalasa-Banduri Nala Project

- It is a project of the **Government of Karnataka.**
- **Planned: in 1989.**
- **Objective:** to divert water from Mahadayi to satisfy the drinking water needs of the Belagavi, Dharwad, Bagalkot and Gadag districts of Karnataka.
- It involves building dam across Kalasa and Banduri, two tributaries of the Mahadayi River to divert water to the Malaprabha River.

Kalasa-Banduri Nala Project Dispute Background

- **1989:** The project was planned by the Government of Karnataka.
- **2002**: two-and-a-half decades since the proposal, the Karnataka government decided to implement the project, after the **Centre cleared it.**
- **Goa's stand:** it approached the Centre, urging it to assess the available resources in the river and allocate water to the three basin states: Goa, **Maharashtra and Karnataka.**
- Due to the **protests in Goa**, the **project was put on hold** by the then central government.
- **2006:** The dispute gained steam in 2006 when the coalition government in Karnataka decided to start work on the project.
- **Goa then approached the Supreme Court**, seeking the creation of a Tribunal to settle the water-sharing dispute.
- The **Mahadayi Water Disputes Tribunal** was set up in **2010.**
- **Goa, Karnataka and Maharashtra** are parties to the tribunal.
- **2018:** The Tribunal 13.42 thousand million cubic feet (TMC) of water from the Mahadayi river basin to **Karnataka**, 1.33 TMC to **Maharashtra** and 24 TMC to **Goa.**
- **2019:** After the Tribunal award, Goa filed a Special Leave Petition(SLP) in the Supreme Court challenging the quantum of allocation.
- **2020:** Goa filed a contempt petition before the SC, accusing Karnataka of illegally diverting water from the Mahadayi basin. (UPSC CSE: Goa Opposition disrupts assembly proceedings over Mahadayi river dispute)
- **2023**: Goa and Maharashtra governments issued a **joint statement** saying that they will put up a united fight against Karnataka in connection with the water diversion project.

MUST READ: Mahadayi Water Row
SOURCE: THE HINDU

Indian Meteorological Department	**Context:** Recently, the **Indian Meteorological Department** issued an **orange alert** for rain in various parts of the country. **Background:-** - The **Indian Meteorological Department** issued an orange alert for rain in Uttarakhand, Himachal Pradesh, Western Uttar Pradesh, Eastern Rajasthan, Chhattisgarh, Vidarbha and Konkan. - The water level of the rivers and drains has increased.

- The administration appealed to the people not to go near the banks of the rivers and drains.

About Indian Meteorological Department:-

- **Established: 1875.**
- **Ministry: Ministry of Earth Sciences.**
- **IMD Headquarters: New Delhi.**
- It is the **National Meteorological Service** of the country.
- It is **the principal government agency** in all matters relating to meteorology and allied subjects.

Objectives:-

- To take meteorological observations **and provide current and forecast meteorological information** for optimum operation of weather-sensitive activities like agriculture, irrigation, shipping, etc.
- To warn against severe weather phenomena **tropical cyclones, duststorms, heavy rains and snow, cold and heat waves,** etc., which cause the destruction of life and property.
- To conduct and promote **research in meteorology and allied disciplines**.
- To provide **meteorological statistics required** for agriculture, water resource management, industries, oil exploration and other nation-building activities.

The IMD uses four colour codes:-

- **Green (All is well):** No advisory is issued. [(UPSC CSE: Colour Coded Weather Warning)](UPSC CSE: Colour Coded Weather Warning)
- **Yellow (Be Aware):** Yellow indicates **severely bad weather** spanning several days.
- **Orange/Amber (Be prepared):** The orange alert is issued as **a warning of extremely bad weather** with the potential of disruption in commute with road and rail closures, and interruption of power supply.
- **Red (Take Action):** When **extremely bad weather conditions** are certainly going to disrupt travel and power and have significant risk to life, the red alert is issued.

MUST READ: The India Meteorological Department (IMD) may introduce new monsoon models
SOURCE: [AIR](AIR)

Indian Institute of Astrophysics (IIA)	**Context:** Recent studies by the **Indian Institute of Astrophysics (IIA)** have given a clearer picture of how the sun's magnetic field influences interplanetary magnetic space.
	 About the study and its findings:-
	
	- With the help of this study, scientists are now one step closer to identifying the source of **solar mean magnetic field** (SMMF).
	   o **SMMF:** is the **mean value of the line-of-sight (LOS)** component of the solar vector magnetic field averaged over the visible hemisphere as well as its relationship with Interplanetary Magnetic Field (IMF).
	   o **IMF:** it is the extension of the coronal magnetic field dragged by the solar wind to the interplanetary space.
	   o **LOS:** it is the direct path between two points.
	- Scientists have found a very good similarity between the **SMMF at chromospheric heights** and the **SMMF at photospheric heights**.
	- The **value of chromospheric SMMF is lower than the photospheric SMMF**.

- This suggests that the **primordial magnetic field inside the sun could be a source of the SMMF.**
- **Data Technique:-**
- They calculated and analysed the SMMF using magnetic field measurements at the **chromosphere**, in conjunction with that photospheric measurements.
    - **Chromosphere:** a reddish gaseous layer immediately above the photosphere of the sun or another star.
    - **Photosphere:** the visible surface of the Sun.
- These electrical currents are **generated by the flow of hot, ionised gases in the sun's convection zone.**
    - **Sun's convection zone:** it is the **outermost layer** of the interior portion of the sun.
    - This layer **extends to about 200,000 km up to the photosphere.**

Solar Mean Magnetic Field (SMMF)

- The SMMF represents the **mean value of the line-of-sight component** of the solar vector magnetic field averaged over the visible hemisphere of the sun.
- The sun contains the **corona**, **the photosphere, and the chromosphere** with the **magnetic field generated by electrical currents acting as a magnetic dynamo inside the sun.**
    - **Corona**: the outer shell of the sun's atmosphere.
- **Significance:-**
    - So far, the studies on the SMMF have mostly been confined to the magnetic field measurements at the photosphere.
    - Understanding the source of the SMMF and its driving parameters could help us understand how the SMMF affects the IMF.

About the Indian Institute of Astrophysics (IIA):-

- The Indian Institute of Astrophysics is a **premier institute** devoted to research in astronomy, astrophysics and related physics.
- **Historical Background:-**
    - It traces its origins back to an observatory **set up in 1786** at Madras.
    - From the year 1792 **began to formally function** at its Nungambakkam premises as the Madras Observatory.
    - **1899:** the observatory **moved to Kodaikanal**.
    - **1971:** the Kodaikanal Observatory became an autonomous society, and came to be know as the Indian Institute of Astrophysics.
- **HQ: Bengaluru**.
- **Ministry: Department of Science and Technology, Ministry of Science and Technology.**
- **Funding:** funded by the **Department of Science and Technology**.
- **Main observing facilities**: **Kodaikanal, Kavalur, Gauribidanur and Hanle.**
- **The Vainu Bappu Observatory** at Kavalur has been the **main optical observatory** of the Institute for nighttime astronomy since the late 1960s.
    - There are several telescopes in operation here, the foremost among these being the 2.34-metre **Vainu Bappu Telescope.**
- **The Kodaikanal Observatory** has for over a century been the **principal centre of activity in observational solar and atmospheric physics. (UPSC CSE: Gaganyaan)**

MUST READ: Indian Space Association
SOURCE: THE HINDU
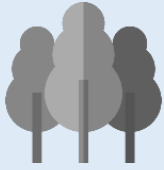
ENVIRONMENT

Kanger Valley National Park	**Context:** Recently, a rare mouse deer was caught on a camera trap set up at **Kanger Valley National Park**.

About Kanger Valley National Park:-

- Kanger valley national park is situated in **Jagdalpur,Chhattisgarh.**
- It was established as a national park in the year **1982. (UPSC CSE: Eco-sensitive Zones (ESZ))**
- It derives its name from the **Kanger River** that flows through it.
- **The Cuddapah group of rock formations**, as well as **the Vindhyan group of rock formations**, are the most prevalent rock formations in the park.

- The state bird of Chattisgarh, **the Bastar Hill Myna**, is the most famous species in this area.It can imitate human voices.
- **Kutumbasar, Kailash, and Dandak** are three caves in the park, known for their geological features of stalagmites and stalactites.
- **Fauna:** Tigers, Leopards, Mouse Deer, Rhesus Macaque, Sloth Bear, Flying Squirrel, Chital, Sambar, Barking Deer, Pythons, Cobra, Snakes etc. (UPSC CSE: Chhattisgarh's state animal, Wild buffalo, close to extinction)
- **Flora:** Teak, Haldu, Sal, Tendu, Mahua, Saja, Bija, Dhavara, Tinsa, Mahulbel, Amarbel, Bandha etc.

Indian Mouse Deer:

- It is also known as **Indian Spotted Chevrotain**.
- It is found in **India, Sri Lanka and Nepal.**
- It is the **smallest deer in India** and is **highly nocturnal.**
- **Conservation Status**
  o **IUCN Red List:** Least Concern.

MUST READ: Indravati Tiger Reserve
SOURCE: THE TIMES OF INDIA

Himalayan brown bears	**Context:** Recent reports show that encroachment is pushing **Himalayan brown bears** into Kashmir's villages.

About Himalayan brown bears:-
- **Distribution:** North-western and central Himalaya, including India, Pakistan, Nepal, the Tibetan Autonomous Region of China and Bhutan.
- **Habitat:** High altitude open valleys and pastures.
- **Conservation Status:-**
    o IUCN Red List- **Critically endangered**
    o CITES - **Appendix I (UPSC CSE: CITES COP 19)**

o Indian Wildlife (Protection) Act of 1972 - **Schedule 1 (UPSC CSE: Wildlife Institute of India (WII))**
- **Food:** Omnivorous
- **Threat**: Human-animal conflict, rapid habitat loss, poaching for fur, claws and organs and, in some rare cases, bear baiting.

MUST READ: Asiatic Black Bear
SOURCE: DOWN TO EARTH

Earth system boundaries (ESBs)	**Context:** Recent reports suggest that seven of eight **Earth system boundaries (ESBs)** that are critical for the stability of the planet's health and survival of species have already been crossed.

About Earth system boundaries (ESBs):-
IMAGE SOURCE: researchgate.net
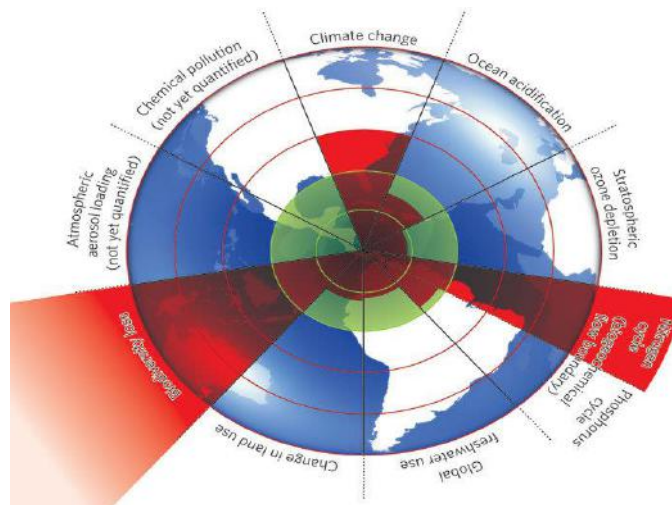
- Earth System Boundaries (ESBs) are **scientifically measured limits** for climate, freshwater, biodiversity and different kinds of pollution.
- Operating within these limits, can **help maintain a stable and resilient planet**. (UPSC CSE: Climate Change Performance Index (CCPI))
- These are hard limits and even temporary overshooting of some of the boundaries can permanently **damage the planet's critical systems. (UPSC CSE: Climate Finance)**

Key Findings of the Report:
- **Two or more ESBs have already transgressed 52%** of the world's land surface, affecting 86% of the global population.
- **India,** along with other parts of South Asia, Europe, and parts of Africa is **an ESB transgression hotspot.**
  - **Himalayan foothills** have recorded at least **5 ESB transgressions.**
- The **seven ESBs** that have been crossed are:-
  - **Climate**, **functional integrity, and levels of surface water, groundwater, nitrogen, phosphorus and aerosols.**
- The **eighth, which has not been crossed**, is. **5 degrees C warming:**
- The global annual mean interhemispheric **aerosol optical depth (AOD) difference**, which measures the degree of air pollution globally **has also not been crossed.**

MUST READ: Intergovernmental Panel on Climate Change (IPCC)
SOURCE: HINDUSTAN TIMES

Pet coke	**Context:** The Government recently, permitted the import of **pet coke** as a raw material for **lithium-ion batteries.**

About Pet Coke:-

- Pet Coke is one of the **industrial by-products produced during oil refining.**
- It is **dark solid carbon material.**
- It is **used as a source of energy and carbon** for various industrial applications.
  - It is abundantly used in India in several **manufacturing industries such as cement, steel and textile.**
- It is significantly **cheaper than coal, has high calorific value** and is **easier to transport and store.**
- There are **two kinds of pet coke** produced during oil refining viz.
  - Fuel-grade pet coke (80%) and
  - Calcined pet coke (20%).
- **India is the world's biggest consumer** of pet coke. (UPSC CSE: Strategic Petroleum Reserves (SPR))

Description: Pet Coke is a black, finely divided residue from petroleum refining in the form of powder and small pieces.

Hazard: Pet Coke is liable to heat and can ignite spontaneously.

PPE: Overall (SOLAS), goggles, filter mask, gloves, SCBA
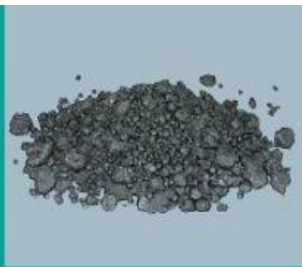
- **Local producers:** Indian Oil Corp, Reliance Industries and Bharat Petroleum Corp.
- **Cement companies** in India account for about **three-fourths of the country's pet coke use.**

Environment and Health Hazards of Pet Coke:-

- Pet coke is a **much more potent pollutant than coal.**
- It contains a whopping 74,000 PPM of sulphur content, which is released into the atmosphere as emissions, which is **much higher than vehicular emissions.**
- It is also a **source of fine dust**, which can get through the filtering process of the human airway and lodge in the lungs, which can cause serious health problems.
- It releases **sulphur, nitrous oxide, mercury, arsenic, chromium, nickel, and hydrogen chloride**, which contribute to global warming. (UPSC CSE: COP 27).

Lithium

- It is a **soft, silvery-white metal**.
- It is **the lightest metal** and the lightest solid element.
- It has the **highest specific heat capacity** of any solid element.
- It is a **good conductor of electricity.**
- It is **flammable** and can even explode when exposed to air and water.
- Lithium is a crucial building block of the **lithium-ion rechargeable batteries.**
- Currently**, India is heavily dependent on import** of these cells and the move to ink sourcing pacts for lithium is seen as a move to reduce its **dependency on China**, which is a key source of both the raw material and cell.

MUST READ: Organization of the Petroleum Exporting Countries (OPEC) Countries
SOURCE: BUISINESS STANDARD

Environmental Information, Awareness, Capacity Building and Livelihood	**Context: The Environmental Information, Awareness, Capacity Building and Livelihood Programme (EIACP)** Centers have spread the message on **LiFE** during the World Environment Day celebrations held recently. **About EIACP:-**

Programme (EIACP)	- It is a **Central Sector** sub-scheme being implemented in alignment with Mission LiFE. . (UPSC CSE: EIACP) **Ministry: Ministry of Environment, Forest and Climate Change (MoEF&CC)** **In 2023, The Environmental Information System (ENVIS)** was renamed **EIACP** (Environmental Information, Awareness, Capacity Building and Livelihood Programme). **ENVIS:** came into existence as in 1983. - The focus of ENVIS was to **provide environmental information to decision-makers**, policy planners, scientists and engineers, research workers, etc. all over the country. **EIACP** is being implemented **in alignment with Mission LiFE.** **(UPSC CSE: LIFE – LIfestyle for Environment)** **Objective:** it serves as a **one-stop platform for the dissemination of environmental information**, informed policy formulation on various facets of the environment and facilitation of alternate livelihoods through green skilling. 60 EIACP Centres are actively engaged in **promoting awareness about sustainable actions** that individuals can undertake**.** **Environment Education Programme (EEP)** - It is a **Central Sector sub-scheme**. **Objective:** for imparting **non-formal environment education** through inter alia initiatives for strengthening Eco-club activities in schools and colleges. - Sharing the common goal of **promoting a sustainable lifestyle.** **Implementation:** It is implemented in full alignment with Mission LiFE, **through State/UT-level Implementing Agencies.** - Implementing Agencies of EEP have organized some unique **and eco-friendly initiatives** like nature camps, eco-art workshops, clay & pottery workshop, promotion of eco-friendly green wedding ideas, awareness campaigns on medicinal plants, campaigns in marketplaces against single-use plastics etc. **Eco-clubs** are used as an effective medium **to spread messages on LiFE.** **Mission LIfestyle for Environment (Life):-** **Background:** At the **2021 UN Climate Change Conference (UNFCCC COP26),** Hon'ble Prime Minister of India Shri Narendra Modi announced Mission LiFE. **Aim:** to **bring individual behaviours at the forefront of the global climate action** narrative. - LiFE envisions **replacing the prevalent 'use-and-dispose' economy** with a circular economy, which would be defined by **mindful and deliberate utilisation.** **Approach:-** **Focus on Individual Behaviours:** Make **Life** a mass movement (Jan Andolan) by focusing on behaviours and attitudes of individuals and communities. **Co-create Globally**: Crowdsource empirical and scalable ideas from the best minds of the world, through top universities, think tanks and international organisations. **Leverage Local Cultures:** Leverage climate-friendly social norms, beliefs and daily household practices of different cultures worldwide to drive the campaign. **Objectives :-**

	o It aims to **promote an environmentally conscious lifestyle** that **focuses on 'mindful and deliberate utilisation'** instead of 'mindless and wasteful consumption'. o It aims to **utilise the power of collective action**. o It aims to nudge individuals across the world to **undertake simple climate-friendly actions in their daily lives**. o It aims to **create and nurture a global network of individuals**, namely **'Pro-Planet People' (P3).** ▪ **Pro-Planet People' (P3):** to have a shared commitment to adopt and promote environmentally friendly lifestyles. o It seeks to **leverage the strength of social networks** to influence social norms surrounding climate. **MUST READ:** National Clean Air Programme **SOURCE:** PIB
Gulf of Mannar	**Context:** The **Gulf of Mannar** became the **first Marine Biosphere Reserve** in the South East Asia. **About the Gulf of Mannar:-** **IMAGE SOURCE: casmbenvis. nic. in** • Gulf of Mannar is an inlet of the **Indian Ocean,** between **southeastern India and western Sri Lanka**. • It is bounded to the northeast by **Rameswaram** (island), **Adam's (Rama's) Bridge** (a chain of shoals), and **Mannar Island.** • The gulf receives several rivers, including the **Tambraparni** (India) and the **Aruvi** (Sri Lanka). • The **port of Tuticorin** is on the coast. • It has been **renowned for its highly productive pearl banks** and **religious significance**. • **The Government of India designated** it as the **country's first Marine Biosphere Reserve in 1989.** • **Gulf of Mannar National Park** has also been identified as the **important Bird Area** by BNHS-Birdlife International because of its rich avian fauna. • **Gulf of Mannar Biosphere Reserve** has been identified as **an Important Marine Mammals Area** of the World **by IUCN** due to its dugong population and other marine mammals presence. **Key life forms found in the Gulf of Mannar:-** • **Dugong (Sea cow):** also called '**Sea Cow'** is one of the four surviving species in the **Order Sirenia** and it is the **only existing species of herbivorous mammal** that lives exclusively in the sea. (UPSC PRELIMS: India's first dugong conservation reserve) o **Conservation Status:-** ▪ IUCN Red List status: **Vulnerable** ▪ Wild (Life) Protection Act, 1972: **Schedule I** ▪ CITES: **Appendix I**

	• **Sea turtles: Four of the seven species** of sea turtles found worldwide are reported to occur in the Gulf of Mannar Biosphere Reserve.
	• These are:-
	    ○ **Olive ridley** (Lepidochelys olivacea): IUCN status (**Vulnerable)**
	        ▪ They are best known for their unique mass nesting called **Arribada,** where thousands of females come together on the same beach to lay eggs.
	        ▪ Gahirmatha Marine Sanctuary: It is the **world's largest nesting beach for Olive Ridley Sea Turtles**.
	    ○ **Green** (Cheloniamydas)
	    ○ **Hawksbill** (Eretmochelys imbricata)
	    ○ **Leatherback** (Dermochelys coriacea)
	• All four species of sea turtles that occur in these coastal waters are protected under **Schedule I** of the Indian **Wildlife Protection Act (1972)**, as well as listed in **Appendix I of the Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES)**.
	• **Lobsters:** Stock enhancement and fattening of lobsters Panulirus homarus and P. polyphagous in this region are important for the **livelihood of coastal fishermen.**
	• **Crabs:** Of the 11 important commercial crabs in India, **six crab species occur** here.
	• **Sea snakes:** A total of **12 species of sea snakes** have been reported in the Gulf of Mannar region.
	• **Coastal Birds:** 187 **species of birds** were reported from the Gulf of Mannar Marine National Park.
	• **Coral reef ecosystem:-**
	    ○ Corals and coral reefs of the Gulf of Mannar National Park form an **essential ecosystem**, which **supports** a variety of ecologically and economically **important marine life**. (UPSC CSE: Coral Reefs)
	    ○ The islands in the Gulf of Mannar Marine National Park are divided into three groups namely, the **Mandapam group** (seven Islands), the **Keelakarai group** (7 Islands) and the **Tuticorin group** (7 Islands).
	
	MUST READ: Development of Great Nicobar
	SOURCE: AIR

Amchang Wildlife Sanctuary	**Context:** Recently, Indian Army generated a unique ecosystem for peaceful co-existence with wild elephants in **Amchang Wildlife Sanctuary, Assam.**
	
	About Amchang Wildlife Sanctuary:-
	• The Amchang Wildlife Sanctuary is located on the **eastern fringe of Guwahati, Assam.**
	• It comprises **three Reserve forests**:-
	    ○ **Khanapara**
	    ○ **Amchang, and**
	    ○ **South Amchang**
	• It stretches from the **Brahmaputra River** in the north to the hilly forests of **Meghalaya** in the south, forming a continuous forest belt through **Meghalaya's Maradakdola Reserve Forests. (UPSC MAINS: Monitoring China's Moves on the Brahmaputra)**
	• It was **declared a wildlife sanctuary in 2004** by the government of Assam. (UPSC MAINS: Human-wildlife conflict)

	• **Flora:** Khasi Hill Sal Forests, East Himalayan Mixed Deciduous Forest, Eastern Alluvial Secondary Semi-Evergreen Forests and East Himalayan Sal Forests.

- **Fauna:** It is home to Mammals (Flying Fox, Assamese Macaque, Slow Loris, etc.), Birds (Lesser and Greater Adjutant, White-backed Vulture, Slender-billed Vulture), Reptiles (Python, Monitor Lizard, Indian Cobra etc.).
- **Tree yellow butterflies** (banana harina): found at the Amchang wildlife sanctuary, which are **indigenous to Thailand, Malaysia, Singapore and northeast India.**

MUST READ: Tungareshwar Wildlife Sanctuary
SOURCE: THE PRINT

Ground level ozone pollution.

Context: As per recent reports of the **Centre for Science and Environment (CSE),** parts of New Delhi and South Delhi were worst affected this summer by **ground-level ozone pollution**.

Ozone Pollution
IMAGE SOURCE: Climate Central
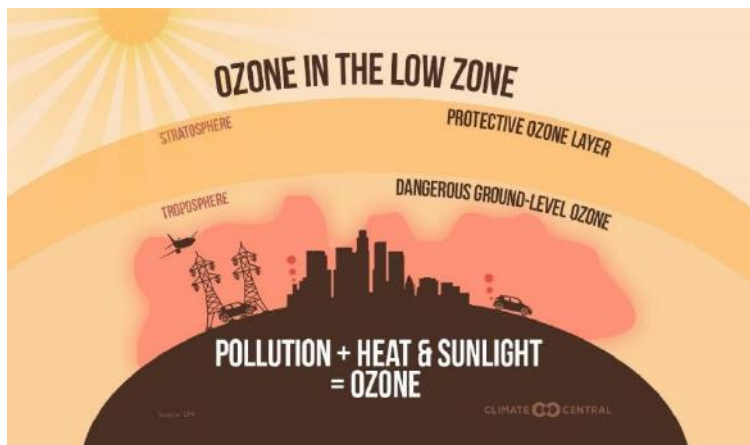
- Ozone occurs both in the **Earth's upper atmosphere (stratosphere)** and at **ground level (troposphere).**
- It can be good or bad, depending on where it is found.
- **Good Ozone:** Ozone occurs naturally in the Earth's **upper atmosphere (Stratosphere)**.
- It forms a protective layer that **shields from the sun's harmful ultraviolet rays.**
- **Ozone-depleting gases** like chlorofluorocarbons (CFCs), HCFCs, and halons, destroy this protective shield and causes a hole in the ozone.
- **Bad Ozone:** found in the Earth's lower atmosphere (troposphere) near ground level.
- It is **formed when pollutants** emitted by cars, power plants, industrial boilers, refineries, chemical plants, and other sources **react chemically in the presence of sunlight.**
- **It is a harmful air pollutant**. (UPSC CSE: Air Pollution)
- It causes damage to crops and forests.
- It can increase the **risk and susceptibility to pulmonary inflammation** like Chronic Obstructive Pulmonary Disease (COPD).
- It may **reduce lung function** and make breathing difficult.

About the Centre for Science and Environment (CSE):-
- **It was established in 1980**
- It is a **public-interest research and advocacy organisation**.
- **HQ: New Delhi**
- It works as a **think tank on environment-development** issues in India.

- It **researches into, lobbies for and communicates** the urgency of development that is both sustainable and equitable.
- It creates awareness about problems and proposes sustainable solutions.
- In 2018, the CSE was awarded **Indira Gandhi Prize for Peace, Disarmament and Development.**

MUST READ: India's uphill battle to bring down air pollution
SOURCE: THE INDIAN EXPRESS

Agency for New and Renewable Energy Research and Technology (ANERT)	The Kerala State government has recently, nominated the **Agency for New and Renewable Energy Research and Technology (ANERT)** as the State-level nodal agency for Green Hydrogen initiatives. **About Agency for New and Renewable Energy Research and Technology (ANERT):-** - ANERT is the **single nodal agency for** drafting and publishing the **Green Hydrogen policy for the state of Kerala.** (UPSC CSE: Green Hydrogen) - A Chief Executive Officer (CEO) appointed by the Government heads ANERT. **Chairman: Minister for Electricity** **Supervision:** ANERT is guided by a:- **Governing Body-** chaired by the Minister for Electricity, Kerala **and** **Executive Committee-** chaired by the Additional Chief Secretary to Government/ Principal Secretary. **Power Department,** Government of Kerala provides guidelines for ANERT's activities in various energy-related areas. **Objectives of ANERT:-** - To **identify, formulate, implement** and implementation of **projects aimed at providing energy requirements** of the **State of Kerala.** - Evolving **long-term plans based on** harnessing **solar energy, wind energy, wave energy, biogas, biomass, energy plantations, micro and mini hydel projects**, **improved chulahs etc.** - To identify, formulate, implement and support the implementation of a **broad-based energy conservation program** including the **conservation of energy at the source of generation**, at the state of distribution and/ or its utilization. - To provide technical, financial or other assistance for popularization and creation of awareness on **alternative sources of energy, energy conservation and rural technologies.** - To undertake or sponsor **training programs, seminars workshops etc**. on non-conventional sources of energy, energy conservation, and rural technology. - To **sponsor, co-ordinate or promote research programs or projects** of a development nature involving the development of **prototypes, pilot plant investigation** etc. in the area of alternative and new sources of energy and rural technologies, and **PROGRAMMES under ANERT:-** - Solar Photovoltaic Programmes - Wind energy - Solar Thermal Programme - Improved chulhas - Training and extension

- Other programmes
- Bioenergy

Green Hydrogen
- Green Hydrogen is produced by **electrolysis using renewable energy**.
- Electricity splits water into hydrogen and oxygen.
- **By Products:** Water, Water Vapor.
- It is called 'green hydrogen' because has **no carbon footprint. (UPSC CSE: G)**
- **Other Types of hydrogen:-**
    - **Brown hydrogen**: produced using coal where the emissions are released into the air. (UPSC CSE: Coal based Hydrogen)
    - **Blue hydrogen:** produced from natural gas, where the emissions are captured using carbon capture and storage.

Significance of Green Hydrogen for India:-
- Green hydrogen can drive **India's transition to clean energy and combat climate change.**
- Green hydrogen energy is vital for India **to meet its Nationally Determined Contribution (INDC) Targets**.
    - Under the **Paris Climate Agreement, India pledged to reduce the emission intensity** of its economy **by 33-35% from 2005 levels by 2030.**
- It will **reduce import dependency on fossil fuels**.
- The localisation of electrolyser production and the development of green hydrogen projects can **create a new green technologies market** in India worth $18-20 billion and thousands of jobs. (UPSC CSE: National Green Hydrogen Mission)
- .

MUST READ: India's first pure green hydrogen plant commissioned
SOURCE: THE HINDU

Wild orchids of North Bengal	**Context:** Recent reports suggest that **wild orchids of North Bengal** are dying at an alarming rate. **About Wild Orchids of North Bengal:-** - Orchids are attractively **flowered and colorful plants.** - They are known for their **vibrant and intricate flowers. (UPSC CSE: Arunachal to start red-listing of orchids)** - **Habitat:** they are found in various habitats around the world, including **tropical rainforests, mountains, and even deserts.** - India has over **1200 species of Orchids** (**388 are endemic to India**, out of which **128 are endemic to the Western Ghats**) - **Endemic:** a plant or animal native and restricted to a certain place. **Protection Status of Wild Orchids of North Bengal:-** **CITES: Appendix II** **Types of Orchids** **Epiphytic Orchids:-** - These **are plants growing on another plant** including those growing on rock boulders and are often termed lithophytes.

- About **60% of all orchids found in India are epiphytic.**
- Their **occurrence decreases with an increase in altitude.**

Terrestrial Orchids:-
- These are **plants growing on land and climbers.**
- **447 species in India** are terrestrial.
- These **grow directly on the soil** and are found in large numbers in **temperate and alpine regions.**

Mycoheterotrophic Orchids:-
- Thes are **plants which derive nutrients from mycorrhizal fungi** that are attached to the roots of a vascular plant.

Distribution:-
- **Himalayan Zone:** Richest in orchid species.
- **Northeast India:** Highest species concentration.
- **Western Ghats:** High endemism of orchids.
- **Highest Number of Orchid Species**: Arunachal Pradesh> Sikkim> West Bengal.

Uses:-
- For aesthetic purposes.
- In herbal medicine.
- Vanilla is produced from Vanilla planifolia orchid.

MUST READ: New genus of parasitic flowering plant
SOURCE: DOWN TO EARTH

New standards for Utensils Made from Agri By-Products

Context: Recently, the **Bureau of Indian Standards (BIS)** has published new standards for Food Serving Utensils Made from Agri By-Products.

About Food Serving Utensils made from Agricultural by products:
- It is aimed at **reducing plastic pollution and promoting sustainability.**

Advantages of implementing this standard:-
- Using biodegradable agri by-product utensils can contribute towards **environmental safety, conserve natural resources, and promote a circular economy.**
- These utensils are **free from harmful additives** and **ensure consumer well-being.**
- The standard also creates **economic opportunities for farmers.**
- It supports **sustainable agricultural practices**, contributing to rural development.
- In India, numerous large-scale and **Micro, Small, and Medium Enterprises** level manufacturers are actively contributing to the production of **biodegradable cutlery**, they will benefit immensely from this Standard.

About the Bureau of Indian Standards:-
- BIS is the **National Standard Body** of India. (UPSC CSE: BIS)
- It was established in 1986.
- It was originally enacted under Bureau of Indian Standards Act, 1986.
- A new act (to replace the BIS Act of 1986) was introduced in the Lok Sabha, which was subsequently passed by both houses of the Parliament in 2016.
- **HQ: New Delhi.**
- **Ministry: Ministry of Consumer Affairs, Food & Public Distribution.**

	• **Regional Offices:** Kolkata (Eastern), Chennai (Southern), Mumbai (Western), Chandigarh (Northern) and Delhi (Central). **MUST READ: Quality Council of India (QCI)**

Congo rainforest	**Context:** Recent reports suggest, that the **Congo rainforest** continues to vanish with half a million hectares lost in 2022.
	Key findings of the study:-
	• The Congo rainforest **lost half a million hectares (mha)** of forest last year.
	• The **Democratic Republic of Congo (DRC)** lost over 500,000 hectares in 2022.
	• It noted that 4.1 mha of primary tropical forest were lost **worldwide** last year
	   o Of this, **Brazil accounted for 43 per cent** of the total tropical primary forest loss**, followed by DRC (12.1 per cent) and Bolivia.**
	• This destruction in natural forests **generated 2.7 billion tonnes of CO2**.
	• The total **area of humid primary forest in DRC decreased** by 6.1 per cent during this period.
	   o **Primary forests**: forests of native tree species, where there are **no clearly visible indications of human activities.**
	• Most of the primary forest loss consists of small clearings near cyclical agricultural areas, according to the report.
	   o **Cyclical agricultural areas**: land that is cleared (using slash-and-burn techniques) for the short-term cultivation of crops and left fallow for forests and soil nutrients to regenerate.
	• **Economic factors** may be driving deforestation.
	• Most Congolese rely on forests to meet their **food and energy needs** and thus reducing primary forest loss in the region remains a challenge.
	• The drivers of forest loss across DRC are **slash-and-burn agriculture, uncontrolled bushfires, charcoal production for local and regional markets, cattle ranching, and illegal (artisanal) logging**
	• **Charcoal** is the dominant form of energy in the region, which is generated by cutting and burning timber.
	
	About Congo rainforest:-
	
	IMAGE SOURCE: adlance22.blogspot.com
	• The Congo is the **world's second-largest rainforest.** (UPSC MAINS: India's stakes in Africa)
	   o World's **largest** rainforest is the **Amazon.**
	• **Bordering countries:** The Congo Rainforest encompasses **six African countries**:- **Cameroon, Central African Republic, the Republic of Congo, the Democratic Republic of Congo (DRC), Equatorial Guinea, and Gabon.**
	• **Climate:** it has a **tropical climate** year-round, with heavy precipitation and high humidity and temperatures.
	• **Plants:** It houses approximately 10,000 tropical plants, 30% unique to the region.
	• **Wildlife:** There are also 400 species of mammals, over 600 tree species, 10,000 animal species, 1,000 bird species, and 700 fish species.

	o This includes endangered wildlife such as forest **elephants, chimpanzees, and bonobos.**
	• **Economic Significance**: the Congo Basin provides food, medicine, water, materials and shelter for over 75 million people.
	• **Human inhabitants**: **More than 150 ethnic groups** have lived in the Congo rainforest area for over 50,000 years.
	• Among these ethnic groups, **the Ba'Aka, BaKa, BaMbuti, Efe** and other related groups are often referred to as **Pygmies.**
	    o **Pygmy:** a member of any human group whose adult males grow to less than 59 inches (150 cm) in average height.
	    o They **rely on hunting and gathering** for survival in the rainforest.
	
	MUST READ: India-Africa: Challenges & Way Ahead
	SOURCE: DOWN TO EARTH
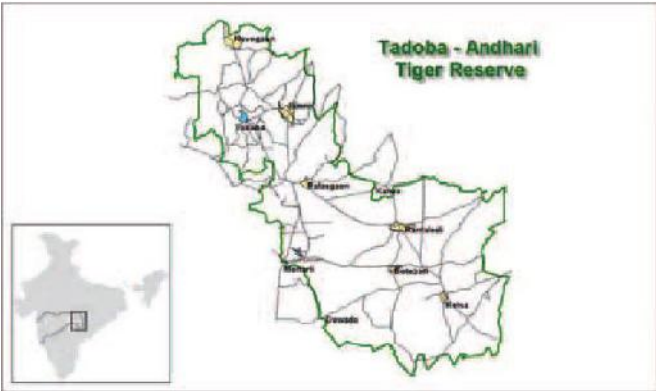
Tadoba-Andhari Tiger Reserve	**Context:** New drones have been provided for the **Tadoba-Andhari Tiger Reserve** recently.
	Background:-
	• Global end-to-end supply chain solution provider **DP World** has provided thermal drones for the Tadoba-Andhari Tiger Reserve in Maharashtra.
	• These drones are to help detect forest fires and **intensify surveillance.**
	• The forest field staff to receive **on-site training for operating the drones** for a year
	
	About Tadoba-Andhari Tiger Reserve:-
	IMAGE SOURCE: ResearchGate
	
	• **Location:** Chandrapur district in **Maharashtra. (UPSC CSE: Tadoba-Andhari Tiger Reserve)**
	• **Established: in 1993-94.**
	• It is Maharashtra's **oldest and largest national park.**
	• It is **one of India's 50 "Project Tiger".**
	• The reserve is the **second Tiger Reserve in Maharashtra.**
	    o The **first Tiger Reserve** established in the **State is Melghat Tiger Reserve (1973-74).**
	Fauna:-
	• **Mammals:** Wolf, Jackal, Wild dogs, Fox, Hyenas, Spotted Deer, Wild Boars, Barking deer.
	• **Birds:** Honey Buzzard, Shy Jungle Fowl, Grey-headed Fishing Eagle.
	Flora:-
	• **Vegetation:** tropical dry deciduous forest with dense woodlands.
	    o It comprises about eighty-seven per cent of the protected area.
	• **Teak** is the predominant tree species.
	• Others: Bamboo, Ain, Bija, Dhaudab, Haldu, Salai, Semal, Shisham, Sisoo, Surya, Sirus.
	
	MUST READ: Global Conservation Assured|Tiger Standards (CA|TS)
	SOURCE: BUSINESS LINE

Himalaya Mountains	**Context:** According to a recent study, the **Himalaya Mountains** and other mountains across the Northern Hemisphere are likely to see 15 per cent more rain for every 1-degree Celsius rise. **Key Findings of the report:-**

- Climate change could cause a **shift in snowfall to rainfall** in mountain regions across the Northern Hemisphere, amplifying rainfall extremes lasting over a few hours to a day.
- For 2 degrees and 3 degrees rise, the world would see a **30 per cent and 45 per cent increase in rain,** respectively.
- This switch from snowfall to rainfall could **increase the risk of disasters** such as floods, landslides, and soil erosion.
- Not all mountain regions are at high risk.
  - The Himalayas and the North American Pacific Mountain ranges, including the **Cascades, Sierra Nevada, and coastal ranges from Canada to Southern California** are more threatened than the **Rockies or the Alps.**
  - **Cascades:** this mountain range is a segment of the Pacific mountain system of western **North America.**
  - **Sierra Nevada**: it is a major mountain range of **western North America**, running along the eastern edge of the U.S. state of **California.**
  - **Rocky Mountains:** they stretch from northern Alberta and British Columbia in Canada southward to New Mexico in the **United States.**
  - **Alps:** a small segment of a discontinuous mountain chain that stretches from the Atlas Mountains of North Africa across southern **Europe and Asia** to beyond the Himalayas.
- The Himalayas is one of those **hotspot regions** where we see an increased risk of rainfall extremes.

About the Himalaya Mountains:-
IMAGE SOURCE: jfb-levage.com

- They are the **world's tallest mountain ranges**.
- **Begin at Pamir Knot in the west**
- **End: Purvanchal in the east.**
- **Major Peaks:** Mount Everest, Karakora (K2), Kailash, Kanchenjunga, Nanga Parbat, Annapurna, and Manasklu.

Formation of Himalayas:-
- The Himalayas are the result of the **Indian and Eurasian plates colliding**.
- Indian Peninsula **split off from Gondwana** during the Cretaceous Period and began moving north.
  - **Gondwana**: ancient supercontinent that incorporated present-day South America, Africa, Arabia, Madagascar, India, Australia, and Antarctica.
- Between the two plates, the **Tethys Sea was squeezed**, creating a geosyncline**.**
  - **Geosyncline:** a large-scale depression in the earth's crust containing very thick deposits.
  - **Tethys Sea:** a prehistoric ocean during much of the Mesozoic Era and early Cenozoic Era, located between the ancient continents of Gondwana and Laurasia.
- The **Indian Plate's oceanic boundary was subducted** as the plate moved north.
- The northward drift along with the Tethys sea compression **caused the Himalayas to rise.**
- The **mountains continued to converge,** creating fold mountains known as the **Greater Himalayas.**

Divisions of Himalayas:-
- **Trans Himalayas**

o The Trans Himalaya is a 1,600-kilometre-long (990 mi) mountain range, extending in a west–east direction parallel to the main Himalayan range.
- **Great Himalayas**
  o Its average height is 5000 km.
  o It has loft peaks along with extensive snowfields of glaciers.
- **Middle Himalayas**
  o Its average height is 1300 to 5000km.
- **Shiwaliks**
  o This is not a continuous range, it is also called the outer Himalayas.

The Himalayas can be divided into the following subdivisions:-
- **Kashmir or Northwestern Himalayas**
  o It comprises a series of ranges such as the Karakoram, Ladakh, Zanskar and Pir Panjal.
- **Himachal and Uttarakhand Himalayas**
  o This part lies approximately between the Ravi in the west and the Kali in the east.
  o **Ravi:** a tributary of the Indus River.
  o **Kali:** a tributary of the Ghaghara River.
- **Darjeeling and Sikkim Himalayas**
  o They are flanked by Nepal Himalayas in the west and Bhutan Himalayas in the east.
- **Arunachal Himalayas**
  o These extend from the east of the **Bhutan Himalayas up to the Diphu Pass** in the east.

Significance of the Himalayas for India:-
- **River source:** The great rivers and their tributaries like Ganga, Brahmaputra, Indus etc. originate here.
- **Fertile plains of North India:** the rivers carry enormous quantities of alluvium while descending from the Himalayas.
  o This is deposited in the Great Plain in the form of **fertile soil,** making the plain one of the **most fertile lands in the world.**
- **India's Energy Security:** Almost **33% of the country's thermal electricity and 52% of its hydropower** is dependent on river waters originating in the Himalayas.
- **Monsoon:** The Himalayas play a very significant role in monsoon.
  o Due to their **high altitude, length and direction**, they effectively **intercept the summer monsoons coming from the Bay of Bengal and the Arabian Sea and cause precipitation** in the form of rain or snow.
- **Forest Resources:** The Himalayan ranges are **very rich in forest resources**.
  o The Himalayan **forests provide fuel wood** and a large variety of **raw materials for forest-based industries.**
- **Tourism:** due to their **scenic beauty and healthy environment**, the Himalayan ranges have developed a large number of tourist spots.

SOURCE: DOWN TO EARTH

Green Credit Programme (GCP)	**Context:** Recently, the Union Ministry of Environment, Forests and Climate Change have notified draft rules for '**Green Credit'**. **Background:-** • The ministry proposed the draft Green Credit Programme Implementation Rules 2023 in a **notification issued on June 26, 2023.**

- It has invited objections and suggestions **within 60 days.**

About Green Credit Programme (GCP):-
- **Launched: 2023.**
  - Finance Minister Nirmala Sitharaman had launched "Green Credit Programme"(GCP) in **Union Budget 2023-24.**
- **Objective:** to create a market-based mechanism for undertaking environment-friendly activities such as afforestation programmes, and water conservation by providing additional incentives in the form of green credits.
  - **Green Credit:** it is an incentive that individuals, farmer-producer organisations (FPO), industries, and rural and urban local bodies, among other stakeholders, will be able to earn for environment-positive actions.
- **Ministry: Ministry of Environment, Forests and Climate Change.**
- It will be launched at the national level to **incentivize voluntary environmental actions** of various stakeholders.
- It will **encourage private sector industries** by taking actions, which are able to converge with activities relevant to generating or buying Green Credits.

Governance Structure of GCP:-
GCP Administrator
- **The Indian Council of Forestry Research and Education (ICFRE)** will be the administrator of GCP.
  - **ICFRE:** it is an autonomous organisation or governmental agency under the MoEFCC.
  - Its aim is to generate, advance and disseminate scientific knowledge and technologies for ecological security, improved productivity, livelihood enhancement and sustainable use of forest resources through forestry research and education.
- It will **manage, monitor and operate** the entire programme.
Steering committee
- It will be set up to **approve procedures for institutionalising the GCP, rules and regulations**
- It will recommend it to the central government for issuance of a **Green Credit Certificate.**
- It will also determine the **type and amount of fees and charges** for the purpose of meeting the cost and expense towards implementation of GCP.
Working of GCP:-
- The GCP administrator will **collect the environmental compensation** and deposit it in a separate dedicated account.
- This fund shall be utilised for activities related to the implementation of GCP.
- For instance, **an individual** who undertakes tree plantation in an area, can earn green credits, which he can sell at the trading platform after validation by the steering committee.
Benefits of GCP:-
- It allows **forests to be traded as a commodity.**
- It allows the Forest Department to **outsource** one of its responsibilities of reforesting to **non-government agencies.**
- It will **encourage plantation by individuals** outside the traditional forest area.
- It will help in **meeting international commitments** such as sustainable development goals and nationally determined contributions.
SOURCE: DOWN TO EARTH
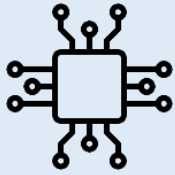
SCIENCE & TECHNOLOGY

Foucault pendulum	**Context:** A **Foucault's Pendulum**, was installed in the new Parliament building inaugurated recently.
	About Foucault's Pendulum:-
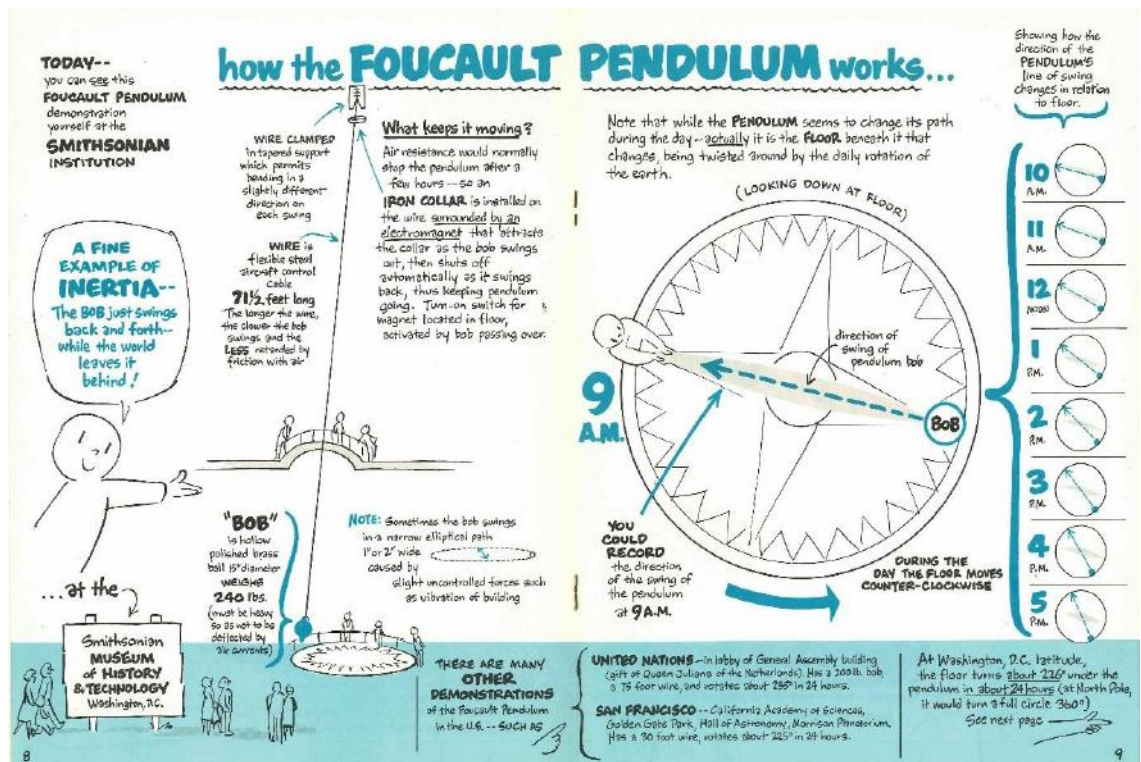
IMAGE SOURCE: si.edu

- The Foucault pendulum is **a device that proves the Earth's rotation.**
- A French scientist, **Leon Foucault** invented the Foucault pendulum.
- **Historical Context:** In 1851, the Foucault pendulum experiment conclusively **demonstrated the Earth's rotation**, settling debates about the planet's movement. (UPSC MAINS: What is Geomagnetism?)
- **Working:** The pendulum consists of a **heavy iron ball suspended by a steel wire and swings in a plane,** mimicking the Earth's rotation on its axis.
- A Foucault pendulum always **rotates clockwise in the Northern Hemisphere.**
- In the Southern Hemisphere, rotation is counter-clockwise.
- The **rate of rotation depends on the latitude. (UPSC CSE: Climate change causing a shift in Earth's axis)**
- The **rate becomes slower** as the pendulum's location approaches the Equator.
- **At the Equator, 0° latitude,** a Foucault pendulum **does not rotate.**

MUST READ: NavIC
SOURCE: THE INDIAN EXPRESS

Chytridiomyco sis	**Context:** Recently, scientists developed a diagnostic test for **Chytridiomycosis.**

About Chytridiomycosis:-
- Chytridiomycosis is **a fungal disease in frog populations**. (UPSC CSE: White fungus)
- It has **caused severe declines** in over 500 frog species and led to 90 extinctions, making it the **deadliest animal disease known. (UPSC CSE: Mucormycosis)**
- **How does it infect?**
  - It infects frogs **skin**.
  - This **damages their ability to balance** water and salt levels.
- **Origin-** the disease **originated in Asia.**
  - It spread globally through **amphibian trade and travel.**
- **Mortality rate-** extremely high.
- **Natural immunity:-**
  - Some amphibian species have some form of natural immune resistance and **do not become sick when they carry the fungus.**
  - This Immunity might come from **anti-microbial chemicals within the skin, symbiotic bacteria** on the skin, **white blood cells and antibodies** in the blood, or combinations of these mechanisms.
  - So far, **no clear trend** has been found between resistance and immune function.

MUST READ: World Health Organization(WHO) releases first-ever list of health-threatening fungi
SOURCE: THE NEW INDIAN EXPRESS

KAVACH

Context: The recent train tragedy in Odisha has brought to the surface the need for **KAVACH** in preventing rail accidents. Kavach was not available on this route.
About KAVACH:-
IMAGE SOURCE: newssimplified.in

- KAVACH is an **Automatic Train Protection (ATP)** electronic system designed to help the Indian Railways achieve **Zero Accidents.**
- **Objective:** to achieve safety in train operations across Indian Railways.
- **Development:-**
  - It has been **indigenously developed.**
  - The Research Design and Standards Organisation (RDSO) develop it in collaboration with the Indian industry.
    - **Research Design and Standards Organisation (RDSO)**: it is a research and development organisation under the **Ministry of Railways**.
- **Working of KAVACH:-**
  - It has a set of electronic devices and **Radio Frequency Identification (RFID) devices** installed in locomotives, in the signalling system as well as the tracks. (UPSC CSE: RFID)
  - These **connect to each other using ultra-high radio frequencies** to control the brakes of trains**.**

- o It also **alerts drivers**, all based on the logic programmed into them. (UPSC MAINS: KAVACH)
- It is a **Safety Integrity Level 4 (SIL-4)** certified technology.
  - o **Safety Integrity Level (SIL):** it comes from two voluntary standards **used by plant owners/operators to quantify safety performance requirements** for hazardous operations.
  - o There are **four SIL Levels (1-4).**
  - o A **higher SIL Level means** a greater process hazard and **a higher level of protection**.
- KAVACH is the **world's cheapest automatic train collision protection system**.
- Initial development of Kavach started in 2012 under the name Train Collision Avoidance System (TCAS) and completed development on 2022.
- **First successful trial**: between **Gullaguda–Chitgidda Railway stations** of **South Central Railway** in 2022.
- The Budget of 2022-23 had proposed rollout of Kavach in 2000 kms.

Salient features:-
- **Automatic activation of the** train braking system if the driver fails to control the train speed.
- **Preventing collision** between two Locomotives equipped with a functional KAVACH system.
- **Sending continuous updates** of Movement. (UPSC CSE: Mobile Train Radio Communication (MTRC))
- **Auto Whistling** while approaching Level Crossing Gates
- **Sending SoS Messages** during emergency situations.
- **Centralised live monitoring** of train movements through the Network Monitor System.

MUST READ: Vande Bharat 2.0
SOURCE: BUISINESSLINE

Abaucin

Context: Scientists recently have found a potential new antibiotic named **Abaucin**, with the help of machine learning.

About Abaucin:-
- This antibiotic **compromises the normal function of a protein** called CCR2.
- It was originally been developed **to treat diabetes.**
- It appears to work by disrupting lipoprotein trafficking in **A. baumannii.**
- **Working:** Based on genetic studies, the researchers believe that abduction could be **preventing lipoprotein** produced inside the bacteria **from moving to the outer membrane.**
- Abaucin is also a **"species-selective" antibiotic.**
  - o It only disrupts the growth of A. baumannii, not other Gram-negative bacteria.

Acinetobacter baumanni
- It is a **Gram-negative bacteria**.
  - o **Gram-negative bacteria**: it has **a protective outer membrane** that allows it to resist antibiotics.
- It has been associated with **hospital-acquired infections in India.**

- It was acknowledged to be a **"red alert" pathogen** because of its exceptional **ability to develop resistance to all currently available antibiotics. (UPSC CSE: Antimicrobial Resistance (AMR))**

MUST READ: World Antimicrobial Awareness Week 2022
SOURCE: THE HINDU

Higgs boson
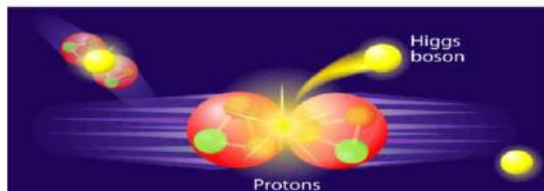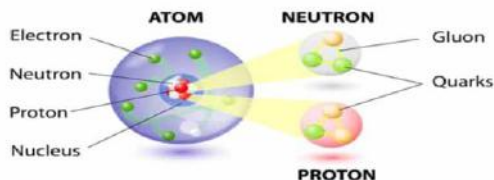
Context: Recently, the Large Hadron Collider (LHC) particle-smasher at CERN, in Europe, reported that they had detected a **Higgs boson** decaying into a Z boson particle and a photon.
About Higgs boson:-

IMAGE SOURCES: scalarlight.com

- The Higgs boson is a type of **boson, a force-carrying subatomic particle.**
- It **carries the force that a particle experiences when it moves through an energy field**, called the **Higgs field.**
- **Higgs field:** a field that gives mass to other fundamental particles such as electrons and quarks.
- It is believed to be **present throughout the universe.**
- The Higgs boson is often called **"the God particle"** because it's said to be what caused the "Big Bang" that created our universe many years ago.
- The Higgs boson is an **extremely short-lived particle**.
- **Characteristic property:** It **decays rapidly into other particles**, making its direct detection challenging.
- Scientists at the LHC used **high-energy particle collisions to produce the Higgs boson** and **observed its decay** products to confirm its existence.
- The Higgs boson **has a mass of 125 billion electron volts**.It is **130 times more massive than a proton.**
- It is also **chargeless** with **zero spin. Spin:** a quantum mechanical equivalent to angular momentum. The Higgs Boson is the **only elementary particle with no spin.**
- It has a **short lifespan.**
  - It sticks around for merely less than a trillionth of a billionth of a second or, more precisely, **1.6 x 10-22 seconds.**

Timeline:-
- Peter Higgs, François Englert, and four other theorists to explain why certain particles have mass proposed the existence of Higgs **boson in 1964.**
- **Scientists confirmed its existence in 2012** through **experiments** at the **Large Hadron Collider at CERN** in Switzerland.
- This discovery led to the **2013 Nobel Prize in Physics** being awarded **to Higgs and Englert.**

Significance:-
- The Higgs boson **can provide significant insights into the nature of our universe.**

- Scientists hope to use the Higgs Boson as a tool to **learn more about dark matter.** (UPSC CSE: International Space Station (ISS))
- Its **decay process can help test the predictions of the Standard Model of physics.**
- **Standard model of elementary particles:** it is a theoretical framework in physics that explains the particles of matter and their interactions.

Large Hadron Collider (LHC)
- The LHC is a huge experiment that **collides two beams of particles to study physics at very high energies**.
- It is the world's largest and **most powerful particle accelerator.**
- It is the **largest science experiment in the world**.
- **Operated by**: CERN (European Organisation for Nuclear Research)
- **CERN**: the **world is largest nuclear and particle physics laboratory.**
  - o   It is best known as the operator of the Large Hadron Collider.
  - o   It is based in **Geneva on the French-Swiss border.**
  - o   It has **22 member states.**

India and CERN:-
- **India in 2016 became an associate member** of the European Organisation for Nuclear Research (CERN).
- India's association with CERN goes back decades with **active involvement in the construction of the Large Hadron Collider (LHC).**
- India was **inducted as an 'Observer' at CERN in 2004**.
- The **associate membership would cost India Rs. 78 crores annually** though it still **would not have voting rights** on decisions of the Council. Indian scientists have played a **significant role in the Large Ion Collider Experiment (ALICE).**

MUST READ: IN-SPACe
SOURCE: THE HINDU

| Mission on Advanced and High-Impact Research (MAHIR) | **Context: Mission on Advanced and High-Impact Research (MAHIR)** was launched recently to leverage Emerging Technologies in **Power Sector.**

About the Mission of Advanced and High-Impact Research (MAHIR):-
- It aims to **facilitate indigenous research**, development and demonstration of the latest and emerging technologies **in the power sector.**
- **Timeline:** It is planned for an **initial period of five years** from 2023-24 to 2027-28.
- **Ministry: Ministry of Power and the Ministry of New and Renewable Energy**

Objectives of MAHIR:-
- To **identify emerging technologies** in the power sector that have the potential for future relevance globally.
- To serve as a **platform for collective brainstorming**.
- To **Support pilot projects** for indigenous technologies.
- Leverage **foreign alliances** to accelerate research and development efforts.
- To **create a vibrant and innovative ecosystem** in the power sector.

Funding and Collaboration:- |

- MAHIR is funded through pooling of resources from **the Ministry of Power, Ministry of New and Renewable Energy, and Central Public Sector Enterprises** under these ministries.
- **Additional funding** will be from the **budgetary resources** of the Government of India.
- The mission encourages funding by inviting proposals from companies and **organizations worldwide.**

Structure of MAHIR:-
- MAHIR operates through a two-tier structure comprising a **Technical Scoping Committee** and an **Apex Committee.**
- Led by the **Chairperson of the Central Electricity Authority**.

Areas Identified for Research:-
- Alternatives to Lithium-Ion storage batteries
- Modifying electric cookers/pans to suit Indian cooking methods
- Carbon capture (UPSC CSE: Decarbonisation of India's Power Sector)
- Geothermal energy
- Solid-state refrigeration.
- Nanotechnology for EV battery
- Indigenous CRGO technology

MUST READ: Energy Security
SOURCE: PIB

Betelgeuse	**Context:** Recently, there have been debates regarding explosion of the red giant star, **Betelgeuse.** **About Betelgeuse:-** **IMAGE SOURCE: SlideServe**
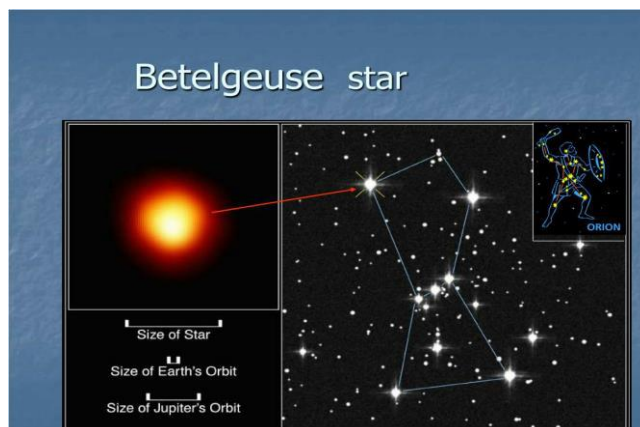
- Betelgeuse is a **red supergiant star** in the **constellation Orion.**
  ○ **Supergiant star:** over 20 times bigger than the Sun.
- It is **one of the largest visible starts to the naked eye**.
- It is the **second-brightest in the constellation of Orion.**
- **The star is approximately 650 light-years from Earth.**
- Betelgeuse is called **'Thiruvathirai' or 'Ardra' in Indian astronomy.** (UPSC CSE: IN-SPACe)
- It is a **distinctly reddish, semiregular variable star** whose apparent magnitude, varies between +0.0 and +1.6.
- **At near-infrared wavelengths**, Betelgeuse is the **brightest star** in the night sky.
- It is known for its **periodic dimming and brightening up.**
- In massive stars like Betelgeuse, the carbon-burning stage lasts only up to a few hundred years, after which the star 'dies' and **collapses into a supernova** within a few months.

Supernova
- A supernova is the name given to the **explosion of a massive star**.

- They are the **largest explosion** that takes place in space.
- A star can go supernova in one of two ways:-
  - o **Type I supernova**: Star accumulates matter from a nearby neighbor until a runaway nuclear reaction ignites.
  - o **Type II supernova**: Star runs out of nuclear fuel and collapses under its own gravity.

Orion constellation
- Orion constellation is named after the **hunter in Greek mythology.**
- Orion, **is one of the most prominent and recognizable constellations** in the sky and can be seen throughout the world.
- In total, Orion is home to **10% of the seventy brightest stars**, despite covering **only 1.4% of the sky.**

MUST READ: India's Space Economy
SOURCE: THE HINDU

WASP-76b	**Context:** An international team of astronomers announced they conducted a detailed study of the extremely hot giant exoplanet WASP-76 b. **About WASP-76b**: • The planet orbits the **massive star WASP-76**, which is about 634 light-years away from our planet in the direction of the constellation Pisces. • WASP-76 b orbits very close to its parent star, around **12 times closer than Mercury is to the Sun.** • The planet has a **mass similar to that of Jupiter,** but it is more than six times larger by volume. • The planet is tidally-locked, meaning that one of its sides permanently faces the star that it orbits. • This means that one side is constantly superheated while another side is much colder. • This could mean that the wind carries the iron atoms from the dayside to the night side. • When the iron reaches the transition point between the two sides, the temperature decreases and the iron will condense into liquid drops that fall to the land. • The researchers used the MAROON-X instrument of the Gemini-North Telescope to conduct a detailed study of the planet. **Source:** **IE**
Sickle Cell Anaemia Disease	**Context:** Recently, a workshop to educate people about **Sickle Cell Anaemia Disease** was held in New Delhi. **About Sickle Cell Anaemia Disease:-** • **Discovery:** in **1910** by **James Herrick.** • Sickle cell anaemia is a **group of inherited disorders** known as sickle cell disease.(UPSC CSE: Rare Diseases) • It affects the **shape of red blood cells**. • **Cause:** It is transmitted by parents carrying a defective '**beta globin' gene.** • **Disease condition:** under normal conditions, the red blood cells being **round and flexible** move easily through blood vessels. o However, in sickle cell anaemia, some of the red blood cells acquire the shape of **sickles or crescent moons**.

- These sickle cells become **rigid and sticky.**
- When they travel through small blood vessels, they are stuck and **clog the blood flow.**
- This can cause pain and other serious health problems such as infection, **acute chest syndrome and stroke. .** (UPSC CSE: Polio Disease)
- The sickle cells **also die early**, which causes a **constant shortage of red blood cells.**

Symptoms:-
- **Chronic Anaemia:** leading to fatigue, weakness, and paleness.
- **Painful episodes** (also known as sickle cell crisis): these can cause sudden and intense pain in the bones, chest, back, arms, and legs.
- **Delayed growth and puberty.**

Mortality rate:-
- Mortality rate refers to the **percentage of people** with a condition **who died within a certain period.**
- Sickle cell disease mortality burden is **highest in children**.
- However, the mortality rate of SCA for children has **dropped dramatically over the last few decades.**
- A **1975 study** indicated a **mortality rate of 9.3 per cent** for people with SCA under the age of 23.
- **However, by 1989, the mortality rate** for people with SCA under the age of 20 **dropped to 2.6 per cent.**

Treatment:-
- **Blood Transfusions:** These can help relieve anaemia and reduce the risk of pain crises.
- **Hydroxyurea:** This medication can help reduce the frequency of painful episodes and prevent some of the long-term complications of the disease.
- It can also be treated by **bone marrow or stem cell transplantation.**
  - **Bone marrow transplant:** a medical treatment that replaces the bone marrow with healthy cells.
  - It can be used to treat certain types of cancer, such as **leukaemia, myeloma, and lymphoma, and other blood and immune system diseases that affect the bone marrow.**

Government initiatives:-
- **Ministry of Tribal Affairs:** launched a **portal** wherein people can register themselves, in order to collate all information related to **SCA among tribal groups.**
- **National Health Mission guideline on Hemoglobinopathies:** it also identifies "establishing services at the community level for **pre-marital and pre-conception screening** backed by genetic counselling services" as a strategy for addressing SCA.
- **Government released technical operational guidelines:** for the prevention and control of hemoglobinopathies **in 2016** including sickle cell anaemia.
- **Integrated centres:** have been established in **22 tribal districts** for treatment and diagnosis.
- **State Haemoglobinopathy Mission**: established **in Madhya Pradesh** to address the challenges in screening and management of the disease.
- **Union Budget 2023-24:** the government has announced a mission to eliminate Sickle cell Anemia **by 2047.**

	• Under this universal screening of seven crore people in the age group **of 0-40 years** in **affected tribal areas** would be done through collaborative efforts of central ministries and state governments. **MUST READ: Disease Surveillance System** **SOURCE: AIR**

Ketoprofen and Aceclofenac	**Context:** Recently, the Drugs Technical Advisory Board (DTAB), recommended banning the manufacture, sale and distribution of **Ketoprofen and Aceclofenac.**
	About Aceclofenac:-
	• Aceclofenac is an **oral non-steroidal anti-inflammatory drug (NSAID).**
	    ○ **NSAID:** medications used for **reducing pain** (analgesic), **decreasing fever** (antipyretic), **preventing blood clots** (anti-thrombotic) and **decreasing inflammation** (anti-inflammatory).
	    ○ **Uses:** to **treat non-inflammatory conditions** such as **migraine, period pain and postoperative pain, and to reduce fever.**
	    ○ **Common NSAIDs**: aspirin (such as Disprin), ibuprofen (such as Nurofen), naproxen (such as Naprosyn), diclofenac (such as Voltaren), celecoxib (such as Celebrex).
	• Aceclofenac has **anti-inflammatory and analgesic properties**.
	    ○ **Analgesic:** medicines used to **reduce pain**.
	    ○ **Anti-inflammatory:** medicines used to decrease inflammation.
	• **Working Mechanism:** Aceclofenac works by **preventing the release of a chemical substance** that causes pain and swelling in your body.
	• **Uses-**
	    ○ It is used in osteoarthritis, rheumatoid arthritis and ankylosing spondylitis**.**
	    ○ It provides **relief from pain, stiffness**, **and swelling due** to various conditions related to the bone and joints.
	    ○ It is also used to provide relief from **headaches, toothaches, backaches, menstrual pain, sprains, and strains.**
	• **Side effects:** dizziness, nausea, vomiting, heartburn, stomach pain, indigestion, and diarrhea.
	
	Ketoprofen
	• Ketoprofen is a nonsteroidal anti-inflammatory drug (NSAID) that is used to treat **pain or inflammation caused by arthritis.**
	• **Other Uses:-**
	    ○ It is used to **relieve pain, tenderness, swelling and stiffness** in conditions such as osteoarthritis and rheumatoid arthritis.
	    ○ It is also used to **relieve minor aches and pains from headaches, menstrual periods, toothaches, the common cold, fever, muscle aches, backaches, etc.**
	• **Side effects: -** Indigestion, Dizziness, Headache, Nausea, Diarrhea, Rash, Abdominal pain etc.
	
	Drugs Technical Advisory Board (DTAB)
	• DTAB is a **statutory body under** the **Drugs and Cosmetics Act, 1940.**
	• It is the **highest decision-making body** on technical matters related to drugs in the country.
	• It is part of the **Central Drugs Standard Control Organization (CDSCO)**
	    ○ **CDSCO:** is the National Regulatory Authority (NRA) of India.
	    ○ It is under the **Directorate General of Health Services, Ministry of Health & Family Welfare.**

	• **Ministry: Ministry of Health and Family Welfare.** **Functions:-** • It **advises the Central Government and the State Governments** on technical matters arising out of the administration of the Drugs and Cosmetics Act, of 1940. • It plays a crucial role in **evaluating and assessing** various aspects of drug regulation, including drug safety, efficacy, quality, and regulatory policies. • It examines **scientific evidence, conducts reviews**, **and formulates recommendations** based on its expert analysis. • It carries out the **other functions assigned** to it by this Act. (UPSC CSE: Medicine Price Control) **MUST READ: iNCOVACC** **SOURCE: THE NEW INDIAN EXPRESS**
GEMCOVAC-OM	**Context:** India's first mRNA-based Omicron-specific booster vaccine **GEMCOVAC-OM** was approved recently. **About GEMCOVAC-OM:-** • It was developed using **indigenous** technology. (UPSC CSE: Nation's first mRNA-based vaccine) • **Developed by: Gennova Biopharmaceuticals Ltd**. • It is supported under the **Mission COVID Suraksha**. • It is a **thermo-stable vaccine**, which **does not require ultra-cold chain infrastructure** used for other approved mRNA-based vaccines. This makes it **easy for deployment all across India.** • It is delivered **intra-dermally** using a **needle-free injection device system.** o **Intradermal injection:** it is a **shallow or superficial injection** of a substance into the dermis (**located between the epidermis and the hypodermis**). o When administered intradermal in participants as a booster, it generates significantly **higher immune responses.** • **Available:** for adults **over the age of 18.** • **Dosage:** two doses will be administered intramuscularly **28 days apart.** **mRNA vaccine** • It contains **messenger RNA (mRNA).** (UPSC CSE: mRNA Vaccine) o **mRNA:** it is a single-stranded RNA molecule that complements DNA. • It is **created in the nucleus** when DNA is transcribed by RNA polymerase to create pre-mRNA. • **Working:** mRNA vaccines work by **introducing a piece of mRNA** that corresponds to a viral protein. • It is usually a **small piece of protein** found on the **virus's outer membrane.** • Individuals who get an mRNA vaccine will **not be exposed to the same virus again.** **Advantages of mRNA vaccines:-** • **Safe:** these are **non-infectious, non-integrating** in nature, and **degraded by standard cellular mechanisms.**

- **Highly Efficient:** they are highly efficacious because of their inherent capability of being translatable into the protein structure inside the cell cytoplasm.
- **Faster to produce:** mRNA vaccines are **synthetic** and do not require a host for growth, e.g., eggs or bacteria.
  - Therefore, they can be **quickly manufactured.**

Mission COVID Suraksha

- **In 2020,** the Government of India has announced the stimulus package of Rs. 900 crore for the Mission COVID Suraksha.
- Mission COVID Suraksha is India's targeted effort to enable the development of indigenous, affordable and accessible vaccines for the country and will complement the ongoing mission of Atmanirbhar Bharat.
- It will be led by DBT and implemented by a dedicated Mission Implementation Unit at the Biotechnology Industry Research Assistance Council (BIRAC).
- The existing activities under National Bio Pharma Mission (NBM) and Ind-CEPI Mission will provide complementary strengths to this Mission.
  - The DBT is supporting the implementation of the Ind-CEPI Mission, "Epidemic preparedness through rapid vaccine development: Support of Indian vaccine development aligned with the global initiative of the Coalition for Epidemic Preparedness Innovations (CEPI)".
  - The Ind-CEPI Mission was approved in March 2019.

MUST READ: **'ZyCov-D' vaccine**
SOURCE: **THE INDIAN EXPRESS**

Artemis Accord	**Context:** India and the United States of America signed the **Artemis Accord** recently. **About the Indo-US talks:-** - The Artemis Accord along with some other significant decisions was signed during Prime Minister Narendra Modi's recent USA visit. - It is expected to take India and US cooperation in **Space Research** and bilateral relations to a new high. - ISRO is also likely to team up with NASA for a manned mission on the moon by 2025. **About Artemis Accord:-** - Artemis Accord is a **non-binding** set of principles designed to guide **civil space exploration** and use in the 21st century. - It is a **non-binding agreement** with **no financial commitments.** **Objectives:-**

IMAGE SOURCE: nasawatch.com

o Enhancing the governance of civil exploration.

o Use of outer space with the intention of advancing the Artemis program.

o It ensures that space exploration is conducted in a **safe, sustainable and transparent manner** and in full compliance with international law.

- **Establishment: 2020.**
- **Established by: NASA**, in coordination with the **U.S. Department of State**, established the Artemis Accords with **eight founder nations.**
- **Founding members of the Artemis Accords:** Australia, Canada, Italy, Japan, Luxembourg, United Arab Emirates, United Kingdom, and the US.
- **Artemis Accords signatories as of May 2023**: Australia, Bahrain, Brazil, Canada, Colombia, Czech Republic, France, Israel, Italy, Japan, Luxembourg, Mexico, New Zealand, Nigeria, Poland, the Republic of Korea, Romania, Rwanda, Saudi Arabia, Singapore, Spain, Ukraine, the United Arab Emirates, the United Kingdom, and the United States.

Aims of Artemis Accord:-

- **Peaceful Purposes:** Consistent with the **Outer Space Treaty**, the Artemis Accords affirm that cooperative activities should be **exclusively for peaceful purposes** and in accordance with international law. (UPSC CSE: Indian Space Association)
  - o **Outer Space Treaty**: it provides the basic framework of international space law.
- **Transparency:** signatories are committed to the **broad dissemination of information** regarding their respective national space policies and space exploration plans in accordance with their national rules and regulations.
- **Interoperability:** Interoperability **enhances the potential for space exploration** that is safe and robust among cooperating nations.
- **Emergency Assistance:** Accords signatories commit to taking all reasonable efforts to render **necessary assistance to personnel** in outer space who are in distress.
- **Registration of Space Objects:** The Artemis Accords reinforce the **importance of meeting the obligations** under the Registration Convention.
- **Release of Scientific Data:** Sharing scientific data with the global community in a timely and transparent manner.
- **Protecting Heritage**: Accords signatories intend to **preserve historically significant** human or robotics landing sites, artefacts, spacecraft etc.
- **Space Resources:** The utilization of space resources should be done in a manner that **complies with the Outer Space Treaty, can benefit humankind and is critical to sustainable operations.**
- **Deconfliction of Activities:** Artemis Accords signatories need to provide notification of their activities and coordinate.
  - o The area covered by the notification and coordination is referred to as a **"safety zone."**
- **Orbital Debris and Spacecraft Disposal:** Planning to mitigate orbital debris, as well as disposing safely of spacecraft, is critical to maintaining a safe environment in space.

MUST READ: Space
SOURCE: AIR

In vitro fertilization (IVF) procedure	**Context:** Recently, a consumer panel slapped ₹1.5-crore fine on a Delhi hospital for sperm mix-up during **In vitro fertilization (IVF) procedure.**

Background: -

- A West Delhi-based hospital that performed an in vitro fertilization procedure for a Hyderabad-based couple, by using donor semen that did not belong to the husband, has been instructed by the **National Consumer Disputes Redressal Commission (NCDRC)** to pay a fine of ₹1.5 crore for negligence and resorting to unethical practices.

About In vitro fertilization (IVF) procedure: -

IMAGE SOURCE: Verywell.com

- IVF is a type of **assisted reproductive technology (ART)**.
- **ART:** includes medical procedures used primarily to address infertility.
- This involves procedures such as **IVF, intra-cytoplasmic sperm injection (ICSI), cryopreservation of gametes or embryos, and/or the use of fertility medication.**
- **IVF procedure:** It works by using a **combination of medicines and surgical procedures** to help sperm **fertilize an egg, and help the fertilized egg implant** in the uterus.

Process of IVF: -

- It **involves retrieving eggs from ovaries**.
- These are then **manually combined with sperm** in a lab for fertilization.
- Several days **after fertilization, the fertilized egg** (now called an embryo) is **placed inside a uterus**.
- Pregnancy occurs when this embryo implants itself into the uterine wall.

Benefits of IVF: IVF can be used to Treat Infertility of Different Types such as:-

- Blocked or **damaged fallopian tubes.**
- **Male factor infertility** including decreased sperm count or sperm motility.
- Women with **ovulation disorders**, **premature ovarian failure and uterine fibroids.**
- Women who have had their fallopian tubes removed.
- Individuals with a **genetic disorder.**
- Unexplained **infertility.**

Challenges Faced with IVF

Multiple Births:-

- IVF increases the **risk of multiple births** if more than one embryo is implanted in the uterus.

Premature Delivery and Low Birth Weight:-

- Use of IVF slightly increases the **risk that a baby will be born early or with a low birth weight.**

Ovarian Hyperstimulation Syndrome (OHS):-

- Use of injectable fertility drugs can cause OHS, in which ovaries become swollen and painful.

Miscarriage:-

- The **rate of miscarriage for women** who conceive using IVF with fresh embryos is similar to that of women who conceive naturally about 15 to 25 percent but the rate **increases with maternal age.**

Stress
- Use of IVF can be financially, physically and emotionally draining.

National Consumer Disputes Redressal Commission (NCDRC):-
- **Established : 1988**
- **HQ: New Delhi.**
- It is a **quasi-judicial commission in India** set up under the **Consumer Protection Act of 1986.**
- **Head of commission:** a sitting or retired judge of the Supreme Court of India.
- The Act mandates the establishment of **Consumer Protection Councils** at the Centre as well as in each State and District, **to promote consumer awareness.**
- **These councils are :-**
  - **Central Council:** is headed by **Minister In-charge of the Department of Consumer Affairs** in the Central Government
  - **State Councils:** is headed by the **Minister In-charge of Consumer Affairs** in the State Governments.
- It also provides for a **3-tier structure consisting** of:-
  - National Commission
  - State Commissions and
  - District Commissions

MUST READ: Test Tube Babies
SOURCE: THE HINDU

National Research Foundation

Context: Recently, the government has decided to bring the **National Research Foundation** (NRF) Bill, 2023 to strengthen the research ecosystem in the country.

Background: -
- The Bill approved by the Union Cabinet will pave the way to **establish National Research Foundation (NRF).**
- The Bill will repeal the Science and Engineering Research Board (SERB) established by an act of Parliament in 2008 and subsume it into NRF.
- It will seed, grow and promote research and development and foster a culture of research and innovation throughout India's universities, colleges, and research institutions.

About National Research Foundation: -
- It is an **apex body to promote, fund and mentor scientific research in higher education institutions**.
- **Initial budget of Rs 50,000 crore** for over a **five-year** period between **2023 and 2028.**
- The NRF would also **provide fellowships** for post-doctoral research, the funding for which is not available right now.

Objective: -
- Cultivating the **culture of research** in universities and colleges.
- **Facilitating research** in universities across the country. (UPSC MAINS: Factors that have constrained research and innovation capabilities in India.)

Historical Background:-
- The proposal for an NRF **was first floated** in the public domain **by Prime Minister Narendra Modi** in 2019, during his address to the Indian Science Congress.

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- The NRF found a second mention on January 20 of that year during a **joint session of Parliament**.
- Later, it was mentioned in the Finance Minister's speech during the **Budget Session in July 2019.**
- The creation of NRF was also one of the key **recommendations of the National Education Policy 2020.**
- **2023:** the Union Cabinet approved the National Research Foundation(NRF),2023 bill to establish NRF.

Administration of NRF:-
- The NRF would be **administratively housed in the Department of Science and Technology (DST)**.
- It would have **a 16-member governing board**.
  - Of these **two members from DST, five from industry, one from humanities and six experts** would be selected depending on the nature of the project being evaluated.

Structure of NRF:-
- **Prime Minister** will be the **ex-officio president** of the board and the **Minister of Science and Technology and the Minister of Education will be the ex-officio vice presidents.**
- The NRF's functioning will be governed by an **executive council chaired by the Principal Scientific Advisor** to the government of India.

Funding for NRF:-
- Of the Rs 50,000 crore estimated funding over the next five years, **Rs 36,000 crore would come from the industry.**
- Scientific research projects under the NRF would be funded by the **DST and industry** on a **50:50 basis.**
- The Department of Science and Technology's main funding body, **the Science and Engineering Research Board (SERB)** will be absorbed in the NRF.
  - **SERB**: it was **set up in 2008.**
  - It is **responsible for funding s**cience and technology start-ups, setting up incubators and funding science-related projects in central and state universities.

Function of NRF:-
- The NRF will forge **collaborations among the industry, academia, government departments and research institutions.**
- It will create an interface mechanism for the **participation and contribution of industries** and state governments in addition to the scientific and line ministries.

MUST READ: Number of women scientists goes up
SOURCE: AIR

HISTORY AND ART & CULTURE

Telangana's woolen gongadi shawls	**Context:** Recently, initiatives have been taken to refashion **Telangana's woolen gongadi shawls** into shoes. **About Telangana's woolen gongadi shawls:-** • Gongadi is the **traditional woollen blanket** woven by the indigenous **Kuruma communities.** • It is made from the wool of the **indigenous Deccani sheep**, which is locally known as **Nalla gorrae**. • **Nalla gorrae**: it is a breed of sheep found in the **Deccan Plateau region.** (UPSC MAINS: Landform formation due to volcanic eruptions) • The blanket is famous for its **durability and versatility.** It **lasts for more than a decade** due to its unique hand weaving. (UPSC CSE: Textile Industry in India) • Unique natures of gongadi = **it does not fade but grows darker in time.** • The traditional gongadi is produced organically, **without using any dyes either natural or synthetic.** • **Sizing of the strings** is done using the paste of soaked and cooked **tamarind seeds.** **MUST READ:** Hyderabad lac bangles set to get GI tag **SOURCE:** THE HINDU
Agra Fort	**Context:** Recently, debates on who built the **Agra Fort** has started again. **About Agra Fort:-** • The Agra Fort is a **UNESCO World Heritage site** that attracts people from all over the world. • This **fort has been occupied by several dynasties**, including the **Rajputs, Mughals, Jats, and Marathas**. • The fort underwent a construction of eight years under the reign of **Akbar in 1565**. • However, the Archaeological Survey of India (ASI) lacks knowledge about **who built the Agra Fort first** and what changes it underwent during Akbar's reign. • It is **made of red sandstone.** • It comprises the **Jahangir Palace and the Khas Mahal** (built by Shah Jahan), **Diwan-i-Khas** and **two very beautiful mosques.** • It was the **main residence of the emperors of the Mughal Dynasty until 1638** when the capital was shifted from Agra to Delhi. • It became a **UNESCO World Heritage site in 1983**. (UPSC MAINS: Mandate and significance of UNESCO) **Important Structures Inside the Agra Fort:-** • **Jahangir's Hauz**: This is a monolithic tank, and was **built by Jahangir.** • **Shahjahani Mahal:** The Shahjahani Mahal is probably one of the earliest attempts of Emperor Shah Jahan to turn a red sandstone palace into a palace of **white marble.** • **Babur's Baoli (step well)**: Babur built **a stone step well,** which took care of the water needs in the ancient fort of Agra.

	Nagina Masjid: Nagina Masjid is a mosque, which was **built by Shah Jahan.** **Diwan-I-Am (Hall of Public Audience):** This **hall** was built by **Shah Jahan.** **Ghaznin Gate:** The Ghaznin Gate actually **belongs to the tomb of Mahmud of Ghazni,** one of the rulers of the Ghaznavid Empire. **Bengali Mahal:** This palace was **built by Akbar and** was later **modified by Shah Jahan**. **Akbar's Mahal:** The ruins of Akbar's famous palace remain in the fort. (UPSC CSE: Akbar) **MUST READ: Dholavira: India's 40th World Heritage Site** **SOURCE: INDIA TODAY**
Pietermaritzburg railway station incident	**Context:** Recently, **INS Trishul** arrived at Durban port in South Africa to commemorate the 130th anniversary of the **incident at Pietermaritzburg railway station** when Mahatma Gandhi was evicted from a train. **Pietermaritzburg railway station incident** - On the night of June 7, 1893, Mohandas Karamchand Gandhi, then a young lawyer in South Africa **was thrown off the train's first-class compartment at Pietermaritzburg station** despite having the ticket. - This happened because **he refused to give up his seat** as ordered after being told that **it was for 'whites-only'.** - The **incident led him to develop his Satyagraha principles** of peaceful resistance and mobilize people in **South Africa and in India** against the discriminatory rules of the British. **Satyagraha:** the term is derived from 'satya' (truth) and 'agraha' (insistence or truth-force). - Its practitioners are called **Satyagrahis.** **About INS Trishul:-** - It is the second frigate of the Talwar class of the Indian Navy. - The guided missile frigate joined the arsenal of the Indian Navy **in 2003.** - Built in Russia under an Indo-Russian joint production. - These missile frigates are modified **Krivak III** class frigates from Russia. - It has a displacement capacity of 4,000 tons and a speed of 30 knots and is capable of accomplishing a wide variety of naval missions, primarily, finding and eliminating enemy submarines and large surface ships. - Due to the use of stealth technologies and a special hull design, the resulting frigate features reduced radar cross section (RCS) as well as electromagnetic, acoustic and infrared signatures. **MUST READ: India and Mahatma Gandhi** **SOURCE: HINDUSTAN TIMES**
Burial tradition of Homo Naledi	**Context:** Recent evidence suggests that **Homo Naledi** buried their dead. **About Homo Naledi:-** - Homo naledi is **an extinct human species** that lived hundreds of thousands of years ago. *Homo Naledi* is a species of human discovered in the **Rising Star cave system, a UNESCO World Heritage Site** in South Africa in 2013.

- Homo naledi exhibits a combination of primitive and modern features and is not a direct ancestor of modern humans.
- They are believed to have **existed between 300,000 to 200,000 years in Southern Africa**. (UPSC CSE: Palaeolithic Cave Paintings in NCR)
- They **walked upright**.
- Their **shoulders were built for climbing**.
- Their **teeth were shaped like that of older primates**.
- One of the most interesting things was that **their brain size was between 450 to 600 cubic centimetres (Small brain)**. It was one-third of that of modern humans.

IMAGE SOURCE: pinterest.com.au
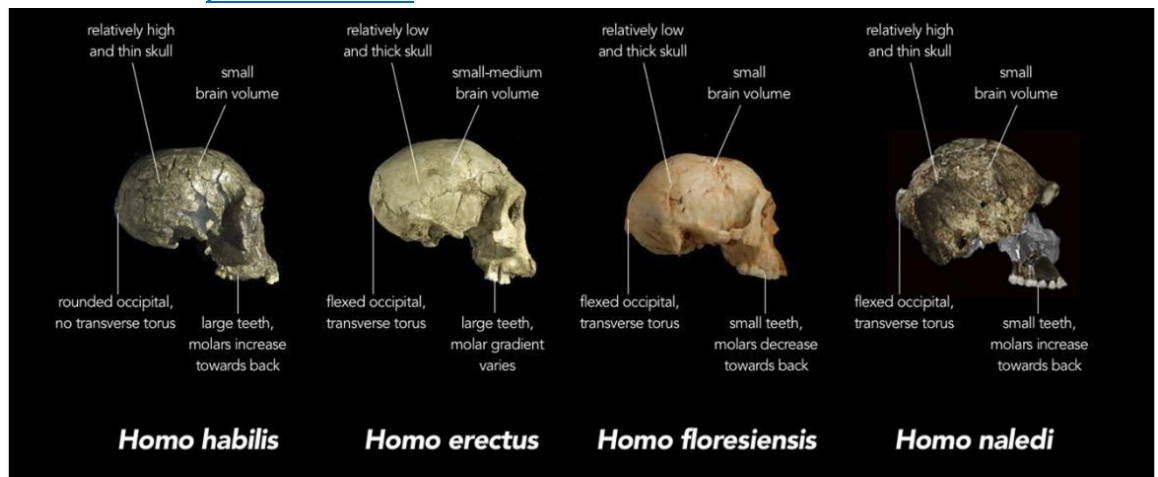
About the Study:
- Homo Naledi buried their dead, which would challenge existing notions about advanced mortuary behavior.
- Modern Humans exhibit a unique behavior among primates by burying their dead, which sets them apart from other animals. This behavior is known as **Mortuary behavior**, characterized by social acts and a complex understanding of death.
- Previously, the earliest evidence of Mortuary behavior was found among Neanderthals and modern humans, occurring more than 100,000 years after Homo naledi.
- Homo naledi may have created rock art in Rising Star Cave. This is intriguing because rock art has traditionally been associated with Homo sapiens and other large-brained ancestors.
- The report describes engravings in the form of deeply impressed cross-hatchings and geometric shapes such as squares, triangles, crosses and X's.
- Additionally, a rock-like object found near a Homo naledi body suggests it could be a stone tool.**(UPSC MAINS: Cave paintings).**
- Homo naledi used fire strategically for illumination during mortuary and engraving activities in the cave.

MUST READ: Bhimbetka cave
SOURCE: THE INDIAN EXPRESS

Gilgit Manuscripts	**Context:** Recently, the National Archives of India organized an exhibition which exhibited the **Gilgit Manuscripts**. **About Gilgit Manuscripts:-**

IMAGE SOURCE: slideshare.net
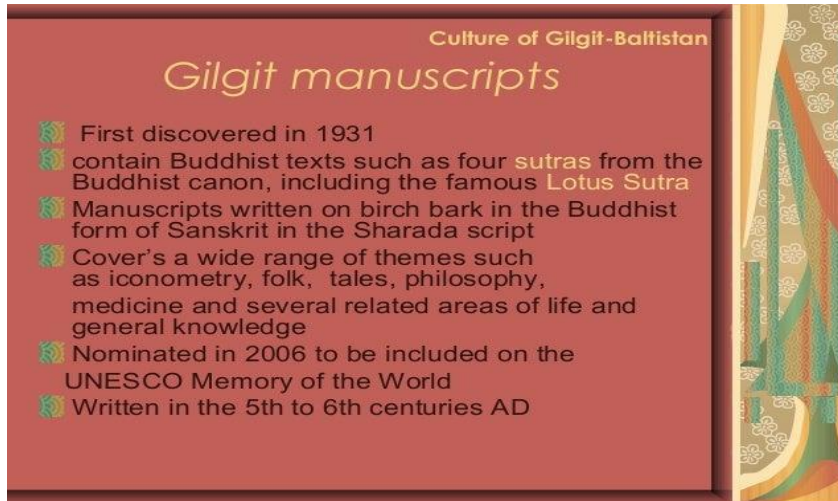
- Gilgit manuscripts were discovered in the **Naupur village** (Gilgit region), Pakistan Occupied Kashmir. .
- Archaeologist **Sir Aurel Stein** discovered it in the year **1931.**
- It was **written between the 5ᵗʰ -6ᵗʰ centuries CE**.

- It is the **oldest surviving manuscript** collection in Indian Subcontinent.
- It was written on **the birch bark** folios documents written on **pieces of an inner layer of the bark** of birch trees found in the **Kashmir region.**
- It contains both **canonical and non-canonical Jain and Buddhist works** that throw light on the evolution of much religious-philosophical literature. (UPSC CSE: Sittanavasal Jain Heritage Site)

National Archives of India
- The present building of the National Archives of India **was constructed in 1926** following the **transfer of the capital from Calcutta to Delhi in 1911.**
- **Historical Background:** It was **established in 1891 at Kolkata (Calcutta)** as the Imperial Record Department.
- **Ministry: Ministry of Culture**
- **HQ: New Delhi**
- It is the **nodal agency** for the implementation of the **Public Records Act, 1993** and **Public Record Rules, 1997.**
- Its repositories are a vast collection of records, which include files, volumes, maps, bills assented to by the President of India, an important collection of Gazettes and Gazetteers, Census records, assembly and parliament debates, proscribed literature, travel accounts, etc.
- A major chunk of Oriental records is in **Sanskrit, Persian, Arabic, etc.**

MUST READ: Palm-Leaf Manuscript Museum
SOURCE: PIB

Ram Prasad Bismil	**Context:** The birth anniversary of **Ram Prasad Bismil** was observed recently. **About Ram Prasad Bismil:-** • Bismil was a **revolutionary freedom fighter** with a poet's heart. • Bismil was **born on 11 June 1897,** in a village in Uttar Pradesh's Shahjahanpur district. • British authorities hanged him for his involvement in the **Kakori Train Action.** He was hanged in the **Gorakhpur jail in 1927 and cremated on the banks of the Rapti River.** • He is a revered **symbol of patriotism and Hindu-Muslim unity.** • He attended the **1921 session of the Indian National Congress** at Ahmedabad. **Affiliated Organizations:-** • He joined **Arya Samaj** in 1875. (UPSC CSE: Dayanand Saraswati)

- He formed the organization **Matrivedi** with Genda Lal Dixit, a schoolteacher.
- He formed the **Hindustan Republic Association** in 1924.
  - o **Hindustan Republic Association**: was a revolutionary party to fight against British colonial rule in India.
  - o It was evolved into **Hindustan Socialist Republican Association (HSRA)** in 1928 by **Chandrashekhar Azad, Bhagat Singh** and others. **(UPSC CSE: Chandra Shekhar Azad)**
  - o **Bhagat Singh:** he was a revolutionary hero of the Indian independence movement awarded the death sentence under the **Lahore conspiracy case.**

Works:-
- He published a pamphlet titled '**Deshwasiyon ke Naam'** and distributed it along with his poem '**Mainpuri ki Pratigya'** in 1918.
- He also wrote the cult song **"Mera rang de Basanti chola".**

Ideology:-
- His ideals of freedom struggle stood in stark contrast to that of **Mahatma Gandhi** and he would reportedly say "Independence would not be achieved by means of non-violence". (UPSC CSE: India and Gandhi)
  - o **Mahatma Gandhi:** he was a lawyer, nationalist, and anti-colonial activist.
  - o He led a **non-violent mass movement** against British rule in India

Major Cases against Bismil
Mainpuri Conspiracy of 1918:-
- The police found a few young people including **Bismil selling books that were not prescribed by the government.**
- To collect funds for the parties, they **looted government coffers.**

Kakori Conspiracy Case:-
- In 1925, Bismil and his companions **Chandrasekhar Azad** and **Ashfaqulla Khan** looted a train in Kakori near Lucknow.
- They were **arrested alongside a dozen other HRA members** within a month of the attack and tried under the Kakori Conspiracy Case.
- **Bismil, Lahiri, Khan and Thakur Roshan Singh** were **awarded death sentences.**

MUST READ: Shaheed Bhagat Singh
SOURCE: THE INDIAN EXPRESS

| **Menhir and megalithic burial sites** | **Context:** Recently, the Tamil Nadu Department of Archaeology declared five **menhir and megalithic burial sites** at Kodumanal in Erode district as protected monuments. |

About Menhir and megalithic burial sites:-
- Menhirs are **upright stones** from the **Megalithic period. (UPSC MAINS: Rock cut architecture)**
- They are **erected above a burial site** or near a burial site as a memorial.

Megalith:-

- Megaliths are **large stones that are used to construct a structure or monument**, either alone or together with other stones.
- Megaliths were **constructed as either burial sites or commemorative** memorials.

Timeline:-
- The construction of these structures took place mainly in the **Neolithic period.** It continued into the **Chalcolithic period and the Bronze Age.**
- In India: archaeologists trace the majority of the megaliths to the **Iron Age (1500 BC to 500 BC),** though some sites precede the Iron Age, **extending up to 2000 BC.**

Distribution in India:-
- Megaliths are **spread across the Indian subcontinent.**
- The **majority of megalithic sites** are found in **Peninsular India.**
- It is concentrated in the states of **Maharashtra (mainly in Vidarbha), Karnataka, Tamil Nadu, Kerala, Andhra Pradesh, and Telangana.**

Types of Megalithic Structure:-
- **Stone Circles**: Stone circles are commonly called "cromlechs" (a word in the Welsh language).
- **Dolmen:** A dolmen is a megalithic structure **formed by placing a large capstone** on two or more support stones, forming a chamber below, sometimes closed in on three sides.
- **Cist:** a small stone-built **coffin-like box** or ossuary used to hold the bodies of the dead.
- **Monolith:** Any single standing stone erected in prehistoric times.
  - Synonymous with "megalith" and "menhir".
- **Capstone style:** Single megaliths placed horizontally, often over burial chambers, without the use of support stones.

Recent Findings in Kodumanal:-
- Potsherds containing names inscribed in **Tamil-Brahmi script** were found in large numbers.
- Potsherd= a broken piece of an object made of baked clay, especially one found by an archaeologist
- **Roman silver coins**, precious stones and quartz were found.
- **Significance:** these findings showed that an **industrial and trade Centre** had existed here about 2,300 years ago.

MUST READ: Necropolis
SOURCE: THE HINDU

Malcha Mahal

Context: The Lieutenant Governor of Delhi, recently issued directions requiring revamping of the forest area around the **Malcha Mahal.**
About Malcha Mahal:-
- It was built in **1325** by the then **Sultan Firoz Shah Tughlaq.**
- It was used as **a hunting lodge** for a long time.
- It later became the **residence of the descendants of the Nawab of Awadh.**
- **Location: Delhi.**
- **Historical Background:** it came to be known as **'Wilayat Mahal'** after **Begum Wilayat Mahal of Awadh**, who claimed that she was a member of the royal family of Oudh.
  - She was **given the palace by the government in 1985.**
  - When she died, it came into the ownership of her daughter **Sakina Mahal**, and son **Prince Ali Raza (Cyrus).**
- The monument is **not Archaeological Survey of India(ASI)protected** and, therefore, no attention was paid to it in all these years in order to conserve it. (UPSC CSE: ASI)

Feroz Shah Tughlaq

- Firoz Shah Tughlaq was the **third ruler of the Tughlaq dynasty.**
- **Tughlaq dynasty:** ruled over Delhi from 1320 to 1412 AD.
- He **ascended the throne of Delhi after** the demise of his cousin **Muhammad-bin-Tughlaq.**
- **Time period:** from 1351 to 1388 AD.

MUST READ: ASI planning barricade around famed stone chariot at Hampi

SOURCE: THE INDIAN EXPRESS

| Mesolithic period rock painting | Context: A **Mesolithic period rock painting** has been found in Guntur, Andhra Pradesh recently. **About the news:** |

IMAGE SOURCE: SlideShare
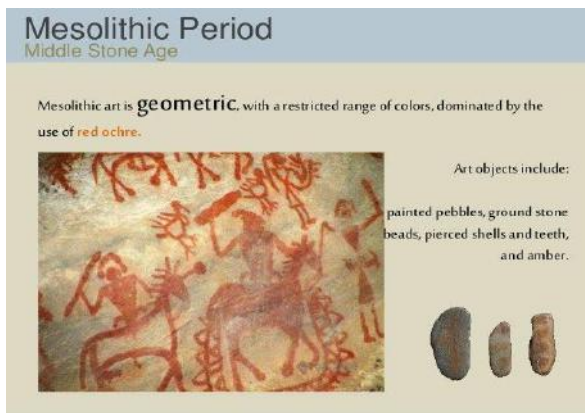
About Mesolithic-era rock paintings in Guntur:-

- The time period of these paintings is estimated to be **Mesolithic Age**, roughly from **5000 BC.**
- These paintings were made with "**natural white kaolin and red ochre pigments".**
  - o **Ochre:** a pigment composed of clay, sand, and ferric oxide.
  - o **Kaolinite:** a soft, earthy, and usually white mineral produced by the chemical weathering of aluminum silicate minerals like feldspar.
- **The social life and culture of the people** who lived in the area are depicted through them.
  - o One of the paintings depicted a **man catching a wild goat** with his left hand while wielding a hook-like implement to control it.
  - o Another showed **two couples standing** with their hands raised while a child stood behind them.
  - o The paintings depicted **a person tilling a piece of land.**
  - o This can be an indication of a **semi-settled life pattern** in which members of this community cultivated crops.

Mesolithic period:-

- The phase fall between the **Paleolithic and the Neolithic Periods. (UPSC SCE: Ratnagiri's pre-historic rock art)**
- **Time Period:** While the start and end dates of the Mesolithic Period vary by geographical region, it dates approximately from **12,000-10,000 years ago.**
- **Lifestyle:** During the Mesolithic period, human societies were **predominantly hunter-gatherer communities.**
- **Tools:** Stone tools found during this period are generally tiny and are called **microliths.**
- Besides the use of microliths, the Mesolithic people made a number of **technological innovations** like the **bow and arrow for hunting, querns, grinders and hammer stones** for grinding and pulverising plant foods like roots, tubers etc.
- **Indian Mesolithic sites:-**

o Mirzapur district of Uttar Pradesh.
o Tilwara, Bagor , Ganeshwar in Rajasthan
o Patne, Pachad, Hatkhamba in Maharashtra
o Pachmarhi, , Bhimbetka, Baghor II, Baghor III, Ghagharia in Madhya Pradesh
o Paisra in Bihar
o Kuchai in Odisha
o Birbhanpur in West Bengal
o Muchatla Chintamanu Gavi, Gauri Gundam in Andhra Pradesh
o Sanganakallu in Karnataka
o Tenmalai in Kerala.

Specific characteristics of Mesolithic rock paintings:-

- This period mainly saw the **use of red colour.**
- It has a larger variety of themes but the paintings are **smaller in size.**
- **Themes of paintings:** The **hunting scenes** were predominant in the period.
- The paintings depict:
  o People **hunting in groups.**
  o **Hunting armed** with barbed spears, pointed sticks, arrows and bows.
- **Animals depicted: elephants, bison, tiger, boar, deer, antelope, leopard, panther, rhinoceros, fish, frog, lizard, squirrel and at times birds.**
- Animals were painted in a **naturalistic style** and humans were depicted in a stylistic manner.
- **Social life:** The **young, old, children and women** equally find a place in these paintings.
- Women are painted **both nude and clothed.**
- In many of the rock shelters **handprints, fist prints, and dots** made by the fingertips are found.
- One of the most prominent examples of the Mesolithic rock painting is found in **Bhimbetka, Madhya Pradesh. (UPSC CSE: Bhimbetka cave)**

MUST READ: Weathering of oldest rock paintings due to climate change
SOURCE: THE HINDU

Kedarnath temple	**Context:** Recently, the Uttarakhand government decided to set up a high-level committee to probe allegations of a fraud in gold transactions in the **Kedarnath temple.**
	 Background: -
	About Kedarnath temple:-
	- It is a Hindu temple **dedicated to Lord Shiva.**
	- **Location:** It is located on the **Garhwal Himalayan** range near **the Mandakini River**, in the **Rudraprayag** district of **Uttarakhand.**
	- **Mandakini River:** it is a tributary of the Alaknanda River.
	  o It emerges from the **Chorabari Glacier.**
	  o It runs between the **Rudraprayag and Sonprayag areas**.
	- **Significance:** Kedarnath forms **one of the four sites of the Chota Char Dham Pilgrimage circuit**.
	  o **Chota Char Dham Pilgrimage**: it refers to the journey up the mountains to **four sacred temples** in the North Indian state of Uttarakhand.
	  o The four temples are **Yamunotri Dham, Gangotri Dham, Badrinath Dham and Kedarnath Dham.**
	- It is one of the **12 Jyotirlingas of Lord Shiva** in India.

- **Jyotirlinga:** a shrine where Lord Shiva is worshipped in the form of a Jyotirlingam.
- **Built by:** It is said that the **Pandavas** constructed the Kedarnath Temple. (UPSC CSE: Temple Architecture in India)
- It was later reconstructed by **Adi Shankaracharya** in the 8th century A.D.
- It has exquisite architecture and is built **of extremely large but evenly shaped grey stone slabs.**
- The stone slabs are interlocked with each other with the use of iron clamps.
- **No mortar** has been used in the construction of the temple.
- There is a **conical rock structure inside** the Kedarnath temple that is worshipped as the **Sadashiva** form of Shiva.
- A "**Garba Griha**" for worship **and a Mandap** for pilgrims is placed inside the temple.

MUST READ: Srisailam Temple
SOURCE: THE TIMES OF INDIA

Rani Durgavati	**Context: Rani Durgavati** Gaurav Yatra' concluded in Madhya Pradesh recently.

Background:-

- The Shivraj Singh Chouhan-led BJP government in Madhya Pradesh launched the **six-day Rani Durgavati Gaurav Yatra.**

About Rani Durgavati:-

- Rani Durgavati was **born in 1524** in the **Chandela dynasty** in present-day **Uttar Pradesh, near the border with Madhya Pradesh.**
- Her father was **Raja Salbahan of Ratha** known for the famous Khajuraho temples.
- She married **Dalpat Shah,** of the kingdom of Garha-Katanga.
  - However, she became a **widow after a few years** and took charge of ruling the kingdom.

Battle with Mughals:-

- During the mid-16th century, **Akbar led the Mughal Empire's expansion** in India.
- The Mughal governor **Asaf Khan** launched an attack on Garha-Katanga.
- During the prolonged fighting, **Rani Durgavati was struck by arrows** and, rather than surrendering, is believed to have stabbed herself with her dagger.

Rani Durgavati's leadership

- Rani Durgavati **managed the affairs of the kingdom for 16 years**, maintaining trade relations and undertaking public works.
- **Abul Fazl,** the court historian of Akbar who chronicled these years in Akbarnama, described Durgavati as a combination of "**beauty, grace and manlike courage and bravery".**

Legacy of Rani Durgavati

- **Political symbolism:** Rani Durgavati is **hailed as a patriotic ruler** and defender of culture, becoming a symbol of pride and honour.
- Rani Durgavati and her son Veer Narayan are well known for their connections to the **Madan Mahal Fort** in Jabalpur.

	• In her honour, **the University of Jabalpur** was renamed Rani Durgavati Vishwavidyalaya by the Madhya Pradesh government in 1983. • On June 24, 1988, the **Indian government released a postage stamp** in memory of her. • **The Durgavati Express (11449/11450)** runs between Jabalpur Junction and Jammutawi and is named for the Queen. • The third Inshore Patrol Vessel (IPV) of its kind, **ICGS Rani Durgavati**, was commissioned by the Indian Coast Guard on July 14, 2018. **SOURCE: The Hindu**

Kharchi Puja	**Context:** Recently, **Kharchi Puja** 2023 was celebrated in Tripura.
	
	About Kharchi Puja:-
	• **Nomenclature:** The word 'Kharchi' is derived from two Tripuri words–'**khar' or kurta meaning sin and 'chi' or si meaning cleaning.**
	• **Region:** It is one of the **main festivals of Tripura.**
	• **Time period:** It is performed during the months of July-August on the **eighth day of the new moon.**
	Significance of Kharchi Puja:-
	• It is believed that the **Mother Goddess or Tripura Sundari**, the presiding deity of the land who protects the people of Tripura, **menstruates during the time of Ambubachi.**
	• **Ambubachi**: observed in June.
	• **Popular belief**: the Earth becomes impure during the menstruation period of the Goddess.
	    o Hence, Kharchi Puja is observed to **ritualistically clean the Earth after her menstruation** is over and wash away the sins of the people in the land.
	Rituals during Kharchi Puja:-
	• During the festival, the people of Tripura **worship the earth along with their 14 deities.** [(UPSC CSE: Bathukamma festival)](#)
	• The fourteen Gods are worshipped by the **Royal priest 'Chantai.**
	• It lasts for **seven days** and it takes place at old Agartala in the **Fourteen Gods temple** known as the **'Chaturdasha Devata'** temple premises.
	• The Kharchi Puja **deities do not have a full body.**
	• They have **only heads** which are worshipped.
	• On the day of the puja, the fourteen Gods are taken from the temple to the **river Saidra** by the Chantai members and given to **bathe with the holy river water.**
	    o They are then carried back to the temple**.**
	• The festival it is celebrated by **both tribal and non-tribal people of Tripura.**
	
	MUST READ: [Goa's Sao Joao festival](#)
	SOURCE: [THE INDIAN EXPRESS](#)

MISCELLANEOUS

Commission of Railway Safety (CRS)	**Context:** The Commission of Railway Safety (CRS) is investigating the recent Odisha rail accident. **About the Commission of Railway Safety (CRS):-** • The Commission of Railway Safety deals with **matters pertaining to the safety of rail travel and trains.** • **Ministry: Ministry of Civil Aviation** • **HQ: Lucknow, Uttar Pradesh** • The operation is charged with certain statutory functions as laid down in the **Railway Act (1989).** • Its functions are of an inspectorial, investigatory & advisory nature. (UPSC CSE: Mobile Train Radio Communication (MTRC)) • **Investigating serious train accidents** is one of the key responsibilities of the CRS. (UPSC MAINS: Indian railways accidents) • It is under the **administrative control of the Ministry of Civil Aviation (MoCA).** • The reason or principle behind this, put simply, **is to keep the CRS insulated from the influence of the country's railway establishment** and prevent conflicts of interest. **MUST READ:** Shramik Kalyan Portal **SOURCE:** THE INDIAN EXPRESS
Agni Prime	**Context:** India recently conducted a successful flight test of the **Agni Prime** ballistic missile. **About Agni Prime:-** **IMAGE SOURCE:** autojournalism.com • Agni Prime is the **advanced version of the 'Agni-1' missile. (UPSC CSE: New generation ballistic missile 'Agni P')** • It is a **short-range ballistic missile.** • **Range: 1000 km to 1500 km** • It is **a two-stage** missile. • It is the **latest and sixth variant** of the Agni series missiles. • It is under **Integrated Guided Missile Development Program (IGMDP)** • Agni Prime has **multiple independently targetable re-entry vehicles**. • It is capable of delivering a number of warheads at **separate locations.** • It can **carry warheads up to 1.5 tonnes.** • It has a **dual redundant navigation** and **guidance system.** • The Agni-P missile would further **strengthen India's credible deterrence capabilities**. **Integrated Guided Missile Development Program (IGMDP)**

- It was conceived by **Dr A.P.J. Abdul Kalam** to enable India to attain **self-sufficiency in the field of missile technology.**
- **5 missiles** developed under this program are:-
    1. **Prithvi:** Short-range surface-to-surface ballistic missile.
    2. **Agni:** Ballistic missiles with different ranges.
    3. **Trishul:** Short-range low-level surface-to-air missile.
    4. **Nag:** 3rd generation anti-tank missile.
    5. **Akash:** Medium-range surface-to-air missile.

Other Agni Class of Missiles
- **Agni I:** Range of **700-800 km.**
- **Agni II:** Range more than **2000 km.**
- **Agni III:** Range of more than **2,500 Km**
- **Agni IV:** Range is more than **3,500 km** and can fire from a road-mobile launcher.
- **Agni-V:** The longest of the Agni series, an **Inter-Continental Ballistic Missile (ICBM)** with a range of **over 5,000 km.**

MUST READ: Ballistic Missile Defence (BMD) Interceptor
SOURCE: NEWSONAIR

| **Mahua ladoos** | **Context: Mahua ladoos,** prepared by Odisha tribal women have showed huge revenue success in recent times.

About Mahua ladoos:-
- The **tribal women in Odisha's Kandhamal district** use mahua flowers to prepare various **delicious varieties of food.** Mahua flowers **are mainly used for brewing local liquor, are popular across India**
- Around 120 tribal women members of the state's **Van Dhan Vikas Kendras prepare laddus, cakes, jam, toffees, pickles, squash, pakodas and biscuits** using dry mahua flowers, which they supply, in the local market to earn revenues.
- Mahua laddus are in high demand compared to other products.
- The laddu is prepared using ingredients such as cashew, rasi, groundnut, jaggery, and mahua flowers.

Van Dhan Vikas Kendras:
- These are set up under the **Pradhan Mantri VanDhan Yojana(PMVDY).**
- They aim **to promote Minor Forest Products (MFPs) -centric livelihood** development of tribal gatherers and artisans.
- **Minor forest produce are** economic commodities growing naturally in a forest and sold for purposes other than timber and fuel. Examples include **bamboo, wild honey, gum, lac, waxes, resins etc.**
- These Kendras would act as **common facility centres for procurement** cum value addition to locally available MFPs.

Pradhan Mantri VanDhan Yojana(PMVDY):-
- It was **launched in 2018.**
- It is an initiative of the **Ministry of Tribal Affairs and TRIFED.**
- **Objective:** to improve tribal incomes through the value addition of tribal products. |

	• It is a **Market Linked Tribal Entrepreneurship Development Program** for forming clusters of tribal Self-Help-Groups (SHGs) and strengthening them into Tribal Producer Companies. **MUST READ: [Mahua Tree/Madhuca longifolia](#)** **SOURCE: [DOWN TO EARTH](#)**

French Open	**Context:** In the recently held **French Open** 2023, Novak Djokovic created history by becoming first man to reach the 23 grand slam title mark.
	About French Open:-
	• The French Open is a **major tennis tournament.**
	
	• It is **one of the four Grand Slams** in Tennis.
	• It is also known as **Roland-Garros.**
	  o The tournament and venue are named after the French **aviator Roland Garros.**
	  o **Roland Garros:** was a **French aviation pioneer and fighter pilot.**
	• **Scheduled Time: two weeks,** beginning **in late May each year.**
	• **Location:** the **Stade Roland Garros** in Paris, France
	• The French Open is the **premier clay court** championship in the world. [(UPSC MAINS: Sports and Ethics)](#)
	• The French Open tournaments were **not considered a Grand Slam before 1924 – 1925.**
	• **French Open 2023 winners:-**
	  o Men's singles: **Novak Djokovic (Serbia)**
	  o Women's: **Iga Swiatek (Poland)**
	
	Grand Slam tournaments
	• The Grand Slam tournaments consist of the following:-
	  o **Australian Open**: in mid-January,
	  o **French Open or Roland Garros**: around late May,
	  o **Wimbledon:** in June end, **and**
	  o **US Open tennis**: at the end of August.
	• The four annual tennis tournaments are collectively called the **Grand Slam, also known as majors.**
	• **Conducted by: the International Tennis Federation (ITF)**.
	• **Historical Timeline:-**
	  o **Wimbledon Tennis:** is the **oldest**, started in **1877.**
	  o **US Open:** started **in 1881**
	  o French Open: started in **1891**
	  o Australian Open: started in **1905.**
	
	MUST READ: [India and France relations](#)
	SOURCE: [AIR](#)

World Food Programme (WFP)	**Context:** Recently, **World Food Programme (WFP)** suspended food aid to Ethiopia after the diversion of supplies. **About World Food Programme (WFP):-**

- It is the **leading humanitarian organization saving lives and changing lives, delivering food assistance in emergencies** and working with communities to improve nutrition and build resilience.
- It was **founded in 1961. (UPSC CSE: WFP)**
- **Founded by: Food and Agriculture Organization (FAO)** and **United Nations General Assembly (UNGA)**
- **HQ: Rome, Italy.**
- **Funding:** The WFP has **no independent source of funds;** it is funded entirely by voluntary donations**.**
  - Its principal donors are **governments.**
- It is governed by the **WFP Executive Board**, which consists of **36 Member States** and provides intergovernmental support, direction and supervision of WFP's activities.
- **Head:** an **Executive Director**, who is **appointed jointly by the UN Secretary-General and the Director-General of the Food and Agriculture Organization of the United Nations.**
- It is also a **member of the United Nations Sustainable Development Group (UNSDG),**
  - **UNSDG**: a coalition of UN agencies and organizations aimed at fulfilling the Sustainable Development Goals (SDGs).
- WFP **works in over 120 countries and territories** to bring life-saving food to people displaced by conflict and made destitute by disasters.
- In 2020, it was **awarded the Nobel Prize for Peace** for its efforts to combat hunger, and for its contribution to bettering conditions for peace in conflict-affected areas.
- It **works closely with**:-
  - **Food and Agriculture Organization (FAO):** a specialized agency of the United Nations that leads international efforts to defeat hunger.
  - **The International Fund for Agricultural Development (IFAD):** a UN-specialized agency which finances projects in poor rural areas.

Objectives:-
- WFP focuses on **emergency assistance** as well as **rehabilitation and development aid.**
- Two-thirds of its work is in **conflict-affected countries**, where people are three times more likely to be undernourished than elsewhere.
- To **end hunger** by protecting access to food.
- **Improving nutrition** and **achieving food security**.
- **Supporting the SDG implementation** and partnering for its results.

MUST READ: Ukraine War and the Global Food Crisis
SOURCE: AIR

Exercise Ekuverin	**Context:** The 12th edition of the joint military exercise **Ekuverin** commenced at Chaubatia, Uttarakhand recently. **About Exercise Ekuverin:-** • It is a joint Military Exercise between **India & Maldives.** • Ekuverin **means 'Friends'** in the Maldivian language. (UPSC MAINS: India's interests in the Maldives) • **Background:** India and Maldives have been conducting Exercise Ekuverin **since 2009.**

- It focuses on **enhancing interoperability** between the two forces for carrying out **counter-insurgency and counter-terrorism operations** in a semi-urban environment under the United Nations mandate and carrying out joint **Humanitarian Assistance and Disaster Relief operations.**
- **11th edition:** was held in **Maldives in December 2021.**
- **12th edition:** was held in Uttarakhand, India **in June 2023.**

Other important joint military exercises of India:

Nomadic Elephant	India & Mongolia
Garuda Shakti	India & Indonesia
Shakti Exercise	India & France
Dharma Guardian	India & Japan
Surya Kiran	India & Nepal
Hand in Hand Exercise	India & China
SIMBEX	India & Singapore
Shakti Exercise	India & France
CORPAT	India & Thailand
Sampriti	India & Bangladesh
Mitra Shakti	India & Sri Lanka
Maitree Exercise	India & Thailand
Vajra Prahar	India & US
Yudh Abhyas	India & US

MUST READ: [India-Maldives relations](#)

SOURCE: [PIB](#)

Svalbard mission

Context: The Norwegian Ambassador has paid a visit to the ISRO Chairman. The meeting concluded with a mutual agreement on the importance of maintaining a continued partnership and fostering increased engagements between India and Norway in the field of space exploration and technology.

About Svalbard mission:-
- This visit offers an occasion to recall the challenging Svalbard mission, which took place 26 years ago at Ny-Alesund, Svalbard.
- In 1997, under the Savalbard mission, **Antrix** signed an agreement with the Norwegian Space Centre for the sale of a **Rohini RH-300 Mk.II Sounding Rocket. [(UPSC CSE: NISAR)](#)**

- **Antrix Corporation Limited (ACL):** is a marketing arm of ISRO for the promotion and commercial exploitation of space products, technical consultancy services and transfer of technologies developed by ISRO. (UPSC CSE: IN-SPACe).
- The RH-300 Mk-II was given a **new name** by the Norwegian Space Centre as **Isbjorn-1,** which translates literally as **'Polar Bear-I.'**
- **Challenge:** the Rohini rockets had until then **flown only in the tropical hot and humid conditions** in India. while the Svalbard archipelago's temperatures were on the **extremely low side.**
- ISRO shipped the RH-300 Mk-II to Norway after qualifying it for arctic weather conditions.
- However, the rocket, unfortunately, **did not achieve the predicted height**, rising only up to 71 km.
- Nevertheless, the Norwegian scientists seemed happy with the launch as the data collected during the flight **led to some new findings**.
- This launch **marked a new era of cooperation** between the two countries in space research.

RH-300
- It is a **single-stage sounding rocket**.
- **Derived from French Belier rocket engine technology**.
- **Launch altitude:100 km**.
- A variant, **the RH-300 Mk-II,** has a maximum launch altitude of **116 kilometers.**
- **Payload: up to 80 kilograms** (20 kg of scientific payload).
- **Numerous payloads can be tested** in a single flight.

MUST READ: Next Generation Launch Vehicle (NGLV)
SOURCE: THE HINDU

Global Slavery Index 2023

Context: The **Global Slavery Index 2023** was published recently.

About Global Slavery Index 2023:-
- It is an **assessment of modern slavery conditions in 160 countries.**
- **Published by: the Walk Free Foundation**
- It uses data released by the **International Labour Organisation (ILO) and the International Organisation for Migration (IOM).**
  - **ILO:** it is a specialized agency of the United Nations working for social justice and is essential to universal and lasting peace.
  - **IOM:** it is an intergovernmental organization in the field of migration.
- The Index **provides rankings across 3 dimensions:** Size of the problem (prevalence), Government response and Vulnerability (political instability, inequality).

Key Highlights of the Report:-
- According to the Global Slavery Index 2023, an estimated **50 million people were living in modern slavery** on any given day in 2021.
  - It is an increase of 10 million people since 2016.
  - **Modern slavery:** it encompasses various forms of exploitation, including forced labour, forced marriage, debt bondage, commercial sexual exploitation, human trafficking, slavery-like practices, and the sale and exploitation of children.
  - This means that **one in every 160 people in the world is a victim** of modern slavery.

- **Countries with the highest prevalence:** North Korea (104.6), Eritrea (90.3), and Mauritania (32.0).
  - modern slavery in these is often **state-sponsored.**
- **Countries with the lowest prevalence**: Switzerland (0.5), Norway (0.5), and Germany (0.6).
- **Asia and the Pacific:** has the **largest number of people in modern slavery.** (29.3 million)
- **India:** has a **prevalence of eight.** (Estimated proportion of the population living in modern slavery per thousand people).
- India, China, Russia, Indonesia, Turkey, and the U.S. are among the top G20 countries with the highest number of forced labourers
- **Countries hosting the maximum number of people living in modern slavery**:-
  - **India**
  - China
  - North Korea

MUST READ: World of Work Report
SOURCE: THE INDIAN EXPRESS

Gender Social Norms Index (GSNI), 2023	**Context:** The United Nations Development Programme (UNDP)recently released the **Gender Social Norms Index (GSNI),2023.**

About Gender Social Norms Index (GSNI), 2023:-
IMAGE SOURCE: UNDP
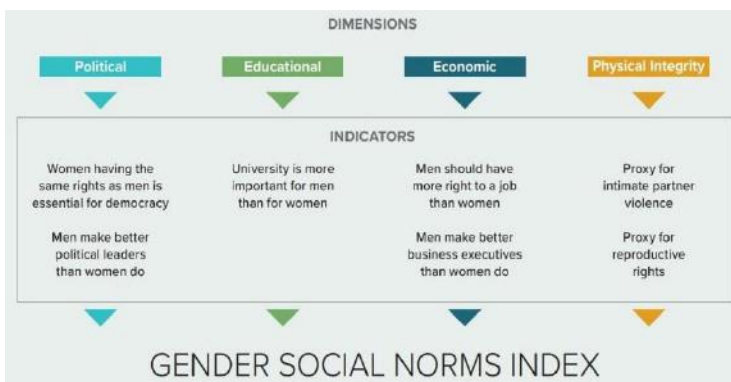
- The Gender Social Norms Index (GSNI) **quantifies biases against women**.
- **Published by: United Nations Development Programme (UNDP).**
- **1st edition: Gender Social Norms Index (GSNI 2020).**
- **Objective:** to tackle gender norms which eventually are a broad contributor to gender inequalities.
- The index captures people's attitudes on women's roles along **four key dimensions:-**
  - **Political**
  - **Educational (UPSC CSE: Gender gap in education)**
  - **Economic and**
  - **Physical integrity**
- The index, covers **85 percent of the global population.**

Key Findings of GSNI, 2023:-
- The **past decade didn't see any improvement in the level of prejudice** shown against women.
  - Nearly **90% of people still hold at least one bias** against women.
- Around **half the world's population believe that men make better political leaders** than women.
- **Two in five believe that men make better business executives** than women.
- A staggering **25 per cent of people believe it is justified for a man to beat his wife.**
- Women are grossly **underrepresented in leadership in conflict-affected countries** at the negotiation tables.

- This can be seen in the recent conflicts: in **Ukraine (0 per cent), Yemen (4 per cent) and Afghanistan (10 per cent).**
- Globally, about **seven of 10 peace processes did not include any women** mediators or women signatories.
- However, **policies aimed at achieving equal participation in education have been effective**, with women catching up in education.
  - **Higher enrolment** and completion are seen at all levels
- Even in the **59 countries** where adult women are more educated than men, the **average income gap is 39 per cent.**
- The **most significant declines** were in **Chile, the Republic of Korea, Mexico, Russia and Kyrgyzstan**.

United Nations Development Programme (UNDP)
- It is a **United Nations(UN) agency.**
  - **United Nations (UN):** is an international organization tasked with maintaining international peace and security.
- **Objective:- assisting nations in eradicating poverty** and achieving **long-term economic and human development.**
- **HQ: New York City.**
Historical Background:-
- The **Expanded Programme of Technical Assistance** and **the United Nations Special Fund** were merged in 1965.
- The two institutions were **fully integrated into the UNDP in 1971**.
Functions of UNDP:-
- **Democratic governance:** UNDP aids national democratic transitions by **providing policy advice and technical assistance, strengthening institutional and individual capacity** within countries.
- **Reduction of poverty:** UNDP assists nations in **developing poverty-fighting strategies.**
- **Prevention and recovery from crises:** UNDP aims to **decrease the risk of armed conflicts and natural catastrophes.**
- **Sustainable Development Goals (SDGs):** the UNDP works internationally to **help countries achieve the UN-approved SDG (2015-2030).**
MUST READ: Markets
SOURCE: DOWN TO EARTH

Anjadip and Sanshodhak	**Context:** Two warships **Anjadip, and Sanshodhak**, were launched recently.
	 About Anjadip and Sanshodhak:-
	 Anjadip:
	• It is an **anti-submarine warfare shallow watercraft vessel** built for the Indian Navy.
	• **Built by: Kolkata-based Garden Reach Shipbuilders and Engineers (GRSE).**
	• Anjadip is the **third of the eight ships** of the **Shallow Water Craft (SWC) Project.**
	   ○ **Shallow Water Craft (SWC) Project**: the contract that was signed between **Garden Reach Shipbuilders and Engineers, Kolkata and the Ministry of Defence** in 2019.
	   ○ The ship has been named Anjadip to signify the **strategic maritime importance** accorded to the **island of Anjadip, Karnataka**
	• The '**Arnala' class of ships** would **replace the current 'Abhay' class** of Anti-Submarine Warfare Corvettes of the Navy.
	• These are designed to undertake **anti-submarine operations** in coastal waters
	Features:-

- It is powered by **water-jet propulsion.**
- **Maximum speed**: 25 knots (46 km/h).
- It has an **endurance of 1,800 nautical miles** (3,300 km) at 14 knots (26 km/h).
- It is equipped with an **Anti-submarine Combat Suite,** potentially the DRDO-developed **IAC MOD'C', a Hull Mounted Sonar, and a Low-frequency Variable depth Sonar.**
- It also features a **fire control system (FCS),** an integrated Platform Management system, an Atomic Power Management system, and a Battle Damage control system.
- The ships would have **80 per cent indigenisation.**

Sanshodhak
- It is the **fourth Survey Vessel Large (SVL)** of the Indian Navy. (UPSC CSE: Ikshak Survey Vessel)
- The ship is named 'Sanshodhak', **meaning 'Researcher'.**
  - o It signifies the **primary role of the ship as a Survey Vessel.**
- SVL ships will **replace the existing Sandhayak Class** survey ships, with **new-generation hydrographic equipment.**
- It will help to collect **oceanographic data.**

Features:-
- They have the capability **to carry four Survey Motor Boats** and an integral helicopter.
- The **primary role** of the ships would be **to undertake full-scale coastal and deep-water hydrographic surveys of ports** and navigational channels.
- The ships would also be deployed for **collecting oceanographic and geophysical data** for defence as well as civil applications.

MUST READ: MV Ganga Vilas
SOURCE: THE HINDU

INS Vikramaditya and INS Vikrant	**Context:** Recently, the Navy carried out a twin Carrier Battle Group (CBG) operation involving both of India's aircraft carriers **INS Vikramaditya and INS Vikrant.** **About INS Vikramaditya:-** **IMAGE SOURCE: The Times of India** - **INS Vikramaditya** is the country's most powerful aircraft carrier. - **Origin of the name:** It has been renamed **in honour of Vikramaditya, a legendary emperor of Ujjain, India.**
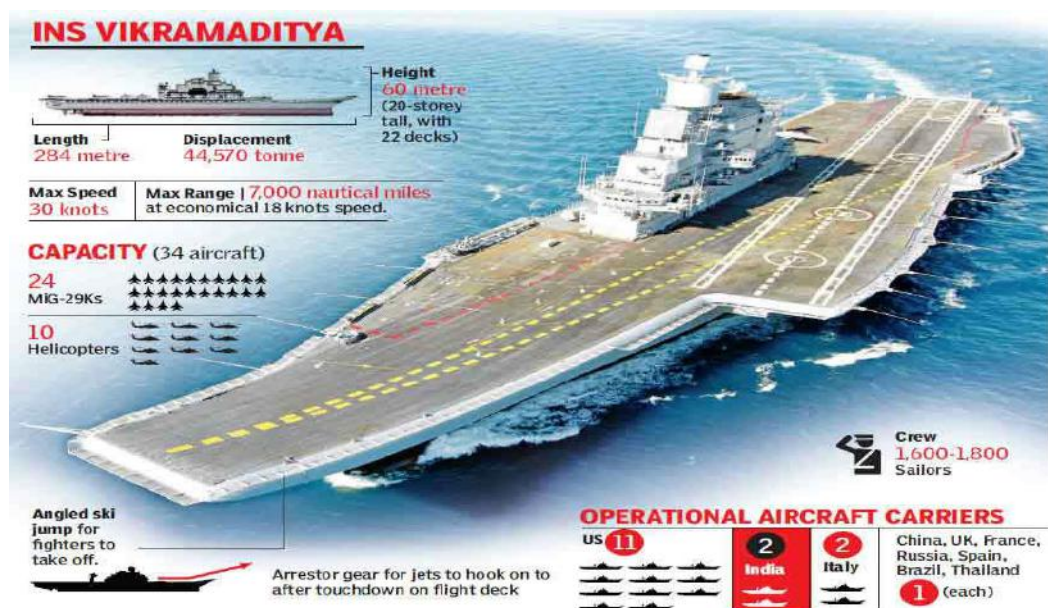
- **Historical Background:-**
- It was **converted from the Russian Navy's** decommissioned **Admiral Gorshkov.**
- **Admiral Gorshkov.**
  - o This carrier **served with the Soviet Navy** and later with **the Russian Navy** (as **Admiral Gorshkov/Baku**) before being decommissioned in 1996.
  - o **Bought by India: 2004**.
  - o **Commissioned by India: in 2013**.
  - o It is a **modified Kiev-class aircraft carrier.**
  - o **Kiev-class aircraft carrier:** it was the first class of fixed-wing aircraft carriers built in the Soviet Union for the Soviet Navy.

Features:-

- It has the ability to **carry over 30 aircraft** comprising an assortment of MiG 29K/Sea Harrier, Kamov 31, Kamov 28, Sea King, ALH-Dhruv and Chetak helicopters.
- **Displacement:** 44,500 Tonnes.
- **Maximum speed:** more than **30 knots** and can achieve a **maximum range of 7,000nmi.**
- **Aircraft component: MiG 29K, Kamov 31, Kamov 28, Seaking, ALH, Chetak.**
- It can endure **up to 45 days at sea.**
- It is powered by 8 **new-generation steam boilers.**
- The aircraft carrier **can be armed with a wide range of weapons**.
  - o These include **anti-ship missiles, beyond visual range air-to-air missiles, guided bombs, and rockets.**
- The ship is equipped with state-of-the-art **launch and recovery systems** along with aids to enable the smooth and efficient operation of ship-borne aircraft.

INS Vikrant
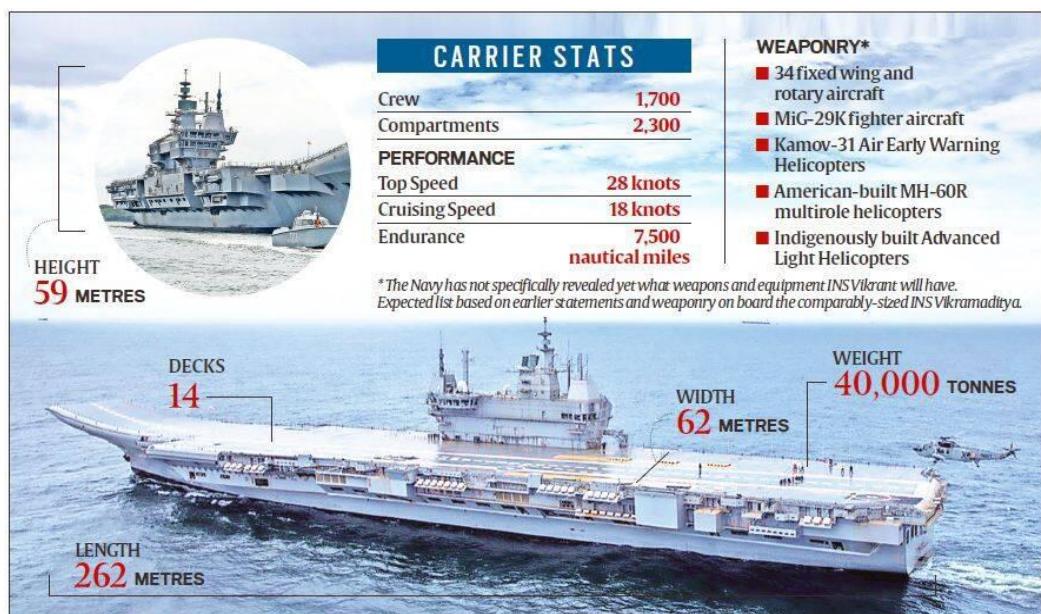
IMAGE SOURCE: **THE INDIAN EXPRESS**

- INS Vikrant is the **largest** warship to be **built in India. (UPSC CSE: INS VIKRANT)**
- **Origin of the Name:-**
  - o It is named after **India's first aircraft carrier**, bought from the UK and **commissioned in 1961.**
- It is India's **first indigenously designed and built aircraft carrier** of the Indian Navy.
- **Significance:-**

- o India joins the **United States (US), the United Kingdom (UK), France, Russia, Italy, and China**, which have similar capabilities.
- **Technologies used: STOBAR** (short take-off but assisted recovery).
- **Designed by: Indian Navy's Directorate of Naval Design (DND).**
  - o **Directorate of Naval Design (DND):** it is the warship design organization of the Indian Navy which came into being in 1970.
- **Made: at Cochin Shipyard Limited in Kochi.**
  - o **Cochin Shipyard Limited (CSL):** a public sector shipyard under the Ministry of Shipping.

Significance of Indian Navy's twin CBG operation:-

- It **demonstrated the Indian Navy's capability** to effectively coordinate and deploy multiple aircraft carriers along with their accompanying assets.
- It showcased **India's commitment to maintaining a strong naval presence.**
- It showed India's ability in **ensuring the security and stability of the region.**
- It also marked a significant milestone in the Indian Navy's efforts to **enhance maritime security and project power in the Indian Ocean and beyond.**

MUST READ: Operation Ganga
SOURCE: THE INDIAN EXPRESS

Janjatiya Khel Mahotsav	**Context:** Recently, the Prime Minister praised the initiative of the first **Janjatiya Khel Mahotsav.** **About Janjatiya Khel Mahotsav:-**
	
	 • **The Inauguration of Janjatiya Khel Mahotsav was done in 2023.**
	 • The Janjatiya Khel Mahotsav is a collaborative effort between the **Odisha Government** and **the Union Ministry of Culture.**
	 • The event successfully **displayed the talent and competitive spirit of tribal communities.**
	 • **Organized at Khel Mahotsav at KIIT University, Odisha.**
	 • **Objective:** to celebrate sports and promote tribal sports and unity. (UPSC CSE: Significance of Tribal Culture in Sustainable Development)
	 • **Significance:-**
	   o It **provided a platform for athletes from diverse backgrounds** to display their abilities.
	   o It fostered a **sense of togetherness** among the participating states.
	   o It **celebrated indigenous** athletes from across India.
	 • **Focus areas:** sports, culture, and unity.
	 • **Participants:** around 5,000 indigenous athletes from 26 states, representing a variety of tribal cultures, attended the competition.
	 MUST READ: Integrating tribal knowledge systems
	 SOURCE: PIB

Gandhi Peace Prize 2021	**Context:** According to recent reports, the **Gandhi Peace Prize 2021** will be conferred to Gita Press, Gorakhpur. **About Gandhi Peace Prize 2021:-** • **Origin:** it was instituted in **1995**, on the occasion of the **125th Birth Anniversary of Mahatma Gandhi.**

- o **1995:** Dr Julius K. Nyerere, former President of Tanzania was awarded the first award.
  - o **Dr Julius K. Nyerere:** was also the major force behind the movements for African Unity.
- **Time:** it is an **annual award. (UPSC CSE: Nobel peace prize 2021)**
- **Significance:** it is **a tribute** to the ideals espoused by Mahatma Gandhi. (UPSC CSE: Mahatma Gandhi)
  - o **Mahatma Gandhi:** a lawyer, nationalist, and anti-colonial activist.
  - o He **led a non-violent mass movement against the British rule of India.**
  - o **Early movements by Gandhiji: Champaran Satyagraha (1917), Kheda Satyagraha (1918), 1920: Non-Cooperation Movement (1920), Civil Disobedience Movement (1930), Quit India movement (1942).**
  - o **Works:** newspapers including Harijan(Gujarati), Indian Opinion and Young India(English).
  - o **Autobiography: The Story Of My Experiments with Truth.**
- **Eligibility for Award:** the award is open to all persons regardless of nationality, race, language, caste, creed or gender.
- **Ministry: Ministry of Culture**
- The award carries an amount of **one crore rupees**, **a citation and a plaque.**
- **Jury:** it is **chaired by Hon'ble Prime Minister**, and comprises **two ex-officio members**, namely the **Chief Justice of India and Leader of the single largest Opposition** Party in Lok Sabha.

Recent Awardees:-
- **2020: Bangabandhu Sheikh Mujibur Rahman. (UPSC MAINS: 971 Indo-Pak war)**
  - o **Bangabandhu Sheikh Mujibur Rahman**: Father of Nation in Bangladesh.
- **2021: Gita Press.**
  - o **Gita Press:** it was established in 1923, and is **one of the world's largest publishers.**

MUST READ: Gandhi Mandela Award
SOURCE: AIR

| International Fund for Agricultural Development (IFAD) | **Context:** The Finance Minister recently met the president of the **International Fund for Agricultural Development (IFAD)** and discussed issues of mutual interest.
About International Fund for Agricultural Development (IFAD):-
• IFAD is an international financial institution and **specialized United Nations agency. (UPSC CSE: IFAD)**
• It works in the field of **poverty eradication in the rural areas of developing countries.**
• It provides **grants and loans with low interest** for allied projects in the related area.
• **HQ: Rome, Italy**
• **Formation: IFAD was created in 1977,** as the outcome of the **World Food Conference of 1974.**
    o **World Food Conference of 1974:** it was organized under **United Nations** wherein the governments examined the global problem of food production and consumption.
Membership:-
• It has **177 Member States.** |

- They comprise **developing, middle and high-income countries** from all regions of the world that are dedicated to eradicating poverty in rural areas.
- Membership in IFAD is **open to any State that is a member of the United Nations**, **any of its specialized agencies or the International Atomic Energy Agency(IAEA).** **(UPSC CSE: Joint Comprehensive Plan of Action (JCPOA))**
- **India is a member of IFAD since 1977.**

Objectives of the IFAD:-

- To **increase the productive capacity of poor** people.
- To **increase benefits** for them from market participation.
- To **strengthen the environmental sustainability & climate resilience** of their economic activities.

Important Publications:-

- It brings out the **Rural Development Report every year.**

MUST READ: Poverty

SOURCE: BUSINESSLINE

International Day of Yoga (IDY)

Context: Recently, the Indian Navy announced its plan to organise the 'Ocean Ring of Yoga' to commemorate **International Yoga Day.**

About International Day of Yoga (IDY):-

IMAGE SOURCE: WordPress.com

- The International Day of Yoga (IDY) is celebrated on **21 June**, **every year.**
  - **June 21** was selected as "Yoga Day" because it is the **longest day of the year in the Northern Hemisphere (Summer Solstice).**
  - It is also considered important in Indian mythology as it **marks the start of Yogic science.**
- **Objective:** to inculcate a habit of meditation for the peace of mind and the self-awareness which is necessary to survive in a stress-free environment.
- **First Yoga Day celebrations: 2015.**
- **The Reserve Bank of India (RBI) issued a commemorative coin of 10 rupees**, in 2015 to mark the International Day of Yoga.
- **UN Postal Administration (UNPA)** issued 10 stamps on Asanas in **2016.**
  - **UNPA:** is the postal agency of the United Nations, which issues postage stamps and postal stationery.
- **Theme 2023: Yoga for Vasudhaiva Kutumbakam**

Historical Background:-

- The idea of the International Day of Yoga (IDY) was proposed by India during the opening of **the 69th session of the United Nations General Assembly (UNGA), held in 2014.**
- This proposal was **backed by 177 nations, which** led the UN to declare June 21 as the "International Day of Yoga.
- The UN proclaimed 21st June as IDY by **passing a resolution in December 2014.**
- The **first Yoga Day celebrations at Rajpath** in New Delhi created **two Guinness World Records.**
  - It was the **world's largest yoga session** with 35,985 people.

Significance of the Day:-

- It **spreads awareness about the practice of yoga.**
- **Its holistic approach** helps maintain **physical and mental well-being.**

Yoga

- The word 'yoga' is derived from Sanskrit and means to join or **to unite**.
  - It symbolizes the **union of body and consciousness**.
- Yoga is an **ancient physical, mental and spiritual practice**.
- It **originated in India.**
- UNESCO put it on the Representative List of the Intangible Cultural Heritage of Humanity **in 2016.**
  - **UNESCO List of the Intangible Cultural Heritage of Humanity:** includes forms of expression that demonstrate the diversity of intangible heritage and raises awareness of its importance.
  - India has **13 intangible heritage** including Yoga as a part of this list. (UPSC CSE: UNESCO Heritage Sites in Maharashtra)

Related Initiatives

- **M-Yoga App:-**The app is a work of collaboration between the **World Health Organisation (WHO) and the Ministry of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (Ministry of AYUSH), Government of India.**
- **New website for International Day of Yoga (IDY):-**This web portal **provides all the updated and relevant information** relating to the International Day of Yoga.
- **Yoga as a sport:-**The **Ministry of Youth Affairs and Sports**, after reviewing the categorization of various Sports disciplines, recognized **Yoga as a sports** discipline and placed it in the **'Priority' category** in 2015.
- **Common Yoga Protocol:-**It is an initiative of the **Ministry of AYUSH**.
- **Vocational Education Courses in Yoga:-**The Beauty & Wellness Sector Skill Council (B&WSSC) has vocational education courses in Yoga for **CBSE schools.**
- **Skilling initiatives:-**Thousands of candidates have been trained as yoga instructors and trainers through various skilling initiatives like the Pradhan Mantri Kaushal Vikas Yojana (PMKVY).
  - **PMKVY:** it is the flagship scheme of the **Ministry of Skill Development and Entrepreneurship**.
- **Fit India Movement:-**Yoga is also a part of the Fit India Movement.
  - **Fit India Movement:** a nationwide campaign that aims at encouraging people to include physical activities and sports in their everyday lives.

Ocean Ring of Yoga

- Ocean Ring of Yoga symbolizes **unity and solidarity.**
- **Organized by: Ministry of Defence** and other ministries.
- **Implementation: Indian Navy ships deployed in the Indian Ocean Region will be visiting various ports** of friendly foreign countries in support of the IDY-23 initiative.
  - They will spread the message of '**Vasudhaiva Kutumbakam'**, which is also the **theme for IDY 23.**
- The **Indian Navy has been an ambassador for Yoga across the seas** for several years.

- This year, Indian Navy is **actively supporting the IDY at a global scale as port calls are planned** at **Chattogram, Bangladesh; Safaga, Egypt; Jakarta, Indonesia; Mombasa, Kenya; Toamasina, Madagascar; Muscat, Oman; Colombo, Sri Lanka; Phuket, Thailand; and Dubai, UAE by IN Ships Kiltan, Chennai, Shivalik, Sunayna, Trishul, Tarkash, Vagir, Sumitra and Brahmaputra respectively.**
- The IDY-23 activities by the Indian Naval ships at foreign ports are planned to **involve the ship's crew and personnel from the host country.**

MUST READ: New sites added to India's tentative list of UNESCO world heritage sites
SOURCE: AIR

National Internet Exchange of India (NIXI)

Context: The **National Internet Exchange of India (NIXI)** celebrated its 20th Foundation Day recently.

About the National Internet Exchange of India (NIXI):-

- NIXI is a **not-for-profit Organization (NPO)** under **section 8** of the **Companies Act 2013.**
  (UPSC CSE: NIXI)
  - **NPO:** an organization that focuses on a particular social cause, and all the money earned or donated is used in pursuing its objectives and meeting operational costs.
- **Established: 2003.**
- **HQ: New Delhi.**
- **Ministry: Ministry of Electronics & Information Technology.**
- NIXI was set up to **increase internet penetration and adoption in India.**
- NIXI was established for **facilitating various infrastructure aspects** to enable the Internet ecosystem to be managed and used by the masses.
- NIXI was set up for **peering of Internet Service Providers (ISP) among themselves.**
  - **Peering**: the **exchange of data** directly between internet service providers, rather than via the internet.

Objectives of NIXI:-

- To **promote the Internet. (UPSC CSE: India's National Cyber Security Strategy)**
- To set up, when needed, in select location(s)/parts/regions of **India Internet Exchanges/Peering Points.**
  - **Internet exchange point** (IXP): a **network point** at which Internet service providers and Content Delivery Networks **exchange Internet traffic** between their networks.
- To enable effective and **efficient routing, peering, transit and exchange** of Internet traffic within India.
  - **Network routing**: is the process of selecting a path across one or more networks.
  - **Peering**: the **exchange of data** directly between internet service providers, rather than via the internet.
  - **Data transit:** carrying of data from one place to another.
  - **Internet traffic:** flow of data within the entire Internet, or in certain network links of its constituent networks.
- To continuously work for **enhancing and improving the quality of Internet** and Broadband services.

MUST READ: [India Internet Governance Forum (IIGF)](#)
SOURCE: [PIB](#)

Global Gender Gap Report 2023	**Context:** World Economic Forum (WEF) published the Global Gender Gap Report 2023 recently. **About Global Gender Gap Report:-**

About Global Gender Gap Report:-

- The Global Gender Gap Index is published **annually since 2006.**
- **Published by: World Economic Forum (WEF).**
  - **WEF:** a non-profit organization based in Geneva, Switzerland.
  - It engages the foremost political, business, cultural and other leaders of society to shape global, regional and industry agendas.
- **It benchmarks** the current state and evolution of gender parity across **four key dimensions:-**
  - Economic Participation and Opportunity
  - Educational Attainment
  - Health and Survival
  - Political Empowerment
- On each of these four sub-indices as well as on the overall index the GGG index provides scores between **0 and 1**.
  - 1: full gender parity
  - 0: complete imparity.
- It is **the longest-standing index tracking the progress of numerous countries'** efforts towards closing these gaps over time since its inception.

Key findings of Global Gender Gap Report 2023:-

- **Global gender gap score in 2023:** stands at **68.4%.**
  - This indicates a **modest improvement of 0.3% points** compared to the previous year.
  - It shows a significant **slowdown in the overall rate of change.**
  - At the current rate of progress, it would **take 131 years** to achieve full gender parity.
- **Top-Ranking Countries: Iceland** is the **most gender-equal country for the 14th consecutive year**, with a gender gap score of **91.2%.**
  - It is the **only country to have closed over 90%** of its gender gap.
- **sub-Saharan Africa (SSA):-**
  - SSA has been ranked **above Southern Asia, the Middle East and North Africa.**
  - Women in **sub-Saharan Africa (SSA)** have to wait another 102 years to achieve gender parity with men.
  - Gender equality in the region may not be fully realized **until 2125**.
  - 17 of the region's 36 countries marked **progress of 0.5 percentage** points or more.
  - SSA is the lowest-ranked region in terms of educational attainment.
- **Health and Survival:**
  - The **gender gap** in health and survival has **closed by 96% globally.**
- **Political Empowerment:**
  - The gender gap remains significant, with a closure rate of **22.1% globally.**
- **Educational Attainment:**
  - The gender gap in educational attainment has closed by **95.2%.**
  - Significant progress was made over the 2006-2023 period.
  - The gender gap in educational attainment is projected to close in **16 years.**
- **Economic Participation and Opportunity:**

o The gender gap in economic participation and opportunity stands at **60.1% globally**.
o The gender gap in economic participation and opportunity **is projected to close in 169 years.**

India's Ranking and Progress
- **Rank 2023: 127th** out of 146 countries.
- **Rank in 2022: 135th**
- **India's Progress:-**
  o India climbed eight places indicating an **improvement in its ranking.**
  o India has closed **64.3% of the overall gender gap,** showcasing progress in various areas.
  o India has **achieved parity in enrolment** across all levels of education. (UPSC CSE: Gender Inequality Index)
- **Challenges for India:**
  o **Economic participation and opportunity** in India achieved only **36.7% parity.**

MUST READ: Gender gap in education
SOURCE: DOWN TO EARTH

Deendayal Antyodaya Yojana-National Urban Livelihoods Mission (DAY-NULM)	**Context: The United Nations Development Programme (UNDP)** and the **Deendayal Antyodaya Yojana-National Urban Livelihoods Mission (DAY-NULM)** entered into a collaborative partnership recently.
	
	 About the partnership:-
	• The partnership will provide **support for women** looking to start and expand their own enterprises, in sectors such as the **care economy, digital economy, waste management etc.**
	• It will be focused on **fostering entrepreneurship development** and accelerating enterprise growth, the three-year project.
	• It is extendable **beyond 2025.**
	• It will **cover eight cities** in the **initial phase.**
	• UNDP will offer national-level **capacity-building support** to DAY-NULM.
	
	About Deendayal Antyodaya Yojana-National Urban Livelihoods Mission (DAY-NULM):-
	• National Urban Livelihoods Mission (NULM) was renamed **as Deen Dayal Antyodaya Yojana-(DAY-NULM)** and in Hindi as **Rashtriya Shahri Aajeevika Mission.**
	• **Launched: 2014.**
	• **Ministry: Ministry of Housing & Urban Affairs.**
	• **Aim:** improvement in livelihoods of urban poor households. **(UPSC CSE: MGNREGA)**
	• It is **Centrally Sponsored Scheme.**
	• **Funding:-**it is shared between
	   o **Centre and the States** in the ratio of **75:25.**
	   o **Centre and North Eastern and Special Category** in the ratio of **90:10.**
	
	Objectives:-
	• To **reduce poverty and vulnerability** of the urban poor households.
	   o It will be done by **enabling them to access gainful self-employment and skilled wage employment** opportunities.
	• To **provide a shelter equipped with essential services to the urban homeless** in a phased manner.
	• To **address the livelihood concern of the urban street vendors.**

	o It will be done by **facilitating with suitable space, institutional credit, and social security skills** to them. **MUST READ:** **SMILE: Support for Marginalised Individuals for Livelihood and Enterprise** **SOURCE:** **PIB**

INS Kirpan	**Context:** Recently, India announced gifting the missile corvette **INS Kirpan** to Vietnam.
	
	About the announcement:
	• Defence Minister Rajnath Singh has **announced the gifting of INS Kirpan** to Vietnam following his talks with Vietnam National Defence Minister General Phan Van Gang.
	• The meeting was held in New Delhi to **review progress on various bilateral defence cooperation** efforts.
	• Vietnamese defence minister also visited DRDO headquarters and discussed ways to **enhance defence industrial capabilities through cooperation** in defence research and joint production.
	• India has also announced the setting up of a **Language and IT Lab at the Air Force Officers Training School** for capacity building in the Vietnamese armed forces.
	About INS Kirpan:
	• INS Kirpan is an **indigenously-built missile corvette.**
	   o **Missile corvette:** a small warship designed for coastal or littoral operations.
	   o It is typically **equipped with anti-ship missiles, surface-to-air missiles,** and other offensive and defensive weapons systems. (UPSC CSE: Ikshak Survey Vessel)
	• It is **a Khukri class missile** corvette.
	   o **Khukri class missile**: equipped with Diesel Engines assembled in India.
	• It was commissioned into the Navy **in 1991.**
	Special Features:-
	• It has a displacement of close to 1,400 tonnes.
	• **Length:** 91 metres.
	• It has a beam of 11 metres.
	• **Speed:** It is capable of speed in excess of 25 knots.
	• The ship is fitted with a medium-range gun, 30 mm close-range guns, chaff launchers, and surface-to-surface missiles.
	• **Roles performed:** coastal and offshore patrol, coastal security, surface warfare, anti-piracy, and Humanitarian Assistance and Disaster Relief (HADR) operations.
	MUST READ: **MV Ganga Vilas**
	SOURCE: **THE HINDU**

Tenzing Norgay National Adventure Award-TANNA	**Context:** The Ministry of Youth Affairs and Sports invited nominations for **Tenzing Norgay National Adventure Award-TANNA** 2022. **About Tenzing Norgay National Adventure Award-TANNA :-** • Tenzing Norgay National Adventure Awards are **given every year.** • **First awarded: 1994.** • **Ministry: Ministry of Youth Affairs and Sports.** • The award is named after **Tenzing Norgay**. (UPSC CSE: Rural Sports in India)

- o **Tenzing Norgay**: one of the first two individuals to reach the summit of Mount Everest along with **Edmund Hillary in 1953.**

Objectives

- To recognize the **achievements of the person** in the field of adventure.
- To encourage young people to develop the **spirit of endurance, risk-taking, cooperative teamwork, and quick, ready, and effective reflexes** in challenging situations.
- To provide **incentives to young people** for getting exposed to adventure activities.

Eligibility

- A person should have **excellent performance** and outstanding qualities of **leadership,** a sense of **adventure discipline** and **continuous achievement in one particular field of adventure** viz. Land, Air or Water (Sea).
- The award **may be given posthumously** if such an occasion arises.

Exclusions

- No award will be conferred for a **second time to the same person under the same category.**
- The government of India may cancel or annul the award to any person under circumstances, which, in the opinion of the Government, might render such **person unworthy of the award.**

Decoration

- The award consists of a **Bronze statuette**, a **certificate, a blazer with a silken tie/a saree** and an **award money of Rs. 15 Lakhs.**
- The Awards are **presented to the winners along with Arjuna Awards** by the Government of India.
    - o **Arjuna Awards:** they are given for Outstanding Performance in Sports and Games.
    - o It is the **second-highest sporting honour** in India, the highest being the **Major Dhyan Chand Khel Ratna Award.**

No. of Awardees

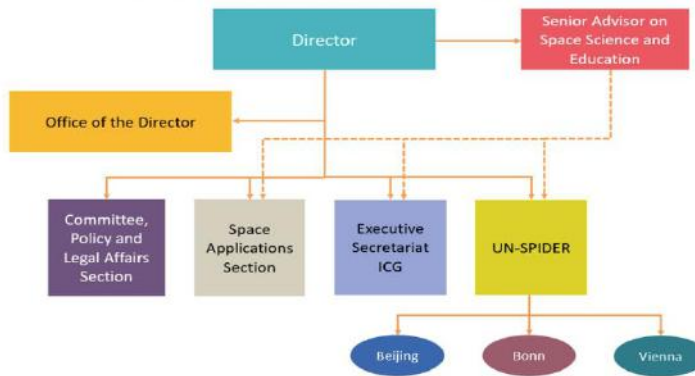- Awards can be given in **four categories** namely:
    - o **Land Adventure, Water (Sea) Adventure, Air Adventure and Life Time Achievement**.
- Ordinarily **not more than one Award** will be made **in each category.**
- The Ministry may **increase the number of awards in a particular year** with the **approval of the Hon'ble Minister of Youth Affairs and Sports.**

MUST READ: Golden Globe Awards.
SOURCE: AIR

United Nations Office for Outer Space Affairs (UNOOSA)	**UNOOSA Organisational Chart**	**Context:** An Indian-origin British satellite industry expert was appointed as the director of the **United Nations Office for Outer Space Affairs (UNOOSA).** Background:- • **Aarti Holla-Maini**, has been appointed as the director of the United Nations Office for Outer Space Affairs (UNOOSA). • She is an **Indian-origin British satellite industry expert.** • The United Nations

secretary general appointed her**.**
- She holds **a bachelor's degree in law** with German law from King's College London and **a master's degree in business administration** from French business school HEC Paris.
- She spent over 18 years as the **secretary-general** of the **Global Satellite Operators Association.**
- She has **25 years of experience in the aerospace industry.**
- She has recently held the role of **executive vice-president, of sustainability, policy and impact at North Star Earth & Space.**

About United Nations Office for Outer Space Affairs (UNOOSA):-

IMAGE SOURCE: UNOOSA.ORG
- **Established: 1**958
- **HQ: Vienna, Austria.**
- **Objective: to help all countries, especially developing countries, access and leverage the benefits of space to accelerate sustainable development.**

Structure of UNOOSA:-
- The Office is **headed by a Director** and has **five sections:-**
- **Office of the Director (OD)**
  - OD oversees and coordinates the strategic direction and operational priorities of UNOOSA.
- **Committee, Policy and Legal Affairs Section (CPLA)**
  - CPLA provides substantive, secretariat, organisational and administrative support.
- **Space Applications Section (SAS)**
  - SAS plans and implements the United Nations Programme on Space Applications.
- **United Nations Platform for Space-Based Information for Disaster Management and Emergency Response (UN-SPIDER)**
  - UN-SPIDER is a programme of UNOOSA to leverage space data and applications for disaster risk reduction.
- **Executive Secretariat of the International Committee on GNSS (ICG)**
  - The ICG brings together all global navigation satellite system (GNSS) providers.

Functions of UNOOSA:-
- It helps countries build their capacity to develop and make the most out of the **space sector.**
- It helps countries use **space data and technologies,** such as satellite imagery, **to prevent and manage disasters. (UPSC MAINS: Can outer space be considered a resource)**

- It helps countries **understand the fundamentals of international space law** and increase their capacity to draft or revise national space law and policy.
- It supports **transparency in space activities.**
- It helps to **promote sustainable development through space**.
- It works with space agencies and space leaders around the world to **devise solutions to challenges that require an international response.**

**MUST READ: IN–SPACe (Indian National Space Promotion and Authorisation Centre)**
SOURCE: TIMES NOW

Digital Publisher Content Grievances Council (DPCGC)	**Context:** Recently, the **Digital Publisher Content Grievances Council (DPCGC)** recommended punitive action for the OTT platform ULLU over allegedly obscene content.
	
	 About Digital Publisher Content Grievances Council (DPCGC):-
	 IMAGE SOURCE: The Dominion Post
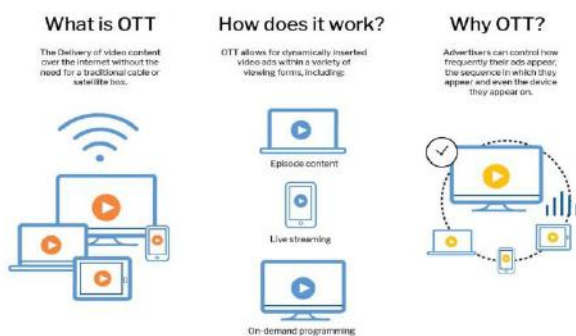	
	 - It is an **officially recognized, independent self-regulatory body for online-curated content providers (OCCPs).**
	   o **OCC Platforms:** companies that carry on the business, which curates and present a wide variety of content by means of online video-on-demand platforms.
	   o **OOC Platforms operating in India:** Amazon Prime, Netflix, Hot star, Zee5, etc.
	 - **Establishment: 2021.**
	   o It has been set up under the aegis of the **Internet and Mobile Association of India (IAMAI).**
	   o **IAMAI:** a not-for-profit industry body representing the interests of the online and mobile value-added services industry.
	 - **Objective:** to usher in a **redressal mechanism** which will ensure a balance between **addressing viewer complaints and showcasing content** in a free-speech environment without ad-hoc interventions
	 - **Ministry: Ministry of Information & Broadcasting**
	 - **Current Head: A K Sikri, retired Supreme Court Judge.**
	 Functions of GRB:-
	 - It will oversee and ensure the alignment and adherence to the **Code of Ethics by the OCCP Council members.**
	 - Provide **guidance** to entities on the Code of Ethics. (UPSC CSE: Digital India programme)
	 - **Address grievances** that have not been resolved by the publisher within 15 days.
	 - **Hear grievances/appeals** filed by complainants.
	 MUST READ: Grievance Appellate Committees
	 SOURCE: THE INDIAN EXPRESS

National Cooperative Union of India (NCUI)	**Context:** Prime Minister Narendra Modi inaugurated the 17th Indian Cooperative Congress (ICC) organized by the **National Cooperative Union of India (NCUI)** recently. **Background:-** - National Cooperative Union of India (NCUI) is organizing the two days Indian Cooperative Congress. - The theme of **Amrit Kaal: Prosperity through Cooperation for a Vibrant India.** - The Union Home and Cooperation Minister Amit Shah will chair it.

- **Objective of the Indian Cooperative Congress**:-
  - To discuss various trends in the cooperative movement.
  - To showcase the best practices being adopted by the successful cooperatives.
  - To deliberate on challenges being faced by the cooperative world.

About the National Cooperative Union of India (NCUI):-
- **Established: 1929.**
- **HQ: New Delhi.**
- It is the apex body in India which **represents all sectors of the Indian Co-operative Movement**. (UPSC CSE: India's Cooperative Sector)

Objectives of NCUI:-
- To promote and develop the co-operative movement in India.
- To educate, guide and assist the people in their efforts.
- To build up and expand the co-operative sector.

NCUI membership:-
- It is open to **national and state-level co-operative organisations** as well as **multi-state** co-operative societies.
- As of 2016, NCUI had **260 members,** including, 17 National, 163 State and 80 Multi-State Cooperatives.

Function: it provides service as an exponent of co-operative opinion in accordance with cooperative principles.

MUST READ: Cooperative Sector Reforms
SOURCE: AIR

Padma Awards

Context: Recently, the Ministry of Home Affairs announced that the online nominations for **Padma Awards** 2024 would be open till 15th September 2023.

About Padma Awards:-
IMAGE SOURCES: Oneindia
- The Padma Award are **one of the highest civilian honours of India.**
- **Instituted:1954. (UPSC CSE: Padma awards)**
- **Objective:** to recognize achievements in all fields of activities or disciplines where an element of public service is involved.
- **Presented by: President of India.**
- **Time period: March/April every year.**
- It is announced **every year** on the occasion of **Republic Day.**
  - There was a brief interruption(s) during the years: **1978 and 1979 and 1993 to 1997.**
- The Awards are given in **three categories:-**
  - **Padma Vibhushan**: for exceptional and distinguished service.
  - **Padma Bhushan:** for distinguished service of higher order.
  - **Padma Shri:** for distinguished service.

Historical Background:–
- **1954:** The Government of India instituted **two civilian awards-Bharat Ratna & Padma Vibhushan**.
  - Padma Vibhushan had three classes namely Pahela Varg, Dusra Varg and Tisra Varg.

- o **1955:** These were **renamed as Padma Vibhushan, Padma Bhushan and Padma Shri.**

Eligibility:-
- **All persons** without distinction of race, occupation, position or sex are eligible for these awards.
- **Exclusion: 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:-**
  - o **Art:** includes Music, Painting, Sculpture, Photography, Cinema, Theatre etc.
  - o **Social work:** includes social service, charitable service, contribution to community projects etc.
  - o **Public Affairs:** includes Law, Public Life, Politics etc.
  - o **Science & Engineering:** includes Space Engineering, Nuclear Science, Information Technology, Research & Development in Science & its allied subjects etc.
  - o **Trade & Industry:** includes Banking, Economic Activities, Management, Promotion of Tourism, Business etc.
  - o **Medicine:** includes medical research, distinction/specialization in Ayurveda, Homeopathy, Siddha, Allopathy, Naturopathy etc.
  - o **Literature & Education:** includes Journalism, Teaching, Book composing, Literature, Poetry, Promotion of education, Promotion of literacy, Education Reforms etc.
  - o **Civil Service:** includes distinction/excellence in administration etc. by Government Servants
  - o **Sports:** includes popular Sports, Athletics, Adventure, Mountaineering, promotion of sports, Yoga etc.
  - o **Others:** fields not covered above and may include propagation of Indian Culture, protection of Human Rights, Wild Life protection/conservation etc.

Decoration:-
- 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.

Selection Process:-
- The nomination process is **open to the public.**
- Even **self-nomination can be made.**
- The Padma Awards are conferred on the **recommendations made by the Padma Awards Committee.**
  - o **Padma Awards Committee:** It is constituted by the Prime Minister every year.
  - o It is headed by the **Cabinet Secretary.**
  - o Other members: **Home Secretary, Secretary to the President and four to six eminent persons as members.**
- **Approval:** The recommendations of the committee are submitted to the **Prime Minister and the President of India** for approval.

Special Features of Padma Awards:-
- 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.
- The award is normally **not conferred posthumously**.

	o However, **in highly deserving cases,** the Government could consider giving an award posthumously. **MUST READ:** Padma awardee Shanti Devi **SOURCE:** AIR
Central Board for Film Certification (CBFC)	**Context:** Central Board for Film Certification (CBFC) clarified that the film Bahattar Hoorain, was granted 'A' certification in 2019. **About Central Board for Film Certification (CBFC):-** **IMAGE SOURCE:** SlideShare

- **Establishment: 1951**
- It is a **statutory body** under the **Cinematograph Act 1952**. (UPSC CSE: Amendments to Cinematograph Act)
- **Ministry: Ministry of Information and Broadcasting**.
- **HQ: Mumbai, Maharashtra.**
- Films can be publicly exhibited in India only after they are certified by the CBFC.

Objectives of CBFC:-
- To ensure **good and healthy entertainment** in accordance with the provisions of the Cinematograph Act 1952 and the Cinematograph (Certification) Rules 1983.
- To **grant a certificate** to regulate the public exhibition of films in India.
- To promote **recreation, education, and good and healthy entertainment** to the public according to the provisions of the Cinematograph Act, 1952, and Cinematograph (Certification) Rules, 1983.

Structure of CBFC:-
- CBFC board: is headed by a **central government-appointed chairperson** and **12-45 non-official members.**
- The members are eminent persons from **social science, education, law, arts or films background appointed.**

Functions:-
- It examines films for **content that may be harmful or unsuitable** for some particular audiences, particularly children and young people.
- It ensures that **films adhere to ethical standards**, respecting cultural values and societal norms.
- After evaluating the content and classifying the film, the CBFC grants a certificate that permits the film's public exhibition.

Appeals:-
- Filmmakers can appeal against the CBFC's decisions in the Film Certification Appellate Tribunal (FCAT).
  - **FCAT:** it is an independent body to review and resolves appeals.

Films are certified under four categories:-
- **"U":** unrestricted public exhibition.
- **"A":** restricted to adult audiences.
- **"U/A"**: unrestricted public exhibition subject to parental guidance for children below the age of twelve.
- **"S"**: restricted to specialized audiences such as doctors or scientists.
  - The board **may also refuse to certify.**

MUST READ: Reforms
SOURCE: AIR

MAINS

POLITY & GOVERNANCE

Recusal by Judges

Context: Recently, there have been various instances of judges recusing themselves from hearing cases.

About Judge Recusal:

- When there is a **conflict of interest**, a judge can withdraw from hearing a case to prevent creating a perception that she carried a bias while deciding the case.
- The conflict of interest can be in many ways — from holding shares in a company that is a litigant to having a prior or personal association with a party involved in the case.
- Another instance for recusal is when an appeal is filed in the **Supreme Court against a judgement of a High Court** that may have been delivered by the SC judge when she was in the HC.
- The practice stems from the cardinal principle of due process of law that nobody can be a judge in her own case.

Rule for Recusal:

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

Causes of Recusal:

- The decision to recuse generally comes from the judge himself or herself as it rests on the conscience and discretion of the judge to disclose any potential conflict of interest.
- Conflict of interest could be:
  - Judge's Interest in the subject matter, or relationship with someone who is interested in it;
  - Judge's Background or experience, such as the judge's prior work as a lawyer;
  - Judge's Personal knowledge about the parties or the facts of the case;
  - Judge's Ex parte communications with lawyers or non-lawyers;
  - Judge's Rulings, comments or conduct;
- In some circumstances, lawyers or parties in the case bring it up before the judge.
  - If a judge recuses, the case is listed before the Chief Justice for allotment to a fresh Bench.

Process of Recusal:

- The decision to recuse generally comes from the judge himself as it rests on the conscience and discretion of the judge to disclose any potential conflict of interest.
  - Some judges orally convey to the lawyers involved in the case their reasons for recusal, many do not. Some explain the reasons in their order.
- In some circumstances, lawyers or parties in the case bring it up before the judge. Once a request is made for recusal, the decision to recuse or not rests with the judge.
  - While there are some instances where judges have recused even if they do not see a conflict but only because such an apprehension was cast, there have also been several cases where judges have refused to withdraw from a case.
- If a judge recuses, the case is listed before the Chief Justice for allotment to a fresh Bench.

Concerns:

- **Undermining Judicial Independence:** It allows litigants to cherry-pick a bench of their choice, which impairs judicial fairness.

- o In addition, the purpose of recusal in these cases undermines both independence and impartiality of the judges.
- **Different Interpretations:** As there are no rules to determine when the judges could recuse themselves in these cases, there are different interpretations of the same situation.
- **Delays the Process:** Some requests for recusal are made with the intent to intimidate the court or to get better of an 'inconvenient' judge or to obfuscate the issues or to cause obstruction and delay the proceedings or in any other way frustrate or obstruct the course of justice.

Way Forward:

Recusal is also regarded as the abdication of duty. Maintaining institutional civilities are distinct from the fiercely independent role of the judge as an adjudicator. It is the **constitutional duty**, as reflected in **one's oath, to be transparent and accountable**, and hence, a judge is required to indicate reasons for his recusal from a particular case.

Source: **The Hindu**

Retain Sedition Law with Amendments: Law Commission

Context: The Law Commission of India has recommended against the total repeal of sedition law (Section 124A of the Indian Penal Code) and has instead proposed that the provision be retained with certain amendments.

Highlights of the report submitted:

- The report highlighted that the **offense of sedition is frequently regarded as a remnant of colonial rule**, established during a time when it was frequently employed against India's freedom fighters.
- The Commission suggested that a provision analogous to **Section 196(3) of the Code of Criminal Procedure, 1973 (CrPC)** may be incorporated as a proviso to Section 154 of CrPC, which would provide the requisite procedural safeguard before the filing of an FIR with respect to an **offence under Section 124A of IPC.**

About Sedition Law:

- Sedition laws were enacted in 17th century England when lawmakers believed that only good opinions of the government should survive, as bad opinions were detrimental to the government and monarchy.
- The law was **originally drafted in 1837 by Thomas Macaulay**, the British historian-politician, but was inexplicably omitted when the **Indian Penal Code (IPC) was enacted in 1860.**
- **Section 124A was inserted in 1870** by an amendment **introduced by James Stephen** when it felt the need for a specific section to deal with the offence.
- Today the Sedition is a crime under **Section 124A of the Indian Penal Code (IPC).**

Section 124A IPC:

- It defines sedition as an offence committed when "**any person by words, either spoken or written, or by signs, or by visible representation, or otherwise, brings or attempts to bring into hatred or contempt, or excites or attempts to excite disaffection towards the government established by law in India".**
- Disaffection includes disloyalty and all feelings of enmity.
- However, comments without exciting or attempting to excite hatred, contempt or disaffection, will not constitute an offence under this section.

Punishment for the Offense of Sedition:

- It is a **non-bailable offence.**
- Punishment under Section 124A ranges from **imprisonment up to three years to a life term, to which a fine may be added.**
- A person charged under this law is barred from a government job.
- They have to live without their passport and must appear in court at all times as and when required.

Need of continuation of Section 124A:

- **Misuse of freedom of speech:** Freedom of speech although is protected through **Article 19 (1)** but it is not unlimited.

- o Sometimes speech is used as a tool to destabilise country polity and to promote enmity in society.
  - o The main reason behind the continuation of Sedition act after independence was to prevent the misuse of free speech (reasonable restrictions) that would be aimed at inciting hatred and violence.
- **Internal security:** Maoist insurgency and rebel groups virtually run a parallel administration; it would be dangerous to abolish it.
  - o These groups openly advocate the overthrow of the state government by revolution.
  - o Thus keeping section 124A is important for Indian security.
- **Destabilising polity:** Sometimes, propaganda and facts are modified and used to destabilise the country's peace and polity by deliberately targeting government actions.

Arguments for Section 124A:
- Section 124A of the IPC has its utility in **combating anti-national, secessionist and terrorist elements.**
- It protects the elected government from attempts to overthrow the government with violence and illegal means.
- The continued existence of the government established by law is an **essential condition of the stability of the State.**
- Many districts in different states face a **Maoist insurgency and rebel groups** virtually run a parallel administration.
- These groups openly advocate the overthrow of the state government by revolution.
- Therefore, there is a need to retain the provision to effectively combat anti-national, secessionist and terrorist elements.
- The plea had contended that the provision which was used by the **British against Mahatma Gandhi and Bal Gangadhar Tilak is still being "grossly abused"** to stifle freedom of speech and expression of those who choose to express dissent against policies of the Governments in power.

Arguments against Section 124A:
- [Mahatma Gandhi](#) called Section 124A "**the prince among the political sections of the IPC designed to suppress the liberty of the citizen".**
- [Jawaharlal Nehru](#) said that the provision was **"obnoxious" and "highly objectionable", and "the sooner we get rid of it the better".**
- It is a constraint on the legitimate exercise of constitutionally guaranteed freedom of speech and expression.
- Dissent and criticism of the government are an essential ingredient of robust public debate in a vibrant democracy.
- **The British, who introduced sedition to oppress Indians, have themselves abolished the law in their country.**
  - o There is no reason why India should not abolish this section.
- The sedition law is being misused as a tool to persecute political dissent. A wide and concentrated executive discretion is inbuilt into it, which permits the blatant abuse.

Way Forward:

India, being the largest democracy in the world, has to ensure its essential ingredients of free speech and expression. The expression or thought that is not in consonance with the policy of the government of the day should not be considered sedition.

It is also essential to protect national integrity. Given the legal opinion and the views of the government in favour of the law, it is **unlikely** that **Section 124A will be scrapped soon**. However, it should not be **misused as a tool to curb free speech.**

Source: [Indian Express](#)

Practice of Forum Shopping

Context: Recently, the Chief Justice of India (CJI) DY Chandrachud condemned the practice of 'forum shopping'.

About Forum shopping:

- When litigants or lawyers attempt to deliberately move their case to a **particular judge or Court where they think the judgment could be more favourable**, they are said to be "forum shopping."
- This practice involves choosing a court that is likely to **provide the most favourable outcome**, rather than following the standard legal process.
- Lawyers think about which is the right forum to approach as part of their litigation strategy.
  - For example, one could directly approach the Supreme Court via a public interest litigation case instead of the concerned High Court because the issue could get more eyeballs.

Advantages:

- It can permit offended parties to look for **equity and remuneration** in a court that is more thoughtful to their cases or interests.
- It has the potential to **boost efficiency and quality of service** among courts and judges by encouraging competition and new ideas.

Challenges posed by forum shopping:

- It creates **uncertainty and confusion** among litigants and lawyers about the proper jurisdiction and venue for their cases.
- It **erodes public confidence and trust in the judiciary**, as it creates an impression that justice is not based on merit but on manipulation.
- **Wasting time and resources** of the courts and the litigants by causing duplication, delay and confusion.
- **Creating conflicting or inconsistent judgments** on the same or similar issues, leading to legal uncertainty and chaos.
- **Eroding the credibility and impartiality of the judiciary**, as well as the trust and respect of the public and the legal profession.
- Encouraging forum shopping by other litigants or lawyers **creates a vicious cycle of abuse and corruption.**

Supreme Court's View on Forum Shopping:

Dr. Khair-Un-Nisa and Ors vs. UT of Jammu and Kashmir and Ors 2023:

- The Jammu, Kashmir, and Ladakh High Court imposed costs worth one-lakh rupees on the petitioners for indulging in forum shopping by filing multiple petitions before different wings of the court, despite having the same cause of action.

Vijay Kumar Ghai vs. State of W.B. 2022:

- The SC termed forum shopping as a "disreputable practice by the courts" that "has no sanction and paramountcy in law".

Dhanwantri Institute of Medical Science vs. the State of Rajasthan 2022:

- The Rajasthan High Court upheld an order imposing costs worth 10 lakh rupees on a party for engaging in forum shopping.

Kamini Jaiswal vs. Union of India 2017:

- The SC said that "unscrupulous elements" are always on the hunt to find a court or forum of their choice but are not permitted to do so by law.

Way Forward:

Thus, Forum shopping is a serious challenge that threatens the quality and legitimacy of justice delivery. It requires concerted efforts from all stakeholders to address it effectively and efficiently. By doing so, we can ensure that justice is not only done but also seen to be done.

Source: Indian Express

Drug Abuse in India

Context: The Narcotics Control Bureau (NCB) Chandigarh Zone recently detained an alleged drug trafficker, who is reportedly operating in Una district in Himachal Pradesh.

About Drug trafficking:

- Drug trafficking is a global illicit trade involving the cultivation, manufacture, distribution and sale of substances which are subject to drug prohibition laws.
- United Nation Office on Drugs and Crime (UNODC) is continuously monitoring and researching global illicit drug markets in order to gain a more comprehensive understanding of their dynamics.

India and Drug Abuse:

- According to a report by **the United Nation Office on Drugs and Crime (UNODC),** India is one of the major

hubs of illicit drug trade ranging from age-old cannabis to newer prescription drugs like tramadol, and designer drugs like methamphetamine.

- The money from the drug trade is used to **finance terrorism, human trafficking, illegal businesses etc.**
- India lies in the middle of two major illicit opium production regions in the world, **the Golden Crescent in the west and the Golden Triangle** in the east that makes it a viable hub of

the illicit drug trade.

  - **Golden Triangle**: It includes the regions of Myanmar, Laos, and Thailand and is Southeast Asia's main opium-producing region and one of the oldest narcotics supply routes to Europe and North America.
  - **Golden Crescent:** It includes Afghanistan, Iran, and Pakistan and is a principal global site for opium production and distribution.

- **China Factor:** These heroin and methamphetamine-producing areas have porous borders and are, reportedly, under the control of rebel groups, indirectly supported by the Chinese.
  - Illicit arms are manufactured here and supplied to underground groups active in India.

Reasons behind Drug trafficking in India: There are several reasons behind drug trafficking in India, some of which are:

- **Geographical location:** India's location between the "Golden Crescent" and "Golden Triangle" regions, which are major drug-producing areas, makes it vulnerable to drug trafficking.
  - Drugs like heroin, opium, and hashish are produced in the **Golden Crescent,** which includes **Afghanistan, Iran, and Pakistan**, and are smuggled into India through the northwest border.
- **Porous borders**: India shares borders with several countries that are known for drug production and trafficking, and these borders are often poorly guarded and easily penetrated by smugglers.
  - For instance, the North-East States that share borders with Bangladesh, Nepal, Myanmar, China, and Bhutan are the hot spots for drug smuggling.
- **High demand**: India has a large population, and there is a high demand for drugs, both for recreational and medicinal purposes.
  - For example, drugs like marijuana and cocaine are in high demand in metropolitan cities like Mumbai and Delhi.
- **Lack of awareness**: There is a lack of awareness among people about the dangers of drug abuse, and many people do not know how to identify drug abuse or how to get help.
  - For example, young people who are not educated about the risks of drug abuse are particularly vulnerable to falling prey to drug traffickers.

- **Corruption:** Corruption among law enforcement agencies and government officials allows drug traffickers to operate with impunity.

Challenges in tackling Drug Trafficking in India:

- **Dark Net:** Dark net markets are difficult to trace because of their anonymity and low risks.
  - Studies reveal that **62% of the dark net is being used for illicit drug trafficking.**
  - The success rate in catching traffickers using the dark net has been very low the world over.
- **Transactions in Cryptocurrency:** Cryptocurrency payments and doorstep deliveries, through courier services, have made dark net transactions attractive.
- **Traffickers have become Creative and Tech Savvy:** The traffickers have adopted to new age technologies such as supplying drug and guns through drones in Punjab, which have posed new challenges before the security forces.
- **Using more Safe and Anonymous methods:** The drug traffickers have started relying more upon courier/parcel/post after the restrictions imposed on vehicular/ship/airline movement during Covid-19 pandemic.
- **Nexus between Drugs Lords and NRIs:** Recent investigations have revealed the connection of the drug cartels with NRIs based in Canada, Australia, Singapore, Hong Kong and several European countries along with local drug lords and gangsters in India, who have links with Khalistan terrorists and the ISI in Pakistan.
- **Trafficking through Local Gangs:** A new trend has emerged wherein organised gangs, which primarily used to carry out extortion activities in their local areas, are being used for drug trafficking, as they are ready-made logistics to carry out such activities.

Initiatives undertaken to regulate Drug trafficking in India:

- **National Policy on Narcotic Drugs and Psychotropic Substances (NDPS):** It was introduced in 1985 to regulate drug trafficking and the use of narcotic drugs and psychotropic substances in India.
- **National Narcotics Coordination Portal:** The multiplicity of stakeholders in Drug Law Enforcement has necessitated coordination between various agencies on real time basis.
- **Integrated Rehabilitation Centres for Addicts (IRCAs):** The MoSJE provides financial assistance to NGOs and voluntary organizations for the maintenance of Integrated Rehabilitation Centres for Addicts (IRCAs).
- **National Action Plan for Drug Demand Reduction (NAPDDR):** The MoSJE launched the NAPDDR for 2018-2025.
  - The Plan aims at reduction of adverse consequences of drug abuse through a multi-pronged strategy.
- **Nasha Mukt Bharat Abhiyaan/Drugs-Free India Campaign**: It was flagged off on 15th August 2020 (Independence Day) for 272 districts across 32 State/Union Territories that have been identified as the most vulnerable in terms of usage of drugs in the country.
  - It is operational with the involvement of more than 500 voluntary organizations across the country, which are assisted financially under the NAPDDR scheme.

Source: **Indian Express**

Manual Scavenging in India

Context: According to the Ministry of Social Justice and Empowerment's recent report, only 66% of districts in a country are free of manual scavenging.

About manual scavenging:

- The Act of Manual Scavenging refers to manually cleaning, carrying, and disposing of, or handling in any manner, human excreta in an insanitary latrine.
- In 2013, the definition of manual scavengers was also broadened to **include people employed to clean septic tanks, ditches, or railway tracks.**

Status of manual scavenging:

- 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.**
- 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.

Reasons for the Prevalence of Manual Scavenging:
Indifferent Attitude:
- A number of independent surveys have talked about the continued reluctance on the part of state governments to admit that the practice prevails under their watch.

Social Issue:
- The practice is driven by caste, class and income divides.
- It is linked to India's caste system where so-called lower castes are expected to perform this job.
- In 1993, India banned the employment of people as manual scavengers **(The Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) Act, 1993)**, however, the stigma and discrimination associated with it still linger on.
- This makes it difficult for liberated manual scavengers to secure alternative livelihoods.

Issues due to Outsourcing:
- Many times, local bodies outsource sewer-cleaning tasks to private contractors. However, many of them unreliable operators do not maintain proper rolls of sanitation workers.
- In case after case of workers being asphyxiated to death, these contractors have denied any association with the deceased.

Issues associated with manual scavenging:
- Manual scavenging is a "**dehumanizing practice**" which has been carried on in the country with a background of historical injustice and indignity suffered by the manual scavengers.
- It constitutes problems that encompass **domains of health and occupation, human rights and social justice, gender and caste, and human dignity.**
- Manual scavenging and **deaths of people trapped in flooded sewer lines** continue to be a reality though the practice was banned.
- The workers were made to work in the **most hazardous way.**
- There was not enough protective gear and tech support and they continue to do it manually.
- Other issues are Poverty **and Caste-discrimination.**

Constitutional provisions against manual scavenging in India:
- **Human dignity** is an inalienable right, which **forms a part of the fundamental right** to life (**Article 21– Maneka Gandhi vs. Union of India**) as per the Constitution of India.
- The following is a list of provisions under the Indian Constitution, which is supposed to cater to the rights of equality, respect, and dignity before the law.
  - **Article 14 is about equality before the law**, which should not be denied to any individual in India.
  - **Article 15 provides that no discrimination** be permitted based on the place of birth of a person, race, religion, caste, and sex. Manual scavengers, however, face discrimination because of their caste all their lives.

- o **Article 16 of the Indian Constitution**, in matters of public employment guarantees equal opportunity to all its citizens.
  - o **Article 17** has provision for the **abolition of untouchability,** it is guaranteed under this constitutional provision to all.
  - o **Article 19(1) (g)** gives **every citizen the right to practice any profession** or to carry on any occupation, trade or business of their choosing.
  - o **Article 21** guarantees the **protection of life and personal liberty** to all the citizens living in India.
- Apart from these, some other rights, which safeguard the manual scavengers as SC or ST, under the Indian Constitution, **are Article 46 and Article 338.**

Supreme Court's Judgements:
- The apex court itself had reinforced the prohibition and directed the rehabilitation of people, traditionally and otherwise, employed as manual scavengers in its judgment in **Safai Karamchari Andolan and Others vs. Union of India**.
- The judgment had called for their **"rehabilitation based on the principles of justice and transformation".**

Initiatives taken by the Govt.
- [NAMASTE scheme](#): The scheme for rehabilitation of manual scavengers has now been merged with the **NAMASTE scheme for 100% mechanisation of sewer work.**
- **The Union Budget for 2023-24** showed â‚¹100-crore allocation for the NAMASTE scheme and no allocation for the rehabilitation scheme.
- **Manual scavenging** as defined under Section 2 (1) (g) of the **"Prohibition of Employment** as **Manual Scavengers and their Rehabilitation Act, 2013 (MS Act, 2013)" is prohibited with effect from 6.12.2013.**
- No person or agency can engage or employ any person for manual scavenging from the above date.
- Any person or agency who engages any person for manual scavenging in violation of the **provisions of the MS Act, 2013 is** punishable under **Section 8 of the above Act, with imprisonment upto 2 years or fine upto Rs. One Lakh or both.**
- **Under Swachhta Udyami Yojana of National Safai Karamcharis Finance and Development Corporation**, concessional loans are provided to **safai karamcharis, manual scavengers, their dependants, the Urban Local Bodies, and other agencies** responsible for cleaning, for procurement of sanitation related instruments/vehicles.
- A **short-duration training programme (RPL)** is organised for the sanitation workers wherein they are trained in safe and mechanised cleaning practices.

Source: [The Hindu](#)

22nd Law Commission and Uniform Civil Code

Context: The [Law Commission](#) recently decided to solicit views from the public on the idea of a uniform civil code.

About Uniform Civil Code (UCC):
- The UCC refers to a common set of laws governing personal matters such as marriage, divorce, adoption, inheritance and succession for all citizens, irrespective of religion.
- **Article 44:** This Article of the Constitution makes a reference to a UCC and says, "The State shall endeavour to secure for the citizens a uniform civil code throughout the territory of India."
  - o This is in the chapter dealing with the **Directive Principles of State Policy** and is therefore presumed to be advisory in nature.
- **Article 37:** States that the vision of a **Uniform Civil Code (along with other directive principles**) is enshrined in the **Indian Constitution** as a goal towards which the nation should strive, but it is not a fundamental right or a Constitutional guarantee.
  - o One cannot approach the court to demand a UCC. However, that does not mean courts cannot opine on the matter.

Significance and need of UCC:

- **Uniform Principles:** Common Code would enable uniform principles to be applied in respect of aspects such as marriage, divorce, succession etc. so that settled principles, safeguards and procedures can be laid down and citizens are not made to struggle due to the conflicts and contradictions in various personal laws.

- **Promotion of secularism**: One set of laws to govern the personal matters of all citizens irrespective of religion is the cornerstone of true secularism.
  - It would help end gender discrimination on religious grounds and strengthen the secular fabric of the nation.

- **Protection of Vulnerable and Women's Rights:** It will protect the vulnerable sections of society.
  - Women have been denied via personal laws in the name of socio-cultural-religious traditions.
  - Therefore, UCC could bring all communities together to ensure Women the Right to a dignified life and control over their life as well as body.

- **Reduced Discord:** if and when the whole population will start following the same laws, chances are there that it would bring more peace in the living and reduce riots.
  - Hence, Religious harmony will be created for peaceful living in the country

- **Prevents religion-based discrimination**: Personal laws differentiate between people on grounds of religion. A unified law having the same provisions regarding marital affairs would provide justice to those who feel discriminated against.

- **Ending unjust customs and traditions**: A rational common and unified personal law will help eradicate many evil, unjust and irrational customs and traditions prevalent across the communities.
  - For example, **Law against Manual scavenging**. It might have been a custom in the past but in a mature democracy like India, this custom cannot be justified.

- **National integration**: A common civil code will help the cause of national integration by removing disparate loyalties to laws that have conflicting ideologies.

- **Best Practice**: While delivering a judgment legitimising the Portuguese Civil Code of 1867, the Supreme Court reportedly described Goa as a "shining example" with a Uniform Civil Code.

- **Remove vote bank politics:** Opting the UCC will remove the religious nexus of the Political system in which voters are divided based on religion, caste etc.

- **Eases Administration**: UCC would make it easy to administer the huge population base of India.

- **Global practice of UCC**: **Almost all Muslim nations like Morocco, Pakistan etc. have been following the UCC.**

Arguments against UCC:

- **Hampering diversity and multiculturalism**: Indian society has a unique identity in the form of being diverse and multicultural, and unified law might do away with these unique characteristics of this nation.

- **Violation of fundamental rights:** Religious bodies oppose a uniform civil code on the ground that it would be interference in religious affairs, which would violate fundamental rights guaranteed under Article 25 of the constitution.

- **May lead to communal unrest:** It would be a tyranny to the minority and when implemented could bring a lot of unrest in the country.
  - The **All India Muslim Personal Law Board** stated that the laws pertaining to marriage and inheritance were part of religious injunctions for ages.

Constitution of the 22nd Law Commission: The Commission is headed by former Karnataka High Court Chief Justice Rituraj Awasthi.
Functions:

- The Commission, among other things, shall "identify laws which are no longer needed or relevant and can be immediately repealed; examine the existing laws in the light of Directive Principles of State Policy and suggest ways of improvement and reform.
- suggest such legislations as might be necessary to implement the Directive Principles and to attain the objectives set out in the Preamble of the Constitution"; and "revise the Central Acts of general importance so as to simplify them and remove anomalies, ambiguities and inequities".
- The Commission is also looking into **several significant issues like**
  - Implementation of a **Uniform Civil Code (UCC).**
  - Holding of simultaneous elections.
- The **22nd Commission** has claimed that years have elapsed since si**milar views were sought by the previous panel on UCC**, and that a fresh effort was needed to garner varied opinions.
- According to critics, the **Law Commission's decision** to solicit views from the public on the **idea of a uniform civil code** appears to be a political initiative aimed at bringing the potentially divisive issue under focus.

Way Forward:

The goal of a UCC should ideally be reached in piecemeal manner, like the recent amendment on the age of marriage. Government need to balance the aims of the Constitution dealing with the aspects of valuing and preserving the rich heritage of composite culture and renouncing practices that are derogatory to the dignity of people especially women.

Source: **The Hindu**

Indian Pharmaceutical Industry and Drug Safety

Syllabus

- **Mains – GS 2 (Governance)**

Context: Reports of drugs manufactured in India causing severe harm and dozens of patient deaths from across the world continue to trickle in.

About Indian Pharmaceutical Industry:

- India is the **largest provider of generic drugs globally**.
- It supplies over **50% of global demand for various vaccines**, **40% of generic demand in the US and 25% of all medicine** in the UK.
- The Indian pharmaceutical market is estimated at **USD 40 billion and pharma companies export another USD 20 billion.**
  - However, this is a miniscule portion of the USD 1.27-trillion global pharmaceutical market.
- Globally, **India ranks 3rd** in terms of pharmaceutical production by volume and **14th by value.**
- India has **more than 30% share in the global generic market** but less than 1% share in the new molecular entity space.
- **New Molecular Entity:** A novel compound that has not previously been approved for use in humans.
  - According to the Economic Survey 2021, the domestic market is expected to grow three times in the next decade.

Issues associated with pharma sector in India:

Anaesthetic drugs:

- Latest of the reports is the deaths of two patients in Sri Lanka who were administered Indian-made anaesthetic drugs.

Eye drops:

- Just last month, **eye drops manufactured in India** had caused eye infection in about 30 patients and blindness in 10 in Sri Lanka.
- While **anaesthetic drugs made in India causing deaths** are a first in the recent past, eye drops causing infections, blindness and even deaths were reported a few months ago in the United States, with the

Atlanta-based Centers for Disease Control and Prevention (CDC) finding a highly drug-resistant bacteria in them.

Cough syrups:

- The series of adverse reports against drugs produced in India began last year when the **World Health Organization (WHO)** linked the deaths of at least 70 children in Gambia from acute kidney injury to cough syrups.
- The culprit ingredient in the syrups was **diethylene glycol and ethylene glycol** — deadly chemicals used as a **cheaper substitute for propylene glycol** — that should never have been found in any medicine.
- **Soon after the deaths in Gambia**, cough syrups made in India and containing the two deadly chemicals killed 18 children in **Uzbekistan in December 2022.**
- Indian-made cough syrup was again in the news when **WHO flagged the contaminated drugs found in the Marshall Islands and Micronesia**; the contamination was identified by the Australian regulator.

Challenges:

Safety of drugs:

- Except for some customary inspections, the Indian drug regulator has so far failed to institute measures to make sure drugs produced in India for export and domestic use are safe.

Failing the quality tests:

- According to a **Central Drugs Standard Control Organization (CDSCO) survey in 2014-2016,** about five per cent of Indian drugs, several of them manufactured by large pharma companies, failed the quality test.
- Independent studies suggest that this figure could be much higher.
- The country's pharma industry has largely been in denial over quality-related concerns expressed by national and international observers.

Costs of production:

- The **cost of production in India is 50 percent less than in developed nations**, but it is still around 18 percent higher than China.
- This is **attributable to raw materials being 25-30 percent costlier, electricity being 20 percent more expensive**, and other costs such as financing, logistics, transportation, etc., being 30 percent more expensive.

Regulation of Drugs in India

Drugs and Cosmetics Act, 1940:

- The Act regulates the import, manufacture, and distribution of drugs in India.
- The primary objective of the act is to ensure that the drugs and cosmetics sold in India are safe, effective and conform to state quality standards.
- The **Drugs and Cosmetics Act, 1940** was amended by **the Drugs & Cosmetics (Amendment) Act, 2008** to provide for more stringent penalties for manufacture and trade of spurious and adulterated drugs.

New Drugs, Medical Devices and Cosmetics Bill, 2022:

- To accommodate changing requirements and encourage the adoption of new technology, the **Ministry of Health and Family Welfare** released a **draft bill in July 2022 to replace the existing Drugs and Cosmetics Act 1940.**
- This act governs drug importation, production, and distribution across the country.

Central Drugs Standard Control Organization:

- It is the apex department of the **Central Drugs Standard Control Organization (CDSCO) of the Government of India.**
- CDSCO is a **regulatory body** for Indian pharmaceuticals and medical devices.
- It comes under the **Ministry of Health and Family Welfare.**

Drugs Controller General of India:

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

Way Forward:

- **Strengthening the regulatory framework**: The government should strengthen the regulatory framework and enforce stricter laws to ensure that the drugs and medicines produced in India meet the required safety and quality standards.
- **Increasing inspections and audits**: Regular inspections and audits should be conducted at all levels of the pharmaceutical industry to identify and address any potential issues related to the manufacturing process, quality control, and distribution.
- **Enhancing transparency and accountability:** The government should promote transparency and accountability by making the regulatory process more accessible and understandable to the public and stakeholders.
    - This can be done by improving the dissemination of information and conducting public consultations.
- **Providing training and capacity building:** The government should invest in training and capacity building for regulatory agencies and industry professionals to ensure that they have the necessary skills and knowledge to maintain high standards of drug quality and safety.
- **Collaboration with International Bodies**: India should collaborate with international bodies like the **World Health Organization (WHO)** to adopt best practices in drug regulation. This will help ensure that Indian pharmaceutical companies are following global safety and quality standards.

Source: [The Hindu](#)

INTERNATIONAL RELATIONS

India-US Relations

Syllabus

- **Mains – GS 2 (International Relations)**

Context: India and the United States recently unveiled a roadmap for enhanced collaboration in high-technology areas which focuses on addressing regulatory barriers and aligning export controls for smoother trade and "deeper cooperation" in critical areas.

About India – USA Relations:

Bilateral engagement:

- India and the United States enjoy a comprehensive global strategic partnership covering almost all areas of human endeavour, driven by shared democratic values, convergence of interests on a range of issues, and vibrant people-to-people contacts.
- Regular exchanges at the leadership-level have been an integral element of the expanding bilateral engagement.
- Despite COVID-19 pandemic, India-U.S. cooperation witnessed intense engagement under various bilateral dialogue mechanisms in a wide range of areas including defence, security, health, trade, economic, science & technology, energy and people-to-people ties.

Defence and Security:

- India-US defence cooperation is based on "**New Framework for India US Defence Cooperation",** which was renewed for a period of ten years in 2015.
- In 2016, the defence relationship was designated as a **Major Defence Partnership (MDP).**
- Bilateral military exercises and defence exchanges are important aspects of deepening military-to-military cooperation.

QUAD:

- The four **Quad partners (India, Japan, United States & Australia)** first formed a "Core Group" in 2004, to swiftly mobilise aid during the joint response to the 2004 Tsunami. Since 2017, Quad engagements have increased and intensified.

Counter Terrorism Cooperation:

- Cooperation in counter-terrorism has seen considerable progress with information exchange, operational cooperation and sharing of counterterrorism technology and equipment.
- India-U.S. Joint Working Group on Counter-Terrorism oversees the expanding CT cooperation.

Trade and Economic Relations:

- The rapidly expanding trade and commercial linkages form an important component of the multi-faceted partnership between India and the United States.
- The U.S. is India's second largest trading partner and a major destination for our exports of goods and services.
- Bilateral trade in goods and services stood at US$ 146 billion in 2019.
- During the financial year 2020-21, India received the highest ever foreign direct investment amounting to USD 81.72 billion, as per data published by the Ministry of Commerce and Industry, Government of India.
- The US replaced Mauritius as the second largest source of foreign direct investment into India during 2020-21 with inflows of USD 13.82 billion.
- The US is one of the top 5 investment destinations for Indian FDI.

Education partnership:

- It is an important pillar of India-US ties and both the countries share strong linkages and history of higher education collaborations.
- The **United States Educational Foundation in India** (USEFI) was set up after a bilateral agreement on education exchange was signed between India and the US on February 2, 1950

Indian Diaspora:
- About 4.2 million Indian Americans/Indian origin people reside in the US. The Indian Americans [3.18 million] constitute the third largest Asian ethnic group in the US.

Challenges between India-US relations:
- **Trade:** Recently India and US confronted each other regarding tariffs and protectionist policies.
  - US has continuously accused India of high tariffs and India have accused USA of restriction to US markets and high tariffs on Indian products.
- **Intellectual Property Rights:** US has continuously criticised India for its IPR policies. It has accused India of acting against Intellectual properties of major companies especially pharmaceutical over generic drugs.
- **Continuous support to Pakistan:** Although US has reduced support to Pakistan, it has still provided monetary support to Pakistan.
  - In February 2016, the Obama administration notified the US Congress that it intended to provide **Pakistan eight nuclear-capable F-16 fighters and assorted military goods** including eight despite strong reservations from US lawmakers regarding the transfer of any nuclear weapons capable platforms to Pakistan.
- **Relations with Russia:** Russia has always supported India in international platform. It helped India to develop its defence capabilities.
  - In 2018, India inked the historic agreement worth with **Russia to procure four S-400 surface-to-air missile defence system**, the most powerful missile defence system in the world ignoring **America's CAATSA act.**
- **Relations with Iran**: US has put sanctions on Iran due to its nuclear development. India has strategic interest in Iran to buy oil.
  - The **United States threatened India with sanctions over India's decision to buy oil from Iran**.
  - But recently it exempted India from sanctions that allowed India to buy oil from Iran.

Way Forward:

It appears highly likely that in strategic, political, security, defence and economic terms, relations between India and the USA will continue their upward trajectory under the present leadership. **Impact of USA's relations with Pakistan over India** is likely to be beneficial and positive. Geopolitical manoeuvres can have significant impact on India-USA relations; however, it would remain to be multi-faceted and an **"indispensable partnership"**.

Source: The Hindu

A grand revival: on India-Egypt Ties

Syllabus
- **Mains – GS 2 (International Relations)**

Context: Recently, the Indian Prime Minister (PM) has visited Egypt for the first time since 1997 to discuss bilateral relations between India and Egypt.

About India-Egypt Ties:

Historical Background:
- India-Egypt relations can be traced back to 2750 BCE when the Pharaoh Sahure sent ships to the "Land of Punt," believed to be peninsular India.
- The exchange continued, with Egyptian mummies wrapped in Indian indigo-dyed muslin in the second millennium BCE.

Friendship Treaty and bilateral relations:

- The two nations became even closer in the 1950s and concluded a historic Friendship Treaty in 1955.
- During the last couple of years, the traditionally strong bilateral relations enjoyed by the two countries have received an impetus with regular exchange of high-level meetings and contacts between the two sides.

Economic Relations:
- Since March 1978, the India-Egypt Bilateral Trade Agreement has been in effect, operating under the Most Favoured Nation clause.
- In the fiscal year 2018-19, the **bilateral trade reached a value of US$ 4.55 billion.**
- Despite the challenges posed by the pandemic, the volume of trade only experienced a slight decline to US$ 4.5 billion in 2019-20 and further decreased to US$ 4.15 billion in 2020-21.
- Notably, the bilateral trade between India and Egypt reached a record high of US$ 7.26 billion in the fiscal year 2021-22.
- **Major Egyptian exports to India include**: Raw cotton, raw and manufactured fertilizers, oil and oil products, organic and non-organic chemicals, leather and iron products.
- **Major imports into Egypt from India are:** Cotton yarn, sesame, coffee, herbs, tobacco and lentils.
    - Mineral fuel; vehicle parts; Ship, boat and floating structure; cuts of boneless bovine frozen meat; and Electrical machinery and parts are also exported from India.

Defense Cooperation:
- The two Air Forces collaborated on the development of fighter aircraft in the 1960s, and Indian pilots trained their Egyptian counterparts from the 1960s until the mid-1980s.
- Both the Indian Air Force (IAF) and Egyptian air force fly the French Rafale fighter jets.
- In 2022, a pact was signed between the two countries that have decided to also participate in exercises and cooperate in training.
- The first joint special forces exercise between the Indian Army and the Egyptian Army, "Exercise Cyclone-I" was completed in January 2023 in Jaisalmer, Rajasthan.

Science and Technology:
- **'**Science and Technology' cooperation is implemented through biennial **Executive Programmes and Scientific Cooperation Programme between CSIR (India) and NRC (Egypt).**
- The **2nd ISRO-NARSS JWG** was held in Cairo in 2017.
- The India-Egypt Workshops on **Agriculture-Biotechnology and Nanotechnology** were held in Shillong in 2018 and in Mumbai in 2019 respectively.
- An IT Centre in Al Azhar University, CEIT, is also operational since February 2019.

Cultural Links:
- **The Maulana Azad Centre for Indian Culture (MACIC)** was set up in Cairo in 1992.
- It aims to promote cultural cooperation between the two countries, through the implementation of the **Cultural Exchange Programme (CEP).**
- The Centre, in addition to popularizing Indian culture through Hindi, Urdu and Yoga classes and the screening of movies, also organizes cultural festivals.
- **'India by the Nile' festival**:
    - It is a cultural festival celebrated annually in Egypt.
    - It brings the essence of India through classical, contemporary, performing and visual arts, food and popular culture in a language that amalgamates diverse cultural and artistic strands.
    - The festival is produced by **Delhi-based M/S Teamwork Arts and supported by ICCR and the Egyptian Ministry of Culture.**

Challenges of India Egypt Relations:
- **Political differences:** There have been differences on key international issues. For instance, Egypt has not always shared India's position on the United Nations Security Council (UNSC) reforms.

- **Regional instability:** Egypt's geographical location in North Africa places it in proximity to several unstable regions and conflict zones, including Libya and Sudan.
  - This instability can indirectly impact India-Egypt relations by creating uncertainties in areas of mutual interest such as regional security and economic investment.
- **Navigating regional politics:** Both India and Egypt have complex regional relationships to navigate.
  - Balancing these relationships, particularly as they pertain to issues such as Kashmir for India or the Israeli-Palestinian conflict for Egypt, could pose challenges.
- **China's growing influence:** China's growing economic presence in Africa, including Egypt, is another significant challenge.
  - **China's Belt and Road Initiative** has been making significant inroads in Africa and this has increased China's influence in the region.
  - Balancing relations with China while trying to increase India's economic engagement in Egypt and the broader African region could be a tricky diplomatic challenge for India.

Way Forward:

Bolstered by historical ties, and buffeted by present-day geopolitical turmoil, it is clear that India and Egypt are now essaying a closer relationship, one that looks both at future economies and autonomous foreign policies.

Source: **The Hindu**
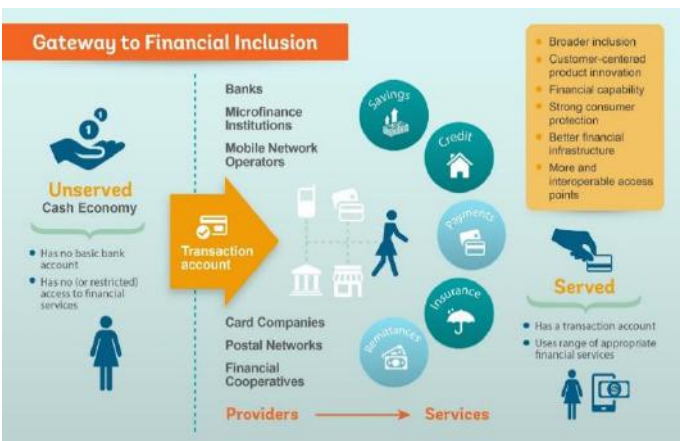
ECONOMY

Financial Inclusion in India

Context: In June 2023, the Reserve Bank of India (RBI) Governor launched a Financial Inclusion Dashboard, named Antardrishti.

About Antardrishti:
- The dashboard will provide the required insight to assess and monitor the progress of financial inclusion by capturing relevant parameters.
- The dashboard, presently intended for internal use in the RBI, will further facilitate greater financial inclusion through a multi-stakeholder approach.

About Financial Inclusion:
- **According to the [world bank](),** financial inclusion means that individuals and businesses have access to affordable financial products and services that meet their needs.

  o **Accessibility, affordability and availability of financial services** are 3 pillars of financial inclusion.
  o It is a **method of offering banking and financial solutions and services** to every individual in the society without any form of discrimination.
- The concept of financial inclusion was **first introduced in India officially in 2005 by the Reserve Bank of India.**

The objectives of financial inclusion are to provide the following:
- A basic no-frills banking account for making and receiving payments
- Saving products (including investment and pension)
- Simple credit products and overdrafts linked with no-frills accounts
- Remittance, or money transfer facilities
- Micro insurance (life) and non-micro insurance (life and non-life)
- Micro pension and
- Financial Literacy.

Significance of Financial Inclusion:
- Financial inclusion strengthens the availability of economic resources and builds the concept of savings among the poor.
- Financial inclusion is a major step towards inclusive growth. It helps in the overall economic development of the underprivileged population.
- In India, effective financial inclusion is needed for the uplift of the poor and disadvantaged people by providing them with the modified financial products and services.

Challenges to financial inclusion in India:
- **Socio-economic factors:** Financial exclusion is related to the social conditions of low-income households, who are not able to access the available financial products and services.
  o Various constraints such as low income, low savings and generally low levels of awareness hinders financial inclusion.

- **Geographical factors:** A review by the **Rangarajan Committee** shows that financial exclusion is highest among households in the **Eastern, North -Eastern and Central areas of the country partly due to poor infrastructure.**
  - This coupled with remoteness and less population in some areas resulting is in problems with access.
- **Limited availability of appropriate technology:** The key driver of financial inclusion is the proliferation of stable and reliable **Information and Communication Technology (ICT).**
  - The lack of infrastructure and cost effective technology for facilitating transactions at the doorstep is a hindrance to financial inclusion.
- **Perception of obligation:** The financial institutions are reluctant to serve small value and unprofitable customers with irregular income.
  - Banks perceive inclusion as an obligation rather than a business opportunity.
  - This discourages banks from providing financial services to low income individuals.
- **Lack of documents:** Another factor preventing them from accessing formal financial institutions are the requirement of various document proof.
  - The poor generally lack documents such as Aadhaar card, income certificate, birth certificate, address proof etc.
- **Financial illiteracy:** The absence of basic education prevents people from following even simple information related to financial inclusion.
  - The rural population as a result, relies mostly on the informal sector for availing finance at high rates, which lead to the vicious circle of poverty and debt repayment.
- **Penetration:** At present, only about 5% of India's 6 lakh villages have bank branches. There are 296 under-banked districts in states with below-par banking services.
  - Thus, bank reach is poor in rural areas leading to financial exclusion.

Steps taken to achieve Financial Inclusion:
Government of India Initiatives:
- **PM Mudra Yojana** - for small loans to non-corporate businesses
- PM Jan Dhan Yojana
- **Insurance scheme** - PM Suraksha Bima Yojana and **Jeevan Jyoti Beema Yojana**
- **Pension Scheme** - **Atal Pension Yojana, Pradhan Mantri Kisan Maan Dhan Yojana, Pradhan Mantri Shram Yogi Mann Dhan Yojana** (PM-SYM)
- Nandan Nilekani Panel on deepening of Digital Payments
- **Kisan Credit Card**

Initiatives by the RBI:
- **National Strategy for Financial Inclusion** (NSFI) 2019-24
- **Payment Infrastructure Development Fund** (PIDF)
- ATM infrastructure
- Project Financial Literacy

Way Forward:
The availability of banking facilities and strong bank branch network are the major facilitators of developmental activities. A strong and sturdy financial system is a pillar of economic growth, development and progress of an economy. The problem of financial exclusion needs to be tackled if we want our country to grow in an equitable and sustainable manner.
Source: **Business Standard**

GEOGRAPHY

The Arctic Ocean could be ice-free by the 2030

Context: According to the new study in Nature Communications, the Arctic Ocean could be ice-free in summer by the 2030s, even if we do a good job of reducing emissions between now and then.

About Arctic Region:

Boundaries of the Arctic
— Arctic Circle
— AMAP
© AMAP

Image source: **AMAP**

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

• **Arctic Council:** Eight Arctic States-Canada, Kingdom of Denmark, Finland, Iceland, Norway, Russia, Sweden, and USA form the Arctic Council.

Significance of Arctic Region:

Climate Influence:

• Arctic sea ice plays a crucial role in influencing global climate patterns.

• It reflects sunlight, helping to maintain the earth's energy balance and cool polar regions.

• Sea ice acts as a barrier, keeping the air cool by separating cold air above from warmer water below.

Biodiversity and Indigenous Communities:

• Changes in sea ice impact biodiversity, particularly mammals like polar bears and walruses.

• Indigenous Arctic populations reliant on sea ice for hunting, breeding, and migration are affected.

Economic Opportunities and Competition:

• Reduced ice cover opens shipping lanes and facilitates access to natural resources in the Arctic.

• This leads to increased competition among countries for influence and resource exploitation in the region.

Resources and inhabitants:

• The Arctic is home to almost four million inhabitants, of which approximately one tenth are considered as indigenous people.

   o The Arctic Ocean and its surrounding landmass has been a topic of immense interest and a high-priority area of research among the global scientific fraternity as well as of importance to policy makers.

   o The Arctic influences atmospheric, oceanographic and biogeochemical cycles of the earth's ecosystem.

Mineral Resources:

• The Arctic region has rich deposits of coal, gypsum and diamonds and also substantial reserves of zinc, lead, placer gold and quartz.

   o Greenland alone possesses about a quarter of the world's rare earth reserves.

Hydrocarbons:

• The Arctic also contains a wealth of hydrocarbon resources. India is the third-largest energy-consuming country in the world.

   o The Arctic can therefore potentially address India's energy security needs.

Consequences:
- **Weakening of Polar Jet Streams:** Diminished sea ice weakens polar jet streams, resulting in rising temperatures and heatwaves in Europe.
  - Unseasonal showers in northwest India have also been linked to this weakening.
- **Melting of Ice:** The Greenland ice sheet's melting contributes to rising sea levels, with a complete melt potentially causing a seven-meter rise.
- **Changes in Composition of Sea Water:** Warming of the Arctic Ocean and seas, along with changes in salinity and acidification, affects biodiversity, including marine and dependent species.
- **Affects Fauna:** Increased rainfall due to Arctic amplification affects the availability and accessibility of lichens, leading to starvation and death among Arctic fauna.
- **Gaseous Emission:** Thawing permafrost releases carbon and methane, greenhouse gases responsible for global warming.
  - It may also release long-dormant bacteria and viruses, potentially leading to disease outbreaks.

Impact of Arctic warming on India:

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

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

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

Geopolitics:
- The melting Arctic ice is also raising the geopolitical temperatures.
- In 2018, **China's White Paper on Arctic policy** called itself a '**Near-Arctic State'.**
- The opening of the shipping routes and possibilities of increased resource extraction is leading to the big three—**US, China and Russia—and NATO**, jockeying for position and influence in the region.

Way Forward:

The temperatures could rise strongly by 2026, resulting in humans going extinct, making it in many respects rather futile to speculate about what will happen beyond 2026. Thus , the right thing to do is to help avoid the worst things from happening, through comprehensive and effective action through a Climate Plan.

Source: **The Hindu**

Flash Floods in India

Syllabus
- **Mains – GS 1 (Geography) and GS 3 (Disaster Management)**

Context: Recently, India and Pakistan have been affected due to flash floods.

About Flash Floods:
- A flash flood is a **rapid flooding of geomorphic low-lying areas: washes, rivers, dry lakes and basins.**
- It may be caused by **heavy rain associated with a severe thunderstorm, hurricane, tropical storm, or meltwater from ice or snow flowing** over ice sheets or snowfields.

Status of Floods in India: National Disaster Response Force (NDRF) Report
- 40 million hectares (10% of the land mass) in India is prone to floods.

- On an average every year, 5 million hectares of land is affected, 1600 lives are lost and more than Rs. 1,800 crores is incurred.
- Between 1970 and 2004, 3 floods occurred per year on an average. However, between 2005 and 2019, the yearly average rose to 11. 19 districts were affected annually on an average until 2005. After 2005, the number jumped to 55.

Source: researchgate.net
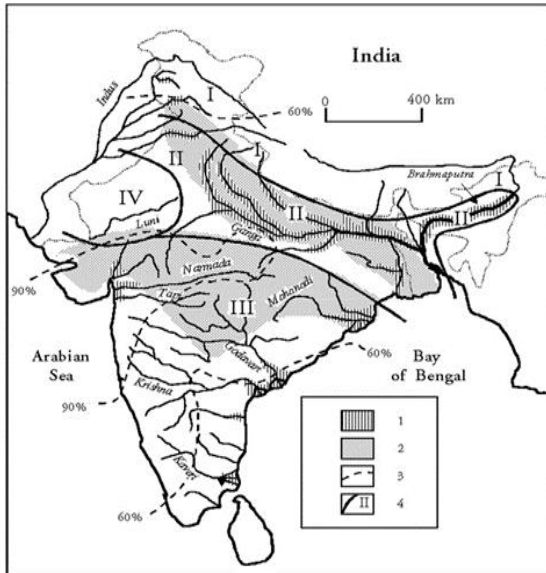
- 2017 analysis suggests that 4.48 million Indians are exposed to riverine floods, the highest in the world.

Causes of flooding in India:
Physiological Reasons:

- **Heavy precipitation:** Heavy rainfall is one of the major reasons for the flood in India.
  o Such effect can be seen in the **West Coast region of the Western Ghat**, **Assam and sub-Himalayan West Bengal.**
- **The meandering tendency of river-flow**: The tendency to meander or change the course within a specific boundary of rivers in the flat terrains also causes a flood in the meandering regions like the lower reaches of the Brahmaputra and Gangetic plains.
- **Silting in Delta areas:** The deposition of silt on the river-mouths by the sea tides deteriorates the discharging capacity of rivers which causes a flood in that region.

- **Earthquake and Landslide:** Sometimes it has been found that the river changes its course after natural calamities like earthquake, landslide which causes a flood in the same region.
  o Such instances can be found in the mountain of hilly region states like Jammu and Kashmir, Himachal Pradesh, and Uttarakhand etc.
- **Obstruction of free-flow of rivers:** Roads, embankments, railway lines, canals etc. obstruct the free flow of rivers leading to floods in the area.
- **Cloudburst:** Cloud bursts lead to a high amount of rainfall within a short time leading to flash floods.
  o Flash flood generally occurs in the Himalayan region.

Man-made Reasons:
- **Continued settlement in flood-prone areas:** Floodplains of several rivers, especially in the northern plains like Kosi, **Ghaghara, Gandak, Sarayu** etc are flooded every year.
  o Yet, these areas have been settled by people.
  o This has led to recurring losses in the face of floods, especially in the Assam and Bihar plains.
- **Encroachment over natural bodies:** The destruction of natural wetlands including marshes and lakes has led to the blocking of areas that had earlier served as water sinks.
  o This is the primary reason behind Chennai floods.
- **Rapid and unplanned urbanisation:** Construction of houses in a haphazard manner without getting plans approved has led to the washing away of several buildings during flash floods due to cloudbursts in the Himalayan region.
- **Nature's destruction:** With increasing deforestation especially along coastal areas and river banks, the first line of defence against floods has been removed.
  o This is the reason that cyclone caused floods result in severe destruction along the coasts.

Consequences of Flash floods:
- **Human Loss and Property Loss:** Every year, millions of people become homeless and washed away due to floods.

- **Spread of Communicable Diseases:** Waterborne diseases like cholera, typhoid fever, hepatitis, and leptospirosis spread in flood-affected areas.
  - Floods also lead to vector-borne diseases, transmitted through parasites and pathogens such as a mosquito.
  - As a result, the health of flood victims deteriorates.
- **Destruction of Crops:** Every year, floods destroy a large number of crops.
- Loss of Livestock: Like humans, livestock also are displaced during floods and die due to the loss of their habitats.
- **Disruption of Communication Link and Transportation:** Flood causes damage to transportation links such as bridges, rail, power plants etc., thus causing communication disruption in those areas.
- **Economic and Social Disruption:** The economy comes to a standstill as people are forced to move to another place, and revival of this situation takes time.

Preventive measures to the flooding problem:
- **Improved flood warning systems:** effective flood warning systems can help take timely action during natural calamities and can save lives.
  - Pre-planning can significantly reduce the effects of floods, giving people time to migrate to safer locations and stock up essentials.
- **Building flood-resilient housing systems:** concreting floors can be very useful during floods. Houses should be water proofed and electric sockets should be placed at higher levels up the walls to reduce the chances of shocks.
- **Constructing buildings above flood levels:** buildings should be constructed a metre above from the ground to prevent flood damage and evacuation during floods.
- **Create wetlands and encourage reforestation:** creating more and more wetlands can help soak up excessive moisture since wetlands act as sponges.
  - Wooded areas can also slow down heavy water flow, minimizing the effects of floods.
  - Reforesting upstream regions can significantly reduce the effects of flood damage.
- **Installing flood barriers:** these are flood gates designed to prevent the area behind the barrier from flooding.
  - They can also be kept around buildings to keep floodwaters outside the boundary created.
- **Development of GIS**: Geographical Information System (GIS) based National Database for disaster management.
  - GIS is an effective tool for emergency responders to access information in terms of crucial parameters for disaster-affected areas.

Way Forward:

With growing climate change impacts, flooding in India is also all set to increase in magnitude and intensity. Thus, the need of the hour is to adopt the **Sendai framework's Disaster risk resilience** approach in flood management in India along with NDMA guidelines.

Source: **Indian Express**
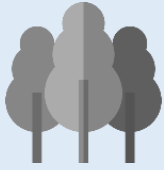
ENVIRONMENT

Shrinking of lakes worldwide

Context: More than 50 percent of the world's largest lakes and reservoirs have shrunk over the past three decades primarily due to climate change and human activities, according to a new study.

Highlights of the study:

- From these water bodies, approximately 600 cubic km of water was lost between 1992 and 2020 — an amount equivalent to the total water used in the United States for the entire year of 2015.
- The researchers found that out of the **1,052 natural lakes** that were examined, 457 had significant water losses in the past three decades.
- They attributed **57 per cent of the net decline** in the **water quantity** in natural lakes to human activities, such as **unsustainable consumption of water, and increasing temperature and potential evapotranspiration (PET)** with the latter two indicating the role of climate change.
- Contrary to previous studies, natural lakes located in humid tropics and high altitudes are experiencing water shortages.
- **Two-thirds of all reservoirs** across the globe have experienced significant storage declines.
- Reservoirs, however, showed a net global increase in water levels, owing to 183 recently filled reservoirs.
- The main reason behind the drop in water levels is sedimentation — the process of particles such as sand and stones settling to the bottom of a body of water.

Findings of the Study:

- The study also pointed out the worst affected largest lakes across the world and why they are shrinking in size.
- For instance, the **Aral Sea in Central Asia, Lake Mar Chiquita in Argentina, the Dead Sea in the Middle East, and the Salton Sea in California** have mainly dried due to unsustainable water consumption.
- Whereas, increasing temperature and (potential evapotranspiration)PET caused the **complete disappearance of Lake Gowd-e-Zareh in Afghanistan, Toshka lakes in Egypt, and marked drying of Lake Kara-Bogaz-Gol in Turkmenistan, Lake Khyargas in Mongolia, and Lake Zonag in China.**
- Notably, lakes have shrunk or disappeared completely across **82 percent of the Arctic's lake-rich regions in the past 20 years.**
- In India, more than half of the reservoirs located in peninsular India have witnessed substantial water storage decline, mainly due to sedimentation.
- Moreover, among the worst affected natural lakes in the country is **Ladakh's Tso Morari.**

Reasons for Shrinking of Lakes:

- **Human Activities**: 57 percent of the net decline in the water quantity in natural lakes to human activities, such as unsustainable consumption of water.
- **Climate Change:** The Arctic lakes have shrunk because of a "combination of changes in precipitation, runoff, temperature, and potential evapotranspiration (PET) — loss of water due to both evaporation and transpiration, which are likely a concurrent result of natural variability and climate change.
- **Sedimentation**: The main reason behind the drop in water levels is sedimentation — the process of particles such as sand and stones settling to the bottom of a body of water.

Consequences of shrinking lakes:

- Nearly **two billion people, one-quarter of the global population in 2023**, will be affected as they live in basins with large water bodies that have witnessed a significant drop in their water levels in the past three decades.

- Many of these drying lakes have been identified as important sources of water and energy.
- The reduced size of these lakes not only results in freshwater decline and environmental degradation but also disrupts the water and carbon cycles.
- Widespread water shortage in these water bodies, "particularly accompanied by rising lake temperatures, could reduce the amount of absorbed carbon dioxide and increase carbon emissions to the atmosphere given that lakes are hotspots of carbon cycling."

Way Forward:

There is a need to manage them in an integrated manner. Steps like restrictions on water consumption and climate mitigation to bring down global temperatures are some of the ways to conserve them.

This will also help in reducing sedimentation in reservoirs as the rate of sedimentation is linked to climate change — it increases when there is extreme precipitation, as well as land disturbance such as wildfires, landslides and deforestation.

Source: [Indian Express](#)

Transition to a low-carbon City

Context: It has been observed that Cities are critical actors in the energy transition.

About Energy-system transitions:

- An energy-system transition could reduce **urban carbon dioxide emissions by around 74%.**
- With rapid advancements in clean energy and related technologies and nosediving prices, we have also crossed the economic and technological barriers to implementing low-carbon solutions.
- The transition must be implemented on both the demand and the supply sides.
- Mitigation options on the **supply side include phasing out fossil fuels and increasing the share of renewables in the energy mix,** and using **carbon capture and storage (CCS) technologies.**
- On the demand side, using the **'avoid, shift, improve'** framework would entail reducing the demand for materials and energy, and substituting the demand for fossil fuels with renewables.
- Additionally, in order to address residual emissions in the energy sector, we must implement **carbon-dioxide removal (CDR) technologies.**

Role of Cities in energy-system transitions:

- In 2020, cities dumped a **whopping 29 trillion tonnes of carbon dioxide** into the atmosphere.
  - This carbon dioxide along with other greenhouse gases poses a serious health hazard.
  - It also manifests as extreme weather events, leading to the loss of lives, livelihoods, assets, and social well-being.
- Therefore, given the **significant impact that cities** have on the environment, low-carbon cities are crucial to mitigate the effects of climate change.
- An energy-system transition could **reduce urban carbon dioxide emissions by around 74%.**

Implications of rising CO2 and Need for low-carbon cities/net-zero cities:

- This may lead to extreme weather events, can lead to the **loss of lives and livelihoods, property and resources, and overall social wellbeing.**
- **By 2050, seven billion people** will be living in cities, and that will accentuate the concerns regarding **worsening climate, sustainability.**
- **Global warming** may have adverse impact on health like damage in lung tissue, heightened complications for **asthma patients due to increase the ozone concentration.**
- It may affect food security and can lead to the **resource conflicts.**
- This transition to **low carbon cities** will help to **mitigate the effects of climate change.**

Challenges of Energy Transition:

- Groups of people or communities of developing economies depends on **fossil fuels and has limited access to renewable energy options**.
  - Hence, they could be affected disproportionately.

o For example **Nigeria, Angola, and Venezuela.**

- In developed countries, it may lead to inequity due to high-energy costs and associated poverty/low incomes.
- There is an **inherent issue of energy justice and social equity**, which has severe implications for -economic well-being of people, livelihoods and economic development.
- Concerns related to **Justice concerns are land evictions for large-scale renewable energy projects**, the marginalisation of few communities, increased gender gaps etc.,
- There need to be a focus on **energy-transition policies** that are socially and environmentally fair.
- As a city's requirement is different, spatial form, land-use pattern, level of development etc. to be given a special focus.

Government interventions:

- System of Air Quality and Weather Forecasting and Research (SAFAR) Portal
- **Air Quality Index:** AQI has been developed for eight pollutants viz. PM2.5, PM10, Ammonia, Lead, nitrogen oxides, sulphur dioxide, ozone, and carbon monoxide.
- Graded Response Action Plan (for Delhi)
- For Reducing Vehicular Pollution:
  o **BS-VI Vehicles**,
  o **Push for Electric Vehicles** (EVs),
  o **Odd-Even Policy** as an emergency measure (for Delhi)
  o New Commission for Air Quality Management
  o Subsidy to farmers for buying **Turbo Happy Seeder (THS) Machine** for reducing stubble burning.
- National Air Quality Monitoring Programme (NAMP):
  o Under NAMP, four air pollutants viz. **SO2, NO2, PM10, and PM2.5** have been identified for regular monitoring at all locations.

Way Forward:
Transitioning cities to low-carbon energy systems requires efforts that consider factors such as urbanization, national contexts, and institutional capacities. Hence, it is important to engage multiple stakeholders in energy governance and decision-making processes.
Source: **The Hindu**

Transgenic crops in India

Context: Three States, Gujarat, Maharashtra and Telangana, have recently rejected a proposal, approved by the Centre's Genetic Engineering Appraisal Committee (GEAC), to test a new kind of transgenic cotton seed.

About Transgenic Crops:

- Transgenic crops are plants that have been modified through genetic engineering techniques.
- These crops have had specific genes inserted into their DNA to give them new characteristics or traits that are not naturally found in the species through traditional breeding methods.

About Genetically Modified Crops:

- A **Genetically Modified Organism (GMO)** is any living organism whose genetic material has been modified to include certain desirable techniques.
- Genetic modification has previously been used for the large-scale production of insulin, vaccines, and more.
- In crops, genetic modification involves the manipulation of DNA instead of using controlled pollination— the conventional method to improve crops— to alter certain characteristics of the crop.

Status in India:

- In India, only Cotton is currently commercially cultivated as a GM crop. Trials are underway for other crops like brinjal, tomato, maize, and chickpea using transgenic technology.

- The GEAC approved the environmental release of **GM mustard hybrid DMH-11,** bringing it closer to full commercial cultivation.
- However, there is an ongoing legal case in the Supreme Court questioning the permission for transgenic food crops. They seek a stay on GM mustard, citing concerns about farmers using banned herbicides.

Advantages:

- **Disease resistant and Sustainability:** Through genetic modifications, the genetically modified crops are made resistant to diseases. This enhances their sustainability and yield.
- **Environmental Protection:** According to an Oklahoma State University report, the increase of GM animals and crops often requires less time, tools and chemicals, and may help with reducing greenhouse gas emissions, soil erosion and environmental pollution.
- **Longer Shelf life**: Genetically modified foods have a longer shelf life. This enhances the ease of transportation and storage.
- **Affordability:** Due to reduced burden of inputs and longer shelf life hence reduced wastages, the prices of the output will be low. This increases the affordability.
- **Fortification:** According to the Food and Agricultural Organization of the United Nations, some GM foods have been engineered to become more nutritious in terms of vitamin or mineral content.
  - This not only helps people get the nutrients they need, but also plays a significant role in fighting against malnutrition in third-world countries.

Disadvantages:

- It is believed that consumption of these genetically engineered foods can cause the **development of diseases**, which may be immune to antibiotics.
- This cross-pollination method can cause **damage to other organisms** that thrive in the environment.
- The **technology could be carcinogenic**. It is a killer technology that kills soil, microbes, pollinators, almost all medicinal herbs and adversely affects crop diversity. It may also cause cancer in humans,

Way Forward:

The GEAC has asked the **Department of Biotechnology (DBT) and the ICAR** to "jointly organize capacity-building activities with regard to GM crops for appraising the State/UT Government(s) about the technology involved and the regulatory framework in place for evaluation of these GM crops.

To resolve the issue of States not following approvals on testing, because of differing attitudes to GM crops, the GEAC is considering a proposal by the DBT to declare some regions across India as 'notified testing sites. There are 42 such proposed sites and, if it goes through, companies and institutions wanting to conduct trials of GM crops at these locations will not need the permission of States for trials.

Source: **The Hindu**

Carbon Offsetting

Syllabus

- **Mains – GS 3 (Environment)**

Context: Delta Air Lines in 2020 marketed itself as the "world's first carbon-neutral airline", but recently California-based Mayanna Berrin filed a lawsuit against Delta arguing that the airlines' assertions were bogus, misleading and false.

About Carbon Offsetting:

- It's a slew of ways companies adopt to reduce or remove carbon emissions from the environment.
  - Activities like planting trees, shifting to cleaner fuel and funding carbon capture techniques in theory balance out a company's carbon emissions.
- **Examples:**

How to offset carbon emissions

STEP 1
Measure emissions
Learn how much greenhouse gas emissions your organization produces.

STEP 2
Reduce emissions
Change to more sustainable business practices to reduce emissions.

STEP 3
Offset the rest
Fund emission reduction projects elsewhere through the purchase of credits to offset the emissions you can't reduce yourself.

STEP 4
Receive a credit
The credit shows that your business has offset its carbon emissions.

o **Forestry:** Tree planting projects restore areas facing deforestation. Trees absorb and hold carbon. Without them, that carbon would be in the atmosphere, making global warming worse.

o **Agriculture**: Farmers grow crops using technology and techniques to maximize resources and reduce waste when growing crops.

o **Aviation:** Airline operators optimize flight paths with AI to minimize the creation of contrail clouds.

o **Renewable energy:** These projects replace fossil fuel use with clean, renewable energy, such as that generated from a wind farm.

Positive Effects of Offsetting

- These programmes have the **particular benefit of being a crucial step in resolving the CO2 issue** and, when carried out properly, may provide noticeable improvements.
- Businesses may take action to offset their emissions and make significant strides toward sustainability rather than continuing to pollute.
- In locations where they are most needed, **carbon offset programmes can directly contribute to programmes** that benefit communities and the environment.
- They also **offer the additional advantage of transferring financial resources** from developed countries to underdeveloped ones in a market worth up to $120 billion.
- Funds for carbon offsets help developing nations create green infrastructure, make better use of their natural resources, and enhance the quality of their air, water, and land.
- **Investing more money in green businesses** may also provide economies of scale benefits, such as decreasing the price of solar and wind farms or creating innovative new technologies like direct air capture.

Problems with carbon offsets:

- **In genuineness**: Most of world's carbon offsets certifier do not represent geniuses in carbon reductions.
- **Lack of alternatives**: Mostly planting trees are considered to reduce emissions and there are only few alternatives to reduce emissions.
- **Same mechanisms for all companies**: Planting trees or other alternatives cannot reduce emissions for all companies.
- **Cheaper carbon credit**: The expense of carbon credit are cheaper than reducing carbon emission so companies mostly prefer carbon credits.
- **Regulation:** Lack of regulation to carbon offsets industry.
- **Lack of technology**: In carbon technologies to capture carbon directly to offset carbon.
- **Greenwashing:** Most companies adhere to the greenwashing via avoidance offsets projects.

Govt. of India Initiatives:

- **PAT (Perform, Achieve and Trade),** a market-based scheme, has already prevented CO2 emissions of up to 92 million tonnes during its 1st and 2nd cycles.
- **Indian Carbon Market (ICM)**: with an objective to decarbonize the Indian economy by pricing GHG emissions through trading of carbon credit certificates and in compliance with **Article 6.2 of the Paris Agreement.**
- **Carbon Credit Trading Scheme** that is expected to be notified in June 2023 with Carbon Credit Certificates under it are expected to be available for trading by 2025.

Way Forward:

There is an urgent need for companies and countries alike to identify high integrity projects that adhere to robust climate methodologies.

While an important tool, carbon offsetting cannot be considered a substitute for direct emissions reductions. Airlines should focus on decarbonizing commercial aviation, with the help of **sustainable aviation fuel (SAF), hydrogen, and full-electric propulsion techniques** rather than making false claims.

Source: **The Hindu**
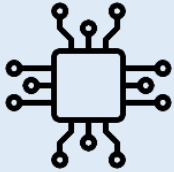
SCIENCE & TECHNOLOGY

Fixed Dose Combinations (FDCs) Ban Issue

Context: The Union Health Ministry has published a gazette notification banning 14 Fixed Dose Combination (FDC) drugs citing lack of therapeutic justification and an expert committee's recommendation for their prohibition.

About Fixed Dose Combination (FDC) Drugs:

- Combination products or fixed dose drug combinations (FDCs) consist of two or more active drugs in a single dosage form.
- The **Food and Drug Administration (FDA) in the USA** defines a combination product as a product composed of a drug and a device, a biological product and a device, a drug and a biological product, or a drug, device, and a biological product.
- It is widely accepted that most drugs should be formulated as single compounds.
- **Examples:** Phenytoin + Phenobarbitone Sodium, Chlorpheniramine + Codeine Phosphate + Menthol Syrup, Salbutamol + Bromhexine, Paracetamol + Bromhexine + Phenylephrine + Chlorpheniramine + Guaiphenesin etc

Justification for Ban:

- The ban, which comes into effect immediately, follows recommendations of the Expert Committee formed to examine the efficacy of these drug combinations and the **Drugs Technical Advisory Board.**
- The expert committee recommended, "There is no therapeutic justification for these FDCs and the FDCs may involve risk to human beings".

Advantages of FDC Drugs:

- **Complementary Mechanism of Action:** FDC formulations combine drugs with complementary mechanisms of action, which can enhance the therapeutic effectiveness of the treatment.
  - The combined action of multiple drugs in a single dosage form can target different aspects of a disease or provide a more comprehensive treatment approach.
- **Synergistic Effects:** FDCs can exhibit synergistic effects, where the combined action of the drugs produces a greater therapeutic effect compared to individual drugs used alone.
  - This can result in improved efficacy and better treatment outcomes for patients.
- **Better Tolerability:** In some cases, combining drugs in an FDC can help reduce side effects or improve tolerability.
  - The interaction between the drugs can minimize adverse reactions, making the treatment more manageable for patients.
- **Elongated Product Life-Cycle Management**: FDC formulations can extend the life cycle of a product by combining drugs that have already been individually approved.
  - This allows pharmaceutical companies to innovate and offer new treatment options without going through the lengthy process of developing and gaining approval for completely new drugs.
- **Cost Savings**: FDCs can lead to cost savings for both patients and healthcare systems. By combining multiple drugs into a single formulation, the overall cost of treatment may be reduced.

- o This can make the medication more affordable and accessible, particularly in resource-constrained settings.
- **Minimized Pill-Burden**: Using FDCs reduces the number of pills a patient needs to take.
  - o This can simplify treatment regimens and improve patient adherence to medication schedules, especially for individuals who need to take multiple drugs regularly.

Disadvantages of FDCs:
- There may not be an FDC available with the appropriate drugs and/or in the most appropriate respective strength(s) for a given patient, which can lead to some patients getting too much of an ingredient and others getting too little.
  - o Thus, FDCs "**limit clinicians' ability to customize dosing regimens."**
- If an adverse drug reaction occurs from using an FDC, it becomes difficult to identify the active ingredient responsible for causing the reaction.
- Scientists face challenges in the development stages of multi-drug formulations such as compatibility issues among active ingredients and excipients affecting solubility and dissolution.

Source: The Hindu

The Hiroshima AI Process

Context: During the annual Group of Seven (G-7) Summit, Leaders initiated the Hiroshima AI Process (HAP) to regulate Artificial Intelligence (AI).

About Hiroshima AI process:
- It aims at the adoption of international technical standards for trustworthy artificial intelligence (AI).
- The G7 leaders have agreed to create a ministerial forum known as the **"Hiroshima AI Process"** that will discuss issues regarding generative **AI tools like ChatGPT, such as intellectual property rights and disinformation**.
  - o It is scheduled to be formed by the end of this year.

Significance of Hiroshima AI process:
- It can help the countries develop a common understanding on some key regulatory issues while ensuring that any disagreement does not result in complete discord.
- The process can bring greater clarity to the role and scope of the 'fair use' doctrine in the use of AI for various purposes.
- It can also differentiate use for machine learning per se from other AI-related uses of copyrighted materials. This in turn could affect the global discourse and practice on the issue.

About Artificial Intelligence (AI):
- Artificial intelligence is the si**mulation of human intelligence processes by machines, especially computer systems.** Specific applications of AI include expert systems, natural language processing, and speech recognition and machine vision.
- Examples: **Robotics and Automation, Natural Language Processing (NLP), Pattern recognition is a subset of machine learning etc**.

Applications of Artificial Intelligence (AI):
- **Healthcare Sector:** Machine learning is being used for faster, cheaper and more accurate diagnosis and thus improving patient outcomes and reducing costs. For
  - o Example, IBM Watson and chatbots are some of such tools.
- **Business Sector:** To take care of highly repetitive tasks Robotic process automation is applied which perform faster and effortlessly than humans.
  - o Machine learning algorithms are being integrated into analytics and CRM platforms to provide better customer service.
- **Education Sector**: AI can make some of the educational processes automated such as grading, rewarding marks etc. therefore giving educators more time.
  - o Further, it can assess students and adapt to their needs, helping them work at their own pace. AI may change where and how students learn, perhaps even replacing some teachers.

- **Financial Sector:** It can be applied to the personal finance applications and could collect personal data and provide financial advice.
    - o today software trades more than humans on the Wall Street.
- **Legal Sector:** Automation can lead to faster resolution of already pending cases by reducing the time taken while analyzing cases thus better use of time and more efficient processes.
- **Manufacturing sector:** Robots are being used for manufacturing since a long time now, however, more advanced exponential technologies have emerged such as **additive manufacturing (3D Printing)** which with the help of AI can revolutionize the entire manufacturing supply chain ecosystem.
- **Intelligent Robots**: Robots can perform the tasks given by a human because of sensors to detect physical data from the real world such as light, heat, temperature, movement, sound, bump, and pressure.
    - o Moreover, they have efficient processors, multiple sensors and huge memory, to exhibit intelligence.
- **Speech Recognition**: There are intelligent systems that are capable of hearing and grasping the language in terms of sentences and their meanings while human talks to it.
- **Cyber Security:** In the 20th conference on e-governance in India it was discussed that AI can provide more teeth to cyber security and must be explored.

Ethical Use of AI:
- While AI tools present a range of new functionality for businesses, the use of AI also raises ethical questions because, for better or worse, an AI system will reinforce what it has already learned.
- This can be problematic because machine learning algorithms, which underpin many of the most advanced AI tools, are only as smart as the data they are given in training.
    - o Because a human being selects what data is used to train an AI program, the potential for machine learning bias is inherent and must be monitored closely.
- **AI's ethical challenges include the following:** bias due to improperly trained algorithms and human bias; misuse due to deep fakes and phishing; legal concerns including AI libel and copyright issues; elimination of jobs; and data privacy concerns, particularly in the banking, healthcare and legal fields.

Challenges in Artificial Intelligence:
- Lack of enabling data ecosystems.
- The low intensity of AI research.
- Inadequate availability of AI expertise, manpower and skilling opportunities.
- High resource cost and low awareness for adopting AI in business processes.
- Unclear privacy, security and ethical regulations.
- Unattractive Intellectual Property regime to incentivise research and adoption of AI.
- Only 4% of AI professionals trained in Emerging technologies; low H Index (citation) and Data sets.

Government efforts regarding artificial intelligence in India:
- **National Programme on Artificial Intelligence:** It was announced in the Interim Budget 2019. The programme would be catalysed by the establishment of the National Centre on Artificial Intelligence as a hub along with 6 centres of excellence.
- **International Centre for Transformative Artificial Intelligence: NITI Aayog** and Tata Institute of **Fundamental Research (TIFR)** initiated collaboration to set up International Centre for **Transformative Artificial Intelligence (ICTAI)** to conduct advanced research to incubate AI-led solutions in three important areas– healthcare, agriculture and smart mobility.
- **National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS):** It is a programme led by the Union Ministry of Science & Technology to enhance capabilities of cyber-physical systems. Budget 2019 allotted Rs. 5 crore for the mission.
- **AIRAWAT (AI Research, Analytics and Knowledge Assimilation platform):** In an attempt to achieve the **goal of becoming a $5 trillion economy**, the Indian government's **think-tank NITI Aayog** recently released an approach paper to set up India's first AI-specific cloud computing infrastructure called 'AIRAWAT' (AI Research, Analytics and Knowledge Assimilation platform).
    - o The platform aims to guide the research and development of new and emerging technologies.

Way Forward:

Artificial intelligence has a lot of potential for India. Nearly **200 Artificial Intelligence start-ups in India** are today innovating and creating AI-based solutions for various industries. It can complement [Digital India Mission](#) by helping in the big data analysis which is not possible without using AI.

A **"whole of society"** approach to AI governance will enable us to develop broad-based **ethical principles, cultures and codes of conduct**, to ensure the needed harm-mitigating measures, reviews and audits during design, development and deployment phases, and to inculcate the **transparency, accountability, inclusion and societal trust for AI to flourish and bring about the extraordinary breakthroughs it promises.**

Source: [The Hindu](#)

New Assisted Reproductive Technology Regulations (ART), 2023 regulations

Context: The Health Ministry had notified the Assisted Reproductive Technology Regulations (ART), 2023 recently.

About the ART regulations:
- The ART Act 2020, defines A**RT to include all techniques that seek to obtain a pregnancy by handling the sperm or the oocyte** (immature egg cell) outside the human body and transferring the gamete or the embryo into the reproductive system of a woman.
- **Examples of ART services: gamete (sperm or oocyte) donation, in-vitro-fertilisation (fertilising an egg in the lab), and gestational surrogacy** (the child is not biologically related to surrogate mother).
- **ART services will be provided through:**
  - ART clinics, which offer ART related treatments and procedures, and
  - ART banks, which store and supply gametes.

Key provisions:
- **Restriction on donation:** The new ART provisions impose restrictions on the number of times a donor, **male or female, can donate (sperm/oocyte) in their lifetime, and specifies age limits for donors.**
- **Criteria for a donor:** The provision states that an oocyte donor should be a person who have been **married at least once in their lives** and have at **least one living child of her own (minimum three years of age).**
  - She can donate oocyte **only once in her lifetime and not more than seven oocytes can be retrieved.**
- **Restrictions on bank:** An ART bank cannot supply gamete (reproductive cell) of a single donor to more than one commissioning couple (couple seeking services).
- **Insurance coverage:** Parties seeking ART services will be required to provide insurance coverage in the favour of the oocyte donor (for any loss, damage, or death of the donor).
- **Prohibition on sex determination:** A clinic is prohibited from offering to provide a child of pre-determined sex.
- **Checking for diseases:** Checking for genetic diseases before the embryo implantation is needed.

Conditions for offering ART services:
- ART procedures can **only be carried** out with the written in**formed consent of both the party seeking ART services as well as the donor.**
- The party seeking ART services will be required to provide insurance coverage in the favour of the oocyte donor for any loss, damage, or death of the donor.
- A clinic is prohibited from offering to provide a child of pre-determined sex.
- It also requires checking for genetic diseases before the embryo implantation.

Concerns:
- The new provisions have pushed up the **already sky-high medical costs.**
- It is proving to be a challenge for treating doctors and couples wanting to have children through ART because of the r**estricted and limited resource availability in terms of donors.**
- The new ART laws are **restricting the number of donation attempts.**
- The **act violates article 14 of India's constitution** and is also silent on the rights of children. (Article 14 states that equality before the law and equal protection of law to any person within India cannot be denied.)

Way Forward:

The ART services have the potential to increase costs and create challenges for couples relying on assisted reproductive techniques. India, much like the rest of the world, is facing a dip in fertility rates and further limiting available donors is likely to bring in more challenges.
Source: [**The Hindu**](#)

MISCELLANEOUS

Balasore Train Accident and The Issue of Indian railway safety

Context: The recent rail accident in Balasore in Odisha, involving the collision of three trains, is a tragic reminder of the challenges that India's Rail services are facing.

- According to the [**National Crime Records Bureau**](#), an average 23,000 people died every year between 2010 and 2021 in railway accidents.

About India's Rail services:

- The Indian Railways carries nearly 15 million passengers every day now compared to the peak of 23 million a day the year before the COVID-19 pandemic.
- India has an ambitious plan to improve its rail infrastructure, and in the year 2023-24, Rs. 2.4-lakh crore has been allocated for capital expenditure.
- In 2021, the Prime Minister announced that 75 new semi-high speed trains labelled Vande Bharat would be started over 75 weeks, and several have been started already.
- There has been attention on passenger amenities also, but nothing can be more important than safety.
- Though such deadly train accidents are usually not too frequent, they do recur occasionally.

Train Accidents: An Overview

- **Derailments:** Derailments have been a major cause of train accidents in India. Lapses in safety protocols, track maintenance, and failure to identify and rectify track defects have resulted in derailments.
  - For example, the derailment of the **Puri-Haridwar Utkal Express in 2017**, which claimed 23 lives and injured many, was attributed to negligence in track maintenance.
- **Collisions:** Train collisions have occurred due to lapses in signalling systems, human errors, and failure to maintain safe distances between trains.
  - One such **incident was the collision between the Gorakhdham Express and a halted goods train in Uttar Pradesh, in 2014**, resulting in a high number of casualties and injuries.
- **Level crossing accidents**: Lapses in ensuring the safety of level crossings have led to accidents involving trains and road vehicles. Failure to eliminate manned level crossings, inadequate warning systems, and negligence in adhering to safety procedures have contributed to such accidents.
  - For instance, in 2011, 38 people have been killed and 17 others injured in a **train-bus collision in the Kanshiramnagar district of Uttar Pradesh.**
- **Signal failures:** Malfunctioning or improper signalling systems have been responsible for train accidents. Inadequate maintenance, faulty equipment, and human errors in signalling operations have resulted in collisions and other mishaps.
  - The **collision of two trains in Gaisal, West Bengal (1999), occurred due to a signalling error.**
- **Overcrowding and over speeding:** Overcrowding of trains beyond their capacity and over speeding have also led to accidents. Lack of proper crowd management and failure to enforce speed limits have been significant safety concerns.
  - **2018 Amritsar train accident,** where a train struck a **crowd watching a Dussehra event near the railway tracks,** causing numerous fatalities, highlighted the risks associated with overcrowding.

Challenges and Shortcomings:

- **Capacity Constraints**: The high volume of passengers and freight transported daily leads to overcrowding and delays, affecting the efficiency of operations.
- **Safety Concerns:** Safety is a significant challenge for Indian Railways. The network has experienced a significant number of accidents and incidents, including train derailments, resulting in fatalities and injuries. Ensuring passenger and crew safety remains a top priority.
- **Infrastructure Upgradation**: The existing infrastructure of Indian Railways, including tracks, stations, and signalling systems, requires modernization and upgradation.
    - Aging infrastructure hampers smooth operations and the ability to meet the growing demand for transportation services.
- **Funding Constraints**: Indian Railways faces financial challenges in funding infrastructure development and modernization projects. The cost of such projects is substantial, and securing adequate funds is essential.
    - The Railways heavily rely on government funding and internal resources, which may limit the scope of investment.
- **Competition from Other Modes of Transportation**: Indian Railways faces competition from alternate modes of transportation, such as roadways and airways.
    - Increasing competition in the freight and passenger transportation sectors poses challenges to maintaining market share and attracting customers.
- **Skilled Human Resources**: Indian Railways faces a shortage of skilled human resources, particularly in critical areas such as safety, maintenance, and operations.
    - Filling vacancies with qualified personnel and providing appropriate training are crucial for efficient and safe railway operations.

2021 CAG Report: CAG submitted another report for the year ended March 2021.

- It observed, "**Proper maintenance of the railway track is a pre-requisite for the train operation without accidents**."
- The main causes were:
    - Poor planning,
    - Idle track machines,
    - Vacancies in the work force and
    - Lack of training of Permanent Way staff.

Initiatives taken by the Government

- **Foreign Direct Investment (FDI):** The government has allowed FDI in railways-related components, attracting foreign investment to the sector.
    - From April 2000 to March 2020, FDI inflow in railways-related components stood at US$ 1,107.60 million.
- **National Rail Plan:** The government is working on a comprehensive "National Rail Plan" that aims to integrate the rail network with other modes of transport and develop a multi-modal transportation system in the country.
- **New Online Vendor Registration System:** The Research Designs & Standards Organisation (RDSO), the research arm of Indian Railways, has launched a digital and transparent system called the "**New Online Vendor Registration System**" to streamline vendor registration processes.
- **Dedicated Freight Corridors (DFCs):** The construction of dedicated freight corridors is underway to increase the proportion of freight traffic and improve the efficiency of goods transportation.
    - The **Western Dedicated Freight Corridor** (WDFC) from **Mumbai to Uttar Pradesh** and the **Eastern Dedicated Freight Corridor (EDFC) from Dankuni in West Bengal to Ludhiana** in Punjab are part of this initiative.

- **Rail Kisan:** The "Rail Kisan" initiative aims to boost the transportation of agricultural goods by providing dedicated trains for farmers.
  - Under this program, over 49,000 tonnes of goods have been transported on eight routes, benefiting farmers across the country.
- **Program for the Redevelopment of Station Infrastructure:** The government has launched a program to redevelop 400 railway stations across India under a public-private partnership (PPP) model.
  - The aim is to create self-sustainable stations with high standards of safety, comfort, passenger amenities, value-added services, and efficiency.
- **Connecting Mining Districts and the North East:** Railway connectivity in the North East region is being improved to promote inclusive development.
  - Broad gauge lines are being extended to connect major cities in the region, and railway connectivity to mining districts is being mapped to enhance transportation.
- **Quest for Self-reliance**: As part of the "Atma Nirbhar Bharat" initiative, the railways are implementing various projects.
  - These include the development of the indigenous anti-collision system called "Kavach," the introduction of highly energy-efficient "Vande Bharat" high-speed trains, and the goal of achieving zero accidents.

Way Forward:

Accidents per million-train kilometer have fallen over the last decade, but poor maintenance of tracks and the rolling stock and overstretched staff are problems that the Railways can no longer camouflage with glitzy facades. The accident in Balasore should prompt India's railways development plans onto the right track.

Safety measures including anti-collision systems are expanding, but evidently not at an adequate pace. More important will be the corrective measures by the Railways at the operational and planning levels. It will have to find more resources to modernize and rationalize its priorities.

PRACTICE QUESTIONS

Q1. With reference to the contracts under Article 299, consider the following statements:

1. The President and the Governor can be personally held liable for such contracts.
2. Article 299 delineates the manner in which these contracts will be concluded.

Which of the statements given above is/are incorrect?

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

Q2. Consider the following statements:

1. The Central Electricity Authority (CEA) is an executive body.
2. The Central Electricity Authority (CEA)looks after the cross-border trade of electricity.

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

Q3. Consider the following statements:

1. Sivasamudram Waterfalls is on the banks Krishna River.
2. Lakshmantirtha and the Kabbani are the right bank tributaries of Kaveri.

Which of the statements given above is/are incorrect?

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

Q4. Consider the following statements regarding the World Food Programme (WFP):

1. It's Headquartered in Rome.
2. It was founded by Food and Agriculture Organization (FAO) only.
3. In 2020, it was awarded the Nobel Prize for Peace.

Which of the statements given above is/are incorrect?

a. 1 and 3 only
b. 2 only
c. 3 only
d. 1,2, and 3

Q5. Consider the following statements regarding the Proterozoic Eon:

1. Complex form fungi formed around this time.
2. It was a tectonically active period.
3. Bacteria began producing oxygen during this period.

Which of the statements given above is/are correct?

a. 2 and 3 only
b. 2 only
c. 3 only
d. 1,2, and 3

Q6. Consider the following statements regarding Green Hydrogen:

1. Its Products include Water, Water Vapor.
2. It has zero carbon footprint.
3. It can be used in fuel cells to generate electricity

Which of the statements given above is/are correct?

a. 1 and 3 only
b. 2 only
c. 3 only
d. 1,2, and 3

Q7. With reference to Pradhan Mantri VanDhan Yojana, consider the following statements:

1. It is an initiative of the Ministry of Tribal Affairs and TRIFED.
2. It includes only Major Forest Products.

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

Q8. With reference to the National Highways Authority of India, consider the following statements:

1. It is entrusted with collecting fees or tolls on National Highways.
2. NHAI is an executive body.

Which of the statements given above is/are incorrect?

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

Q9. With reference to the Securities Appellate Tribunal (SAT), consider the following statements:

1. It has only one bench which sits in Delhi.
2. It can take appeals of SEBI only.

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

Q10. Consider the following about seaweeds:

1. They are Carbon Sequestrators.
2. They form Kelp forests underwater.

Which of the above is/are correct?

a. 1 only

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

Q11. Consider the following about National Statistical Office (NSO):

1. It compiles and releases the Consumer Price Index (CPI).
2. It compiles and releases the Index of Industrial Production (IIP) every year.

Which of the above is/are correct?

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

Q12. Consider the following about River Hirmand/Helmand:

1. It is the longest river in Iran.
2. Lake Hamun is the largest freshwater lake in Afghanistan.

Which of the above is/are incorrect?

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

Q13. With reference to OPEC consider the following statements:

1. OPEC's members control 35 per cent of global oil supplies.
2. OPEC has 15 members who have 82 per cent of the proven reserves of the world.

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

Q14. Consider the following statements:

1. Genetic engineering is applied in the development of these vaccines.
2. Abaucin is a species-selective antibiotic.

Which of the statements given above is/are incorrect?

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

Q15. Consider the following statements:

1. Necrophilia is an erotic attraction to corpses.
2. Necrophilia is a punishable offence under the IPC.

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

Q16. Consider the following regarding, INS VIKRANT:

1. It is made at Cochin Shipyard Limited in Kochi.
2. It is India's first indigenously designed and built aircraft carrier.

Which of the above statements is/are incorrect?

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

Q17. Consider the following regarding, Wilful defaulters:

1. They defaulted in meeting their payment obligations to the lender despite having the capacity to honour these commitments.

2. They can participate in the insolvency resolution process under the Insolvency and Bankruptcy Code (IBC), 2016.

Which of the above statements is/are correct?

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

Q18. Consider the following regarding, Galaxy JO206 :

It is situated in the **constellation Aquarius.**

1. It is 700 million light-years away from Earth.

Which of the above statements is/are correct?

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

Q19. With reference to Pradhan Mantri Matru Vandana Yojana, consider the following:

1. It can help reduce the maternal mortality rate.
2. It is under the Ministry of Women and Child Empowerment.

Which of the statements given above is/are incorrect?

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

Q20. With reference to Anjadip, consider the following:

1. It is the third of the eight ships of the Shallow Water Craft (SWC) Project.
2. It cannot undertake anti-submarine operations in coastal waters

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

Q21. With reference to Pradhan Mantri Krishi Sinchayee Yojana, consider the following:

1. It is under the Ministry of Urban Development.
2. It was launched in 2017.

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

Q22. With reference to the New Development Bank (NDB), consider the following statements:

1. It was established by the BRICS countries.
2. Digital infrastructure is one of its focus areas.
3. Its Headquarters are in Beijing.

Which of the above statements is correct?

a. 1 and 2 only
b. 2 and 3 only
c. 1 and 3 only
d. 1, 2 and 3

Q23. With reference to the United Nations Office on Drugs and Crime (UNODC), consider the following statements:

1. It is Headquartered in Montreal.
2. It is a global leader in the fight against illicit drugs and international crime.

Which of the statements given above is/are incorrect

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

Q24. With reference to Betelgeuse, consider the following statements:

1. It is called 'Thiruvathirai' or 'Ardra' in Indian astronomy.
2. It lies in the Orion Constellation.
3. It is smaller than the sun.

Which of the above statements is correct?

a. 1 and 2 only
b. 2 and 3 only
c. 1 and 3 only
d. 1, 2 and 3

Q25. With reference to ChatGPT, consider the following:

1. It can also admit its mistakes.
2. It is trained using "Reinforcement Learning from Human Feedback (RLHF)."
3. Its responses can be influenced by biases.

Select the correct answer using the code given below.

a. 3 only
b. 2 only
c. 1 and 3 only
d. 1, 2 and 3

Q26. With reference to the Telecom Regulatory Authority of India, consider the following statements:

1. The Chairperson and other members hold their office for a term of three years or till the age of 65 years.
2. It is under the Ministry of Electronics and Information Technology.

Which of the statements given above is/are incorrect?

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

Q27. With reference to the Goldilocks scenario, consider the following statements:

1. The chances of achieving price stability are high.
2. Inflation and unemployment are high.

Which of the above phenomenon occur during a Goldilocks scenario?

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

Q28. Consider the following statements,regarding the Anak Krakatau volcano :

1. It is situated in the Atlantic Ocean.
2. It is the offspring of the famous Krakatau volcano.

Which of the statements given above is/are correct?

a. 1 only
b. 2 only
c. Both 1 and 2
d. Neither 1 and 2

Q29. Consider the following statements, regarding Ram Prasad Bismil:

1. He published a pamphlet titled 'Deshwasiyon ke Naam'.
2. He was tried for the Lahore Conspiracy Case.

Which of the statements given above is/are incorrect?

a. 1 only
b. 2 only
c. Both 1 and 2
d. Neither 1 and 2

Q30. Consider the following statements, regarding the Gilgit manuscripts:

1. It contains canonical and non-canonical only the Buddhist works.

2. It originated in Himachal Pradesh.

Which of the statements given above is/are correct?

a. 1 only
b. 2 only
c. Both 1 and 2
d. Neither 1 and 2

Q31. Consider the following statements regarding, the National Human Rights Commission India :

1. It was established in 1953.
2. It is a constitutional body.

Which of the statements given above is/are incorrect?

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

Q32. Consider the following statements regarding, Food Corporation of India :

1. Its under the Ministry of Rural Development.
2. Maintaining satisfactory level of operational and buffer stocks of foodgrains is one of its functions.

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

Q33. Consider the following statements regarding, In vitro fertilization (IVF):

1. It can help infertile couples become parents.
2. It can increases the risk of multiple births.

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

Q34. Consider the following regarding, International Energy Agency (IEA):

1. India became an associate member of IEA in 2020.
2. It was established in 1974.
3. Its Headquarters are in Montreal, Canada.

Select the correct answer using the code given below

a. 1 and 2 only
b. 2 only
c. 3 only
d. 1, 2 and 3

Q35. Consider the following regarding, Vaishvik Bhartiya Vaigyanik (VAIBHAV) fellowships programme.

1. The fellowship would include a fellowship grant (INR 4,00,000 per month).
2. It is under the Ministry of Education.
3. It is a collaboration of Indian diaspora scientists and academic institutions in India.

Select the correct answer using the code given below

a. 1 and 3 only
b. 2 only
c. 3 only
d. 1, 2 and 3

Q36. Consider the following regarding, Enceladus:

1. It is the moon of Jupiter.
2. It was discovered by the Juno mission.
3. It was named for one of the Giants (Gigantes) of Greek mythology.

Select the correct answer using the code given below

a. 1 and 2 only

b. 2 only
c. 3 only
d. 1, 2 and 3

Q37. Consider the following statements regarding, the Directorate of Civil Aviation (DGCA):

1. It conducts investigations into aircraft accidents.
2. Its Headquarters are in Mumbai.

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

Q38. Consider the following statements regarding, Global Gender Gap Report 2023:

1. India has climbed six places.
2. It is published by the World Bank.

Which of the statements given above is/are incorrect?

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

Q39. Consider the following statements regarding, INS Kirpan:

1. It is a Khukri class missile corvette.
2. It is capable of speed in excess of 25 knots.

Which of the statements given above is/are incorrect?

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

Q40. Consider the following statements regarding, the International Monetary Fund (IMF):

1. India has not taken any financial assistance from the IMF since 1993.
2. Its Headquarters is in New York.

Which of the statements given above is/are incorrect?

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

Q41. Consider the following statements regarding, the Nova Kakhovka dam :

1. It is on the Black Sea.
2. It supplies water to the Crimean Peninsula, and to the Zaporizhzhia nuclear plant.

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

Q42. Consider the following statements regarding, the National Water Awards:

1. They are given by the Ministry of Urban Development.
2. It was established in 2015.

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

Q43. Consider the following statements regarding, the Statue of Unity:

1. It is located on Sadhu Bet island, Gujarat.

2. It is on the banks of river Mahi.

Which of the above statements is/are correct?

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

Q44. Consider the following statements regarding, Aurangzeb's tomb:

1. It has intricate and lavish embellishments.
2. Aurangzeb was buried near the dargah of Sheikh Zainuddin.

Which of the above statements is/are incorrect?

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

Q45. In the context of the International Fund for Agricultural Development (IFAD), consider the following statements:

1. India is not a member of IFAD.
2. IFAD was created in 1977.

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

Q46. In the context of Aceclofenac, consider the following statements:

1. It is a pain killer.
2. Indigestion and diarrhoea are one of its side effects.

Which of the statements given above is/are incorrect?

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

Q47. In the context of Energy Efficiency Services Limited (EESL)consider the following statements:

1. It works under the Ministry of Power.
2. Its headquarters are in Mumbai.

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

Q48. Consider the following statements regarding, Employees' Provident Fund Organisation :

1. It is under the Ministry of Corporate Affairs.
2. It was established in 1952.
3. It implements the Employees' Provident Fund and Miscellaneous Provisions Act, of 1952.

Which of the above statements is correct?

a. 1 and 2 only
b. 2 and 3 only
c. 1 and 3 only
d. 1, 2 and 3

Q49. With reference to the Hindukush region, consider the following statements:

1. It is called the Third Pole because it stores more snow and ice than anywhere else in the world outside the polar regions.
2. The region contains Important Bird Areas (IBAs).

Which of the statements given above is/are incorrect?

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

Q50. With reference to the Ex Khaan Quest 2023, consider the following statements:

1. It is being held in Myanmar.
2. India is represented by the Garhwal Rifles.

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

Key Answers:

1	A	11	A	21	D	31	C	41	B
2	B	12	C	22	A	32	B	42	D
3	A	13	A	23	A	33	C	43	A
4	B	14	D	24	A	34	B	44	A
5	A	15	A	25	D	35	A	45	B
6	D	16	D	26	B	36	C	46	D
7	A	17	A	27	A	37	A	47	A
8	B	18	C	28	B	38	C	48	B
9	D	19	D	29	B	39	D	49	D
10	B	20	A	30	D	40	B	50	B