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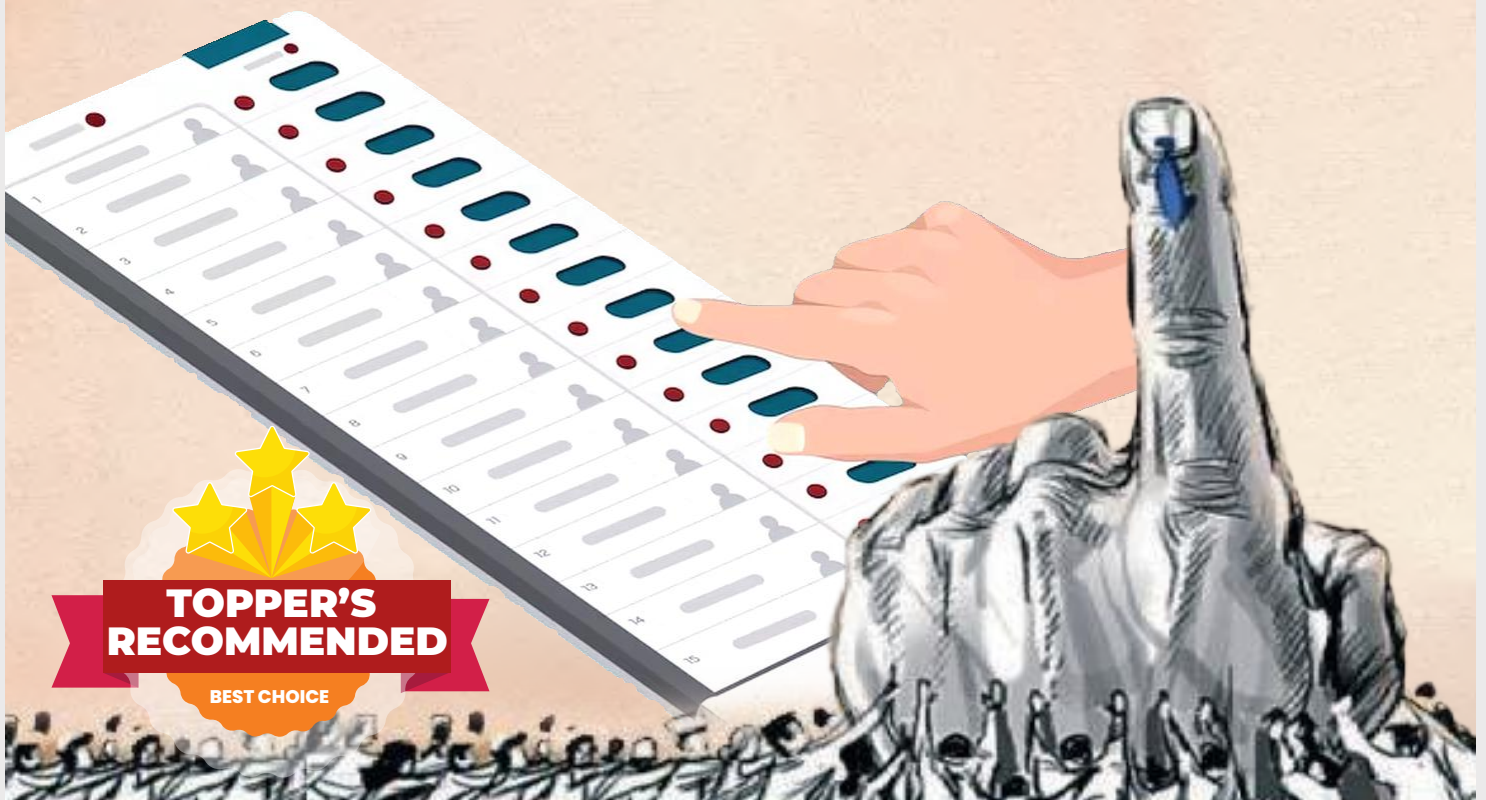
CITIZENSHIP AMENDMENT ACT (CAA)

MODEL CODE OF CONDUCT (MCC)

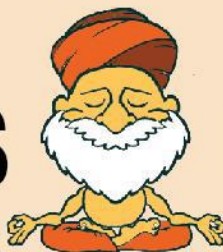
INDIA-MIDDLE EAST ECONOMIC CORRIDOR (IMEC)

WINDFALL TAX

**EUROPEAN UNION'S CARBON BORDER
ADJUSTMENT MECHANISM (CBAM)**



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PRELIMS



POLITY & GOVERNANCE



CURATIVE PETITION

Context: Supreme Court closes **curative petition** against its 2013 judgement on section 377

Background:-

- A 5-judge bench of the Supreme Court on Thursday held that the curative petition filed against the 2013 judgment, which upheld Section 377 of the Indian Penal Code (which criminalised homosexuality), has become infructuous in the light of the 2018 judgment which decriminalised homosexuality.

About Curative Petition:-

- **Objectives:** are twofolds- avoid miscarriage of justice and to prevent abuse of process. It is supported by **Article 137** of the Indian Constitution.
- The Curative Petition is the last chance available in the court after the review petition is dismissed or has been exhausted.
- It is a concept evolved by the Supreme Court of India in the matter of **Rupa Ashok Hurra vs. Ashok Hurra and Anr.**

Conditions laid by SC for curative petition:

- The petitioner must establish that the **principles of natural justice** were violated, and he has been adversely affected by the judgment.
- A curative petition must be first circulated to a bench of the three senior-most judges of the Supreme Court and the judges who had passed the concerned judgment, if available.
- If the majority of the judges conclude that the matter needs hearing, then it is listed before the same Bench.
- The Bench at any stage of the curative petition can ask a senior counsel to assist it as amicus curiae (friend of the court).
- A curative petition is usually decided by judges in the chamber unless a specific request for an open-court hearing is allowed.

MUST READ: <https://www.scobserver.in/journal/court-in-review-curative-petitions/>

SOURCE: [Indian Express](#)

UNIFORM CIVIL CODE

Context: Recently the Uttarakhand Assembly passed the State's Uniform Civil Code.

Background:

- With the passing of UCC bill Uttarakhand Assembly had become the first legislature in independent India to pass a Bill that imposes common rules for all communities — except Scheduled Tribes — on marriage, divorce, inheritances, and live-in relationships.

About UCC:

- It is mentioned in Article 44 of the Indian Constitution and come under DPSP.
- UCC is a proposal in India to formulate and implement personal laws of citizens which apply on all citizens equally regardless of their religion, gender and sexual orientation.
- They cover areas like- Marriage, divorce, maintenance, inheritance, adoption and succession of the property.
- In India, currently personal laws of various communities are governed by their religious scriptures.

Goa Uniform Civil Code

- Goa Uniform Civil Code is the common name for the Goa Civil Code, which is a set of laws that govern personal matters such as marriage, divorce, succession, and property for all residents of Goa, irrespective of their religion.
- It does not cover all aspects of personal law, such as adoption and succession, which are still governed by different laws for different communities.
- It was introduced during the Portuguese rule.

RAJYA SABHA ELECTION

Context:The elections for 56 seats in the Rajya Sabha are set to take place on February 27.

Background:

- Major political parties have released the list of their candidates for Rajya Sabha election. It is watched closely as it comes close to the upcoming Lok Sabha Election.

About Rajya Sabha election:

- It is a **permanent House** and cannot be dissolved with term of each member being 6yrs
- To ensure continuity, one-third of its members retire after every second year, under Article 83(1) of the Constitution, and “biennial elections” are held to fill these vacancies.
- Out of the 245 members, 12 are nominated by the President and 233 are representatives of the States and Union territories of Delhi and Puducherry.

Rajya Sabha polls: Who votes, and how?

- Rajya Sabha MPs are elected by MLAs through an indirect election.
- Article 80(4) provides that members shall be elected by the elected members of state Assemblies through a **system of proportional representation by means of a single transferable vote**.
- The **Fourth Schedule** to the Constitution provides for allocation of Rajya Sabha seats to the states and Union Territories, on the basis of the population of each state.

Rajya Sabha polls have an open ballot

- Polls have a system of open ballots, but it is a limited form of openness.
- To check rampant cross-voting, there is a system of **each party MLA showing his or her marked**

ballots to the party's authorized agent (called Whip), before they are put into the ballot box.

CITIZENSHIP AMENDMENT ACT (CAA)

Context: Home Minister Amit Shah recently said that the Citizenship Amendment Act, will be implemented before the Lok Sabha election 2024.

Background:

- The CAA was first introduced in 2016 and went through several stages in Parliament. It was passed in 2019 and amended the Citizenship Act.

About CAA:

- This act amended the Citizenship Act, 1955.
- It is for illegal migrants who entered India before December 31, 2014, covering migrants from Afghanistan, Bangladesh, and Pakistan. Specifically, it benefits those of Hindu, Sikh, Buddhist, Jain, Parsi, and Christian faiths.
- CAA does not grant such eligibility to Muslims from these countries
- Under the **Citizenship Act, 1955**, an illegal migrant is a foreigner who enters the country without valid travel documents like a passport and visa, or enters with valid documents, but stays beyond the permitted time period.
- The Amendment exempts the members of the six communities from any criminal case under the Foreigners Act, 1946 and the Passport Act, 1920. The two Acts (Foreigners Act, 1946 and the Passport Act, 1920) specify punishment for entering the country illegally and staying here on expired visas and permits.
- Under The Citizenship Act, 1955, one of the requirements for citizenship by naturalisation is that the applicant must have resided in India during the last 12 months, as well as for 11 of the previous 14 years.
- The amendment relaxes the second requirement from 11 years to 5 years as a specific condition for applicants belonging to these six religions (Hindu, Sikh, Buddhist, Jain, Parsi, and Christian) and the aforementioned three countries (Afghanistan, Bangladesh, and Pakistan).

TEST OF PROPORTIONALITY

Context: The Supreme Court used the test of proportionality to strike down Electoral Bonds scheme

Background: -

- It was used in the demonetisation case, aadhar case and also the puttuswamy case among many others.

About Test of proportionality

- Its "the judicial standard for resolving disputes that involve either a conflict between two rights claims or between a right and a legitimate government interest."
- The test is deemed necessary to guard against arbitrary action, so that the state cannot extinguish the right entirely even in pursuance of a legitimate state interest.

- In *Modern Dental College & Research Centre v. State of Madhya Pradesh & Ors*, a five-judge Bench of the Supreme Court listed four components to be looked at in order to determine proportionality.
- The same was agreed to in essence by a nine-judge Bench of the Supreme Court in *Justice KS Puttaswamy v. Union of India*, in which the Court upheld privacy as a fundamental right.

Must Read: <https://indianexpress.com/article/explained/electoral-bonds-verdict-how-the-proportionality-test-was-applied-in-the-case-9164082/>

Source: [Deccan Herald](#)

MODEL CODE OF CONDUCT (MCC)

Context: An Indian delegation is set to leave for London in an effort to seal the free trade agreement with the UK, as dates for the general elections are expected to be announced in less than a month, which will trigger the Model Code of Conduct (MCC).

Background:

- For the previous general elections in 2019, the MCC had come into force in the first half of March, and its presence may impede the Central Government's ability to provide commitments in any FTAs till a new regime is sworn in post-elections.

About MODEL CODE OF CONDUCT (MCC)

- It is a set of guidelines issued by the Election Commission of India (ECI) for the conduct of political parties and candidates during elections.
- In order to ensure free and fair elections and to prevent any misuse of power or resources by the ruling party or government.
- As per the ECI, the MCC was first observed during the 1960 polls (Kerala State Election) and since 1991 it has become an integral part of Indian election.
- The MCC is not legally binding, but the ECI can take action against the violators under the Representation of the People Act, 1951 and the Indian Penal Code, 1860.
- The ECI can also use its constitutional powers under Article 324 to issue orders and directions to ensure compliance with the MCC.

Sources : [CNBC](#)

LOKPAL

Context: President Murmu appoints ex-SC judge Justice AM Khanwilkar as Chairperson of Lokpal

Background:

- The Lokpal and Lokayukta Act, 2013 provided for the establishment of Lokpal for the Union and Lokayukta for States. These institutions are statutory bodies without any constitutional status. The apex Institution was created to inquire and investigate complaints relating to allegation of corruption involving public functionaries and elected representatives.

About Lokpal:

- Established under the **Lokpal and Lokayuktas Act 2013** to inquire and investigate into allegations of corruption against public functionaries who fall within the scope and ambit of the above Act.
- The Lokpal has jurisdiction to inquire into allegations of corruption against anyone who is or has been Prime Minister, or a Minister in the Union government, or a Member of Parliament, as well as officials of the Union Government under Groups A, B, C and D. Also covered are chairpersonsmembers, officers and directors of any board, corporation, society, trust or autonomous body either established by an Act of Parliament or wholly or partly funded by the Union or State government. It also covers any society or trust or body that receives foreign contribution above ₹10 lakh.
- When a complaint is received, the **Lokpal may order a preliminary inquiry** by its Inquiry Wing or any other agency, or refer it for investigation by any agency, including the CBI, if there is a prima facie case and complete the investigation within 60days.
- A Lokpal Bench shall **consider the preliminary inquiry report, and after giving an opportunity to the public servant accused of corruption for his/her defence**, decide whether it should proceed with the investigation. It can order a full investigation, or direct to start departmental proceedings or close the proceedings. It may also proceed against the complainant if the allegation is false.
- Lokpal will have **power of superintendence and direction** over any central investigation agency including CBI for cases referred to them by the Lokpal.
- The Chairperson and the Members are appointed by the President of India by warrant under his hand and seal and hold office for a term of five years** from the date on which they enter upon the office or until they attain the age of 70 years, whichever is earlier.
- The **chairperson and members of the Lokpal are appointed by the President** after obtaining the recommendations of a Selection Committee comprising prime minister, speaker of low Sabha, leader of opposition in lok Sabha, Chief Justice of India or a Judge nominated by him/her and one eminent jurist.
- Apart from a chairperson, the Lokpal can have eight members** -- four judicial and as many non-judicial.

Source: [Lokpal](#)

INTERIM BUDGET

Context: Recently, Prime Minister Shri Narendra Modi hailed the **Interim Budget** as “not merely an interim budget but an inclusive and innovative budget.”

Background:-

- The Prime Minister further said, "**This budget will empower all pillars of developed India - the youth, the poor, women, and farmers.**"

About Interim Budget:-

- During an election year, the incumbent government cannot present a full budget owing to which the finance ministers present an **interim Budget that covers the government's expenses and revenues for a short period**.
- This is **till a new government is elected** and takes charge. After the Lok Sabha elections, the new government presents a full budget.
- The presentation **follows the same schedule as the Union budget** would in a regular financial year.

- The interim Budget includes estimates for the government's expenditure, revenue, fiscal deficit, financial performance and projections **for just a few months**.
- **No major policy announcements** that can burden the next government can be presented in the interim Budget.
- There is **no constitutional provision for it**. However, it has become a **common practice** for outgoing governments ahead of polls.
- Vote-on-account: The Parliament passes a vote-on-account through the interim Budget which allows the government to obtain Parliamentary approval for essential government spending such as salaries and ongoing expenses.

MUST READ: [Major Bills in the Budget Session of Parliament](#)

SOURCE: [PIB](#)

MOTION OF THANKS

Context: Recently, both Houses of Parliament took up a discussion on the **Motion of Thanks** on President Murmu's address.

Background:-

- The President had addressed the joint sitting of both the Houses.

About Motion of Thanks:-

- As per constitutional provisions, **at the commencement of the first session after each general election** to the House of the People **and** at the commencement of the **first session of each year**, the [President](#) shall address both Houses of Parliament assembled together.
- The Address **contains a review of various activities and achievements of the Government during the previous year**.
- The President's speech essentially **highlights the government's policy priorities and plans for the upcoming year**.
- The **address provides a broad framework** of the government's agenda and direction.
- After the address, each House of Parliament discusses the Motion of Thanks, and **the Prime Minister responds**.
- At the end of the discussion, **the motion is put to vote**.

Constitutional Provisions:-

- **Article 86** confers a **right on the President to address either House of Parliament or both Houses**
- **Article 87** deals with **Special Address by the President**

Significance:-

- The Motion of Thanks **must be passed in the House**, Otherwise, it amounts to the defeat of the government.

MUST READ: [Privilege Motion](#)

SOURCE: [PIB](#)

PROTECTION OF CHILDREN FROM SEXUAL OFFENCES (POCSO) ACT

Context: Recently, SC remitted a 20-year sentence of a **Protection of Children from Sexual Offences (POCSO) Act** convict to save marriage with his victim in Tamil Nadu.

Background:-

- A three-judge Bench headed by Chief Justice of India D.Y. Chandrachud on Monday remitted the 20-year sentence of a man found guilty of the aggravated sexual assault of a 14-year-old girl whom he later married and had children within Tamil Nadu.

About Protection of Children from Sexual Offences (POCSO) Act:-

- **Enacted: 2012 under Ministry of Women and Child Development.**
- **Objectives:** to address offences of sexual exploitation and sexual abuse of children, which were either not specifically defined or adequately penalized.

Historic Background:-

- It was enacted as a consequence of India's ratification of the **UN Convention on the Rights of the Child in 1992.**
- In **2019, the Act was amended** to strengthen the penalties for specified offences in order to deter abusers and promote a dignified upbringing.

Salient Features:-

- The Act **defines a child** as "any person" **under the age of 18.**
- It recognizes that **both girls and boys** can be victims of sexual abuse.
- Any person in charge of an institution (excluding children) who fails to report the commission of a sexual offense involving a subordinate **faces punishment.**
- A victim may report an offense at **any time, even years after the abuse has occurred.**
- The Act **forbids the disclosure of the victim's identity** unless authorized by the special courts established by the Act.
- The new rules include the provision of **mandatory police verification** of staff in schools and care homes, procedures to report sexual abuse material (pornography), and imparting age-appropriate child rights education among others.
- For a crackdown on child pornography, any person who has received any pornographic material involving a child or any information regarding such pornographic material shall report the contents to the **Special Juvenile Police Unit (SJPU) or police, or the cybercrime portal.**
- Under the rules, the **State Governments** have been asked to **formulate a child protection policy based** on the principle of zero-tolerance to violence against children, which shall be adopted by all institutions, organizations, or any other agency working with or coming in contact with children.
- **Challenges:** Low Representation of Women in the Police Force, Lapses in the Investigation, No Conditions to Prove Recent Intercourse.

MUST READ: [Sexual intent is key to POCSO Act](#)

SOURCE: [PIB](#)



INTERNATIONAL RELATIONS



FREE MOVEMENT REGIME

Context: Home Ministry recommends immediate suspension of free movement regime.

Background:

- The main reasons for this decision are to limit the spill-over effects of the conflict in Myanmar since the military coup in February 2021, and to reduce the risk of illegal migration, human and drug trafficking and ensure internal security.

About free movement regime (FRM):

- The FMR is a **pact between India and Myanmar that allows tribes living along the border on either side to travel up to 16 km inside the other country without a visa.**
- It was implemented in 2018 as part of the government's Act East policy at a time when diplomatic relations between India and Myanmar were on the upswing.
- However, the FMR has been suspended by India since September 2022 due to the conflict in Myanmar following the military coup in February 2021.

KALADAN MULTI-MODAL TRANSIT TRANSPORT PROJECT (KMMTTP)

Context: Kaladan Multi-Modal Transit Transport Project, one of India's flagship connectivity projects has faced a setback after an important town in Myanmar was captured recently by a rebel group.

Background:

- The Kaladan project was aimed at addressing the geo-economic and geo-political challenges of northeast India. The \$484 million project is being constructed by India, under the Grant in Aid Scheme.

About KMMTTP

- It's a significant initiative jointly identified by **India and Myanmar.**
- Aim: **to create a multi-modal mode of transport for the shipment of cargo from the eastern ports of India to Myanmar, as well as to the North-Eastern part of India through Myanmar.**
- It will reduce the distance from Kolkata to Sittwe by approximately 1,328 kilometers (825 miles).
- It **provides an alternative route that bypasses**

the narrow Siliguri corridor, also known as the "Chicken's Neck."

- It **strengthens connectivity between India's northeastern states and the mainland.**

NORTH ATLANTIC TREATY ORGANISATION (NATO)

Context: Former U.S President Donald Trump has criticised North Atlantic Treaty Organisation.

Background:

- As US president from 2017-21, Trump often lambasted NATO and members such as Germany, accusing them of not paying enough for their own defence and relying on Washington to protect them. Trump continues his criticism of NATO during campaign for upcoming presidential election.

About NATO:

- Founded in 1949 to counter the Soviet Union with Cold War tensions** rising and it is a political and military alliance of countries from North America and Europe.
- Principle of collective defence** – the idea that an attack on one member is considered an attack on all of them.
- NATO takes decisions by consensus** but the political and military strength of the United States means that it is by far the most powerful country in the alliance, with its nuclear arsenal seen as the ultimate security guarantee.

Which countries are in NATO?

- NATO currently has 31 members – most of them European nations, plus the United States and Canada.
- The newest member is Finland, which joined in reaction to Russia's 2022 invasion of Ukraine.
- Sweden applied to join along with Finland but is waiting for Hungary to ratify its application as the final major step before membership.
- During the Cold War, NATO's main focus was protecting Western Europe from the Soviet Union. After the 1989 fall of the Berlin Wall, NATO expanded to take in former communist bloc countries from Central and Eastern Europe.

How is NATO funded?

- NATO operates differently. It has some common funds, to which all members contribute. But the vast bulk of its strength comes from members' own national defence spending – to maintain forces and buy arms that can also be used by NATO.
- However, NATO members have committed to spending at least 2% of their Gross Domestic Product (GDP) every year on defence – and most of them did not meet that goal last year.

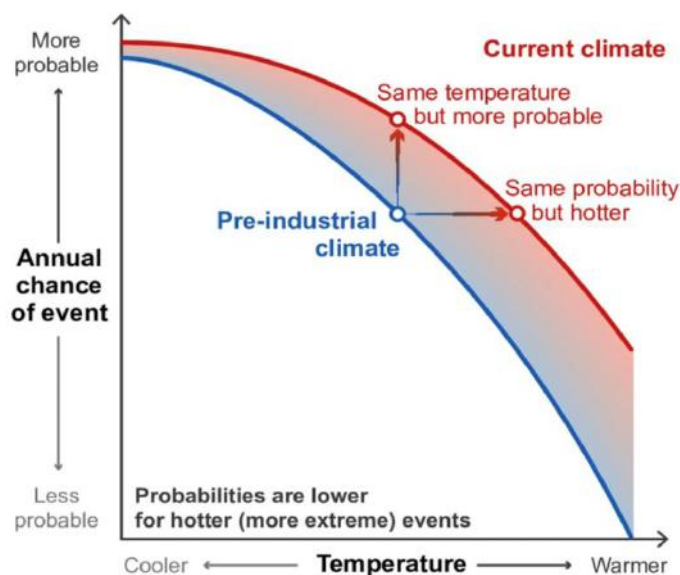
Source: [The Indian Express](#)

CLIMATE CHANGE INCREASING THE PROBABILITY OF EXTREME WEATHER EVENTS

Context: The year 2023 has been confirmed as the hottest year in global temperature records going back to 1850 triggering debates about extreme weather events in the near future.

Background:

- The average global temperature on Earth has increased by at least 1.1 degree Celsius since 1850, primarily due to human activities that have released unprecedented levels of greenhouse gases into the atmosphere.



About the interconnection between climate change and extreme weather events:

- Extreme heat creates conditions more prone to wildfire and a longer wildfire season by evaporating more moisture from land. According to a 2023 report by Weather Attribution (WWA), climate change more than doubled the likelihood of extreme “fire weather” conditions in Eastern Canada.

- Higher temperatures cause evaporation of water not only from land but also oceans and other water bodies, meaning a warmer atmosphere holds more moisture.

- For every 1 degree Celsius rise in average temperature, the atmosphere can hold about 7% more moisture. This makes storms more dangerous as it leads to an increase in precipitation intensity, duration and/or frequency, which ultimately can cause severe flooding.

- Oceans have absorbed 90% of the additional heat and due to this, global mean sea surface temperature has gone up by close to 0.9 degree Celsius since 1850.

Source: [The Indian Express](https://www.thehindu.com/news/international/india-middle-east-economic-corridor/article66484471.html)

INDIA-MIDDLE EAST ECONOMIC CORRIDOR (IMEC)

Context: Greek PM Kyrios Mitsotakis emphasises the need to proceed ahead with IMEC despite conflict in middle east.

Background:-

- Despite the Israeli war in Gaza “destabilising” plans for **the India-Middle East Economic Corridor (IMEC), India and Greece** should persevere with the project said Greek Prime Minister Kyrios Mitsotakis. He also inaugurated the annual Raisina Dialogue in New Delhi on February 21.
- IMEC was announced during **G20 meeting in New Delhi**.

About India-Middle East Economic Corridor (IMEC)

- The IMEC is a planned economic corridor that aims to bolster economic development by fostering connectivity and economic integration between Asia, the Persian Gulf, and Europe.
- The proposed **IMEC will consist of Railroad, Ship-to-Rail networks, and Road transport routes extending across two corridors: The East Corridor (connecting India to the Arabian Gulf) and The Northern Corridor (connecting the Gulf to Europe).**
- The **IMEC corridor will also include** an electricity cable, a hydrogen pipeline, and a high-speed data cable.
- **Signatories include** India, the US, Saudi Arabia, UAE, the European Union, Italy, France and Germany.
- It will counter balance China’s growing economic and political influence and its Belt and Road

Initiative (BRI), especially in regions with historically strong ties to the U.S.

Source: [The Hindu](#)

NB8 - NORDIC-BALTIC COUNTRIES

Context: In this year's Raisina Dialogue in New Delhi, the eight Nordic-Baltic countries, are participating in it together as representatives of the Nordic-Baltic cooperation, the NB8.



Background:

- Participation of NB8 is significant as the Russia Ukraine conflict continues.

About Nordic-Baltic Eight (NB8)

- It is a regional co-operation format that includes Denmark, Estonia, Finland, Iceland, Latvia, Lithuania, Norway, and Sweden.
- Named as 5+3 in the beginning of cooperation (five Nordic countries plus three Baltic States), the format changed its name to NB8.

Source: [The Hindu](#)

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT (UNCTAD)

Context: United Nations Conference on Trade and Development (UNCTAD) has recently raised an alarm over escalating disruptions in shipping routes for global trade in a new report.

Background:

- The recent report titled “**Navigating Troubled Waters: The Impact to Global Trade of Disruption of Shipping Routes in the Red Sea, The Black Sea, and the Panama Canal**” highlights critical issues affecting trade patterns.

About United Nations Conference on Trade and Development (UNCTAD):

- It is an intergovernmental organization within the United Nations Secretariat that promotes the interests of developing countries in world trade and established by the UNGA in 1964.
- Objective: formulate policies relating to all aspects of development, including trade, aid, transport, finance, and technology.
- UNCTAD was created in response to concerns among developing countries that existing international institutions like GATT (now replaced by the World Trade Organization), the International Monetary Fund (IMF), and the World Bank were not properly organized to handle the particular problems of developing countries.
- Achievement: implementing the Generalized System of Preferences (GSP), promotes the export of manufactured goods from developing countries.
- The GSP is a preferential tariff system that provides duty-free and quota-free market access for exports from developing countries to major export markets.
- It has 195 member states, including all UN members plus UN observer states Palestine and the Holy See.

Source: [Down To Earth](#)



Economy



EXCHANGE RATE

Context: As per the recent **exchange rate**, the Indian rupee closed at 83 rupees and 36 paise against the US dollar.

Background:-

- The dollar index, which indicates the US dollar's strength against a basket of six other leading currencies, was up 0.15 per cent to trade at 103.42 in intra-day trade.

About Exchange rate:-

- Exchange rate is a rate at which a currency of one country can be exchanged with the currency of another country.
- Under a **fixed exchange rate system**, devaluation and revaluation are official changes in the value of a country's currency relative to other currencies.
 - **Devaluation** is when the price of the currency is officially decreased in a fixed exchange rate system.
 - **Revaluation** is when the price of the currency is increased within a fixed exchange rate system.
- Under a **floating exchange rate system**, market forces generate changes in the value of the currency, known as currency **depreciation or appreciation**.
 - **Currency appreciation** refers to the increase in value of one currency relative to another in the forex markets.
 - **Currency depreciation** is a fall in the value of a currency in a floating exchange rate system. ([Rupee Depreciation](#))

Effects of currency appreciation on India:-

- **Export costs rise:** If the Indian Rupee (INR) appreciates, foreigners will find Indian goods more expensive because they have to spend more for those goods in INR.
- **Cheaper imports:** If Indian goods become more expensive on the foreign market; foreign goods, or imports, will become cheaper in India.

Effects of currency depreciation:-

- Improves export competitiveness and may lead to pulling of foreign investment.
- A weaker currency may escalate imported oil and edible oil prices and lead to higher food inflation.

MUST READ: [Recent Trend of Current Account Deficit \(CAD\)](#)

SOURCE: [AIR](#)

SOVEREIGN GOLD BOND SCHEME

Context: Sovereign gold bond scheme, 2023-24 will open for subscription from 12 to 16 February 2024

Background:

- Floated by the Indian Government in 2015, Sovereign Gold Bonds or SGBs emerged as an innovative investment strategy involving gold for interested investors.

About SGBs:

- SGBs are provided as a substitute for physical gold to investors.
- Objective: is to reduce the demand for physical gold and shift a part of the money spent for gold, which usually amounts to huge import bill into financial savings through Gold Bonds.
- SGBs are issued by RBI on behalf of the Government of India on payment of the required amount in rupees and are denominated in grams of gold.
- The Bonds are restricted for sale to resident Indian entities including individuals, HUFs, trusts, Universities, charitable institutions.
- The bonds are available in both in Demat and paper form. The rate for the Bonds is fixed on the basis of simple average of closing price for gold of 999 purity of the previous week published by the India Bullion and Jewellers Association (IBJA).
- Tenor period: 8 years with exit option from 5th year onwards to be exercised on the interest payment dates.
- Stable interest rate of 2.50 per cent per annum, disbursed semi-annually based on the nominal value of their investment.
- On maturity, the investor will get the equivalent rupee value of the quantum of gold invested at the then prevailing price of gold as calculated using the simple average of the closing price of 999 purity gold over the three preceding working days.

SOURCE: [Livemint](https://www.livemint.com)

INDEX OF INDUSTRIAL PRODUCTION (IIP)

Context: Industrial output witnessed mild recovery in December.

Background:

- At 3.8 percent, the latest industrial growth figure as per the Index of Industrial Production (IIP) is up from the November 2023 figure of 2.4 percent.

About Index of Industrial Production (IIP):

- Published monthly by National Statistical Office (NSO), Ministry of Statistics and Programme Implementation. With Base Year: 2011-2012.
- IIP is an indicator that measures the changes in the volume of production of industrial products during a given period.

It is a composite indicator that measures the growth rate of industry groups classified under:

- Broad sectors: Mining, Manufacturing, and Electricity.
- The relative weights: are 6% (manufacturing), 14.4% (mining) and 8% (electricity).
- **Eight core industries:** The eight core sector industries in decreasing order of their weightage: Refinery Products> Electricity> Steel> Coal> Crude Oil> Natural Gas> Cement> Fertilizers.
- They comprise about 40 per cent of the weight of items included in the IIP.
- Use-based sectors: Basic Goods, Capital Goods, and Intermediate Goods.

Source: [Money Control](#)

INSOLVENCY AND BANKRUPTCY BOARD OF INDIA (IBBI)

Context: To ensure fairness in bankruptcy cases, the Insolvency and Bankruptcy Board of India (IBBI) has issued a circular instructing resolution professional (RPs) to share copies of their reports with both creditors and debtors involved in insolvency cases.

Background:

- The circular highlights instances where resolution professional (RPs) failed to provide equal access to information to both parties, leading to a disparity in understanding.

About The Insolvency and Bankruptcy Board of India (IBBI):

- The IBBI is the regulator for overseeing insolvency proceedings and entities like Insolvency Professional Agencies (IPA), Insolvency Professionals (IP) and Information Utilities (IU) in India.
- It was established on 1st October, 2016 under the Insolvency and Bankruptcy Code, 2016.
- The IBBI also regulates the profession of valuers in India under the Companies (Registered Valuers and Valuation Rules), 2017.
- It has a three-tier structure, consisting of a chairperson, three ex-officio members from the central government, one ex-officio member from the RBI, and five other members nominated by the central government.

Some of the key functions and features of the IBBI are:

- It grants registration to IPs, IPAs, IUs, and valuers and sets the curriculum for the qualifying examination of the IPs for their enrolment.
- It makes regulations and guidelines for the implementation of the Code and the Rules, and enforces them through inspections, investigations, and penalties.
- It collects and maintains records relating to insolvency and bankruptcy cases and disseminates information relating to such cases.
- It promotes awareness and research on insolvency and bankruptcy matters and engages with various stakeholders, such as the government, the judiciary, the industry, and the academia.

Source: [Hindu Businessline](#)

MARKET CAPITALISATION

Context: Reliance Industries Limited (RIL) recently became the first Indian company to surpass Rs 20 lakh crore in market capitalisation.

Background:

- **Reliance Industries Limited (RIL)** is a diversified conglomerate that operates in various sectors such as oil and gas, petrochemicals, telecom, retail, and digital services.

About Market Capitalization or Market Cap:

- Term is used to **represent the market value of a company** based on its current share price and the total number of its outstanding shares.
- It represents the **market's perception of a company's worth** and indicates its size and significance in the financial markets.
- On the basis of market cap, **companies may be classified as** large-cap, mid-cap, or small-cap companies.
- Large-cap companies are usually stable, reputable, and well-established businesses that have a significant market share. They have market caps of INR 20,000 crore or more.
- Mid-cap companies have a market cap ranging from INR 5,000 crore to INR 20,000 crore.
- Small-cap companies operate at a smaller scale than large-cap and mid-cap companies. Consequently, their market cap is also lower (less than INR 5,000 crore).

Source: [Economic Times](#)

WINDFALL TAX

Context: The Indian government has announced a slight increase in the windfall tax on domestically produced crude oil and diesel, effective from February 16.

Background:

- The tax is levied in the form of a Special Additional Excise Duty (SAED).

About windfall tax

- **It is a higher tax rate levied** on certain industries or sectors that experience significantly above-average profits due to unexpected events or market conditions.
- A windfall tax is **different from a regular income tax**, as it is applied only to the profits that exceed a certain threshold or percentage, and only for a limited period of time.
- This is **part of the government's strategy** to capitalise on energy sector profits amid global uncertainties.
- The tax **rates are reviewed every fortnight based on average oil prices in the previous two weeks.**

Rationale behind the imposition of windfall tax

- **Redistribution of unexpected gains**, when high prices benefit producers at the expense of consumers.
- Funding social welfare schemes or public goods, such as health, education, or infrastructure.
- Providing a **supplementary revenue stream** for the government.
- Encouraging more efficient use of resources or reducing negative externalities.
- **Narrowing the country's widened trade deficit.**

Source: [The Hindu](#)

EUROPEAN FREE TRADE ASSOCIATION (EFTA)

Context: Recently, India has rejected the demand of the four-nation European Free Trade Association (EFTA) for 'data exclusivity' provisions in the free trade agreement that both sides are negotiating.

Background:

- Data exclusivity provisions will bar generic drug producers from using data of preclinical tests and clinical trials of former patent holders. India and EFTA have been negotiating the Trade and Economic Partnership Agreement since January 2008.

About European Free Trade Association (EFTA)

- **EFTA was established in 1960 as an alternative trade bloc for those European states** that were unable or unwilling to join the then European Economic Community (EEC), the main predecessor of the EU (European Union). With its HQ at Geneva, Switzerland.
- It is a **regional trade organization and free trade area consisting of four European states:** Iceland, Liechtenstein, Norway, and Switzerland.
- They **are'nt part of the EU**, yet participate in the European Single Market and the Schengen Area.
- EFTA has signed free trade agreements with many countries around the world, and also cooperates with the EU in various policy areas through the European Economic Area (EEA) Agreement.

Source: [Hindu Businessline](#)

FINANCIAL STABILITY AND DEVELOPMENT COUNCIL (FSDC)

Context: Fresh measures to curb unauthorised online lending apps' operations could be on the anvil, following deliberations on the issue at the Financial Stability and Development Council (FSDC) chaired by Finance Minister Nirmala Sitharaman on Wednesday.

Background:

- The FSDC, which has all financial sector regulators on board including the Reserve Bank of India, also discussed issues related to macro financial stability and the country's preparedness to deal with any challenges that may come up.

About Financial Stability and Development Council (FSDC):

- It is **non-statutory apex council constituted by the Executive Order in 2010** under Ministry of Finance
- **The Raghuram Rajan committee (2008)** on financial sector reforms first proposed it.
- **It is chaired by the Finance Minister** and its members include the heads of all Financial Sector Regulators (RBI, SEBI, PFRDA & IRDA), Finance Secretary, Secretary of Department of Economic Affairs (DEA), Secretary of Department of Financial Services (DFS), Chief Economic Adviser, Secretary of Department of Electronics and Information Technology, Chairperson of the Insolvency and Bankruptcy Board of India (IBBI) and the Revenue Secretary.

Functions:

- To strengthen and **institutionalize financial stability**, enhancing inter-regulatory coordination and promoting financial sector development.
- To monitor macro-prudential supervision of the economy. It assesses the functioning of the large financial conglomerates.

Source: [The Hindu](#)

INFRASTRUCTURE INVESTMENT TRUSTS (INVITS)

Context: The initial public offering (IPO) of Bharat Highways Infrastructure Investment Trusts (InvITs) was subscribed 22% on the first day of the bidding process.

Background:

- The Bharat Highways InvIT is **established with the goal of** acquiring, managing, and investing in a diversified portfolio of infrastructure assets across India.

About INFRASTRUCTURE INVESTMENT TRUSTS (INVITS):

- **InvITs function as** collective investment schemes, akin to mutual funds. Regulated by SEBI.
- **Purpose:** pool funds from individual and institutional investors for direct investment in infrastructure projects, for which they receive a portion of the income generated by these projects as returns. Also, it offers investors partial ownership in infrastructure projects.
- **The returns from InvITs come in the form of** dividends, interest, and capital gains.
- Interest income from deposits in Infrastructure Investment Trusts (InvITs) is **exempted from tax**. However, it's important to note that the dividends and capital gains received by investors are **taxable**.
- InvITs are recognized as borrowers under the '**Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act, 2002**'. This recognition allows InvITs to raise funds by issuing units to investors and invest in infrastructure projects. The Act **provides a legal framework for the securitization and reconstruction of financial assets, ensuring transparency and investor protection**.
- Any Infrastructure Development Company can take the role of the sponsor to form an InvIT.
- The sponsor establishes a trust, often in the form of a special purpose vehicle (SPV), to hold the infrastructure assets.
- The trust is managed by professionals, relieving investors of project management responsibilities.

Source: [Livemint](#)

GOODS AND SERVICES TAX (GST)

Context: Recently, the Delhi High Court upheld the constitutional validity of anti-profiteering provisions in the **Goods and Services Tax (GST)**.

Background:-

- The Delhi High Court on Monday upheld the constitutional validity of anti-profiteering provisions in the Goods and Services Tax (GST). More than 100 companies, including Hindustan Unilever,

Patanjali, Jubilant Foodworks, and Phillips, filed petitions against the provisions.

About Goods and Services Tax (GST):-

- **Launched: 2017.**
- **GST** is an indirect tax used in India on the supply of goods and services and launched as a comprehensive indirect tax for the entire country.
- It is a **value-added tax** levied on most goods and services sold for domestic consumption.
- It is of three types:-
 - CGST: levied **by the Centre**
 - SGST: levied by the **States and**
 - IGST: levied on all **Inter-State supplies of goods and/or services.**

GST Council:-

- The **101st Amendment Act of 2016 (122nd Amendment Bill)**, paved the way for the implementation of GST.
- It is a **joint forum of the Centre and the states under Article 279-A of the constitution.**
- **Article 279-A**, gives the President the authority to appoint a GST Council by executive order.
- The members include the Union Finance Minister (chairperson), and the Union Minister of State (Finance) from various states.
- As per Article 279, it is meant to “**make recommendations to the Union and the states on important issues related to GST**, like the goods and services that may be subjected or exempted from GST, model GST Laws”.
- It also **decides on various rate slabs of GST.**

Benefits of GST:-

- **Automated tax ecosystem:** It helped the country in transitioning to an automated indirect tax ecosystem.
- **Better Compliance:** GST helped in achieving better tax compliance by subsuming multiple taxation and reducing in taxation burden in the last four years.
- **E-invoice and More Revenue:** The E-invoicing system helped reduce fake invoicing.

SOURCE: [BUSINESS STANDARD](#)

HIGHLIGHTS OF INTERIM BUDGET 2024-25

Context: Recently, **Interim Budget 2024-25** was presented.

About Highlights of Interim Budget 2024-25:-

- Government will launch a scheme to help **deserving sections of the middle class** “living in rented houses, or slums, or chawls and unauthorized colonies” to buy or build their own houses.
- **Rooftop solarization** — one crore households will be enabled to obtain up to 300 units of free electricity every month.
- **PM Awas Yojana (Grameen)**– Two crore more houses will be taken up in the next five years to meet the requirement arising from an increase in the number of families.
- Vaccination for girls in the age group of 9 to 14 years for **prevention of cervical cancer.**
- Upgradation of Anganwadi centres under “**Saksham Anganwadi and Poshan 2.0**” will be expedited.
- **U-WIN platform** for managing immunization and intensified efforts of Mission Indradhanush will be rolled out expeditiously.

- Extension of healthcare cover under [Ayushman Bharat scheme](#) to all ASHA workers, Anganwadi Workers and Helpers.
- Application of Nano DAP on various crops will be expanded in all **agro-climatic zones**.
- A strategy will be formulated to achieve 'atmanirbharta' for oil seeds.
- A comprehensive programme for supporting **dairy farmers** will be formulated.
- Implementation of **Pradhan Mantri Matsya Sampada Yojana (PMMSY)**.
- The government aims to enhance the target for **Lakhpati Didi** from **2 crore to 3 crore**.
- A corpus of rupees one lakh crore will be established with fifty-year interest free loan.
- A new scheme will be launched for strengthening deep-tech technologies for **defence purposes and expediting 'atmanirbharta'**.
- Three major **economic railway corridor** programmes will be implemented.
- Expansion of **Metro and NaMO Bharat** will be supported in large cities focusing on transit-oriented development.
- Viability gap funding will be provided for harnessing **offshore wind energy potential**.
- **Coal gasification and liquefaction** capacity of 100 MT will be set up by 2030.
- A scheme for restoration and adaptation measures, and coastal aquaculture and mariculture with integrated and multi-sectoral approach will be launched.
- States will be encouraged to take up comprehensive development of iconic tourist centres, branding and marketing them at global scale.
- Under the new tax scheme, there is now no tax liability for tax payers with income up to Rs. 7 lakh, up from Rs. 2.2 lakh in the financial year 2013-14.
- **Corporate tax rate was decreased from 30 per cent to 22 per cent** for existing domestic companies and to 15 per cent for certain new manufacturing companies

MUST READ: [Economic Survey Summary 2022-23](#)

SOURCE: [THE INDIAN EXPRESS](#)

CORRUPTION PERCEPTIONS INDEX (CPI) 2023

Context: Recently, the **Corruption Perceptions Index (CPI) 2023** has been released.

About Corruption Perceptions Index (CPI) 2023:-

- **Published by:** **Transparency International**, an international non-governmental organization **founded in 1993 based in Berlin, Germany**
- CPI is an **annual assessment** that ranks countries by their perceived levels of public sector corruption.
- The **CPI ranks 180 countries and territories** by their perceived levels of public sector corruption on a score of zero (highly corrupt) to 100 (very clean).
- **Factors Considered:** Bribery, Public Sector Corruption, Judicial and Law Enforcement Transparency.
- India ranked **93 among 180 nations, with overall score in 2023 was 39**, a minor decrease from 40 in 2022.
- **Top Three Countries:** Denmark, Finland and New Zealand.
- **Bottom Spots:** Somalia, Venezuela, Syria, South Sudan and Yemen.

MUST READ: [Climate Change Performance Index \(CCPI\) 2023](#)

SOURCE: [THE INDIAN EXPRESS](#)

FISCAL CONSOLIDATION

Context: Recently, **Fiscal Consolidation** was emphasized in the budget.

Background:-

- Union Finance Minister Nirmala Sitharaman announced during her Budget speech that the Centre would reduce its fiscal deficit to 5.1% of gross domestic product (GDP) in 2024-25.

About Fiscal Consolidation:-

- It is a **process where government's fiscal health is getting improved and is indicated by reduced fiscal deficit.**
- As the fiscal deficit falls below a tolerable level, **improved tax revenue realization and better directed expenditure are key components of [fiscal consolidation](#).**
- In India, **fiscal consolidation or the fiscal roadmap for the centre is expressed in terms of the budgetary targets** (fiscal deficit and revenue deficit) to be realized in successive budgets
- According to **Fiscal Responsibility and Budget Management (FRBM)** Act, the government should eliminate the revenue deficit and **reduce the fiscal deficit to 3% (medium term) of the GDP.**

Measures from the expenditure side and revenue side are envisaged by the government to achieve fiscal consolidation:-

- **Improved tax revenue realization:** For this, increasing efficiency of tax administration by reducing tax avoidance, eliminating tax evasion, enhancing tax compliance etc. are to be made.
- **Enhancing tax GDP ratio** by widening the tax base and minimizing tax concessions and exemptions also improves tax revenues.
- **Better targeting of government subsidies** and extending the **Direct Benefit Transfer scheme** for more subsidies.

MUST READ:[Growth & fiscal consolidation](#)

SOURCE:[THE HINDU](#)



GEOGRAPHY



MINERALS SECURITY PARTNERSHIP (MSP)

Context: India plans to acquire critical mineral assets overseas by leveraging the US-led Minerals Security Partnership (MSP) or Critical Minerals Club.

Background:

- The future global economy will be powered by technologies that depend on minerals such as lithium, graphite, cobalt, titanium and rare earth elements. These are essential for the advancement of many sectors, including high- tech electronics, telecommunications, transport, and defence.

About MINERALS SECURITY PARTNERSHIP (MSP):

- The **MSP established in 2022**, is a US-led collaboration of 14 countries and the EU that aims to catalyze public and private investment in responsible critical minerals supply chains globally.
- **Critical minerals are essential for the production of clean energy technologies**, such as batteries, solar panels, wind turbines, and electric vehicles.
- **India joined the MSP in June 2023**, as part of its efforts to secure its energy transition and reduce its dependence on China for critical minerals.

Critical Minerals

- Critical minerals are those minerals that are essential for economic development and national security, the lack of availability of these minerals or concentration of extraction or processing in a few geographical locations may lead to supply chain vulnerabilities and even disruption of supplies.
- In July 2023, the Government **of India has identified 30 minerals as Critical Minerals** by amending the Mines and Minerals (Development and Regulation) Act, 1957, through the MMDR Amendment Act, 2023, empowering the Central Government to auction blocks of these minerals.
- The 30 critical minerals are Antimony, Beryllium, Bismuth, Cobalt, Copper, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Molybdenum, Niobium, Nickel, PGE, Phosphorous, Potash, REE, Rhenium, Silicon, Strontium, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium, Zirconium, Selenium and Cadmium.
- **India has signed bilateral agreements with** Argentina, Chile, and Bolivia (Lithium Triangle) to enhance its position in critical mineral exploration, development, processing, and trade

Source: [News18](https://www.news18.com/news/india/india-joins-minerals-security-partnership-msp-3698888.html)

TERAI ARC LANDSCAPE (TAL)

Context: Terai Arc Landscape recognized as UN World Restoration Flagship as a part of the UN Decade on Ecosystem Restoration.

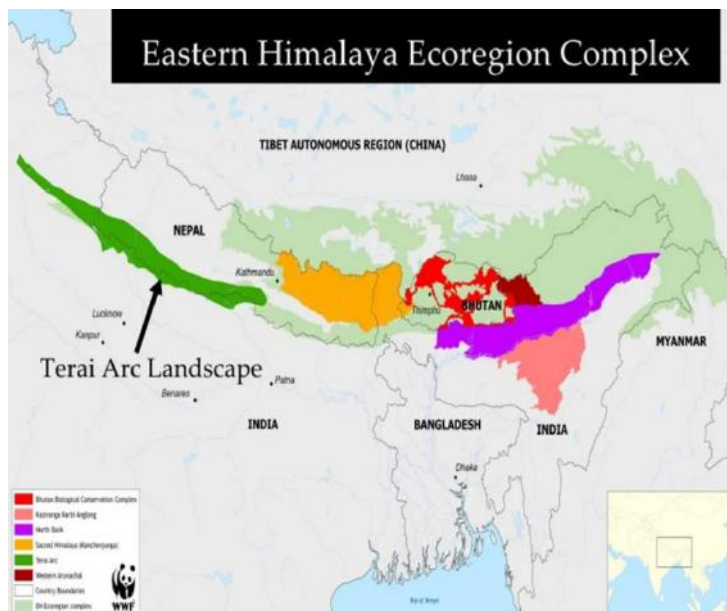
Background:

- The UN **World Restoration Flagship** is a **global recognition** and support program for the large-scale ecosystem restoration.
- The **Terai region** is a **lowland area that lies south of the Himalayas and north of the Indo-Gangetic Plain, in parts of northern India and southern Nepal**. It is characterized by tall grasslands, scrub savannah, sal forests, and clay-rich swamps. It is also home to diverse and endangered wildlife, such as tigers, rhinos, elephants, and dolphins.

About The Terai Arc Landscape (TAL) initiative

- The TAL initiative is a joint effort by Nepal and India to conserve and restore the biodiversity and ecosystems of the Terai region.
- The TAL is a **transboundary region** that spans across India and Nepal, covering 14 protected areas.

The protected areas included in the Terai Arc Landscape:



1. Parsa National Park, Nepal
2. Chitwan National Park, Nepal
3. Banke National Park, Nepal
4. Bardia National Park, Nepal
5. Blackbuck Conservation Area, Nepal
6. Shuklaphanta Wildlife Reserve, Nepal
7. Valmiki National Park, India
8. Sohelwa Wildlife Sanctuary, India
9. Katarniaghat Wildlife Sanctuary, India
10. Dudhwa National Park, India
11. Kishanpur Wildlife Sanctuary, India
12. Corbett National Park, India
13. Rajaji National Park, India

14. Pilibhit Tiger Reserve, India

Source: [Mongabay](https://www.mongabay.com)

CHENAB BRIDGE

Context: Prime Minister Modi will inaugurate the Chenab Bridge, the worlds highest single arch railway Bridge.

Background:

- Approved in 2003 and contracted in 2008, after much worries over its safety and stability, the single-arch bridge over River Chenab in J&K passed all its mandatory tests and is set to mark India on the railroad history after two decades of waiting.

About Chenab bridge

- **The Bridge spans the Chenab River** and has a total length of 1315 m
- The arch bridge runs **between Bakkal and Kauri in the Reasi district of Jammu and Kashmir**, and forms a crucial link from Katra to Banihal.
- It stands at the height of 1,178 feet above the riverbed, making it 35 metres taller than Paris' tourist icon, the Eiffel Tower.
- The bridge is **part of the Rs 35000 crore Udhampur-Srinagar-Baramulla Railway Link (USBRL)** project which aims to boost connectivity in Jammu and Kashmir by providing connectivity in complex topography and weather conditions.

Source: [The Indian Express](#)

LEBANON

Context: The Israeli military said its air force on Monday struck targets of the militant Hezbollah group "deep inside Lebanon".

Background:

- The strikes are among the deepest into Lebanon since the Israel-Hamas war began more than four months ago. They come a day after Israel's Defense Minister vowed to step up attacks on Hezbollah even if a cease-fire is reached with Hamas in the Gaza Strip.



About Lebanon:

- It is bordered by Syria to the north and east, by Israel to the south, and by the Mediterranean Sea to the west.
- Lebanon's capital and largest city is Beirut, followed by Tripoli and Jounieh.
- **Lebanon is a founding member of the United Nations and of the Arab League and is a member of the Non-Aligned Movement and the Organization of Islamic Cooperation.**
- The border with the Israeli-occupied Golan Heights is disputed by Lebanon in a small area called Shebaa Farms.

Source: [Associated Press](#)

SEAWEED CULTIVATION

Context: Recently, the **first National Conference on the Promotion of Seaweed Cultivation** took place at Koteswar, Kutch in Gujarat.

Background:-

- It was chaired by Union Minister of Fisheries, Animal Husbandry & Dairying, Shri Parshottam Rupala .
- **Objective:** implementing seaweed cultivation on a pan-India basis, emphasizing the promotion of

seaweed cultivation to diversify marine production and enhance fish farmer income.

About of Seaweed Cultivation:-

- Seaweed is the name given to the many species of **marine algae and plants**, grow in water bodies such as **rivers, seas and oceans and grow in the shallow waters in the tidal zone**.
- Some are **microscopic**, such as the **phytoplankton** that live suspended in the water column.
- Seaweed is **full of vitamins, minerals, & fibre** and contain **anti-inflammatory & anti-microbial agents**. They are known to process **significant medicinal effects**.
- Certain seaweeds possess powerful **cancer-fighting agents**.
- They are used in **organic cosmetics & skin-care products**.
- **Seaweed Farming**: It is the practice of **cultivating and harvesting seaweed**.
- Found: **Tamil Nadu and Gujarat** coasts and **Lakshadweep and Andaman & Nicobar Islands**.

Government Initiatives:-

- **Seaweed Mission**: aims to commercialize seaweed farming and processing for value addition.
- The Indian Council of Agricultural Research(ICAR)- Central Marine Fisheries Research Institute (CMFRI) has successfully **commercialized two seaweed-based nutraceutical products**, Cadalmin™ Immunalgin extract (Cadalmin™ IMe) and Cadalmin™ Antihypercholesterolemic extract (Cadalmin™ ACe).
- **Multi-Purpose Seaweed Park** in Tamil Nadu.

MUST READ: [Seaweeds Mission launched for commercial farming of seaweeds](#)

SOURCE: [ICAR](#)

SODA LAKE

Context: Recently, Scientists have discovered that a shallow "**soda lake**" in western Canada.

Background:-

- It could be a good match for Darwin's "warm little ponds" where life got started on the primordial Earth.

About Soda Lake:-

- It is a lake with a pH value usually **between 9 and 11**.
- A soda lake or **alkaline lake** is a lake on the strongly alkaline side of neutrality, typically with a **pH value between 9 and 12**.
- High carbonate concentration, especially sodium carbonate, is responsible for the **alkalinity of the water**.
- These are the **most productive aquatic environments** on Earth because of the availability of dissolved carbon dioxide. They occur naturally in both **arid and semi-arid areas**.
- These are dominated by prokaryotes like **bacteria and archaea**, especially in lakes with higher levels of alkalinity.

MUST READ: [Chilka lake](#)

SOURCE: [SCIENCE DAILY](#)

MEKONG RIVER

Context: Recently, Dam project across **Mekong River** in Laos raised fears.

Background:-

- Once completed, the project is expected to displace more than 500 families and impact 20 villages.

About Mekong River:-



IMAGE SOURCE: [Britannica](#)

- Mekong River is a transboundary river in **East Asia and Southeast Asia**.
- It is the world's **twelfth-longest and third-longest in Asia**.
- From the **Tibetan Plateau** the river runs through **China, Myanmar, Laos, Thailand, Cambodia, and Vietnam**.
- The extreme seasonal variations in flow and the presence of rapids and waterfalls in the Mekong make **navigation difficult**.

MUST READ: [Lancang-Mekong Cooperation](#)

SOURCE: [THE HINDU](#)



Environment and Ecology



DROUGHT IN THE AMAZON RAINFOREST

Context: The Amazon Rainforest, often referred to as the "lungs of the earth," is currently facing an unprecedented and severe drought.

Background:

- The Amazon, the world's largest rainforest, is regarded by scientists as a bulwark against climate change because its dense vegetation absorbs carbon and emits oxygen.

About Amazon Rainforest

- These are **large tropical rainforests** occupying the drainage basin of the **Amazon River** and its tributaries in northern South America and **covering an area of 6,000,000 square km**.
- The Amazon Basin supports the world's largest rainforest, which accounts for more than half the total volume of rainforests in the world.
- It is bounded by the Guiana Highlands to the north, the Andes Mountains to the west, the Brazilian Central Plateau to the south, and the Atlantic Ocean to the east.

Factors responsible for drought in the Amazon rainforest:

- **The El Niño phenomenon** is identified as one of the key drivers of drought in the Amazon. It results in abnormal warming of the surface waters of the Pacific Ocean, which subsequently affects rainfall patterns. In the Amazon region, El Niño leads to decreased humidity and reduced rainfall, exacerbating drought conditions.
- Weather phenomenon like is the **high water temperatures in the Northern Tropical Atlantic Ocean**. Due to warmer ocean waters, heated air rises into the atmosphere, which then reaches the Amazon rainforest. The warm air inhibits the formation of clouds, causing rainfall to drop sharply.
- **Human-induced climate change** is making the situation worse.
- **Unregulated mining activity** in the region contributes to the problem by creating land banks that impede river navigation.
- The construction and operation of **hydroelectric dams in the Amazon**, particularly on the Madeira River, a major tributary of the Amazon contribute to drought scenarios.

Source: [Reuters](#)

STATE OF THE WORLD'S MIGRATORY SPECIES REPORT

Context: First-ever State of the World's Migratory Species report, launched recently by the Convention on the Conservation of Migratory Species of Wild Animals (CMS).

Background:

- The Convention on the CMS of Wild Animals, CMS is an **intergovernmental treaty** under the aegis of the United Nations Environment Programme (UNEP).

About Convention on the Conservation of Migratory Species of Wild Animals (CMS):

- The Convention on the CMS, also known as the **Bonn Convention**, is an international agreement that aims to **conserve migratory species** throughout their ranges.
- CMS was signed in Bonn, Germany in 1979, and entered into force on 1 November 1983.
- It provides a global platform for the conservation and sustainable use of terrestrial, aquatic and avian migratory animals and their habitats.
- CMS currently has 133 Parties and covers 583 migratory species.
- India is a party to the Convention on Migratory Species (CMS) since 1983. India hosted the 13th Conference of the Parties (COP) to CMS in February 2020 in Gandhinagar, Gujarat.
- The latest CMS convention, also known as the 14th Conference of the Parties (COP14) to the Convention on the Conservation of Migratory Species of Wild Animals (CMS), was held in Samarkand, Uzbekistan from February 10 to 15, 2024.

Key findings of the World's Migratory Species report:

- Nearly half (44 per cent) of CMS-listed species are showing population declines, and more than one-in-five (22 per cent) are threatened with extinction. The extinction risk is growing for migratory species globally, including those not listed under CMS.
- The two greatest threats to both CMS-listed and all migratory species are overexploitation and habitat loss due to human activity. Half (51 per cent) of Key Biodiversity Areas identified as important for CMS-listed migratory animals do not have protected status, and 58 per cent of the monitored sites recognized as being important for CMS-listed species are experiencing unsustainable levels of human-caused pressure. Globally, 399 migratory species that are threatened or near threatened with extinction are not currently listed under CMS.

Source: [Forbes India](#)

ACID RAIN

Context: As 2023 was regarded as one of the worst in terms of environmental damages, multiple associated issues have come to discussion.

Background:

- **Acid Rain is a complex environmental issue** with multiple causes and widespread consequences, and it has its origins in fossil fuels.

About Acid Rain:

- Acid rain or acid deposition is a broad term that includes any form of precipitation with acidic components, such as sulfuric or nitric acid that fall to the ground from the atmosphere in wet or dry forms. This can include rain, snow, fog, hail, or even dust that is acidic.

Formation of acid rain:

- When **SO₂ (Sulphur Dioxide)** and **NO_x (Nitrogen Oxide)** combine with water and oxygen in the atmosphere, they form sulfuric acid (**H₂SO₄**) and nitric acid (**HNO₃**), respectively.
- These acids then dissolve in water droplets, leading to the creation of acid rain, snow, or fog.

Causes of acid rain:

- **Burning of fossil fuels, particularly those containing sulfur**, releases sulfur dioxide (SO₂) and, at higher temperatures, nitrogen oxides (NO_x).
- **Volcanic eruptions and lightning** contribute to the presence of sulphur dioxide and nitrogen oxides in the atmosphere.
- In the atmosphere, the pollutants SO₂ and NO_x undergo chemical reactions, forming sulfuric and nitric acids. When combined with water vapor, they create acid rain during precipitation.

Consequences/impacts of acid rain:

- Can make water bodies, such as rivers and lakes, inhospitable to certain species of aquatic life as the increased acidity **disrupts their reproductive patterns** and can lead to fish population decline in affected rivers and lakes.
- The increased acidity **alters the pH of marine environments**, adversely impacting the distribution and survival of various organisms.
- **Shell-forming marine species**, like molluscs and certain types of plankton, face particular challenges as acidification interferes with their ability to build and maintain protective shells.
- Acid rain poses **substantial threats to physical structures** and monuments, causing deterioration and discoloration. Notable examples include the Taj Mahal, whose iconic white marble has been affected, exhibiting a yellowish hue due to sulfuric acid reactions.

Source: [EPA](#)

BUXA TIGER RESERVE

Context: An adult male tiger was recently recorded on a camera trap in Buxa Tiger Reserve in north Bengal after 23 years.

Background:

- There was no direct evidence confirming tiger presence in the reserve since 1998. Ecosystem restoration activities in the Buxa Tiger Reserve, including grassland management, helped bring the tiger back to the protected area, experts say.

About Buxa Tiger Reserve:

- **Tiger Reserves are governed by the National Tiger Conservation Authority (NTCA)** under the Project Tiger scheme, which was launched in 1973.
- **Buxa Tiger Reserve** is a tiger reserve and national park in northern West Bengal, India.
- It is home to a **rich diversity of flora and fauna**, including tigers, elephants, leopards, gaurs, and many bird species.
- It is named after the historic Buxa Fort, which was used as a prison and detention camp by the British during the Indian freedom movement.
- It also serves as an **international corridor for elephant migration between India and Bhutan**.

About NTCA (National Tiger Conservation Authority):

- The NTCA is a **statutory body under the Ministry of Environment, Forests and Climate Change**.
- It was constituted under the **Wildlife (Protection) Act, 1972**, as amended in 2006.
- The NTCA is tasked with the management of Project Tiger and the Tiger Reserves in India.
- The NTCA was established in December 2005 following the recommendation of the Tiger Task Force, which was constituted by the Prime Minister of India to review the status of tigers in the country.
- The **chairman of NTCA is the Minister for Environment, Forest and Climate Change**.

Source: [Mongabay](https://www.mongabay.com)

CENTRAL ASIAN FLYWAY (CAF)

Context: The Fourteenth Meeting of the Conference of the Parties to the Convention on the Conservation of Migratory Species of Wild Animals (CMS COP 14) adopted the Initiative for the Central Asian Flyway introduced by India on February 17, 2024.

Background:

- The CMS holds a **Conference of the Parties (COP) every three years**, where the member states review the progress and adopt new measures for the conservation of migratory species. The 14th COP was held in Samarkand, Uzbekistan, in February 2024, and it was the first UN wildlife meeting in Central Asia.

About Partial Nuclear Test Ban Treaty

- The CAF initiative is a conservation project led by India under the umbrella of CMS, which is an international treaty that aims to protect and conserve migratory animals and their habitats.
- The initiative aims to **promote the conservation and sustainable use of migratory waterbirds** and their habitats, as well as to enhance cooperation and coordination among the range states and other stakeholders.
- The **CAF is a flyway covering a large continental area of Eurasia between the Arctic Ocean and the Indian Ocean and the associated island chains**.
- The CAF covers 30 countries and at least 279 migratory waterbird populations of 182 species, including 29 globally threatened or near-threatened species.
- The **Central Asian Flyway consists of the following countries:** Afghanistan, Armenia, Azerbaijan,

Bahrain, Bangladesh, Bhutan, China, Georgia, India, Iran, Iraq, Kazakhstan, Kuwait, Kyrgyzstan, the Maldives, Mongolia, Myanmar, Nepal, Oman, Pakistan, Qatar, Russian Federation, Saudi Arabia, Sri Lanka, Tajikistan, Turkmenistan, United Arab Emirates, United Kingdom (British Indian Ocean Territory), Uzbekistan and Yemen.

Source: [Down to Earth](#)

KAZIRANGA NATIONAL PARK

Context: The National Board for Wildlife (NBWL) has approved an elevated road over nine corridors used by the animals of Kaziranga National Park and Tiger Reserve, usually during heavy floods.

Background:

- In the heart of Assam, this park is one of the last areas in eastern India undisturbed by a human presence.

About Kaziranga National Park

- It is a prestigious national park of India situated in the northeastern part of the country in the district of **Golaghat and Nagoan in the state of Assam**, on the banks of the river Brahmaputra. The Diphlu River runs through it.
- It was declared a **National Park in 1974**. It was declared a **tiger reserve in 2007**.
- It was declared a **World Heritage Site by UNESCO** for its unique natural environment in the year of 1985.
- The park has been identified as an **Important Bird Area by the Birdlife International Society** as it is home to various species of migrating and inhabitant birds.
- Its known for the '**big 4**' species : Rhino, Elephant, Royal Bengal tiger, and Asiatic water buffalo.
- The landscape is marked by: Tropical moist mixed deciduous forests and tropical semi-evergreen forests, tall grasses, open jungle, and short grasses .

Source: [The Hindu](#)

NATIONAL GREEN HYDROGEN MISSION

Context: The Green Hydrogen R&D Scheme has recently launched by the Union Minister for Power and New & Renewable Energy.

Background:

- The R&D projects under the National Green Hydrogen Mission encompass Mission Mode projects (0 – 5 years), Grand Challenge projects (0 – 8 years), and Blue-Sky projects (0 – 15 years). Additionally, Centres of Excellence will be identified and supported under the mission, with an initial focus on Mission Mode projects.

About Green Hydrogen

- Its a form of hydrogen that is **produced using renewable energy sources**, such as wind or solar power.

- It is produced by the **electrolysis of water**, which involves passing an electric current through water to split it into hydrogen and oxygen. This process results in a clean and climate-neutral fuel.
- Aim: making India a global hub for the production, usage, and export of green hydrogen.

Key Aspects of the Mission

- **Objective:** The mission's overarching goal is to decarbonize the economy, reduce dependence on fossil fuel imports, and enable India to assume technology and market leadership in green hydrogen.
- **Production and Export Goals:** The mission aims to build capabilities to produce at least 5 million metric tonnes (MMT) of green hydrogen per annum by 2030, with the potential to reach 10 MMT per annum with the growth of export markets.
- **Strategic Interventions for Green Hydrogen Transition (SIGHT):** In the initial stage, two distinct financial incentive mechanisms are proposed with an outlay of ₹ 17,490 crore up to 2029-30: Incentive for manufacturing of electrolyzers and incentive for production of green hydrogen.
- **Pilot Projects:** includes projects in areas like low carbon steel, mobility, and shipping.
- **Green Hydrogen Hubs:** identify and develop regions capable of supporting large scale production and/or utilization of hydrogen as Green Hydrogen Hubs.
- **Public-Private Partnership for R&D:** The mission establishes the **Strategic Hydrogen Innovation Partnership (SHIP)**, which involves creating a dedicated R&D fund with contributions from industry and government institutions
- **Enabling Policy Framework:** Various policy provisions will be extended for Green Hydrogen projects, including waiver of interstate transmission charges for renewable energy used for Green Hydrogen production, facilitating renewable energy banking, and time-bound grant of Open Access and connectivity.

Applications of Green hydrogen

- **Energy Storage:** Green hydrogen can be stored and used to generate electricity when needed, making it a potential solution for storing excess energy from renewable sources.
- **Fuel for Transportation:** Green hydrogen can be used as a fuel in vehicles, providing a sustainable mobility alternative.
- **Industrial Processes:** Green hydrogen can replace current hydrogen feedstocks in various industrial processes.
- **Decarbonization of Heavy Industries:** Green hydrogen can help decarbonize sectors such as shipping and transportation, as well as manufacturing industries.

Source: [The Hindu](#)

EUROPEAN UNION'S CARBON BORDER ADJUSTMENT MECHANISM (CBAM)

Context: According to a recent study by the **Asian Development Bank (ADB)**, the **European Union's (EU) forthcoming Carbon Border Adjustment Mechanism (CBAM)** is anticipated to yield only marginal reductions in global carbon emissions while modestly affecting trade flows, particularly in Asia and the Pacific.

Background:

- The European Union's (EU) Carbon Border Adjustment Mechanism (CBAM) is a significant initiative aimed at addressing climate change on a global scale.

About CARBON BORDER ADJUSTMENT MECHANISM (CBAM)

- It's a tool designed to **put a fair price on the carbon emitted during the production of carbon-intensive goods that are entering the EU**. Mechanism is compatible with WTO rules.
- Aim: encourage cleaner industrial production in non-EU countries by ensuring that the carbon price of imports is equivalent to the carbon price of domestic production. Also, to equalize the price of carbon between domestic and imported products in the affected sectors.
- CBAM will apply in its definitive regime from 2026, while the current transitional phase lasts between 2023 and 2026.

Definitive Regime (from 2026):

- EU importers of goods covered by CBAM will register with national authorities.
- They will **buy CBAM certificates**, with prices calculated based on the weekly average auction price of EU ETS allowances (expressed in €/tonne of CO₂ emitted).
- Importers will declare the emissions embedded in their imports and surrender the corresponding number of certificates annually.
- If importers can prove that a carbon price has already been paid during the production of the imported goods, the corresponding amount can be deducted.

Transitional Phase (2023 – 2026):

- CBAM initially applies to imports of certain goods and selected precursors with carbon-intensive production processes.
- These goods include cement, iron and steel, aluminium, fertilisers, electricity, and hydrogen.
- The objective during this period is to serve as a pilot and learning phase for all stakeholders.
- **Impact on India:** The CBAM could have significant impacts on India, particularly in sectors such as steel, cement, fertilizers, hydrocarbons, electricity, and aluminum.

Key Points:

- **Increased Export Duties:** The CBAM will allow the EU to charge tariffs on carbon-intensive imports from 2026. This could translate into a 20-35% tax on steel, aluminum, and cement imports into the EU.
- **Impact on Trade:** Despite India's lower per capita emissions, the CBAM may result in lower demand for Indian exports, leading to trade diversion from India. This could disrupt businesses until the Indian industry reduces carbon emissions and improves technology.
- **Disclosure of Carbon Emissions:** Indian companies in sectors such as steel, cement, fertilizer, aluminum, and hydrocarbon production will be required to disclose their carbon emissions data to the EU.
- **Financial Impact:** In particular, exports of steel and aluminum from India could be impacted to the tune of around US \$8 billion

LAUGHING GULL

Context: Recently, in a first in the country, a **laughing gull** from North America was spotted at Chittari estuary in Kasaragod.

Background:-

- The bird is known for its unique laughter-like calls and has travelled thousands of kilometres to reach the southern State.

About Laughing Gull:-

- These are **coastal species** and are only occasionally seen very far inland.
- Found on: **Atlantic coast of North America, the Caribbean, and northern South America.**
- During the breeding season, **adults have a black head, dark grey wings,** and a reddish bill.
- Non-breeding adults and juveniles have a **mottled brownish-grey appearance.**
- **Black or dark hood** during breeding, and a long, slender, slightly drooping bill.
- **Conservation Status:- IUCN: Least Concern**

MUST READ:[Animal Welfare Board of India \(AWBI\)](#)

SOURCE:[THE HINDU](#)

NILGIRI BIOSPHERE RESERVE (NBR)

Context: Recently, a survey was conducted in **Nilgiri Biosphere Reserve (NBR).**

Background:-

- More than 300 vultures were recorded in the recently completed synchronous vulture survey.

About Nilgiri Biosphere Reserve (NBR):-

- Was the **first biosphere reserve** in India **established in the year 1986.** It is located in the [Western Ghats](#). The Nilgiri Biosphere Reserve encompasses parts of **Tamil Nadu, Kerala and Karnataka.**
- The annual rainfall of the reserve ranges from **500 mm to 7000 mm.**
- **Vegetation:** dry scrub to evergreen forests and swamps thus contributing to the highest biodiversity.
- **Flora:** Adenoon, Calacanthus, Baeolepis, Frerea, Jarodina, Wagatea, Poeciloneuron, etc.
- **Fauna:** Nilgiritahr, Nilgiri langur, slender loris, blackbuck, tiger, gaur, Indian elephant and marten are some of the animals found here.

MUST READ:[Tiger Estimation](#)

SOURCE:[THE HINDU](#)

HYBRID VEHICLES

Context: Recent research by HSBC show that the overall carbon emissions are lower in **hybrid vehicles** compared to electrics.

Background:-

India's electric mobility plan is currently focused on battery electrics.

About Hybrid vehicles:-

- A HEV uses an internal combustion engine (ICE) (a petrol/diesel engine) and **one or more electric motors to run**.
- There are **different types of hybrid systems**, but the most common ones include:
 - **Parallel hybrids**: both the engine and electric motor can power the vehicle independently and
 - **Series hybrids**: only the electric motor drives the wheels, while the engine generates electricity.

Advantages:-

- **Fuel efficiency**: The design of hybrid vehicles for reduced engine size and car weight as compared to ICE vehicles, translates into increased mileage.
- **Minimum emissions**: Better fuel efficiency means less carbon footprint of these vehicles, thus helping move towards the goals set out in Paris Climate Accord.
- To ensure a **positive growth rate towards achieving India's Net Zero Emissions by 2070**, a transportation revolution is required in India. The transition to electric mobility is a promising global strategy for decarbonising the transport sector.

Challenges associated with electric vehicles in India:

- High initial cost, Limited charging infrastructure, Limited domestic manufacturing capabilities, Lack of awareness, Limited Government initiatives

Government Initiatives to Promote EV Adoption:-

- Faster Adoption and Manufacturing of Electric Vehicles (FAME) Scheme II
- National Electric Mobility Mission Plan (NEMMP)
- National Mission on Transformative Mobility and Battery Storage
- Go Electric campaign
- Production Linked Incentive (PLI) scheme:
- Incentives for the manufacturing of EVs and components

MUST READ: [Flex-Fuel Vehicles](#)

SOURCE: [THE INDIAN EXPRESS](#)

SPHAEROTHECA VARSHAABH

Context: Recently, a new species of burrowing frog, **Sphaerotheca varshaabhu**, has been discovered in Bengaluru.

Background:-

- Researchers from various national and international organizations have identified and documented a previously unknown species of frog which has been thriving amidst the urban landscape of Bengaluru.

About Sphaerotheca varshaabh:-

- It means a **genus of frog which welcomes rain**. It is **named after its behaviour** of coming out of burrows during early showers, indicating its adaptation to urban surroundings.
- It **exhibits distinctive characteristics** that set it apart from known frog species.
- Amphibians, like frogs, toads and salamanders, are known as **indicator species**.

MUST READ:[Invasive Species](#)

SOURCE:[DECCAN HERALD](#)

INDIAN GRAY WOLF

Context: Recently, the **Indian grey wolf** was sighted in the confines of the National Chambal Sanctuary (NCS).

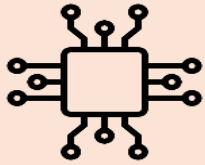
Background:- The National Chambal Sanctuary (NCS) is in Uttar Pradesh.

About Indian Gray Wolf:-

- It has a wide distribution range that extends from the Indian subcontinent to Israel. There are about 3,000 animals in India, some in captivity.
- It is a **subspecies of grey wolf** found from **Southwest Asia to the Indian Subcontinent**.
- Its size is in the **middle between the Himalayan and Arabian wolves**, but because it inhabits warmer climates, it lacks the latter's plush winter coat.
- It is **intermediate in size between the Tibetan and Arabian wolf**. They are **nocturnal and hunt from dusk to dawn**.
- The Indian wolf inhabits areas dominated by **scrub, grasslands and semi-arid pastoral agro-ecosystems**. ([Blackbuck](#))
- **Conservation Status:-**
 - IUCN: Least Concern
 - Wildlife (Protection) Act of 1972: Schedule I
 - CITES: Appendix 1

MUST READ:[Endangered Species in news: Hornbills](#)

SOURCE:[TIMES OF INDIA](#)



SCIENCE & TECHNOLOGY



KYASANUR FOREST DISEASE (KFD)

Context: Since January 1 this year, two people have died due to Kyasanur Forest Disease (KFD), a viral infection, in Karnataka.

Background:

- According to the health department, the first fatality due to monkey fever was reported in Shivamogga district on 8 January wherein an 18-year-old succumbed to the virus. The second fatality was reported at Manipal in Udupi district when a 79-year-old man died in a private hospital.

About Kyasanur Forest Disease (KFD)

- KFD also known as **monkey fever**, is a tick-borne viral haemorrhagic fever endemic to the southwestern part of India.
- It's caused by the **Kyasanur Forest disease virus (KFDV)**, a member of the Flaviviridae virus family.
- **Reservoir: Hard ticks (*Haemaphysalis spinigera*)** serve as the reservoir for KFDV. Once infected, ticks remain carriers for life.
- **Hosts:** Rodents, shrews, and monkeys become common hosts for KFDV after being bitten by an infected tick.
- **Human Transmission:** Humans can contract KFD through tick bites or contact with infected animals.
- Historically, KFD has been limited to the western and central districts of Karnataka State, India.
- There is no specific treatment for KFD, but early hospitalization and supportive therapy is important. A vaccine exists for KFD and is used in endemic areas of India

MUST READ: <https://www.cdc.gov/vhf/kyasanur/pdf/factsheet.pdf>

SOURCE: The Hindu

HIGH-ALTITUDE PSEUDO SATELLITE VEHICLE (HAPS)

Context: THE **National Aerospace Laboratories (NAL)** in Bengaluru has successfully completed the first test of a solar-powered "pseudo satellite", a new age unmanned aerial vehicle (UAV)

Background:

- HAPS is a still-developing technology, and the successful test flight last week puts India among a very small group of countries currently experimenting with this technology.

About HAPS:

- It can **fly at altitudes of 18-20 km from the ground**, almost double the heights attained by commercial airplanes.
- Due to its ability to generate solar power, it can remain in air for months, even years, offering it advantages of a satellite.
- It **does not require a rocket to get into space**, the cost of operating HAPS is several times lower

than that of a satellite that is usually placed at least 200 km from the earth.

Need of HAPS

- Need for development of high-endurance, high-altitude flying instruments arose from the desire to have continuous surveillance of border areas, particularly in the wake of the Doklam standoff.
- Satellites placed in LEO and meant to observe the Earth usually move in their orbits and are not watching constantly.

Current State of Indias HAPS

- The test flight saw the scaled-down 23-kg prototype with a wing-span of about 12 metres, remain in air for about eight and a half hours, achieving an altitude of about 3 km.
- NAL will only develop the technology and a prototype.

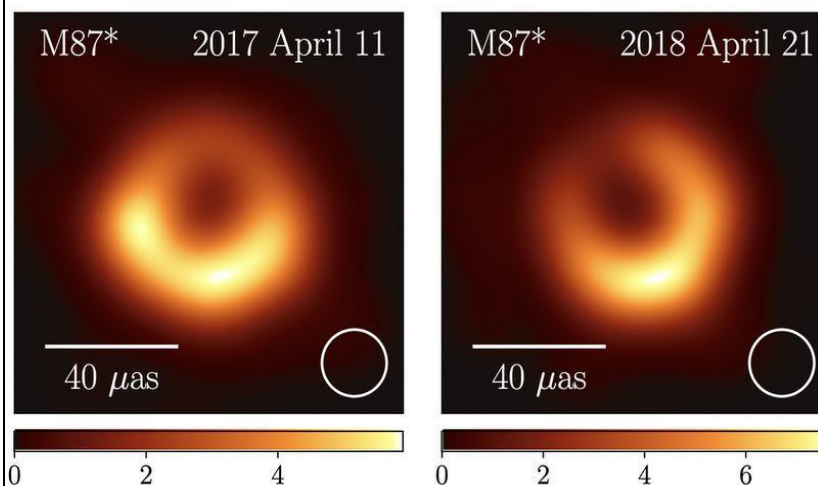
Source: [The Indian Express](#)

EVENT HORIZON TELESCOPE (EHT)

Context: Scientists have unveiled new details of a colossal black hole 53 million lightyears away first photographed by the earth-wide Event Horizon Telescope (EHT) in 2017.

Background:

- The image of blackhole captured with the help of EHT was hailed at the time as a matter of “astonishment and wonder” for revealing “a part of the universe that was off limits”. In the image, a central dark region is encapsulated by a ring of light that looks brighter on one side. The massive galaxy, called Messier 87 or M87, is near the Virgo galaxy cluster 55 million light-years from Earth. The super-massive black hole has a mass that is 6.5 billion times that of our sun.



About EHT:

- The EHT is not a single telescope but a worldwide network of radio telescopes that work together to study a common object in space.
- EHT benefit from a technique called very-long baseline interferometry, where the data each telescope collects about the object is correlated with data from the others using extremely precise clocks.

About black hole

- A black hole is a place in space where gravity pulls so much that even light cannot get out. The gravity is so strong because matter has been squeezed into a tiny space. This can happen when a

star is dying.

- Space telescopes with special tools can help find black holes. The special tools can see how stars that are very close to black holes act differently than other stars.

Source: [The Hindu](#)

OPENAI LAUNCHES SORA

Context: OpenAI, the creator of the revolutionary chatbot ChatGPT, has unveiled a new generative artificial intelligence (GenAI) model that can convert a text prompt into video called Sora.

Background:-

- **Generative artificial intelligence (AI) describes algorithms (such as ChatGPT)** that can be used to create new content, including audio, code, images, text, simulations, and videos. The recent buzz around generative AI has been driven by the simplicity of new user interfaces for creating high-quality text, graphics and videos in a matter of seconds.

About Sora:-

- Sora is a generative **AI model designed by Open AI (makers of chatGPT)** that can convert a text prompt into video.
- While generation of images and textual responses to prompts on GenAI platforms have become significantly better in the last few years, text-to-video was an area that had largely lagged, owing to its added complexity of analysing moving objects in a three-dimensional space.
- Other companies apart from Open AI too have ventured into the text-to-video space. Google's Lumiere, which was announced last month, can create five-second videos on a given prompt, both text- and image-based.
- Other companies like Runway and Pika have also shown impressive text-to-video models of their own.
- **Open AI has said that it will take some "safety steps" ahead of making Sora available in OpenAI's products, and will work with red teamers — domain experts in areas like misinformation, hateful content, and bias — who will be "adversarially" testing the model.**

Source: [Indian Express](#)

PARTIAL NUCLEAR TEST BAN TREATY (PTBT)

Context: Multiple reports coming in this week said that Russia is making advances in space-based nuclear weapons that are aimed at destroying other satellites, both civilian and military.

Background:

- If Russia were to develop and deploy such a weapon, it would be in violation of Outer Space Treaty as well as the Partial Nuclear Test Ban Treaty of 1963 that prohibits nuclear explosions in space. Russia is party to both treaties.

About Partial Nuclear Test Ban Treaty

- The PTBT of 1963 was an **international treaty that prohibited nuclear weapons tests** in the atmosphere, in outer space, and under water.
- **The treaty was signed in 1963 by the United States, the Soviet Union, and the United Kingdom,**

and it has 126 parties as of 2024.

- The treaty aimed to reduce the radioactive fallout from nuclear tests and to prevent the escalation of the nuclear arms race.
- However, the treaty did not ban underground nuclear tests, which continued to be conducted by the nuclear powers and other countries.

India's stand

- **India is not a party to the PTBT**, as it refused to sign the treaty on the grounds that it discriminated against non-nuclear weapon states and did not address the issue of nuclear disarmament
- **India also refused to sign the Comprehensive Nuclear-Test-Ban Treaty (CTBT)**, which is a successor to the PTBT that bans all nuclear explosions, including underground tests, for both civilian and military purposes.
- **India argued that the CTBT was not universal, verifiable, or non-discriminatory**, and that it did not address the security concerns of India in a nuclearized region. India also maintained that it had a sovereign right to conduct nuclear tests for its national security and that it would not join any treaty that constrained its nuclear options.

Source: [U N](#)

CERVICAL CANCER

Context: Experts have raised the need to conduct more screening test to detect cervical cancer among women along with vaccine drive for girls.

Background:-

- Union Finance Minister Nirmala Sitharaman announced during the presentation of the interim Budget that the government plans to encourage vaccination against cervical cancer for girls aged nine to 14.

About Cervical Cancer :-

- **Cervical cancer is a growth of cells that starts in the cervix. The cervix is the lower part of the uterus that connects to the vagina.**
- Various strains of the **human papillomavirus, also called HPV**, play a role in causing most cervical cancers. HPV is a common infection that's passed through sexual contact.
- When exposed to HPV, the body's immune system typically prevents the virus from doing harm. In a small percentage of people, however, the virus survives for years. This contributes to the process that causes some cervical cells to become cancer cells.
- It is the **second leading cause of cancer-related deaths among women in India** (over 77,000 annually), and is estimated to be the **second most frequent cancer among Indian women** between 15 and 44 years.
- VIA (visual inspection with acetic acid) and VILI (visual inspection using Lugol's iodine) are the **Screening test recommended for cervical cancer**

Source: [The Hindu](#)

VAIBHAV SCHEME

Context: 75 Indian Diaspora Scientists to return to India under Government's Vaibhav Scheme.

Background:

- The first group of 22 fellows has already been chosen to the scheme meant to attract Indian-origin scientists based abroad for short-term collaboration with Indian institutions. Twenty-two scientists, mostly based at North American and European institutes including the California Institute of Technology, the University of Oxford, the University of Michigan, the University of Geneva, the University of Waterloo, Canada, and the University of Oslo, will spend anywhere from a month or two annually, for a maximum of three years, at host Indian institutes.

About VAIBHAV (Vaishwik Bhartiya Vaigyanik):

- **The Fellowship program is implemented by the Department of Science & Technology, Ministry of Science and Technology, Government of India.**
- Foster collaboration between scientists of the Indian Diaspora and Indian Higher Educational Institutions (HEIs), Universities, and/or Public Funded Scientific Institutions.

Key Features:

- **Knowledge Verticals:** The program focuses on 18 identified knowledge verticals, including quantum technology, health, pharmaceuticals, electronics, agriculture, energy, computer sciences, and material sciences, among others.
- **Eligibility:** The fellowship is open to outstanding scientists and technologists of Indian origin (Non-resident Indians (NRI)/ Persons of Indian Origin (PIO) / Overseas Citizen of India (OCI)) who are actively engaged in research activities in their respective countries.
- **Collaboration Duration:** Selected fellows may spend up to two months per year, for a maximum of three years, at an Indian institution of their choice.
- **Fellowship Grant:** VAIBHAV fellows will receive a monthly fellowship grant of INR 4,00,000, which will support their research activities during the collaboration period.
- **Travel, Accommodation, and Contingencies:** The fellowship will cover international and domestic travel expenses, accommodation, and contingencies.

Source: [The Hindu](#)

TRISOMY

Context: Researchers have reported chromosomal disorders discovered from prehistoric skeletal remains, dating up to approximately 5,500 years old — including six cases of Down syndrome and one case of Edwards syndrome.

Background:

- There have only been a few documented cases of Down syndrome in ancient individuals, largely owing to difficulties in identifying genetic disorders without modern techniques for analysing ancient DNA samples

About Trisomy:

- **Chromosomes are the thread like structures in cells that hold genes. Genes carry the instructions needed to make every part of a baby's body.**
- When an egg and sperm join and form an embryo, their chromosomes combine. Each baby gets 23 chromosomes from the mother's egg and 23 chromosomes from the father's sperm -- 46 in total.i.e.humans have 23 pairs of chromosomes.
- Trisomy is a **chromosomal abnormality where an individual has three copies of a particular chromosome instead of the usual two copies.**
- The most common type of trisomy is trisomy 21, also known as Down syndrome. Other common types include trisomy 18 (Edwards syndrome) and trisomy 13 (Patau syndrome).

Source: [The Hindu](#)

GAGANYAAN

Context: Gaganyaan astronaut designates received 'astronaut wings' from PM Modi

Background:-

- Group Captain Prasanth Balakrishnan Nair, Group Captain Ajit Krishnan, Group Captain Angad Pratap and Wing Commander Shubhanshu Shukla – the four Indian Air Force (IAF) pilots are the 'astronaut designates' who have been undergoing training for India's Gaganyaan mission, planned for 2025.Only three of them will eventually go to space as part of the Gaganyaan mission.

About Gaganyaan:-

- Gaganyaan project envisages demonstration of human spaceflight capability by launching crew of 3 members to an orbit of 400 km (low earth orbit) for a 3 days mission and bring them back safely to earth, by landing in Indian sea waters.
- **The Gaganyaan Mission is India's first human space flight programme**
- **India will become only the fourth country to send a human into space after the Soviet Union, the US and China.**
- LVM3 rocket - The well proven and reliable heavy lift launcher of ISRO, is identified as the launch vehicle for Gaganyaan mission. It consists of solid stage, liquid stage and cryogenic stage. All systems in LVM3 launch vehicle are re-configured to meet human rating requirements and christened Human Rated LVM3.
- **HLVM3 consists of Crew Escape System (CES)** powered by a set of quick acting, high burn rate solid motors which ensures that Crew Module along with crew is taken to a safe distance in case of any emergency either at launch pad or during ascent phase.
- **Orbital Module (OM)** that will be Orbiting Earth comprises of Crew Module (CM) and Service Module (SM).
- CM is the habitable space with Earth like environment in space for the crew.

Source: [ISRO](#)

GENIE AI MODEL

Context:Recently, Google DeepMind has introduced Genie, a new AI model

Background:

- Genie is currently not available to the public and only exists as a research model for now.

About GENIE AI MODEL

- **The Foundation:** Genie is a foundational world model trained on videos sourced from the Internet.
- **Generative Capabilities:** It can generate an endless variety of playable (action-controllable) worlds from synthetic images, photographs, and even sketches.
- **Training:** It is the first generative interactive environment that has been trained in an unsupervised manner from unlabelled internet videos.
- **Functionality:** These technical specifications let Genie act in generated environments on a frame-by-frame basis even in the absence of training, labels, or any other domain-specific requirements.
- **Interactivity:** It makes playable environments from a single image prompt. It can be prompted with images it has never seen. This includes real-world photographs, and sketches, allowing people to interact with their imagined virtual worlds.
- This revolutionary generative AI allows anyone, including children, to immerse themselves in generated worlds resembling human-designed environments.
- The standout aspect of Genie is its ability to learn and reproduce controls for in-game characters exclusively from internet videos.

Source: [The Indian Express](#)

NANO DAP

Context: Recently, Finance Minister while presenting the interim budget announced the expansion of the application of **Nano DAP** on various crops in all agro-climatic zones.

About Nano DAP:-

- **Developed by:** Indian Farmers Fertilizer Cooperative Limited (IFFCO).
- Nano-DAP (Di-ammonium Phosphate) is an **advanced agricultural fertilizers**. Developed to **enhance efficiency in nutrient delivery to plants**.
- It is a unique liquid fertilizer product that **contains nanoparticles of Diammonium Phosphate (DAP)**.
- It is a source of **nitrogen and phosphorus** – 2 key primary nutrients essential for the growth of crops.
- It contains **8% Nitrogen and 16% Phosphorus** by volume.
- **Benefits:** Increased Surface Area, Improved Solubility, Targeted Delivery, Reduced Leaching, Enhanced Nutrient

Significance:

- The introduction of **Nano Urea and Nano DAP** is seen as a groundbreaking agricultural experiment, aiming to **reduce urea use and promote natural farming**.

MUST READ: [Reforming the Fertilizer Sector](#)

SOURCE: [THE INDIAN EXPRESS](#)

ORGANOID NEURAL NETWORK

Context: Recently, researchers connected a brain organoid to microelectrodes to create an 'organoid neural network'.

Background:-

- Their invention extends neuromorphic computing – the practice of modelling computers after the human brain to a new level by directly including brain tissue in a computer.

About Organoid neural network / Brainware:-

- It is an innovative **computing system that melds brain-like tissue with electronics**.
- It **integrates brain organoids with microelectrodes**, forming an 'organoid neural network (ONN)' that **directly incorporates living brain tissue into the computing process**.
- Brain organoids are **similar to the brain's cell composition and structure**, and can reflect the brain's developmental process.

Advantages:-

- It has ability to **predict complex mathematical functions** like the Henon map.
- The system could **identify Japanese vowels** pronounced by individuals with a 78% accuracy rate.
- It achieved **comparable accuracy to artificial neural networks** with minimal training.

Challenges:-

- It **necessitates technical expertise and infrastructure**
- The fusion of organoids and AI raises **ethical questions** about consciousness and dignity.

Applications:-

- To **learn faster and be more energy-efficient** than traditional silicon-based machines.
- To **address current limitations in [Artificial intelligence](#)** applications.
- To enable advances in fields such as **medical science and treatment**.

MUST READ: [Deep Brain Stimulation](#)

SOURCE: [THE HINDU](#)

GREEN PROPULSION SYSTEM

Context: Recently, a **Green Propulsion System**, developed under the **Technology Development Fund (TDF) scheme of DRDO**, has successfully demonstrated in-orbit functionality on a payload launched by the PSLV C-58 mission.

Background:-

- ISRO's PSLV-C58 launched an **X-ray Polarimeter Satellite (XPOSAT)** into an Eastward low inclination orbit on 1st January 2024.

About Green Propulsion System:-

- This project - **1N Class Green Mono-propellant** thruster for altitude control and orbit keeping of microsatellites was sanctioned to a **Bengaluru-based start-up Bellatrix Aerospace Pvt Ltd (Development Agency)**.
- Project is carried out by the **Development Agency under the guidance of Project Monitoring & Mentoring Group of DRDO**.
- A propulsion system is a machine that **produces thrust to push an object forward**.
- The system **consists of indigenously developed propellant**, fill and drain valves, latch valve,

solenoid valve, catalyst bed, drive electronics, etc.

- It has **demonstrated pulsed mode and steady-state firing in a vacuum**, passivation of residual propellant in outer space, propellant realization, and establishing of filling procedure under the TDF.
- The **TDF is a flagship programme of Ministry of Defence executed by DRDO** under the '[Make in India](#)' initiative for funding innovation in defence and aerospace, especially to start-ups and MSMEs

MUST READ: [PSLV-C52 Mission](#)

SOURCE: [PIB](#)

HEALTH

SCHEDULE H AND H1

Context: Kerala recently initiated Operation **AMRITH (Antimicrobial Resistance Intervention for Total Health)**. This programme enforces rule mandating a doctor's prescription for acquiring any class of antibiotics.

Background:-

- **Schedule H1** is particularly relevant to prevent misuse of drugs, one of the causes of antimicrobial resistance.

Schedule H and H1

- **The Drugs and cosmetic Act, 1940** was passed in British India to regulate the manufacture, distribution, and sale of drugs in the country. After Indian independence, the Act underwent various amendments from time to time. The act classifies drugs into different schedules.

What are Schedule H Drugs?

- This schedule contains a **list of drugs that can be sold only against the prescription of a registered medical practitioner**. Another provision needs to be followed is that, **only the required amount of medications mentioned** in the prescription can be dispensed. These drugs can be **supplied only to the licensed parties**.
- The drug label must exhibit the **text "Rx" and Schedule H drug warning**: To be sold by retails on the prescription of a Registered Medical Practitioner only.

Why was Schedule H1 Introduced

- A newer category created in 2013 as a **sub-classification of Schedule H**. These drugs are also prescription-only but face **additional regulations compared to Schedule H**. The additional labeling and record-keeping requirements for Schedule H1 aim to enhance control and ensure responsible usage of these medications
- The schedule H1 drugs was **mainly created to restrict the selling of antibiotics through over the counter (OTC) sales**, after it was noted that any number of these drugs could be bought from pharmacies across India without any limitations.
- Irrational prescribing of antibiotics and other drugs by doctors and chemists lacking a registered pharmacist has contributed to the increasing antibiotics resistance and tolerance of psychotropics.
- The **Supply of a drug specified in Schedule H1 shall be recorded in a separate register** and such record shall be maintained for three years and be open for inspection.

Source: [The Hindu](#)



HISTORY AND ART & CULTURE



ARYA SAMAJ

Context: Prime Minister Narendra Modi has underscored the necessity of reforming India's education system, advocating a return to the values of the Vedas, during an event commemorating the 200th birth anniversary of Arya Samaj founder Swami Dayanand Saraswati.

Background:

- **Dayananda Saraswati was born on 12 Feb, 1824 in Tankara, Gujarat, India. He died on 30 Oct, 1883 in Ajmer, Rajasthan, India.**

About Arya Samaj

- It is a **Hindu reform movement** that was founded by **Swami Dayananda Saraswati in 1875.**
- It **promotes the values and practices based on the authority of the Vedas**, the ancient Hindu scriptures.

Significance of Arya Samaj

- It advocated monotheism, the belief in one God and rejected idolatry, polytheism, and superstitions.
- **It opposed caste discrimination, untouchability, child marriage, and the oppression of women.**
- It **supported widow remarriage**, inter-caste marriage, and female education.
- **It established Vedic schools**, colleges, and institutions to impart modern and Vedic education. The **DAV (Dayanand Anglo Vedic) schools** are examples of its educational initiatives.
- It launched **social movements such as Shuddhi (purification) and Sangathan (organisation)** to convert or reconvert people to Hinduism and to unite the Hindus against foreign rule and missionary activities.
- It influenced many freedom fighters and social reformers such as Lala Lajpat Rai, Ram Prasad Bismil, Madan Mohan Malaviya etc

About Swami Dayananda Saraswati

- He also gave the **call for Swaraj, or self-rule, in 1876.**
- He wrote a book called **Satyarth Prakash**, which explains the principles of Arya Samaj and Vedanta.
- Dayananda Saraswati was the one who gave the slogan '**Back to Vedas**'.
- He believed that the Vedas were the source of true knowledge and wisdom, and that they should be followed by all Hindus.

KOTRAVAI SCULPTURE FROM PALLAVA PERIOD UNEARTHED

Context: On February 14, 2024, a team of researchers unveiled a magnificent Kotravai sculpture in Pilrampattu village, Kallakurichi district. This awe-inspiring discovery transports us to the Pallava period, offering an invaluable glimpse into the ancient craftsmanship and spirituality of our forebears.

Background:

- **Kotṛavai also spelled Kotravai or Korravai, is the goddess of war and victory in the Tamil tradition.** She is also the mother goddess and the goddess of fertility, agriculture, and hunters. She is among the earliest documented goddesses in the Tamil Sangam literature. She is depicted as a deity with several arms holding different weapons. She is said to be mother of the Tamil god Murugan.

About Pallavas:

- The **Pallava dynasty existed from 275 CE to 897 CE**, ruling a significant portion of the Deccan, also known as **Tondaimandalam**.
- The Pallavas became a **major southern Indian power during the reign of Mahendravarman I (600–630 CE) and Narasimhavarman I (630–668 CE)**, and dominated the southern Telugu region and the northern parts of the Tamil region for about 600 years, until the end of the 9th century.
- **Kancheepuram served as the capital of the Pallava kingdom.**
- The Pallavas are most noted for their patronage of Hindu temple architecture, the finest example being the Shore Temple, a UNESCO World Heritage Site in Mamallapuram.
- The Kailasanatha temple in Kanchipuram and rock cut temple in Mahendravadi are other examples of the **Pallava style temples**.
- The **Chinese traveller Xuanzang** visited Kanchipuram during Pallava rule and extolled their benign rule.

Source: [The New Indian Express](#)

RUKHMABAI RAUT

Context: A new **book on the life of Rukhmabai**, a child bride who went on to become one of India's pioneering women doctors was released recently

Background:

- The book, written by academic and **writer Sudhir Chandra**, claims to shed new light on the **"extraordinary but little-known life of the rebel-doctor"** who dared to challenge the norms of her time and left behind a formidable legacy.

About Rukhmabai:

- Born in 1864, **Rukhmabai was denied formal education** and wedded off at 11 years of age to the 19-year-old Dadaji Bhikaji. She, however, continued to stay at the house of her widowed mother, who later got married to **Assistant Surgeon Sakharam Arjun Raut**.
- She was supported by her step-father, when she refused to stay with Bhikaji and his family at his house. This led to the **Dadaji Bhikaji vs Rukhmabai case, 1885**.
- In 1885, the case of Bhikaji seeking **"restitution of conjugal rights"** titled **"Bhikaji vs. Rukhmabai, 1885"** came up for hearing and Judge declared that Rukhmabai had been wed in her "helpless infancy" and that he could not compel a young lady.
- Appeal was filed against the judgement. First order was overturned and court ordered Rukhmabai to "go live with her husband or face six months of imprisonment". Rukhmabai responded that she would rather face imprisonment than obey the verdict.

- Ultimately, the publicity and debate generated by this case helped influence the enactment of the "Age of Consent Act" in 1891, which changed the age of consent from 10 to 12 years across British India

Source: [Scroll](#)

MAHAMASTAKABHISHEKA

Context: Nine-day mahamastakabhisheka celebrations begin at Venur in Karnataka

Background:-

- The Mahamastakabhisheka Mahotsava of **Bhagavan Shri Bahubali Swami, the first Mokshagami and son of the first Theerthankara of Jainism**, began with rituals at Venur in Dakshina Kannada district of Karnataka.

About Mahamastakabhisheka

- It refers to the abhisheka (anointment) of the Jain images when held on a large scale.
- The most famous of such consecrations is the anointment of the **located at Shravanabelagola (Hassan district) in Karnataka, India.**
- It is an important Jain festival **held once in every 12 years.**
- Shravanabelagola, Dharmasthala, Karkala, Moodbidri, Venur, Humcha and Narasimharajapura will astonish the visitors by their vast and abundant Jain heritage.

About Bahubali

- After Bahubali won a duel with his half brother for control of the kingdom, he is believed by the Jains to have realized the transience of temporal affairs and renounced the world.
- According to legend, he then stood immobile, with feet straight ahead and arms at his side, meditating for an entire year in the **Yogic position of kayotsarga ("dismissing the body")**. He was so unmindful of the world around him that vines grew undisturbed up his arms and legs and anthills rose around his feet.
- His meditation led him to true victory over human passion and, according to the beliefs of the **Digambara sect of Jainism**, enabled him to become the first human of this kalpa (world age) to gain liberation.

Source: [Brittanica](#)

MEDARAM JATARA OR SAMMAKKA SARALAMMA JATHARA

Context: The Telangana Governor extended her wishes to the tribal communities, lauding the Medaram Jatara as an unparalleled testament to indigenous culture and heritage.

Background:

- Lakhs of pilgrims poured into Medaram, which commemorates a revolt against the levy of taxes on the tribal populace during a period of drought by the Kakatiya rulers in the 12th century

About Medaram Jatara

- It is a tribal festival of honouring the goddesses **celebrated in the state of Telangana, India.** The Jathara **begins at Medaram in Tadvai Mandal in Mulugu district.**
- Medaram is a remote place **in the Eturnagaram Wildlife Sanctuary, a part of Dandakaranya, the**

largest surviving forest belt in the Mulugu.

- It commemorates the fight of a mother and daughter, Sammakka and Saralamma, with the reigning rulers against an unjust law. The **Medaram Jathara festival is held every two years**.
- Sammakka Saralamma Jathara is the time for the **largest tribal religious congregation** in the world, with approximately ten million people converging on the place, over a period of four days.

Source: [The Hindu](#)

KASU BRAHMANANDA REDDY NATIONAL PARK

Context: Hyderabad Nizam's personal petrol pump was found inside KBR National Park

Background:-

- The revelation sheds light on the park's rich history. **Previously under the possession of the Nizam of Hyderabad**, the area was later acquired by the government under the Urban Land Ceiling Act. However, a portion of 2.40 hectares was permitted to be retained by the Nizam.

About Kasu Brahmananda Reddy National Park:-

- It is **located in Jubilee Hills and Banjara Hills** in Hyderabad, Telangana, India.
- Some of the animals in the park include: **pangolin, small Indian civet, peacock, jungle cat and porcupines**.
- It was declared as a National park by the Andhra Pradesh state government after getting approval from the central government in the year 1998.
- Other national parks in Telangana state are **Mahavir Harina Vanasthali National Park and Mrugavani National Park**.

Source: [Wikipedia](#)

MARTAND SUN TEMPLE

Context: Recently, defying ASI Protocols, a Group Of Hindus Storm Into **Martand Sun Temple**, Hoist Saffron Flag & Perform Parikrama.

Background:-

- Defying the staff of the **Archaeological Survey of India**, a group of Hindus forced their entry into the ASI protected Martand Sun Temple in **J&K's Anantnag district** the same day the '**Pran Pratishtha**' took place at the Ram Temple in Ayodhya.

About Martand sun temple:-

- It is also known as **Pandou Laidan** is a Hindu temple dedicated to Surya (the chief solar deity in Hinduism). It was built during the **8th century CE**. It is dedicated to the **Sun God**.
- It was built by **King Lalitaditya Muktapida of the Karkota Dynasty**.
- The temple is a fine example of **Kashmiri architecture** and is renowned for its grandeur and artistic excellence.
- It reflects a **blend of Greek, Roman, Iranian, and Indian** architectural styles.
- It stands in the middle of a large courtyard with **86 fluted columns**.
- The courtyard is connected to the main shrine, where **Sun God's idol was installed**.

MUST READ: [Modhera Sun temple](#)

SOURCE: [FREE PRESS JOURNAL](#)

GRAMMY AWARDS

Context: Recently, the Prime Minister, Shri Narendra Modi, congratulated musicians Ustad Zakir Hussain, Rakesh Chaurasia, Shankar Mahadevan, Selvaganesh V and Ganesh Rajagopalan for winning the **Grammy award**.

Background:-

- He said that their exceptional talent and dedication to music have won hearts worldwide, making India proud.

About Grammy Awards:-

- The Grammy Awards are **presented by the Recording Academy of the US**. The awards are presented **to recognize the works of the music industry**.
- The **first Grammy Awards ceremony** was held on **May 4, 1959**, to honour the musical accomplishments of performers for the year 1958.

Categories:-

- The **"General Field"** are **four awards that are not restricted by genre**: Album of the Year, Record of the Year, Song of the Year, Best New Artist
- Winners are selected **from more than 25 fields**, which cover such genres as pop, rock, rap, R&B, country, reggae, classical, gospel, and jazz, as well as production and postproduction work, including packaging and album notes.
- The honorees receive a **golden statuette of a gramophone**.

MUST READ: [Golden Globes Award](#)

SOURCE: [PIB](#)

BAHMANI KINGDOM

Context: Recently, Karnataka HC asked authorities to remove the encroachments of **Bahmani Sultans'** fort in Kalaburagi.

Background:-

- The High Court bench in Kalaburagi instructed civic authorities to clear 62 houses constructed inside the fort and 114 houses that have emerged in the surroundings of the fort.

About Bahmani Kingdom:-

- The Bahmani Sultanate was a significant **medieval Muslim state in the Deccan region of South India**. It is also known as the **Bahmanid Empire**. It was **established in 1347** and **lasted until 1527**.
- The Bahmani Sultanate was founded by **Hasan Bahman Shah**, a governor appointed by the Delhi Sultanate. He declared independence and established his **capital at Gulbarga**.
- It when it fragmented into five smaller states.
- The Sultanate was administratively divided into **four provinces** (Daulatabad, Bidar, Berar, and Gulbarga) with tarafdars or subedars governing each.
- The sultanate was governed through a **decentralized feudal system**.
- Trade and commerce flourished in the Bahmani Sultanate due to its strategic location. The region was a center for international trade, particularly in horses, textiles, and spices.
- Around 1518, **Krishnadeva Raya of the Vijayanagar Empire defeated** the last ruler of the Bahmani Empire.

Art and Architecture:-

- The Bahmanis followed the **Indo-Islamic style of architecture** and were constructed using **local materials**.
- An **influence of Persian architecture** could be seen in the buildings of this period.
- **Examples:** found at **Gulbarga (Shah bazaar mosque, Hafta Gumbaz, Jama masjid)**, at Bijapur (**Gol Gumbaz, Ibrahim Roza, Bara Kaman, etc.**), and at **Bidar (Rangeen mahal, Janata mahal)**.
- It was during this period when a new dialect, '**Dakhini Urdu**' prevailed.

MUST READ: [Malik Ahmed and Ahilyabai Holkar](#)

SOURCE: [THE LAST MINUTE](#)

"TANSEN FESTIVAL"

Context: Recently, The Prime Minister, Shri Narendra Modi, applauded the performance of 1,282 tabla players at the ongoing '**Tansen Festival**' in Madhya Pradesh for entering the Guinness Book of World Records.

Background:-

- The Prime Minister posted on X: "बहुत-बहुतबधाई! भारतीयसंगीतकोनईऊंचाईपरलेजानेकायेप्रयासअत्यंतसराहनीयहै।"

About Tansen Festival:-

- 'Tansen Samaroh' is **one of the most prestigious events** of the country in the field of Indian classical music. It is a unique **four-five day festival**, dedicated to the pillar of Indian music.
- It is **held at his tomb in Gwalior** in the village of **Behat every year**.
- The **Department of Culture and the Government of Madhya Pradesh** started the festival .
- **Objective:** to pay tribute to the Indian classical music maestro, Mian Tansen.

About Tansen:-

- Tansen was a **vocalist, instrumentalist and music composer**.
- He is credited as the **founder of the Hindustani classical music**.
- He was one of the Navratnas (Nine gems) in Emperor Akbar's court and Akbar gave the **title Mian, an honorific, meaning learned man**.
- Tansen is remembered for his epic **Dhrupad compositions**, creating several new ragas, as well as for writing two classic books on music Sri Ganesh Stotra and Sangita Sara.

MUST READ: [Ustad Bismillah Khan Yuva Puraskar](#)

SOURCE: [AIR](#)

DEFENCE & SECURITY.

MULTILATERAL NAVAL EXERCISE (MILAN) – 2024

Context: The Indian Navy is all set to host the 12th edition of the Multilateral Naval Exercise – 2024 (MILAN), from Feb 19 to 27.

Background:

- Navies from across the globe, including the US, Japan, Australia, France, Bangladesh, South Korea, Vietnam, Indonesia and Malaysia, are lining up for participation in this significant event off Visakhapatnam.

About MILAN:

- It is a biennial naval war game hosted by the Indian Navy.
- The first Milan exercise was conducted in 1995** at Port Blair in the Andaman and Nicobar Islands.
- It was a multilateral naval exercise hosted by the Indian Navy, involving the navies of Indonesia, Singapore, Sri Lanka and Thailand.
- The 12th edition of MILAN is scheduled to be held in Visakhapatnam, India.**
- Milan 2024 **reflects India's 'Look East policy'** and emphasizes regional security cooperation.
- The theme of MILAN 2024** is “Cohesion, Camaraderie and Collaboration”.
- MILAN 2024 also expects to realise the **G20 theme of Vasudhaiva Kutumbakam, which means “the world is one family”**.

INTERPOL

Context: Concerns have been raised about the misuse of Interpol's notice system, especially the issuance of blue corner notices.

Background:-

- Although Interpol's Constitution explicitly forbids any activities of a political character, activists have accused it of failing to enforce this rule. Much of this outrage is directed at Russia, which has repeatedly issued notices and diffusions for the arrest of Kremlin opponents.

About International Criminal Police Organization (INTERPOL)

- It's an **intergovernmental organization** that helps coordinate the police force of 196 member countries. It is **headquartered in Lyon, France**.
- Each of the member countries hosts an INTERPOL National Central Bureau (NCB).
- The Central **Bureau of Investigation (CBI)** is designated as the National Central Bureau of India.

Types of Notice issued by Interpol

- INTERPOL Notices are international **requests for cooperation or alerts** allowing police in member countries to share critical crime-related information.
- Notices are issued by the **General Secretariat at the request of a member country's** INTERPOL National Central Bureau
- Red Notice:** To seek the location and arrest of persons wanted for prosecution or to serve a sentence. However, Interpol cannot compel law enforcement authorities in any country to arrest the



subject of a red corner notice as the exercise of such powers is entirely discretionary.

- **Yellow Notice:** To help locate missing persons, often minors, or to help identify persons who are unable to identify themselves.

- **Blue Notice:** To collect additional information about a person's identity, location or activities in relation to a criminal investigation.

- **Black Notice:** To seek information on unidentified bodies.

- **Green Notice:** To provide warning about a person's criminal activities, where the person is

considered to be a possible threat to public safety.

- **Orange Notice:** To warn of an event, a person, an object or a process representing a serious and imminent threat to public safety.
- **Purple Notice:** To seek or provide information on modus operandi, objects, devices and concealment methods used by criminals.
- **INTERPOL–United Nations Security Council Special Notice:** Issued for entities and individuals who are the targets of UN Security Council Sanctions Committees.

DHARMA GUARDIAN EXERCISE

Context: India and Japan have initiated a two-week military exercise.

Background:

- This exercise provides an opportunity for both nations to share best practices, develop interoperability, and strengthen bilateral relations.

About The Dharma Guardian:

- It's an **annual joint military exercise** between the Indian Army and the Japan Ground Self Defence Force.
- The **5th edition** of this exercise commenced on February 25, 2024, at the Mahajan Field Firing Ranges in Rajasthan, India.
- **Inception:** The exercise was initiated in 2018 as part of the growing bilateral defence cooperation between the two nations.
- **Objective:** The primary aim of Dharma Guardian is to enhance military interoperability and strengthen the strategic partnership between India and Japan.
- **Alternating Locations:** The exercise takes place alternately in India and Japan. It provides an opportunity for troops from both countries to train together, share best practices, and learn from each other.
- **Mutual Benefits:** Dharma Guardian fosters mutual understanding, interoperability, and camaraderie between the armed forces of India and Japan.

Source: [Hindustan Times](#)

SADA TANSEEQ

Context: Recently, **India and Saudi Arabia** are conducted their first Joint Military Exercise named as **Sada Tanseeq**.

Background:-

- In a major boost of ties the militaries of India and Saudi Arabia are conducting their first Joint Military Exercise named as Sada Tanseeq.

About Sada Tanseeq:-

- **Date:** 29th January to 10th February 2024 held at Mahajan, Rajasthan.
- Saudi Arabian Contingent **Royal Saudi Land Forces, 45 personnel.**
- Indian Army Contingent **comprised of a Battalion** from the **Brigade of the Guards (Mechanised Infantry), 45 personnel.**
- It aims to share **best practices in the tactics, techniques, and procedures of conducting operations** in sub-conventional domains.
- It aims to Develop interoperability between the two contingents.

Other exercises:-

- Exercise Al-Mohad Al-Hindi.

MUST READ: [INS Trikand](#)

SOURCE: [FINANCIAL EXPRESS](#)

ARMADO

Context: Recently, Mahindra **Armado** Military Vehicle Makes Its Debut At Republic Day Parade.

About Armado:-

- It gets a **high level of ballistic protection** by being up to the B7, Stanag Level II while being protected from all sides. It is India's first **Armoured Light Specialist Vehicle (ALSV).**
- Above the standard **1,000 kg load capacity**, the ALSV can carry another 400 kg.
- It is a **fully indigenous vehicle** designed and built by the Mahindra Defence Systems (MDS) for the Indian armed forces.
- This means that its armour offers protection **against armour-piercing rifles.**
- Armado has a **3.2-litre turbocharged direct-injection diesel powertrain** that can also run on multi fuels.
- There is a good amount of **power on tap with 215hp and 500 Nm of torque.**
- Being a modular vehicle, it can be used **by quick response teams, Special Forces, counter-terrorism operations, border patrolling** and more.
- It has a **seating capacity of six passengers**, including the driver, and can be configured to seat up to eight.

MUST READ: [Defence Acquisition Council](#)

SOURCE: [ABP LIVE](#)

NATIONAL TERRORISM DATA FUSION & ANALYSIS CENTRE (NTDFAC)

Context: Recently, the National Investigation Agency (NIA) developed the **National Terrorism Data Fusion & Analysis Centre (NTDFAC)**.

Background:-

- It made the government collect and compile information on terrorists and their associates from various sources.

About National Terrorism Data Fusion & Analysis Centre (NTDFAC):-

- **Inaugurated:** January 2024.
- It will **collect data from a variety of sources**, including the NIA's [National Automated Fingerprint Identification System \(NAFIS\)](#), and the National Integrated Database on Arrested Narco-Offenders, which compiles narcotics offenders' source of funding, available pictures and info cribbed from the internet.
- Combined, the various databases **will allow Indian intelligence to access subjects' histories, fingerprints, videos, pictures, social media profiles and information on affiliated terror groups**.
- It also includes a **facial recognition system to scan CCTV footage for the faces of suspects** and is modelled along the lines of the **Global Terrorism Database (GTD) of the US**.
- **Significance:** It will serve as a **centralized database and analysis centre for information related to terrorism** and terrorists operating in the country.

MUST READ: [Terrorism & its financing](#)

SOURCE: [THE INDIAN EXPRESS](#)

EXERCISE VAYU SHAKTI-24

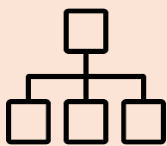
Context: Recently, **Exercise Vayu Shakti-24** took place.

Background: The Indian Air Force will be conducting it.

About Exercise Vayu Shakti-24:- **Date:** 17 February 2024 **held at venue:** Pokhran Air to Ground Range, near Jaisalmer.

- The exercise will also showcase **joint operations with the Indian Army**.
- This year, the exercise will see participation by 121 aircraft, including the indigenous [Tejas](#), **Prachand and Dhruv**.
- **Other participating aircrafts:** Rafale, Mirage-2000, Sukhoi-30 MKI, Jaguar, Hawk, C-130J, Chinook, Apache and Mi-17.
- **Indigenous Surface to Air Weapon systems Akash and Samar** will demonstrate their capability to track and shoot down an intruding aircraft.
- The Indian Air Force is slated to carry out three large-scale war games namely, **Vayu Shakti, Gagan Shakti and Tarang Shakti**.
- Special operations by the **IAF transport and helicopter fleets, involving the Garuds and Indian Army** elements will also be on display.

SOURCE: [PIB](#)



GOVT. INITIATIVES, SCHEMES AND POLICIES, ORGANISATION



ROOFTOP SOLAR SCHEME

Context: Recently, Prime Minister announced the launch of rooftop solar scheme for free electricity, naming it **PM Surya Ghar: Muft Bijli Yojana** envisaging free electricity for one crore households.

Background:-

- The PM Surya Ghar: Muft Bijli Yojana, a project with an **investment of over Rs 75,000 crore**, aims to light up one crore households by providing up to **300 units of free electricity every month**.

About PM Surya Ghar: Muft Bijli Yojana:-

- The rooftop solar scheme is a government initiative to promote the use of solar energy in the country. The scheme is implemented by the Ministry of New and Renewable Energy (MNRE).
- The scheme provides subsidies **for installing solar panels on the roofs of residential houses** and enables the households to save money on electricity bills and sell surplus power to the distribution companies.
- The scheme aims to install solar **panels in one crore homes** throughout the country.
- The scheme was **announced as part of India's efforts to achieve its renewable energy targets** and reduce its carbon footprint.

Some of the main features and benefits of the scheme are:

- The scheme will provide **free electricity and cost savings to the consumers**, especially the poor and middle class, who can reduce their dependence on grid-connected power and save on their electricity bills.
- The scheme will also offer subsidies, incentives, and opportunities for the vendors, manufacturers, and installers of the rooftop solar systems, creating employment and boosting the domestic solar industry.
- The scheme will **help India reach its target of 40 GW of rooftop solar capacity by 2026, which is part of the larger goal of 500 GW of renewable energy capacity by 2030**.
- India has already achieved **43% of its electricity generation from non-fossil fuel sources, with solar energy contributing 30% of the total installed capacity**.
- The scheme will also contribute to India's climate pledge **of reducing its greenhouse gas emissions intensity by 33-35% by 2030 from the 2005 level, and achieving net-zero emissions by 2070**.
- Rooftop solar power will reduce the transmission and distribution losses, improve the power quality and reliability, and support the integration of other renewable energy sources into the grid.

Source: [PIB](#)

GLOBAL PULSES CONFERENCE (GPC)

Context: Global Pulses Conference (GPC) urges India to **augment production of pulses** to meet nutritional requirements.

Background:

- The **Global Pulse Conference 2024** was recently held in New Delhi.

About Global Pulse Conference (GPC)

- GPC is an annual event that brings together the global pulse industry to enhance trade, networking, and market insights.
- Conference of 2024 was organized by the **National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED)** and the **Global Pulse Confederation (GPC)**.
- The **theme** of Global Pulse Conference 2024 was '**nourishing soils to nourish people**'.

Pulses Production in India

- Pulses are an important source of plant-based protein and are a staple in the Indian diet.
- **India is the largest producer, consumer, and importer of pulses in the world.**
- Pulses account for around **20 per cent of the area under foodgrains** and contribute around **7-10 per cent of the total foodgrains production in the country.**
- The **major pulse-producing states** in India are Madhya Pradesh, Uttar Pradesh, Maharashtra, Rajasthan, and Andhra Pradesh. **Largest producer being Rajasthan in 2024.**
- The government has implemented various schemes and initiatives to support pulses production and enhance farmers' income, such as the **National Food Security Mission (NFSM)** and the **National Mission on Protein Supplements (NMPS)**.

Sources : [Hindu Businessline](https://www.bhaskar.com/article/HINDU-BUSINESSLINE)

NATIONAL LIVESTOCK MISSION (NLM)

Context: The Union Cabinet approved further modification of National Livestock Mission by including the additional activities.

Background:

- The National Livestock Mission (NLM), also known as Rashtriya Pashudhan Vikas Yojana, was established in the fiscal year 2014–15 and revised in 2021-22.

About NATIONAL LIVESTOCK MISSION (NLM)

- It is an initiative of the **Ministry of Agriculture and Farmers' Welfare**.
- The mission aims to achieve sustainable development of the livestock sector.

Objectives

- To enhance **the level of nutrition and standard of living of livestock keepers and farmers**, especially small holders, through sustainable, safe, and equitable livestock development.
- To generate employment through **entrepreneurship development in small ruminant, poultry, and piggery sector & fodder sector.**
- To increase per animal productivity through **breed improvement and increase the production of meat, egg, goat milk, wool, and fodder.**

The mission is implemented with the following three Sub-Missions:

- **Sub-Mission on Breed Development of Livestock & Poultry:** This sub-mission focuses on **entrepreneurship development and breed improvement** in poultry, sheep, goat, and piggery by providing incentivization to individuals, FPOs, SHGs, Section 8 companies for entrepreneurship development and also to the State Government for breed improvement infrastructure.
- **Sub-Mission on Feed and Fodder development:** This sub-mission aims towards **strengthening of fodder seed chain to improve availability of certified fodder seed** required for fodder production and encouraging entrepreneurs for establishment of fodder Block/Hey Bailing/Silage Making Units through incentivisation.
- **Sub-Mission on Research & Development, Livestock Insurance, Extension and Innovation:** This sub-mission aims to **incentivize the Institutes, Universities, Organizations carrying out research and development** related to sheep, goat, pig and feed and fodder sector, extension activities, livestock insurance and innovation.

Sources :[Livemint](https://www.livemint.com)

COLLECTIVE SECURITY TREATY ORGANIZATION (CSTO)

Context:Recently, Kazakhstan's President called on the Collective Security Treaty Organization (CSTO) to assist in managing ongoing protests within the country.

Background:

- These protests posed a threat to the very existence of the regime that has governed Kazakhstan since it became an independent republic in 1991

About Collective Security Treaty Organization (CSTO):

- It is an **intergovernmental military alliance** in Eurasia. It was formed in 2002. HQ: Moscow.
- It consists of **six post-Soviet states**: Armenia, Belarus, Kazakhstan, Kyrgyzstan, Russia, and Tajikistan.

Key aspects of the CSTO include:

- **Collective Defence:** Similar to Article 5 of the **North Atlantic Treaty**, Article 4 of the **Collective Security Treaty** establishes that an aggression against one signatory would be perceived as an aggression against all.
- **Peacekeeping Force:** The CSTO maintains a peacekeeping force that has been **deployed to areas of conflict, including Tajikistan and Kyrgyzstan**. The force is composed of troops from member states and is designed to provide stability and security in the region.
- **Military Exercises:** The CSTO holds yearly military command exercises for the CSTO nations to **improve inter-organizational cooperation**.
- **Membership Restrictions:** Signatories are **prohibited from joining other military alliances**.
- **Operational Procedures:** The CSTO employs a **"rotating presidency"** system in which the country leading the CSTO alternates every year.

Source: [Indian Express](https://www.indianexpress.com)

PRECISION FARMING

Context: Garuda Aerospace highlights Precision Farming with Kisan Drone at Krishi Darshan Expo.

Background:

- **Krishi Darshan Expo 2024** hosted by the Ministry of Agriculture and Farmers Welfare, served as a comprehensive platform for showcasing the latest agricultural technologies and innovations.

About Precision farming

- It's also known as **precision agriculture (PA)**, is a **farming management strategy** that leverages information technology to enhance agricultural production sustainability.
- **Involves:** observing, measuring, and responding to temporal and spatial variability within fields and livestock systems.
- The goal is to optimize returns on inputs while preserving resources.

How It Works?

- Instead of applying uniform inputs **across the entire field**, **precision farming tailors' interventions** to specific areas based on their unique needs.
- Technologies such as **GPS, GNSS, and sensor arrays** enable precise data collection related to factors like crop yield, terrain features, organic matter content, moisture levels, and nutrient levels.
- **Unmanned aerial vehicles (drones)** equipped with cameras capture multispectral images, which aid in creating detailed maps for analysis.
- **Benefits:** Increased crop yields and animal performance, Cost reduction, including labour costs, Optimized resource allocation
- **Examples:** Varying fertilizer application based on soil nutrient levels, Adjusting irrigation based on moisture data, Mapping crop health using multispectral imagery, Monitoring livestock behaviour and health

ANTYODYA ANNA YOJNA (AAY)

Context: Recently, the Union Cabinet approved an extension of the scheme of sugar subsidy for **Antyodya Anna Yojna (AAY)** families.

Background:-

- The Union Cabinet chaired by Prime Minister Shri Narendra Modi approved the extension of scheme for two more years i.e. 31 March 2026.

About Antyodya Anna Yojna (AAY):-

- **Launched: December, 2000 under Ministry of Consumer Affairs, Food, and Public Distribution.**
- **Objective:** to provide food grains at a highly subsidized rate under TPDS (Targeted Public Distribution System).

Salient Features:-

- All beneficiaries under the AAY scheme will **get food and other important commodities for daily needs in a subsidized process.**
- Distribution of food grains to beneficiaries will be done through the **public distribution system.**
- Under the AAY scheme **wheat will be provided for Rs.3 per Kg and Rice will be given for Rs.2 per Kg.**
- Eligible families will get **35 Kg of rice per month.**

- AAY families can buy **1 kg of sugar at a rate of Rs.18.50 per Kg via ration shop.**
- Monthly allocation of food grains under Antyodaya Anna Yojana is **around 8.51 lakh tones per month.**

Identification of beneficiaries:-

- Central and State Governments of India will **identify the beneficiaries** for AAY scheme.
- Once the Government is identified, the AAY family will be provided with different colour of ration card.

Eligibility for Antyodaya Anna Yojana (AAY):-

- Family members falling under the poverty line can apply for this scheme.
- **Annual income of Rs.15000 below families are eligible.**
- Disabled persons can apply for this scheme.
- **Widows and senior citizens of 60 years** who heading a family can apply.
- **Tribal Families in rural and mountain areas** are eligible for this scheme.

MUST READ: [Pradhan Mantri Garib Kalyan Anna Yojana \(PM-GKAY\)](#)

SOURCE: [PIB](#)

MEERA YUVA BHARAT (MY BHARAT)

Context: Recently, **Mera Yuva Bharat (MY Bharat) Portal** surpassed 1.45 Crore Youth registrations in three months.

Background:-

- This has been possible due to the user-friendly interface that allows registration to be completed within a few minutes.

About Mera Yuva Bharat (MY Bharat):-

- **Establishment: 2023 under Ministry of Youth Affairs and Sports as an autonomous body.**
- **Objective:** The primary objective of Mera Yuva Bharat (MY Bharat) is to make it a whole of Government platform for youth development.
- It will serve as an **overarching enabling mechanism** powered by technology for youth development and youth-led development.
- Under the new arrangement, with access to resources & connection to opportunities, **youth would become community change agents** and nation builders allowing them to act as **the Yuva Setu** between the Government and the citizens.
- It will benefit the youth in the **age group of 15-29 years**, in line with the definition of 'Youth' in the National Youth Policy.
- In the case of programme components specifically meant for **adolescents**, the beneficiaries will be in the **age group of 10-19 years.**

Advantages:-

- Better alignment between **youth aspirations and community needs.**
- Act as a one-stop shop for **young people and Ministries.**
- Create a centralized youth database.
- Ensuring accessibility by creating a physical ecosystem.

Significance: –

- It will help **ensure accessibility by creating a physical ecosystem.**

- It will help to increase the Youth **outreach efforts** of the **Department of Youth Affairs**.

MUST READ:[\(National Youth Festival\)](#)

SOURCE:[PIB](#)

PRIME MINISTER'S AWARDS FOR EXCELLENCE IN PUBLIC ADMINISTRATION 2023

Context: Recently, the last Date for submission of nominations for **Prime Minister's Awards for Excellence in Public Administration 2023** was extended to February 12, 2024.

Background:-

- The registration and submission of nominations under the Prime Minister's Awards for Excellence in Public Administration, 2023 was commenced on January 3, 2024.

About Prime Minister's Awards for Excellence in Public Administration 2023:-

- **Launched by:** Department of Administrative Reforms & Public Grievances.
- The Award Scheme has been **redesigned to spotlight the District Collector's performance by targeting individual beneficiaries** and employing a saturation approach in implementation.
- This year, the Award Scheme is restructured **to highlight the performance of District Collectors, emphasizing individual beneficiaries and implementation with a saturation approach.**
- The evaluation for the Awards will be based on **three parameters: Good Governance, Qualitative, and Quantitative achievements.**
- The scheme recognizes the contribution of civil servants under two categories:
- **Category 1:** Holistic Development of Districts under 12 priority sector programs
 - 10 awards will be conferred under this category.
- **Category 2:** Innovations for Central Ministries/Departments States, Districts
 - 6 awards will be conferred under this category.
- The evaluation process involves **short-listing by a Screening Committee, evaluation by an Expert Committee, and final approval by an Empowered Committee**, with the Prime Minister's approval sought for the award recommendations.
- The Prime Minister's Awards 2023 will include a **trophy, scroll, and a significant incentive of Rs. 20 lakh** for the awarded District/Organization.
 - This amount is intended for the implementation of projects/programs or bridging resource gaps in any area of public welfare.

MUST READ:[Prime Minister's Awards for Excellence in Public Administration 2022](#)

SOURCE:[PIB](#)

COMMONWEALTH LEGAL EDUCATION ASSOCIATION (CLEA)

Context: Recently, Prime Minister Narendra Modi will inaugurate the **Commonwealth Legal Education Association (CLEA)** - Commonwealth Attorneys and Solicitors General Conference in New Delhi.

Background:-

- The **theme** of the conference is **Cross-Border Challenges in Justice Delivery.**

About Commonwealth Legal Education Association (CLEA):-

- It was **founded in 1971, HQ: London, UK.**
- CLEA is dedicated to **promoting and sustaining high standards of legal education in the [Commonwealth](#).**
- It is a Commonwealth-wide body with regional Chapters and Committees **in Asia, Southern Africa,**

West Africa, the Caribbean and Europe.

- The goal of the Association is **to raise standards in legal education** so that it better serves the public and the legal community.

Objectives:-

- The **goal of the Association** is to make legal education socially relevant and professionally useful, particularly through:
 - the development of law curricula and teaching methodologies;
 - assisting law schools to prepare themselves for the demands of the profession in the context of the information revolution and other global challenges; and
 - supporting continuing legal education and distance learning programmes.
- Whilst this goal may be relevant to all jurisdictions across the world, the Association's focus is on the Nations belonging to the Commonwealth, legal systems based or drawn from the Anglo-American tradition, or the **Common law**.
- The Association's Programme of Action is based on the need to **make legal education socially relevant and professionally useful**.

CLEA activities:-

- **Publications and Research**
- **Commonwealth Law Lecture Series:** This is a unique series that takes place on a Commonwealth-wide basis.
- **Curriculum Development**
- **Strengthening Law Schools**
- **Strengthening the Harare Commonwealth Principles**

MUST READ: [Commonwealth & Commonwealth Advantage](#)

SOURCE: [PIB](#)

DIGI YATRA

Context: Recently, **Digi Yatra** Guidelines have been issued by DGCA (Directorate General of Civil Aviation).

Background:-

- These Digi Yatra guidelines provide for a decentralized mobile wallet-based identity management platform. The personal information of the passenger is stored in the mobile wallet of the traveller.

About Digi Yatra:-

- **Ministry: Ministry of Civil Aviation.**
- It is a project conceived to achieve **contactless, seamless processing of passengers** at Airports, based on **Facial Recognition Technology (FRT)**.
- It will provide a **paperless entry** at airports using facial recognition software.
- It provides a **decentralized mobile wallet-based** identity management platform which is cost-effective and addresses privacy/data protection issues in the implementation of [Digi Yatra](#).
- The platform is built on **4 key pillars: Connected Passengers, Connected Airports, Connected Flying and Connected Systems**.

Objectives of DIGI YATRA:-

- **Enhance passenger experience** and provide a simple and easy experience to all air travellers.
- **Achieve better** throughput through existing infrastructure using a "Digital Framework".
- **Lower-cost operations.**
- **Digitize current manual processes** and bring better efficiencies

- **Enhance security standards** and improve current system performance.

Implementation:-

- The project is being implemented by the DigiYatra Foundation — a joint-venture company whose shareholders are the **Airports Authority of India (26% stake)** and **Bengaluru Airport, Delhi Airport, Hyderabad Airport, Mumbai Airport and Cochin International Airport**.
- These **five shareholders** equally hold the remaining 74% of the shares.
- In the **first phase**, Digi Yatra was rolled out at two Airports namely **Varanasi and Bengaluru** in August 2022 and at five Airports namely **Pune, Vijayawada, Kolkata, Delhi and Hyderabad** by **March of 2023**.
- **Significance:-** Facial recognition technology is beneficial as it **makes flying more convenient and reduces congestion at airports**.

MUST READ: [Facial Recognition Tech in Indian airports](#)

SOURCE: [PIB](#)

INCLUSIVE EDUCATION FOR DISABLED AT SECONDARY STAGE (IEDSS) SCHEME

Context: Recently, the Karnataka government suspended five officers for dereliction of duty in the implementation of the **Inclusive Education for Disabled at Secondary Stage (IEDSS) scheme**.

Background:-

- An FIR has been registered against 56 officials of the department and 22 NGOs.

About Inclusive Education for Disabled at Secondary Stage (IEDSS) scheme:-

- **Launched: 2009 under Ministry of Education.**
- **Objective:** To enable all students with disabilities, to pursue further four years of secondary schooling after completing eight years of elementary schooling in an inclusive and enabling environment.

Historical Background:-

- The Scheme of **IEDSS replaces the earlier scheme of Integrated Education for Disabled Children (IEDC)** and **provides assistance for the inclusive education of disabled children in classes IX-XII**.
- This scheme is now **subsumed under Rashtriya Madhyamik Shiksha Abhiyan (RMSA) from 2013**.
- The States/UTs are also in the process of subsuming under **RMSA as RMSA subsumed Scheme**.

Salient Features:-

- The scheme **covers all children studying at the secondary stage in Government, local body and Government-aided schools, with one or more disabilities as defined under the Persons with Disabilities Act (1995) and the National Trust Act (1999) in class IX to XII**, namely blindness, low vision, leprosy cured, hearing impairment, locomotory disabilities, mental retardation, mental illness, autism, and cerebral palsy and may eventually cover speech impairment, learning disabilities, etc.
- **Girls with disabilities** receive special focus to help them gain access to secondary schools, as well as to information and guidance for developing their potential.
- **Setting up of Model inclusive schools** in every State is envisaged under the scheme.

Components:-

- **Student-oriented components**, such as **medical and educational assessment, books and stationery, uniforms, transport allowance, reader allowance, stipend for girls, support services,**

assistive devices, boarding the lodging facility, therapeutic services, teaching-learning materials, etc.

- Other components include the **appointment of special education teachers, allowances for general teachers** for teaching such children, teacher training, the **orientation of school administrators, establishment of resource room, providing barrier-free environment, etc.**

Implementing Agency:-

- The **School Education Department of the State Governments/Union Territory (UT) Administrations** are the implementing agencies.
- They may involve [NGOs](#) having experience in the field of education of the disabled.

Financial Assistance:-

- Central assistance for all items covered in the scheme is on a **100 per cent basis**.
- The State governments are only required to make provisions for **scholarships of Rs. 600/- per disabled child per annum**.

MUST READ: [SVANidhi se Samriddhi program](#)

SOURCE: [THE HINDU](#)

GHAR - GO Home and Re-Unite Portal

Context: Recently, **GHAR - GO Home and Re-Unite Portal** have been launched .

Background:-

- **National Commission for Protection of Child Rights (NCPCR)**, has developed and launched a portal namely **GHAR - GO Home and Re-Unite (Portal for Restoration and Repatriation of Child)**.

About GHAR - GO Home and Re-Unite Portal:-

- It is a portal to digitally monitor and track **the restoration and repatriation of children** according to the protocols under the **Juvenile Justice (Care and Protection of Children) Act, 2015, and Rules there of**.
- **Objective:** to digitally monitor and track the restoration and repatriation of children according to the protocol.
- **Ministry:** Ministry of Women and Child Development.

Important Features:-

- **Digital tracking and monitoring of children** who are in the Juvenile Justice system and have to be repatriated to another Country/State/District.
- **Digital transfer of cases of children** to the concerned Juvenile Justice Board/Child Welfare Committee of the State.
- Child Welfare Committees and District Child Protection Officers can ensure proper **restoration and rehabilitation of children by digitally monitoring the progress of the case of the child**.
- A checklist format will be provided in the forms so that the children who are being hard to repatriate or children who are not getting their entitled compensation or other monetary benefits can be identified.
- A list of government-implemented schemes will be provided so that at the time of restoration the **Child Welfare Committees** can link the child with the schemes to strengthen the family and ensure that the child remains with his/her family.

MUST READ: [Changes in Juvenile Justice Act](#)

SOURCE: [PIB](#)

NERA GAON MERI DHAROHAR

Context: Recently, the Government of India decided to map and document all villages under the **Mera Gaon, Meri Dharohar (MGMD) Programme**.

Background:-

- A web portal on MGMD has also been launched on 27.07.2023.

About Mera Gaon, Meri Dharohar (MGMD) Programme:-

- **Launched: 27th July 2023 under Ministry of Culture.**
- **Objective:** The main objective of the project is to culturally map India's 6.5 lakh villages, spanning 29 States and 7 Union Territories, on a comprehensive virtual platform.

Salient Features:-

- It is a pan-India initiative under the **National Mission on Cultural Mapping**.
- Under the MGMD, information is collected under **seven broad categories** as given below-
 - Arts and Crafts Village, Ecologically Oriented Village, Scholastic Village linked with Textual and Scriptural Traditions of India, Epic Village linked with Ramayana, Mahabharata, and/or Puranic legends and oral epics, Historical Village linked with Local and National History
- The Ministry of Culture is implementing a Scheme of Financial Assistance for the Promotion of Art and Culture **consisting of 08 components** through which cultural organizations are given financial assistance for the promotion of art and culture.
- The MGMD seeks to **compile comprehensive information detailing the life, history, and ethos of Indian villages** and to make the same available to virtual and real-time visitors.
- This comprehensive portal **showcases essential information about each village**, including its geographical location, demographic aspects, and description of traditional dresses, ornaments, arts and crafts, temples, fairs, festivals, and much more.
- **Benefits:-** It serves as a **one-stop destination** for discovering, exploring, researching, and virtually visiting every village in the country.

MUST READ: [‘Mera Gaon Mera Gaurav’ drive](#)

SOURCE: [PIB](#)

MISCELLANEOUS

DR.M S SWAMINATHAN CONFERRED BHARAT RATNA

Context: Conferring of Bharat Ratna, the highest civilian honour of the country on late agricultural scientist, Dr M S Swaminathan.

Background:-

- This year's tally of five Bharat Ratna awards is the highest that has ever been announced in a single year, one more than the four announced in 1999. The winners of the award are L.K Advani, Karpoori Thakur, M S Swaminathan, Narasimha Rao, Chaudhary Charan Singh.

About M.S.Swaminathan:-

- Born on August 7, 1925 in Kumbakonam, Tamil Nadu, Dr Mankombu Sambasivan Swaminathan is hailed as the father of India's green revolution.
- Witnessing the Bengal famine of 1942-43 deeply impacted Dr Swaminathan.
- He served as an **Independent Chairman of the Food and Agricultural Organisation Council (1981-85)**
- He was the **President of the International Union for the Conservation of Nature and Natural Resources (1984-90)**
- He was also the **President of the World Wide Fund for Nature (India)** from 1989-96
- He served as the **Director General of Indian Council of Agricultural Research (ICAR)**, among others.

Contribution to green revolution:

- The **Basic strategic vision underpinning the Green Revolution in India** — introducing a new genetic strain or 'plant type' responsive to increased fertiliser and water application — came from Swaminathan.
- The problem with the traditional wheat and rice varieties was that they were tall and slender. These 'lodged' — 'fell flat on the ground' — when they grew and their earheads were heavy with well-filled grains produced in response to high fertiliser doses
- Swaminathan approached Norman Borlaug, who had incorporated dwarfing genes into wheat varieties in Mexico.
- India started working seriously on dwarf wheat breeding programme in 1963.
- His efforts transformed India from a food deficient nation to one with increased wheat production - from 6 million tonnes a year in 1947 to 17 million tonnes a year between 1964 and 1968.

MUST READ: <https://indianexpress.com/article/explained/bharat-ratna-ms-swaminathan-significance-profile-9152692/>

SOURCE: [Indian Express](#)

OPERATION ASPIDES

Context: The European Union has recently launched a Red Sea mission named Mission Aspides.

Background:

- Since October 2023, numerous Houthi attacks have targeted vessels in the Red Sea, the Gulf of Aden, the Arabian Sea and the Gulf of Oman. Such attacks jeopardise the life of civilians on merchant and commercial vessels, and constitute a breach of the freedom of the high seas and of the right of transit passage in straits used for international navigation enshrined in United Nations Convention of the Law of the Sea.

About Mission Aspides:

- Is a new **European Union defensive maritime security operation** launched by the Council of the EU on 19 February 2024. The Operation headquarters is based in Larissa, Greece
- **Objective:** operation is to restore and safeguard freedom of navigation in the Red Sea and the Gulf.
- The operation will **ensure European Union naval presence in the area**, provide maritime situational awareness, accompany and protect vessels against possible multi-domain attacks at sea, and coordinate closely with like-minded international partners and other EU operations.

Source: [Business Today](#)

AFRICAN UNION

Context: African Union imposes historic ban on cruel donkey skin trade.

Background:

- Demand for the animals' skins is fuelled by the popularity of an ancient Chinese medicine called Ejiao, traditionally made from donkey hides. About two-thirds of world's estimated population of 53 million donkeys are in Africa. People in the poorest, rural communities use them for transport and to carry water, food and other goods. Donkey slaughter for its skin has eroded livelihoods in Africa, robbing the continent of its culture, biodiversity and identity.

About African Union (AU):

- It was officially **launched in 2002**, is a **continental body** consisting of 55 member states located on the continent of Africa.
- The AU's secretariat, known as the African Union Commission, is based in Addis Ababa.
- It serves as the successor to the **Organisation of African Unity (OAU)** of 1963.
- Goal: is to propel a united continent toward peace and prosperity and supports political and economic integration among its 54 member nations, aiming to boost development, eradicate poverty, and bring Africa into the global economy.
- The largest city within the AU is Lagos, Nigeria, while the largest urban agglomeration is Cairo, Egypt.

Source: [BBC](#)



PRELIMS EXCLUSIVE PROGRAMME (PEP) 2024

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MAINS

PAPER 1

SAME-SEX MARRIAGE

GS I - SALIENT FEATURES OF INDIAN SOCIETY

Context: In a 3:2 verdict, the Supreme Court says no to same-sex marriage.

Arguments in favor:

- Aligns with principles of equality and non-discrimination.
- Offers legal safeguards for homosexual couples in areas like wages, adoption, surrogacy, inheritance, property ownership, and healthcare.
- Upholds the right to privacy established by **the Supreme Court in the K.S. Puttaswamy case (2017)**.
- Advocates for the protection of **LGBT individuals' human rights**, including the right to marry.
- Aligns with the global trend, **legal in 34 countries**.

Arguments against:

- Contradicts Indian religious and cultural beliefs.
- May lead to complications in areas like adoption, child custody, inheritance, tax, and property rights.
- Adoption of children by queer couples can result in social **stigma, discrimination, and adverse effects on the child's emotional and psychological well-being**.
- Marriage is a public policy issue requiring changes in related laws and regulations.
- Legalization could disrupt social norms and values, potentially leading to social unrest.

Supreme Court's Observation on Same-Sex Marriages

- The Supreme Court, led by the Chief Justice of India, **ruled 3:2 against** constitutional validity of same-sex marriages.
- The court cannot alter the **Special Marriage Act (SMA) 1954** to include same-sex members.
- The court maintains that marriage is not static and queer persons have equal rights.
- All five judges agreed that there is no fundamental right to marry under the Constitution.

Special Marriage Act (SMA) of 1954

- SMA provides provisions for civil marriage for Indians and Indian nationals in foreign countries.
- Marriages solemnized under this law are governed by the **Special Marriage Act**.

Global position on same-sex marriages:

- Netherlands legalized **same-sex marriage in 2001**.
- Over 30 jurisdictions have enacted same-sex marriage laws since.
- **Same-sex civil unions** recognized as escalatory **step to homosexual marriage**.
- Most North and South America and Europe **have legalized same-sex marriage**.

ROCK GLACIERS

GS I – IMPORTANT GEOPHYSICAL PHENOMENA

Context: A recent study has shed light on the presence of over 100 active rock glaciers in the Jhelum basin of the Kashmir Himalayas. They have significant implications for the region's hydrology and pose potential risks as the climate warms.

What are Rock Glaciers?

- They are a type of landform that consists of a **mixture of rock fragments and ice** which are typically formed in **mountainous regions** where there is a combination of **permafrost, rock debris, and ice**.
- They occur in highly elevated regions with steep slopes.

Classification of Rock Glaciers:

- They are classified as **active or relict**, depending on whether they have ice and movement or not.
- **Active rock glaciers are more dynamic** and hazardous.
- **Relict rock glaciers are more stable and inert**.

Importance/Significance of Rock Glaciers:

- They are important indicators of **mountain permafrost**, which is the permanently frozen ground that underlies many high-altitude regions.
- They store **significant amounts of water** in their frozen cores, which could be a valuable resource in the face of **water scarcity and glacial retreat**.

Potential Impacts of the Active Rock Glaciers on the Region:

- Increases risk of glacial lake outburst floods (GLOFs) **due to destabilization of glacial lake slopes or dams**.
- Causes landslides by weakening slope stability **or melting permafrost, posing risks to settlements and infrastructure**.
- Leads to formation of **thermokarst features, altering hydrology, ecology, and carbon cycle of the region**.
- High risk of collapse due to melting ice, leading to formation of sinkholes, hummocks, caverns, and tunnels.

Permafrost:

- It is a permanently frozen layer on or under the Earth's surface. It consists of **soil, gravel, and sand, usually bound together by ice**.

Glacial lake outburst floods (GLOFs):

- They are sudden and **catastrophic floods that occur when a glacial lake bursts** its natural or artificial dam, releasing large volumes of water and debris downstream.

Landslides:

- They are the **rapid movements of soil, rock, or snow down a slope**, often triggered by **earthquakes, rainfall, or human activities**.

Thermokarst:

- It is a type of **terrain that is characterized by irregular surfaces of marshy hollows** and small hummocks (ridges), formed by the **thawing of ice-rich permafrost**.

MARINE HEATWAVES IN THE ARCTIC OCEAN

GS I – IMPORTANT GEOPHYSICAL PHENOMENA

Context: A new study has been published in the journal Nature Communications titled- 'Arctic marine heatwaves forced by greenhouse gases and triggered by abrupt sea-ice melt', which shows that since 2007, unprecedented Marine Heatwave (MHW) events have occurred over the Arctic Ocean.

Key findings/highlights of the study:

- **11 Marine Heatwaves (MHWs) occurred in the Arctic from 2007 to 2021**, characterized by high Sea Surface Temperatures (SST).
- In 2022, severe and extreme MHWs **occurred in the Laptev and Beaufort seas**.

- The perennial sea ice cover over the Arctic Ocean, known to reflect solar radiation, has seen a marked decrease in both summer and winter since the mid-1990s
- MHWs primarily **occur in marginal seas like Kara, Laptev, East Siberian, and Chukchi seas.**
- Greenhouse Gases (GHGs) are a sufficient cause for moderate marine heatwaves.
- Long-term warming trend in the Arctic, with SST increasing at a rate of 1.2°C per decade from 1996 to 2021.

The technique used in the study:

- It employs an **Extreme Event Attribution (EEA) technique** to assess the role of **Greenhouse Gas (GHG)** forcing in Arctic MHWs.

Marine Heat Waves (MHWs):

- A MHW is an extreme weather event. It occurs when the surface temperature of a particular region of the sea rises to 3 or 4 degrees Celsius above the **average temperature for at least five days.**
- According to the **National Oceanic and Atmospheric Administration (NOAA)**, MHWs can last for **weeks, months, or even years.**

First-year ice:

- It refers to sea **ice that forms and grows during a single winter season** and typically melts away completely during the following summer melt season.
- The EEA technique determines the **extent to which human-induced climate change influences** the likelihood and severity of specific extreme weather events.

HOYSALA ARCHITECTURE

GS I – INDIAN ARCHITECTURE

Context: The Sacred Ensembles of the Hoysala - the Hoysala temples of Belur, Halebid, and Somanathapur in Karnataka have been added to the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage list. This inclusion marks the 42nd UNESCO World Heritage Site in India.

HoysalaArchitecture:

- It is the Hindu temple architecture that developed in the region of Karnataka near Mysore. It developed in the period from 1050-1300 A.D with the prominent **seats being Belur, Halebid, and Sringeri.**

Salient features of Hoysala Architecture:

- Multiple shrines of different deities were built around a central pillared hall.
- These shrines are established intricately in the design of a star.
- Soft soapstone was the main building material.
- Massive emphasis was laid on the decoration of the temple through sculptures. Both the interior and exterior walls, even the pieces of jewellery worn by the deities were intricately carved.
- Its **keyelements include – Mantapa, Vimana, and Sculpture.**
- The temples were built on an upraised platform known as Jagati.
- The walls and stairs of the temple followed a zigzag pattern.
- It is known for its distinctive blend of **the Bhumiya style prevalent in Central India, the Nagara traditions of northern and western India, and the Karnataka Dravida models favoured by the Kalyani Chalukyas.**

The Sacred Ensembles of the Hoysalas:

- It consists of a **collection of Hoysala temples.**
- These were built in the **12th-13th centuries** and are represented here by the three components of **Belur, Halebid, and Somnathapura.**

- **Chennakeshava Temple in Belur** was built by **Hoysala King Vishnuvardhana** to commemorate his victory over the **Cholas** in 1116 AD. It is a **star-shaped temple**, dedicated to **Lord Vishnu**, and is the main temple in the temple complex at Belur.
- **Hoysaleswara Temple in Halebidu** is a twin-shrine temple and is perhaps the **largest Shiva temple built by the Hoysalas**.
- **Keshava Temple of Somanathapur** is a beautiful **Trikuta Temple** dedicated to **Lord Krishna in three forms- Janardhana, Keshava, and Venugopala**.

CLASSICAL LANGUAGE

GS I – INDIAN ARCHITECTURE

Context: West Bengal's Chief Minister made headlines for advocating classical language status for Bangla, which is the world's 7th most spoken language.

In 2006, the Government of India laid down the criteria for conferring classical language status. **The Ministry of Culture provides guidelines regarding Classical languages. They are:**

- High antiquity of its early texts/recorded history over a period of 1500-2000 years;
- A body of ancient literature/texts, which is considered a valuable heritage by generations of speakers;
- The literary tradition be original and not borrowed from another speech community;
- The classical language and literature being distinct from modern, there may also be a discontinuity between the classical language and its later forms or its offshoots.

Benefits of declaring a language as a classical language:

- Once a language is declared classical, it gets **financial assistance for setting up a center of excellence** for the study of that language and also opens up an **avenue for two major awards for scholars of eminence**.
- Besides, the **University Grants Commission** can be requested to create - to **begin with at least in**.

Note:

- **The 8th Schedule of the Indian Constitution** lists the official languages of the **Republic of India** which currently includes **22 languages**. **They are** Assamese, Bengali, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Malayalam, Manipuri, Marathi, Nepali, Oriya, Punjabi, Sanskrit, Sindhi, Tamil, Telugu, Urdu, Bodo, Santhali, Maithili and Dogri.
- Currently, six languages enjoy the **'Classical' status in India**. **They are** Tamil (declared in 2004), Sanskrit (2005), Kannada (2008), Telugu (2008), Malayalam (2013), and Odia (2014).
- All the Classical Languages are **listed in the Eighth Schedule of the Constitution**. **Central Universities**, a certain number of professional chairs for classical languages for scholars of eminence in the language.

PAPER 2

STEEL SECTOR IN INDIA

GS II – INFRASTRUCTURE

Context: The 4th edition of 'ISA Steel Conclave 2023' was held, nudging Steel Firms to ramp up their capacities so that India's output of the critical infrastructure input double to 300 million tonnes a year by 2030.

Current status of the steel sector in India:

- India is the world's second-largest producer of crude steel, with an output of **125.32 million tonnes (MT) of crude steel** and 121.29 MT of finished steel production in FY23.
- The **per capita consumption** of steel in India stood at 86.7 kilograms in FY23.
- As per the **National Steel policy**, launched in 2017, India projects a crude steel capacity of 300 million tonnes (MT), production of 255 MT, and a robust finished steel per capita **consumption of 158 Kgs by 2030-31**.

Significance of steel:

- It is **one of the most widely used materials** all over the world. The iron and steel industries are the bottom-line producing industries.
- The steel industry plays a pivotal role in crucial sectors such as construction, infrastructure, automobile, engineering, and defence.
- Steel is a key sector for the Indian economy which is responsible for **2% of the country's GDP in FY 21-22**.

Challenges faced by the steel sector:

- High investment required for modern steel-making plants, around **Rs 7000.00 crores**.
- Cyclical demand for steel influenced by factors like monsoons, leading to financial strain and closures.
- Low per capita steel consumption, **compared to the world average of 233 kgs**, reduces incentive to establish large-scale plants.
- Historical lag in technology, research, and development, resulting in dependence on international research and technology.
- Traditional **concrete-based construction methods hinder steel industry growth**.
- Steel industry as one of the three biggest carbon dioxide producers globally, facing decarbonisation challenge.
- European **Union's Carbon Tax from 1st January 2026**, affecting India's exports of metals.

Government initiatives for the growth of the steel sector:

- Approved a **Rs 6322 crore PLI Scheme for 5 years** to promote specialty steel manufacturing and technological advancements.
- Conducted **13 Task Forces to discuss decarbonisation** strategies for the steel sector.
- Announced a National Green Mission for green hydrogen production and usage, with the steel sector as a stakeholder.
- Integrated BISAG-N's capabilities into PM **Gati Shakti National Master Plan for steel production** facility planning.
- Notified the **Steel Scrap Recycling Policy (SSRP) in 2019 to promote metal scrapping** centers for ferrous scrap recycling.
- Developed the National Steel Policy of 2017 for long-term growth in the Indian steel industry.
- Introduced a **Steel Quality Control Order to ensure quality steel products**.
- Recognized the National Metallurgist Award for outstanding contributions in the iron and steel sector.

ISA Steel Conclave 2023:

- It is a premier platform for the entire steel ecosystem and the related sectors to gain valuable insights into

the steel industry.

- It is organized by the Indian Steel Association supported by the Ministry of Steel.

SOCIAL AUDIT

GS II – GOVERNMENT POLICIES AND INTERVENTIONS

Context: The inaugural meeting of the Social Audit Advisory Body (SAAB) took place at the Dr. Ambedkar International Centre in New Delhi.

What is a social audit?

- Social audit is the **audit of a scheme jointly by the Government and the people**, especially by those who are affected by the scheme or its beneficiaries.
- Social audit is different from financial audits **which involve inspecting and assessing documents** related to financial transactions in an organization to provide a true picture of its profits, losses, and financial stability.
- **Howard Bowen** proposed the term “social audit” in his 1953 book **Social Responsibilities of the Businessman**.

Importance/significance of social audit in India:

- Enhances governance by making the **government accountable to citizens**.
- Allows the voice of stakeholders, including marginalized groups, to be heard.
- Focuses on neglected societal issues, **enabling better policy implementation and removing social inefficiencies**.
- Creates awareness among **beneficiaries and providers of social services**, enabling community participation in local planning.
- Assesses physical and financial gaps between needs and resources for local development, increasing efficacy and effectiveness.
- Encourages **local democracy and community participation**, promoting collective decision-making and responsibility sharing.
- Uncovers **irregularities and malpractices in the public sector**, reducing leakages and corruption.

Issues/challenges related to social audit in India:

- The absence of standardized procedures for social audits leads to **variations in methodologies and reporting**. A lack of uniformity makes it difficult to compare results across different projects and regions.
- Limited awareness and understanding of social audit processes among stakeholders, including local communities, can **hinder effective implementation**.
- Social audits face **political interference, influencing the independence and objectivity of the audit process**. Pressure from local authorities or political figures can compromise the integrity of the findings.
- Social audits require resources, both financial and human. Many local bodies **lack the necessary funds and expertise to conduct comprehensive social audits**, limiting their effectiveness.
- The social audit units, which are meant to detect any cases of malpractice, are suffering because of a lack of funds and trained professionals.

Social Audit Advisory Body:

- It has been set up under the **National Institute of Social Defense (NISD)**.
- It aims to improve the quality of services being delivered by **grant-in-aid (GIA) institutions**, by way of social audits of the schemes and institutions of the ministry.

Key features of social audit:

- **Fact finding not fault finding**.
- Creating the space and platform for dialogue among various levels of stakeholders.
- Timely grievance redressal.
- Strengthening the democratic process and institutions.
- Building people's pressure for better implementation of programmes.

Types of social audits:

- **Organizational:** It assesses a company's overall social responsibility efforts.
- **Program-Specific:** It focuses on a particular program's impact and effectiveness.
- **Financial:** It reviews the social and environmental implications of financial decisions.
- **Stakeholder-Driven:** It involves various stakeholders in the auditing process.

Framework associated with social audit in India:

- **Section 17 of MGNREGA 2005 mandates Gram Sabha** to monitor work execution.
- Meghalaya Community Participation and Public Services Social Audit Act, 2017 makes social audits mandatory.
- Building and Other Construction Workers **(Regulation of Employment and Conditions of Service) Act** of 2013 provides a framework for social audits.
- Right to Information Act of 2005 enhances transparency and access to information.
- **National Resource Cell for Social Audit (NRCSA)** ensures social audits through state-level Social Audit Units.

PAKISTAN – IRAN RELATIONS

GS II – BILATERAL RELATIONS AFFECTING INDIA'S INTERESTS

Context: Iran and Pakistan have attacked militant bases in each other's territory, but also reaffirmed their commitment to good neighborly ties. The countries have a history of tensions and cooperation, and a common problem of Baloch insurgency, but in the context of the Middle East conflict, their actions mark a dangerous escalation.

Timeline of Pakistan and Iran Relations:

- Both countries were allying with the United States before the **1979 Islamic Revolution in Iran**.
- Iran provided material and weapons support to Pakistan during its wars against India in 1965 and 1971.
- The Islamic Revolution led to the rise of an ultra-conservative Shiite regime under Ayatollah Khomeini and Pakistan's own **Islamization under General Zia-ul-Haq**.
- Iran became a sworn enemy of the United States, **leading to increased distrust of Pakistan**.
- After the Soviet withdrawal, **Iran backed the Northern Alliance against the Taliban**.
- Despite historical tensions, both countries attempted to improve ties, but relations soured after General Pervez Musharraf took power in 1999.

What are the implications of escalating tensions between Pakistan and Iran?

- Potential for regional instability due to **complex geopolitical landscape**.
- Potential heightening of **proxy dynamics between Pakistan and Iran**.
- Potential unrest in Balochistan due to momentum of Baloch nationalist movements.
- Potential security concerns **for neighboring countries, particularly Afghanistan**.
- Impact on India's relations with Iran, **especially due to involvement in projects like the Chabahar port**.

India's stance over the faceoff between Pakistan and Iran:

- India emphasized its **uncompromising position of zero tolerance towards terrorism** which underscores India's consistent stance against terrorism, aligning with its long-standing concerns regarding cross-border terrorism emanating from Pakistan.
- India acknowledged and **expressed an understanding of actions that countries take in their self-defence**. It suggests a recognition of the complex security dynamics in the region and a cautious approach to the actions taken by countries to address their security concerns.

The Balochistan dynamics between Iran and Pakistan:

- The Iran-Pakistan border, **known as the Goldsmith Line, spans 909 kilometers**.
- 9 million ethnic Baloch people live on both sides, residing in Pakistan, Iran, and Afghanistan.
- Baloch people share a **common cultural, ethnic, linguistic, and religious identity**.
- Baloch in Iran and Pakistan experience marginalization, feeling politically and economically distant from

dominant regimes.

- Baloch **homeland is rich in natural resources, but economic disparities persist.**
- Baloch nationalism has historical roots dating back to the early 20th century.
- Baloch insurgents operate on both sides of the **Iran-Pakistan border, attacking military and civilian targets.**

INDIA – FRANCE RELATIONS

GS II – BILATERAL RELATIONS

Context: The President of France visited India on the occasion of Republic Day 2024.

Major areas of cooperation between India and France:

- Long-standing cultural, trade, and economic **linkages between India and France.**
- Strategic partnership signed in 1998, focusing on mutual respect for non-interference, strategic autonomy, and non-alignment.
- Bilateral trade **reached a new peak in 2022-23**, with France being the 11th largest foreign investor.
- Defence partnership is core, with technology transfers from France aiding India in constructing submarines.
- France disapproves of a **North Atlantic Treaty Organisation (NATO)-plus** partnership plans, stating it doesn't apply to India.
- **France supports India's bid for permanent** membership in the UN Security Council and Nuclear Suppliers Group.
- Both countries express climate change concerns, **with India supporting France in the Paris Agreement.**
- Both launched the **International Solar Alliance in 2015** as part of joint efforts on climate change.

Concerns/Issues/Challenges in India-France Relations:

- Absence of an FTA hinders trade potential.
- Slow progress on **India-EU Broad-Based Trade and Investment Agreement.**
- Differences in priorities and approaches can influence defence and security cooperation.
- France's concerns **about India's inadequate protection of intellectual property** rights impact French businesses.
- Trade imbalance due to dominance of defence products in the trade relationship.
- Challenges in exporting **Indian products to France due to Sanitary and Phytosanitary measures.**
- Issues related to student mobility, **including visa processes and cultural integration.**
- Need for enhanced cooperation in addressing transnational crimes and ensuring individual safety.

Key outcomes of the visit:

- Roadmap for **India-France Defence Industrial Partnership:** Collaboration on military equipment, robotics, AI, autonomous vehicles, platforms, and cyber defence.
- New agreement for a defence-space partnership: **Collaboration on space situational awareness.**
- Industrial partnership between Tata and Airbus Helicopters: **Production of H125 helicopters.**
- MoU sealed between New Space India Ltd and France's Arianespace: Cooperation in satellite launches and space exploration.
- Introduction of the Young Professional Scheme: **Facilitation of exchange of individuals aged 18-35.**
- Commitment to revitalising trilateral cooperation with Australia and UAE.
- Year 2026: **India-France Year of Innovation and operationalization** of UPI at Eiffel Tower.
- Set up of a Solar Academy in **Senegal under STAR-C program of International Solar Alliance.**

STAR-C Programme:

- It aims to boost solar power ecosystems in the poorest countries.
- The initiative is run by ISA in partnership with the United Nations Industrial Development Organisation (UNIDO).

INDIA – CANADA RELATIONS

GS II – INDIA'S BILATERAL RELATIONS

Context: Canada's assertion that Indian agents were involved in the murder of a pro-Khalistan activist led to diplomatic strain between the two countries.

Significance of India-Canada Relations:

- Bilateral trade in goods was \$9.9 billion in 2022, and in services was \$6.5 billion.
- Canada hosts one of the world's largest Indian Diasporas, accounting for over 3% of the total Canadian population.
- Science and technology **collaboration focuses on industrial R&D**, with space science cooperation since the 1990s.
- Canada provided uranium for Indian nuclear reactors under **the Civil Nuclear Agreement of 2010**.
- Canada's Indo-Pacific Policy **recognizes China as a global power and India as a critical partner**.

Issues/Challenges in India-Canada Relations:

- Canada's founding membership in **NATO during the Cold War, while India pursued non-alignment**.
- Canada's endorsement of a plebiscite in Kashmir, contrary to India's interests.
- Temporarily halted potential **nuclear cooperation with India after 1998 nuclear tests**.
- Canada's immigration system allowing individuals with contentious pasts to acquire citizenship, **posing a challenge to robust bilateral relations**.
- Current Canadian government aligns with Pro-Khalistan parties.
- A **Comprehensive Economic Partnership Agreement (CEPA)** between the two countries is pending since 2010, potentially boosting bilateral trade and GDP.
- Canada's interference in **India's domestic affairs, such as supporting farmers during protests**.

Way Forward:

- The first step towards improving relations involves pausing the current escalation. Each side should express their concerns without disrupting the status quo. Diplomacy, not expulsions or service suspensions, should be the way forward.
- Canada should carefully balance the empowerment of immigrant communities. It should assess their activities and influence, avoiding undue political or economic sway.
- People endorsing violence, separatism, or terrorism should be held accountable for the abuse of freedom of expression.
- Both countries should collaborate under the Framework for Cooperation on Countering Terrorism and Violent Extremism, established in 2018.

MALNUTRITION IN INDIA

GS II – ISSUES RELATING TO POVERTY AND HUNGER.

Context: The UNICEF (United Nations International Children's Emergency Fund), WHO (World Health Organization) and the World Bank have jointly published the Joint Malnutrition Estimates (JME) 2023 Report.

What is Malnutrition?

- Malnutrition refers to **deficiencies or excesses in nutrient intake**, imbalance of essential nutrients, or impaired nutrient utilization.
- The double burden of malnutrition consists of both **undernutrition and overweight and obesity, as well as diet-related noncommunicable diseases**.

Major Factors Contributing to Malnutrition in India:

- Limited availability and access to nutritious food contributes to **undernutrition and overnutrition**.
- Misconceptions and inappropriate child-rearing practices contribute to undernutrition.
- Poverty limits individuals' **purchasing power, creating a cycle of poverty**, undernutrition, and low income.
- Diseases **like malaria, measles, and diarrhea** can exacerbate nutritional deficiencies.

- Undernourished mothers often **give birth to undernourished babies, worsening malnutrition.**
- Families migrating to cities often exclude from local government schemes.
- Women and young children in poor households receive less food than economically active males.
- Inadequate living conditions **contribute to ill health, infections, and malnutrition.**

Consequences/Impacts of Malnutrition:

- Stimulated growth and **delayed physical development.**
- Cognitive and intellectual impairments in malnourished children.
- Higher risk of developing chronic diseases like **diabetes, cardiovascular diseases, and obesity.**
- Reduced economic advancement due to productivity **losses and poorer educational outcomes.**

Government Initiatives to tackle Malnutrition:

- Integrated Child Development Scheme and Anganwadi system for supplementary nutrition and ration.
- **National Food Security Act 2013 for food and nutrition security.**
- **National Nutrition Strategy (NITI Aayog)** to reduce malnutrition by 2030.
- POSHAN Abhiyaan for nutritional improvement of Adolescent Girls, Pregnant Women, and Lactating Mothers.
- Mission **POSHAN 2.0 to address malnutrition challenges.**
- Anemia Mukh Bharat Abhiyan to accelerate anaemia decline.

The key findings of the Joint Malnutrition Estimates (JME) 2023 Report:

- It puts the overall prevalence of stunting in 2022 as per global estimates at 31.7% in the case of India.
- It highlights that wasting in children under five in India continues to be a challenge and much more efforts are needed to address it. The overall prevalence of wasting in 2022 as per global estimates is 18.7% in India.
- It reports there is an increase in overweight marginally in a decade, from 2.2% in 2012 to 2.8% in 2022.

Note:

- Undernutrition (protein-energy malnutrition) due to insufficient intake of energy and other nutrients. There are several sub-forms of undernutrition - wasting, stunting, and underweight.
- Overnutrition (overweight and obesity) occurs due to excessive consumption of energy and other nutrients.
- Hidden hunger means deficiencies of essential vitamins and minerals – often referred to as micronutrients.

CASTE-BASED DISCRIMINATION OF PRISONERS IN JAILS

GS II – GOVERNMENT POLICIES AND INTERVENTIONS FOR DEVELOPMENT IN VARIOUS SECTORS

Context: Supreme Court of India found that prison manuals in more than 10 States, including Uttar Pradesh, West Bengal, Odisha, Maharashtra, Tamil Nadu, and Kerala, continue to have provisions that sanction discrimination and forced labour on the ground of caste in prisons.

What is Caste-based discrimination?

- Caste-based discrimination refers to the unjust treatment of individuals based on their caste or social class.
- It happens when individuals are treated unfairly or denied opportunities, rights, or privileges based on their caste. This can impact various aspects of life, including education, and employment.

Reason for caste-based discrimination in prisons:

- The **Prisons Act of 1894 regulates prisons and prisoners' actions**, guiding state governments in creating prison manual rules.
- The caste system perpetuates societal biases, with **caste discrimination affecting inmate treatment.**
- The caste system has **historically dictated social interactions**, leading to hierarchies and inequalities.
- The Prohibition of Employment as **Manual Scavengers and their Rehabilitation Act, 2013**, lacks prison administration, making it ineffective in prohibiting manual scavenging.
- The **Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act of 1989** ignores casteist job allocation in prison, compromising human dignity.

Various measures/initiatives undertaken to deal with caste-based discrimination in prison:

- **Article 15** prohibits discrimination on grounds of religion, race, caste, sex, or place of birth.
- **Under Article 17**, untouchability is abolished and its practice in any form is forbidden.
- **Under Article 21**, no person shall be deprived of his life or personal liberty.
- **Model Prison Manual of 2016 based on Nelson Mandela Rules**, aims at bringing in basic uniformity in laws, rules, and regulations governing the administration of prisons and the management of prisoners all over the country.
- **The Supreme Court in Rama Murthy Judgment (1997)** identified nine issues concerning prisons, such as overcrowding, trials being delayed, the torture and ill-treatment of prisoners, neglect of health and hygiene, insubstantial food, and inadequate clothing.
- **The Supreme Court in Shatrughan Chauhan v. Union of India** said the legal procedure adopted to deprive a person of his life or liberty must be fair, just, and reasonable and the protection of Article 21 of the Constitution of India inheres in every person, even death-row prisoners, till the very last breath of their lives.

Caste system:

- It is a form of **social stratification that involves a system of hierarchically** ranked, closed endogamous strata, the membership of which is ascribed and between which contact is restricted and mobility theoretically impossible.

Nelson Mandela Rules:

- It aims to treat prisoners with inherent dignity to prohibit torture and other ill-treatment and state that there should be no discrimination amongst the inmates on the grounds of status.

BASIC STRUCTURE DOCTRINE

GS II – Basic Structure

Context: Vice-President Jagdeep Dhankar's remark that courts cannot dilute parliamentary sovereignty sparked a debate on the separation of powers, bringing the focus back to the basic structure doctrine of the Constitution.

What is the basic structure doctrine?

- In 1973, a 13-judge Constitution Bench ruled in *Kesavananda Bharati v. State of Kerala* that Article 368 does not enable Parliament to amend the basic framework of the document. The historic ruling came to be known as the basic structure doctrine.
- Basic Structure Doctrine refers to a judicial principle that the Constitution has certain basic features that cannot be altered or destroyed by amendments by Parliament.

Role of basic structure doctrine in the protection of founding principles of the Indian constitution:

- The **doctrine is anti-majoritarian**, preventing Parliament from abusing its power.
- It protects basic rights and prevents unconstitutional Constitutional amendments.
- The doctrine is based on '**implied limitation**' theory, stating that Parliament can amend the Constitution but cannot amend the basic structure.
- The balance **between Parts III (fundamental rights) and Part IV (directive principles) is an essential feature** of the basic structure.
- The rule of law and judicial review are considered the basic structure in various cases.
- Democracy and regular elections are essential to the democratic system.
- **Democracy and Federalism** are essential features of the Constitution.
- The doctrine of equality is considered a **basic structure of the Constitution**.
- Amendments made on or after **24th April 1973 are open to attack if they damage the Basic Structure**.

Limitations of basic structure doctrine in protecting foundational principles:

- The doctrine has not always protected constitutional founding values, **acting as a shield against judicial transparency and accountability**.
- Despite the *S. R. Bommai* judgment of 1994, the doctrine remains ineffective in reducing threats to

federalism.

- The use of article **356 has been circumvented by using the governor's** institution to create trouble for state governments, thereby compromising the Constitution's founding value.
- Increased pressure on the judiciary, **including press conferences and appointments post-retirement**, raises questions about the integrity of judges.
- Despite parliamentary democracy **being a principle, the importance of parliament has declined**, with fewer bills referred to the standing committee.

BHARATIYA NYAYA SANHITA 2023

GS II- Government policies and interventions

Context: Bharatiya Nyaya Sanhita 2023 replaces the Indian Penal Code (IPC), 1860, the principal law on criminal offences in India.

Key provisions of Bharatiya Nyaya Sanhita 2023:

- It is proposed to provide (for the first time) community service as one of the punishments for petty offences.
- It increases the threshold for gangrape victims to be classified as a major, from 16 to 18 years of age.
- It also criminalizes sexual intercourse with a woman by deceitful means or making false promises.
- **It removes the offence of sedition. It instead penalizes the following:**
 - Exciting or attempting to excite secession, armed rebellion, or subversive activities
 - Encouraging feelings of separatist activities, or
 - Endangering the sovereignty or unity and integrity of India. These offences may involve the exchange of words or signs, electronic communication, or the use of financial means.
- **It defines terrorism:** act that intends to threaten the unity, integrity, security, or economic security of the country, or strike terror in the people or any section of people in India or any foreign country.
- **It defines organised crime:** unlawful activity including kidnapping, extortion, contract killing, land grabbing, cybercrime, etc. carried by an individual or a group, either as a member or on behalf of an organised crime syndicate.
- When a group of five or more persons acting in concert commits murder or causes grievous hurt on the grounds of race, caste or community, sex, place of birth, language, personal belief, or any other similar ground each member of such group shall be punished with,

Criticisms/Issues/Concerns with Bharatiya Nyaya Sanhita 2023:

- The **age of criminal responsibility remains at seven years**, with a potential extension to 12 years based on the accused's maturity. This may conflict with international convention recommendations.
- While it defines a **child as someone below 18**, the age threshold for several offenses against children differs.
- While it **eliminates sedition as an offence**, elements related to endangering India's sovereignty, unity, and integrity might retain aspects of sedition.
- It does not consider recommendations of the **Justice Verma Committee (2013)** such as making the offence of rape gender-neutral and including **marital rape as an offence**.

Note:

- First Law Commission (1834) was created under Thomas Babington Macaulay to “modernise laws and the colonial governance of civil society.” It produced the draft of the Penal Code in 1837, which completely ignored existing Indian laws and instead was founded on British common law.
- With the Rebellion of 1857 and the British Crown taking over direct control in 1858, IPC was finally enacted in 1860 and came into force in 1862.

FEMALE GENITAL MUTILATION

GS II –Welfare schemes for vulnerable sections of the population

Context: The UN agencies stated that in 2024, nearly 4.4 million girls are at risk of female genital mutilation around

the world.

What is Female Genital Mutilation (FGM)?

- It comprises all procedures that involve altering or **injuring the female genitalia for non-medical reasons** and is recognised internationally as a violation of the human rights, health, and integrity of girls and women.
- It is concentrated primarily in **Western, Eastern, and North-Eastern Africa**, as well as select **Middle Eastern and Asian nations**. However, with increased migration, FGM has become a global concern, affecting girls and women in **Europe, Australia, and North America** as well.

Issues/challenges in eradicating FGM:

- It is often deeply rooted in cultural and social norms, with communities practicing it as a tradition passed down through generations. Changing these deeply ingrained beliefs and practices can be challenging.
- Lack of awareness and education about the physical and psychological health risks associated with FGM can perpetuate its continuation.
- Limited data collection and reporting on FGM prevalence hinder efforts to understand the scope of the issue and target interventions effectively.
- Many individuals within communities where FGM is practiced may not fully understand the harmful consequences of the practice.

Global initiatives towards the eradication of FGM:

- **United Nations Population Fund** and **United Nations Children's Fund (UNICEF)**, have co-led the largest global programme on the elimination of female genital mutilation (FGM) since **2008**.
- In 2012, the UN General Assembly designated **6th February** as the **International Day of Zero Tolerance for Female Genital Mutilation**, with the aim to amplify and direct the efforts on the elimination of this practice. Its theme for **2024** was "Her Voice. Her Future".
- The United Nations strives for its full elimination by **2030**, following the spirit of **Sustainable Development Goal 5.SDG 5.3 aims to eliminate all harmful practices**, such as child, early and forced marriage, and female genital mutilation.

Status of FGM in India:

- Presently, no legislation bans the FGM practice in the country. In 2017, in response to a petition in the Supreme Court, the Ministry of Women and Child Development said that **"at present there is no official data or study which supports the existence of FGM in India."**
- However, according to some other unofficial reports, procedures of FGM are prevalent amongst the **Bohra community**, primarily in the states of Maharashtra, Kerala, Rajasthan, Gujarat, and Madhya Pradesh.

Way Forward:

- Strengthening existing laws to **explicitly ban FGM and impose penalties** for those who perform or facilitate it. Governments should ensure effective enforcement of these laws through law enforcement agencies.
- There is a need to ensure that efforts to combat FGM are **grounded in human rights principles** and respect the rights of women and girls. Advocating for the inclusion of FGM prevention and response measures in the **international human rights framework** is the need of the hour.

AFRICA'S POTENTIAL IN GLOBAL RENEWABLE ENERGY TRANSITION

GS II –Effect of policies and politics of developed and developing countries on India's interests

Context: The International Solar Alliance (ISA) held its 5th regional meeting in Kigali, Rwanda. Nine solar power demonstration projects across three countries: 4 in Uganda, 2 in Comoros, and 3 in Mali, were virtually inaugurated in the meeting. A report titled "Roadmap of Solar Energy for Universal Energy Access", was unveiled.

Key Highlights of the "Roadmap of Solar Energy for Universal Energy Access" Report:

- It outlines a strategic approach to effectively and economically tackle the **global energy access challenge using solar-powered solutions**
- Its **conclusions hold significant relevance for Africa, especially the Sub-Saharan region** and rural areas. It identifies a range of electrification strategies centred on **solar energy**, particularly focusing on solar mini-grids and **decentralised renewable energy solutions**.
- These approaches **could encourage the emergence of local innovations and business models**, thereby advancing the adoption of solar energy generation within the country.

Africa's Potential in Global Renewable Energy Transition:

- **Africa holds the potential to emerge as a prominent force in renewable energy generation** and innovation on a global scale as **the continent is endowed with a rich array of renewable energy sources**, including substantial solar capacity, wind resources, **geothermal areas, hydro energy**, and **green hydrogen** prospects.
- **Africa possesses over 40% of the world's crucial mineral reserves** crucial for renewable and low-carbon technologies which offer the opportunity for Africa to not only fulfil its energy requirements but also to **establish itself as a significant player in renewable energy production and advancements worldwide**.

India's role in promoting Africa's potential for Global Renewable Energy Transition:

International Solar Alliance : Salient Points

<p>What is International Solar Alliance?</p> <p>It is an inter-governmental organisation to promote solar energy among member countries. It is headquartered in Gurgaon</p>	<p>How many have joined in?</p> <p>As of now, 61 nations have joined the alliance while 32 have ratified the Framework Agreement</p>	<p>\$83 bn</p> <p>India's requirement to meet its 175 GW goal</p>
<p>What is the concept?</p> <p>It is meant to bring together 121 countries that lie either completely or partly between the two tropics so as to harness solar energy and make the technology freely available to all nations</p>	<p>ISA TARGET</p> <p>1,000 GW Solar generation capacity globally by 2030</p> <p>\$1 trillion Investment required to achieve the 2030 goal</p>	<p>Who's behind it?</p> <p>The idea was conceived and articulated by Prime Minister Narendra Modi during his Wembley Stadium speech at London in 2015</p>
<p>175 Gigawatts (GW) generation from renewable energy is India's target for 2022</p>	<p>20 GW solar power capacity already installed in India, says Modi</p>	

- **India can offer technical expertise and financial assistance** to African nations in developing their renewable energy infrastructure.
- India can facilitate **capacity-building programs and research partnerships through collaborative projects** that address specific energy challenges in African countries and foster technology transfer.
- India can **explore investment opportunities** in African renewable energy projects while contributing to local economic development.
- Indian companies can **export renewable energy technologies and equipment** to African markets.
- India can work towards regional energy partnerships with African countries, fostering cross-border energy trade.
- This can **involve the development of energy corridors and transmission infrastructure to efficiently transfer renewable energy across borders**, ensuring a stable and sustainable energy supply.

Significance of Solar Power Projects:

- The main objective of these projects is to **enhance the well-being of underserved communities**. They **serve as drivers of advancement and symbols of global cooperation**.
- ISA is **partnering with the G20 Presidency of India and promoting solar energy as a means to achieve universal energy access** and enable a sustainable energy transition.
- These projects aim to **highlight the substantial potential of solar technology applications in improving the quality of life** for individuals across the member nations.
- These projects will address the critical lack of affordable funding and technical expertise in its member countries, **especially focusing on Least Developed Countries and Small Island Developing States (SIDS)**.

Decentralised Energy System:

- It is **characterised by locating energy production facilities closer to the site of energy consumption.**
- It allows for **more optimal use of renewable energy (RE)** as well as combined heat and power, reduces **fossil fuel** use, and **increases eco-efficiency.**

Least Developed Countries (LDCs):

- They are a group of countries identified by the United Nations as having the **lowest indicators of socioeconomic development.**
- These countries are characterized by high levels of poverty, low levels of human capital, and limited access to basic services, such as healthcare and education.

Small Island Developing States (SIDS):

- These are islands of the Caribbean Sea and the Atlantic Ocean, Indian Ocean, and Pacific Ocean.
- They were recognized as a **distinct group of developing countries in June 1992, at the UN Conference on Environment and Development.**

PAPER 3

TOY INDUSTRY IN INDIA

GS III – EFFECTS OF INDUSTRIAL GROWTH

Context: The Indian Institute of Management (IIM) Lucknow at the behest of the Department for Promotion of Industry and Internal Trade (DPIIT) under the Ministry of Commerce and Industry, has conducted a case study on “Success Story of Made in India Toys”, highlighting a significant rise in Toy Exports in FY 2022-23 in comparison to FY 2014-15.

Key findings/highlights of the case study on “Success Story of Made in India Toys”:

- The Indian toy industry exhibited **remarkable growth between FY 2014-15** and FY 2022-23, marked by a substantial decline in imports by 52% and a significant rise in exports by 239%. It indicates a shift towards self-sufficiency and global competitiveness.
- There's been an overall enhancement in the quality of toys available in the domestic market. **This emphasizes the importance of meeting international standards** and ensuring consumer satisfaction and safety.
- Government efforts have **facilitated the creation of a more conducive** manufacturing ecosystem. Doubling the number of manufacturing units in six years, reducing dependence on imported inputs from 33% to 12%, increasing gross sales value by a **CAGR of 10%**, and improving labour productivity are noteworthy achievements.
- India's emergence as a top exporting nation in the toy industry indicates **successful integration into the global toy value chain**. Zero-duty market access in key countries like the UAE and Australia has contributed to this growth trajectory.

Significance/Importance of the Toy Industry:

- Toys aid cognitive, physical, social, and emotional development in children.
- Toys provide amusement, relaxation, and imaginative play.
- Toys facilitate learning, foster curiosity, and teach essential skills.
- Toys reflect cultural values, and trends, and promote diversity.
- The toy industry generates revenue, and jobs, and supports related businesses.

Factors behind the growth of India's Toy Industry:

- Large child population (**26.62%**) drives high demand for toys and games.
- GDP growth and rising **middle-class population increase consumer** purchasing power.
- Online platforms and digital payments facilitate access to diverse toys and games.
- Government initiatives like Vocal for **Local Toys campaign, Toycathon, and Aatmanirbhar Toys** Innovation Challenge promote domestic toy industry.
- **67% of parents believe in STEM-focused toys** for children's science and maths development.
- Toy sector is expanding globally, with manufacturers exporting to **Middle East and African countries**.
- India's net exporting of toys is due to protectionism and domestic capabilities expansion.

Challenges/Issues faced by India's Toy Industry:

- Specialization in **board games, soft and plastic toys, puzzles**, requiring imports from South Korea and Japan.
- Inadequate technology and outdated machinery affects quality and design.
- High GST rates on toys, **with 18% for electronic toys and 12% for non-electronic toys**.
- Poor infrastructure and lack of **end-to-end manufacturing facilities hinder growth**.
- Competition from cheap, low-quality **imports from countries like China**.
- Market fragmentation, **with 90% unorganized, making maximum benefit harnessing difficult**.

Indian initiatives to foster the growth in the Toy Industry:

- **National Action Plan for Toys (NAPT)** is a comprehensive plan comprising 21 specific action points, coordinated by DPIIT and implemented by multiple central ministries/departments. It addresses various aspects like design, quality control, promotion of indigenous toy clusters, etc.
- A substantial **increase in Basic Customs Duty (BCD) on toys (from 20% to 60% in February 2020, and subsequently to 70% in March 2023)** aims to protect the domestic toy industry from cheaper imports and encourage local manufacturing.
- The **Directorate General of Foreign Trade (DGFT)**, under the Ministry of Commerce and Industry, mandated sample testing for each import consignment to prevent the import of substandard toys, ensuring better quality control.
- **Quality Control Order (QCO) for Toys** issued in 2020 **emphasizes quality standards for toys**, effective from January 2021, to enhance the overall quality of toys manufactured and sold in the country.
- **Promotional initiatives** like the **Indian Toy Fair 2021** and **Toycathon** aim to promote indigenous toys, encourage innovation, and create a platform for showcasing and ideation in the toy industry.

SPACE DEBRIS

GS III – AWARENESS IN THE FIELDS OF SPACE

Context : ISRO's (Indian Space Research Organization) Rocket Debris was found on the shores of Western Australia.

What do you understand by Space Debris?

- Space debris refers to **man-made objects in Earth's orbit** that no longer serve a useful purpose. This includes **defunct satellites, spent rocket stages**, and fragments of debris from collisions or other events.

Threats from Space Debris:

- Even when falling into the oceans, which is more likely since 70% of the earth's surface is ocean, **large objects can be a threat to marine life**, and a source of pollution.
- Due to the very high speed in low orbit of about 10 km/sec, space debris can damage satellites and spacecraft which can seriously hinder communication and other satellite services like weather forecasting.
- The floating space debris is a potential hazard for operational satellites and colliding with them can leave the satellites dysfunctional. This overpopulation of space with objects and debris is referred to as **Kessler Syndrome**.
- The accumulation of space debris in specific orbital regions can limit the availability of desirable orbital slots for future missions.
- The increasing amount of space debris makes it more challenging for satellite operators and space agencies to accurately track and predict the orbits of objects in space.

Indian Initiatives to deal with Space Debris:

- In 2022, ISRO set up the **System for Safe and Sustainable Operations Management (IS 40M)** to continually monitor objects posing collision threats, predict the evolution of space debris, and mitigate the risk posed by space debris.
- ISRO has set up a Centre for Space Debris Research to monitor and mitigate the threat of space debris.
- **'Project NETRA'** is an early warning system in space to detect debris and other hazards to Indian satellites.

Global Initiatives to deal with Space Debris:

- The **Inter-Agency Space Debris Coordination Committee (IADC)**, an international governmental forum, was established in 1993 to coordinate efforts between spacefaring nations to address the issue of space debris.
- The **United Nations** has established the Committee on the Peaceful Uses of Outer Space (COPUOS) to develop guidelines for the long-term sustainability of outer space activities, including the mitigation of space debris.
- The European Space Agency (ESA) has launched the Clean Space Initiative, aimed at reducing the amount of space debris and promoting sustainable space activities.

Way Forward:

- The ability to track and **monitor space debris can help mitigate the risks** it poses to operational satellites and human space missions.
- Using **reusable launch vehicles instead of single-use rockets** can help reduce the number of new debris generated from launches.
- Using more durable materials and designing satellites for eventual de-orbiting can reduce the number of debris generated in the long term.

SEAWEED**GS III – ENVIRONMENTAL CONSERVATION**

Context: The National Conference on the Promotion of Seaweed Cultivation was held in Koteswar (Kori Creek), Kutch, Gujarat.

What are Seaweeds?

- Seaweeds are **macroscopic, multicellular, marine algae**. They come in a variety of colours, including **red, green, and brown**.
- "Seaweed" is the **common name for countless species of marine plants and algae that grow in the ocean as well as in rivers, lakes, and other water bodies**.
- Seaweeds are **generally anchored to the sea bottom or other solid structures by rootlike "holdfasts,"** which perform the sole function of attachment and do not extract nutrients as do the roots of higher plants.
- They are referred to as the '**Medical Food of the 21st Century**'.

Uses/Significance of Seaweeds:

- They act as **bio-indicator by absorbing excess nutrients** and signalling marine chemical damage caused by waste from agriculture, industries, and households, often leading to **algal blooming**. They play a vital role in **restoring ecosystem balance**.
- Seaweed is a nutritional powerhouse, rich in **vitamins, minerals, and dietary fibre**. It is used in various food products, from **sushi and salads** to snacks and thickeners.
- Many seaweeds **contain anti-inflammatory and anti-microbial agents**. Seaweed is the **best source of iodine**.
- Seaweed extracts are used in a wide range of products, including **cosmetics, pharmaceuticals, and bioplastics**. They offer sustainable alternatives to conventional options.
- Seaweed **absorbs carbon dioxide from the atmosphere as it grows**, making it a potential tool in the fight against **climate change**.
- Seaweed farming provides income and empowers coastal communities, particularly **women and small-scale farmers**.
- Seaweeds are utilized for various purposes, including laxatives, pharmaceutical capsules, **goiter treatment, cancer therapy, bone replacement**, and cardiovascular surgeries.

Government initiatives to promote seaweed cultivation:

- **Seaweed Mission** aims to commercialize seaweed farming and processing for value addition. It also aims to increase cultivation along India's **7,500-kilometer coastline**.
- The **Indian Council of Agricultural Research (ICAR)- Central Marine Fisheries Research Institute (CMFRI)** has successfully commercialized two seaweed-based nutraceutical products, **CadalminTMImmunalgin** extract (CadalmintMIME) and **CadalminTMAntihypercholesterolemic** extract (CadalmintMACe). These products, developed with **eco-friendly 'green' technology**, aim to boost anti-viral immunity and combat high cholesterol or dyslipidemia (imbalance of cholesterol).
- **Multi-Purpose Seaweed Park** has been set up in Tamil Nadu.

Note:

- **Major Seaweed Beds in India** are found along the Tamil Nadu and Gujarat coasts, as well as around **Lakshadweep and the Andaman and Nicobar Islands**.

Seaweed Species in India:

- India boasts approximately 844 reported seaweed species in its seas.
- Some specific species, such as **Gelidiellaacerosa**, **Gracilaria spp.**, **Sargassum spp.**, **Turbinaria spp.**, and **Cystoseiratrinois** are cultivated for the production of agar, alginates, and liquid seaweed fertilizer.
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RADIOACTIVE DISCHARGE

GS III – ENVIRONMENT POLLUTION

Context: The researchers from **Bhabha Atomic Research Centre (BARC)** analyzed the radiological data from six nuclear power plants in India over a period of 20 years (2000-2020) has found that the **radioactive discharges from Indian nuclear plants** have been minimal.

What is Radioactive Discharge?

- It refers to the **release of radioactive substances** into the environment as a result of **human activities**, **typically from nuclear facilities** such as nuclear power plants, research reactors, or other industrial processes involving radioactive materials.

Radioactive Discharge Analysis from Nuclear Plants

- Radioactive discharges from nuclear plants have **minimal environmental impact**.
- Gaseous waste includes fission product noble gases, Argon 41, radioiodine, and particulate radionuclides.
- Liquid discharge includes fission product **radionuclides**, **radioiodine**, **tritium**, **strontium-90**, **caesium-137**, and activation products.
- **Average gross alpha activity** in air particulates at all seven nuclear plants was less than 0.1 mBq per cubic meter.
- Average concentrations of radionuclides in air particulates across all sites were below **1 mBq per cubic meter**.
- Concentrations of **caesium-137 and strontium-90** in sediments were within the statistical variation of values observed in natural sediments.
- Tritium was detectable above the minimum detectable activity at all sites except **the Kudankulam Nuclear Power Station**.

Implications of Radioactive Discharge:

- Radioactive substances can impact ecosystems, affecting plants, animals, and microorganisms.
- Prolonged or high-level exposure to ionizing radiation may increase the risk of radiation-related health issues.
- Exposure to certain radioactive substances, such as strontium-90 and caesium-137, is associated with increased cancer risk.
- Radioactive substances may enter the food chain, posing risks to consumers.
- Areas near nuclear facilities may see a decline in property values due to safety concerns.

India's initiatives related to safe radioactive discharge:

- **The Atomic Energy Regulatory Board (AERB)** serves as the regulatory body for nuclear and radiation safety in India. It establishes and enforces regulations, guidelines, and standards to ensure the safe operation of nuclear facilities, including measures for radioactive discharge.
- Nuclear projects, including power plants, are subject to rigorous **environmental impact assessments**. These assessments evaluate potential environmental and health impacts, including radioactive discharges, before a project is approved.
- Nuclear facilities employ **effluent treatment systems** to manage liquid radioactive waste before discharge. Dilution and dispersion techniques are often used to minimize the concentration of radioactive substances in

discharges.

International conventions and agreements related to safe radioactive discharge:

- **Convention on Early Notification of a Nuclear Accident** is a treaty adopted in 1986 by the International Atomic Energy Agency (IAEA). The treaty requires countries to provide prompt notification of any nuclear accident that may affect other countries.
- **Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management** is a 1997 treaty from the IAEA. It was the first treaty to address radioactive waste management on a global scale. It aims to address the safety of spent fuel management and radioactive waste management, including the prevention of accidents and minimizing potential radiological hazards.
- **Convention on Nuclear Safety (CNS)** is a legally binding treaty that was adopted in 1994 and aims to ensure the safety of nuclear power plants. The CNS is an incentive-based treaty that requires states to establish and maintain a **regulatory framework for nuclear safety**. The CNS also aims to protect people, society, and the environment from the harmful effects of ionizing radiation.
- **European Union (EU) Directives on Radioactive Waste and Spent Fuel Management** require EU countries to have a national policy for managing radioactive waste and spent fuel. It also requires countries to create and implement national programs for managing these materials.

REVIEW OF MARITIME TRANSPORT 2023

GS III – ENVIRONMENTAL POLLUTION

Context: The United Nations Conference on Trade and Development (UNCTAD) has released the Review of Maritime Transport 2023, highlighting the Issue of Greenhouse Gas (GHG) Emissions from International Shipping and Challenges in Decarbonization.

Key highlights of the Review:

- International shipping emissions **increased by 20% in 2023**, contributing to nearly 3% of global GHG emissions.
- Global maritime shipping volumes dropped by 0.4% in 2022 due to Covid-19 supply chain disruptions, but **projected to grow by 2.4% in 2023**.
- Containerized trade is expected to grow **by 1.2% in 2023 and 3% between 2024-2028**.
- The average age of commercial ships is increasing, raising concerns about the cost of alternative fuels.
- **Ship owners face challenges renewing fleets** without clarity on technology and regulatory regimes.
- **Only 1.2% of the global fleet uses** alternative fuels, but progress is underway with 21% of vessels designed for alternative fuels.
- Decarbonizing the fleet by 2050 could require annual investments ranging **from USD 8 billion to USD 90 billion**.

UNCTAD's Economic Incentives for Sustainable Shipping

- Advocates for renewable ammonia and methanol fuels for newer ships with dual-fuel engines.
- Suggests sustainable **marine fuels should achieve zero or near-zero carbon dioxide equivalent** emissions.
- Advocates for system-wide collaboration, **swift regulatory intervention**, and stronger investments in green technologies and fleets.
- Suggests economic incentives like **levies or contributions related to shipping emissions to promote** alternative fuels and support climate-resilient infrastructure investments.
- Stresses the need to balance environmental goals with **economic needs, highlighting that the cost of inaction outweighs** the required investments.
- Urges the shipping industry to move towards digital solutions like AI and blockchain for efficiency and sustainability.

International Initiatives for Decarbonization in International Shipping

- IMO revising existing carbon intensity regulations for ships.
- Development of new regulations called Mid-Term Measures, aiming to agree on these measures by 2025 and have them in force by 2027.

- The Green Voyage 2050 Project, a partnership project between Norway and IMO, aims to transform the shipping industry towards a lower carbon future.

Note:

- **IMO (International Maritime Organization)** has set a target to achieve net-zero GHG emissions by around 2050. The **2023 IMO GHG Strategy** aims for at least **5-10% uptake of zero or near-zero GHG fuels by 2030**.

HUMAN-WILDLIFE CONFLICT

GS III – ENVIRONMENTAL DEGRADATION

Context: Wayanad is on the boil after a wild elephant chased a 47-year-old man and trampled him to death.

What is human-wildlife conflict?

- Human-wildlife conflict **refers to situations where human activities**, such as agriculture, infrastructure development, or resource extraction, **come into conflict with wild animals**, leading to **negative outcomes for both humans and animals**.

Reasons/ factors causing human-wildlife conflict:

- Urbanization and Development
- Lack of Protected areas
- Population explosion
- Deforestation
- Agricultural expansion
- Climate change
- Invasive species
- Increase in eco-tourism
- Substantial increase in the population of prolific breeders like wild boars and peacocks.

Human-Wildlife Conflict Consequences and Government Measures

- Economic losses due to destruction of crops, infrastructure, and livestock.
- Threat to human safety due to attacks by predators **like lions, tigers, and bears**.
- Negative environmental impact due to increased prey populations from human killings.
- Challenge to conservation **efforts due to negative perceptions of wildlife**.
- Psychological impacts on people, especially those affected by **attacks or property damage**.

Government Measures to Reduce Conflict:

- **Wildlife Protection Act of 1972:** Legal framework for activities, hunting prohibition, habitat protection, and protected areas.
- Project Tiger: **Centrally sponsored** scheme providing tigers' havens in national parks.
- Project Elephant: Centrally sponsored scheme protecting elephants, their habitats, and corridors.
- Monitoring Illegal **Killing of Elephants (MIKE): Established by CITES in 1997**.
- Plan Bee: Unique method to keep elephants away from railway tracks.
- Operation Thunderbird: **Aims to fight against wildlife crime**.

Data:

- 222 elephants were killed by electrocution across the country between 2018-19 and 2020-21.
- 29 tigers were killed by poaching between 2019 and 2021, while 197 tiger deaths are under scrutiny.
- **Elephants killed 1,579 humans in three years** — 585 in 2019-20, 461 in 2020-21, and 533 in 2021-22.
- **Tigers killed 125 humans in reserves between 2019 and 2021**.

INDIA'S AVIATION INDUSTRY

GS III – CHANGES IN INDUSTRIAL POLICY

Context: India's aviation industry has witnessed remarkable growth in recent years. However, this rapid expansion has also highlighted critical issues including a **severe shortage of experienced pilots**.

What is the Aviation Industry?

- India's aviation industry is a collective sector encompassing all aspects of civil aviation within the country. It includes various components, such as **airlines, airports, aircraft manufacturing, aviation services, and regulatory authorities**.

Status of India's Aviation Industry:

- India has become the **third-largest domestic aviation market** in the world. India's airport capacity is expected to handle 1 billion trips annually by 2023.
- According to the data released by the **Department for Promotion of Industry and Internal Trade (DPIIT)**, FDI inflow in India's air transport sector (including air freight) reached **USD 3.73 billion** between **April 2000-December 2022**.

Challenges and Initiatives in India's Aviation Industry

- Severe congestion in major airports, leading to delays and operational inefficiencies.
- Indian airlines projected to record a **loss of \$1.6 to 1.8 billion in FY24 due to heavy** financial bleeding of Go First, Spice Jet, and Jet Airways.
- High taxes on aviation turbine fuel and airport charges increase operating costs.
- India's per capita penetration** of domestic air travel is lower than countries like China and Brazil.
- Airlines often announce ambitious growth **plans without adequately** analyzing their financial security, infrastructural, and personnel requirements.
- Cyber threats to **aviation infrastructure disrupt operations and compromise** passenger data.
- The Aircraft Act, of 1934 and Aircraft Rules, of 1937 have not kept pace with modern aerospace technology, increasing costs **and affecting passenger growth**.

Government Initiatives to Promote Aviation Sector in India:

- National Civil Aviation Policy**, 2016 to improve the international footprint of India-based airline services.
- UDAN Scheme to expand access to air travel for **Tier 2 and Tier 3 cities**.
- Open Sky Policy to liberalize the aviation sector by opening the airport sector to private participation.
- Open Sky Air Service Agreement allowing airlines from the **two countries to have unlimited flights and seats to each other's jurisdictions**.
- 100% FDI allowed under the automatic route for greenfield projects, **74% FDI allowed under the automatic route for brownfield projects**.

INHERITANCE TAX

GS III – MOBILIZATION OF RESOURCES

Context: Oxfam report says that 70% of countries don't have any form of inheritance tax on wealth.

What do you mean by Inheritance tax?

- It was a tax that was levied against a particular asset during the time of its inheritance.
- It comes under direct tax and a person can receive inheritance either under a will or under the personal law of the deceased.

Status of inheritance tax in India:

- The Inheritance or Estate Tax was abolished with effect from 1985. In India, the concept of levying tax on inheritance does not exist now.
- In the event of the death of an individual, properties belonging to the deceased would pass on to his legal heirs, a transfer without any consideration in return. Hence, it could qualify as a gift for income tax.
- The Income Tax Act, of 1961, specifically excludes the transfer of assets under will or inheritance from the purview of gift tax.

When should the person receiving the inheritance pay tax?

- The person receiving the inheritance has to pay tax on the income earned (rent, interest, etc.) in respect of the assets inherited by him once he becomes the owner of the same.
- The person has to pay capital gains tax when he sells the inherited asset. The holding period (the period for which the property was held by the heir and the deceased) will determine if capital gains will come under long-term capital gains tax or short-term capital gains tax.
- The judicial pronouncements have held that since the cost to the previous paid-for owner is to be substituted, indexation should be allowed. The indexed capital gains are taxed at a flat rate of 20%.

What is the need for an inheritance tax in India?

- It aids in reducing the inequality.
- It will allow for a more efficient dispersion of wealth.
- It will create a meritocratic society by chipping away the advantages the children of the wealthiest families enjoy by an accident of birth.
- It rests on the principle of utilitarian economics which believes that an optimal social state can be achieved through redistribution of initial endowments.
- Most of India's tax revenues accrue from indirect taxes, intensifying the economically weaker sections.
- Inheritance tax can raise a significant quantum of revenue for the exchequer which could be used to finance public welfare.
- Countries such as England, France, Germany, the USA, and Greece have been taxing inherited wealth at as high as 40%.

Indexation:

It is a systematic process that enables individuals to protect their earnings against tax erosion. It allows individuals to adjust the cost of investment for inflation with the help of a price index.

MONKOMB SAMBASIVAN (MS) SWAMINATHAN

GS III – ACHIEVEMENTS OF INDIANS IN SCIENCE AND TECHNOLOGY

Context: Monkomb Sambasivan (MS) Swaminathan, hailed as the 'Father of India's Green Revolution,' passed away at the age of 98.

MS Swaminathan was an Indian agronomist, plant geneticist, and humanitarian. He was the pioneer leader of the Green Revolution in India.

Early Life:

- MS Swaminathan was born on **7th August 1925** in Kumbakonam, Tamil Nadu.
- He completed a **B.Sc. in Zoology and Agricultural Sciences**. He completed a Master's in Agricultural Sciences from the Indian Agricultural Research Institute (IARI) in 1949, with a focus on genetics and plant breeding.
- He completed his **Ph.D.** as a geneticist at **Cambridge University in 1952**, where he specialized in the genus *Solanum* of the potato and later returned to India in 1954.

Influence:

- MS Swaminathan was greatly influenced by **Mahatma Gandhi's teachings of selfless service to the poor and the nation**.
- He was very much influenced by the 1943 Bengal famine, which killed up to three million people. He realized the need to improve agriculture and food security in India.

Career:

- MS Swaminathan joined the **Indian Agricultural Research Institute (IARI)** as a faculty. He later served as the **director** of IARI from 1961 to 1972.
- He was the **Director-General of the Indian Council of Agricultural Research from 1972 to 1979**, and the principal secretary of the Indian Ministry of Agriculture and Irrigation from 1979 to 1980.
- He was in charge of India's Planning Commission's agriculture and rural development from 1980 to 1982.

- In 1982, Swaminathan was appointed as the **Director-General of the International Rice Research Institute (IRRI)** in the Philippines and President of the International Union for Conservation of Nature and Natural Resources from 1984 to 1990.
- **He established the MS Swaminathan Research Foundation** in 1988, which aimed to accelerate the use of modern science and technology for agricultural and rural development to improve the lives and livelihoods of communities. MS Swaminathan Research Foundation follows a **pro-poor, pro-women, and pro-nature approach** and applies appropriate science and technology options to address practical problems faced by rural populations in agriculture, food, and nutrition.

MS Swaminathan's Contributions to Indian Agriculture

- Contributed to the **Green Revolution in India in the 1960s and 1970s**.
- Invited Dr. Norman Borlaug to India after learning about his Mexican dwarf wheat variety.
- Established thousands of **demonstration plots in northern India in 1965**, demonstrating the genetically superior grain.
- Directed the development of the **High Yielding Varieties (HYV)** and collaborated with the government to increase awareness and adoption among the farming community.
- Advocated for an effective public distribution system to ensure food grains reach poor consumers, leading to **India's food self-sufficiency in 1971**.
- Received the **World Food Prize in 1987** for his contributions to agricultural science and food security.
- Chairman of the National Commission on Farmers, issued five reports recommending minimum crop support prices, **faster and more inclusive growth, and a comprehensive** national policy to address farmer suicides.
- Promoted sustainable **agriculture and rural development using ecotechnology-based** bio-villages and Village Knowledge Centres.
- Promoted the idea of an "**evergreen revolution**" promoting continuous improvement in agricultural productivity without harming the environment.
- Pioneered cryogenetics studies in **potato crops, preventing crop infestations** and making crops resistant to cold weather.

Awards and Recognition received by MS Swaminathan:

- He has received over **80 honorary doctorates** from universities all over the world.
- He served as a **Member of Parliament** in Rajya Sabha from 2007 to 2013. He chaired the Task Force (of the Ministry of External Affairs) to oversee agricultural projects in Afghanistan and Myanmar.
- **He has received the following international awards:**
 - Ramon Magsaysay Award for Community Leadership, 1971
 - Albert Einstein World Science Award, 1986
 - World Food Prize, 1987
 - UNEP Sasakawa Environment Prize, 1994
 - Franklin D Roosevelt Four Freedoms Medal, 2000
 - Mahatma Gandhi Prize of UNESCO, 2000
- **He has received the following national awards:**
 - S.S. Bhatnagar Award for his contribution to biological sciences in 1961
 - Padma Shri in 1967, Padma Bhushan in 1972, and Padma Vibhushan in 1989
 - Indira Gandhi Prize for Peace, Disarmament and Development, 2000
- Lal Bahadur Shastri National Award, 2007

LEWIS MODEL

GS III – CHANGES IN INDUSTRIAL POLICY

Context: While the Lewis Model has proved successful for China, India grapples with its implementation, encountering challenges in the transition from agriculture to industrialization.

What is the Lewis Model?

- Lewis Model suggested that **surplus labor in agriculture could be redirected to the manufacturing sector** by

offering wages just high enough to attract workers away from the farm. This shift, in theory, **would stimulate industrial growth**, enhance productivity, and lead to **economic development**.

- It was given by Economist **William Arthur Lewis** in **1954**, who put forth the "**Economic Development with Unlimited Supplies of Labor**" and won the **Nobel Prize in Economics** in 1979.

Challenges in Implementing the Lewis Model in India

- Low wages and social security in urban manufacturing facilities hinder rural **agricultural laborers' relocation**.
- Capital-intensive manufacturing industries rely on labor-displacing technologies, restricting absorptive capacity.
- India faces disguised unemployment in the **agricultural sector, complicating worker transition**.
- Skills gap between **industries and workforce due to inadequate education** system.
- Societal bias favoring **white-collar jobs over vocational or technical skills limits** workforce for skilled trade and technical jobs.

Alternate Models:

- Farm-as-Factory Model: Focuses on value addition and productivity within the agricultural sector.
- Services-led Model: Leverages India's comparative advantage in services to drive economic growth.
- Amartya Sen's Capability Approach: Enhances individuals' capabilities and freedoms by prioritizing education, healthcare, and social support.

LENTIL PRODUCTION IN INDIA

GS III - CROPPING PATTERNS

Context: As per the Ministry of Consumer Affairs, India is set to become the world's largest producer of lentils (masoor) during the 2023-24 crop year on account of higher acreage.

What do you mean by Lentil?

- Lentil is a bushy **annual herbaceous plant** of the **legume family**. These are edible legumes, known for their lens-shaped, flat disced seed.
- They are excellent sources of energy, carbohydrates, protein, fat, fibers, phosphorus, iron, zinc, carotene, vitamins, and antioxidants.

What are the factors that led to the significant increase in lentil production in India?

- The MSP for lentils was raised to Rs 6,425 per quintal for the Rabi Marketing Season 2024-25, a significant increase from Rs 2,950 per quintal in 2014-15. This move is aimed at promoting lentil cultivation and making it economically viable for farmers.
- The government has incentivized farmers to cultivate more pulses, leading to a reported increase in the area under lentil crops. As of January 12, 2024, there were 19.45 lakh hectares under lentil cultivation, marking a 6% increase from the previous year and a **substantial 37% higher than the normal area**.

Climatic conditions for lentil cultivation:

- Lentil is grown during the **rabi season**.
- It is primarily grown as a rainfed crop that requires **cold temperatures during its vegetative growth** and warm temperatures at the time of maturity.
- Lentils thrive in well-drained, sandy loam to clayey soils with a pH around 7.
- Lentils **do not tolerate flooding or water-logged conditions**.
- The ideal temperature for lentil cultivation ranges between 15°C to 25°C.

Lentil cultivation area:

- Lentils are grown in various states across India, with **major producing states including Madhya Pradesh, Uttar Pradesh, Rajasthan, Maharashtra, and Haryana**.

Note:

- According to the **Food and Agriculture Organization (FAO)**, the world's top lentil growers in 2022 were **Canada, India**, Australia, Turkey, and Russia. Despite being the **second largest producer of lentils, India has so far been relying on imports** to meet its domestic requirements, buying mainly from Australia, Canada, Russia, Singapore, and Turkey.

HIMALAYAN FOREST FIRES

GS III – DISASTER MANAGEMENT

Context: As per the **Forest Survey of India (FSI)**, there have been **2,050 incidents of forest fires** in the Himalayas between 16th October 2023 and 16th January 2024, but there were **just 296 incidents of forest fires during the same period last year**.

What is a Forest Fire?

- It can be described as any **uncontrolled and non-prescribed combustion** or burning of plants in a natural setting such as a forest, grassland, brushland, or tundra, which consumes natural fuels and spreads based on environmental conditions (e.g., wind, topography).
- Three conditions need to be present for a **wildfire to burn - fuel, oxygen, and a heat source**.

Factors and Impacts of Forest Fires in Himalayan Region

- Lack of snowfall and rainfall in winter creates dry conditions, **triggering forest fires**.
- Dry leaves and soil act as **potential fuel for fires**.
- Human activities like careless discarding of cigarettes or uncontrolled burning can trigger fires.
- Fire-prone and flammable **tree species like Chir pine increase the risk**.
- Controlled burning by the forest department may contribute to the issue.

Impacts of Himalayan Forest Fires

- Forest fires significantly contribute to soil erosion and degradation.
- Decrease in forest cover due to fires, with Himachal Pradesh reporting **a loss of approximately 826 square kilometers**.
- Forest-dependent communities are disproportionately affected, **leaving around 20% vulnerable to poverty**.
- Air quality deteriorates significantly during peak fire seasons.
- Cultural impact of forest fires, including **damage to sacred sites and disrupting traditional practices**.

Government interventions and measures to control forest fires in the Himalayan region:

- The **National Disaster Management Authority (NDMA)** data indicates that preventive measures, such as controlled burning and firebreaks, are increasingly being adopted. States like Himachal Pradesh have reported a 30% reduction in forest fire incidents through the implementation of preventive strategies.
- The Forest Survey of India utilizes advanced technologies, including satellite imagery and remote sensing, for real-time monitoring. This technology integration has improved early detection rates by 40%, aiding in prompt response and containment.
- The local forest management committees actively participate in fire prevention, demonstrating a reduction in fire incidents by 25% in their managed areas. For example, the Van Panchayats in Uttarakhand showcase the effectiveness of community involvement.

GEOENGINEERING TECHNIQUE

GS III – ENVIRONMENTAL CONSERVATION

Context: A study published in the journal Nature Food highlights the potential consequences of a geoengineering technique and stratospheric aerosol intervention (SAI) on global food production.

Geoengineering Technique:

- It is a term that refers to the deliberate large-scale intervention in the Earth's climate system to combat climate change.
- These interventions generally fall into two categories - **Carbon Dioxide Removal (CDR) and Solar Radiation**

Management(SRM).

Carbon Dioxide Removal (CDR): These techniques aim to remove excess carbon dioxide from the atmosphere, thereby reducing the greenhouse effect. **Various CDR Techniques are:**

- **Afforestation and Reforestation:** Planting trees or restoring forests to increase the natural absorption of carbon dioxide by plants.
- **Biochar:** Converting **biomass** into **charcoal** and burying it in the soil to enhance its carbon storage capacity.
- **Bioenergy with Carbon Capture and Storage (BECCS):** Growing crops for **biofuel production** and capturing the carbon dioxide emitted during combustion and storing it underground or in the ocean.
- **Ocean Fertilization:** Adding nutrients such as iron or **nitrogen to the ocean to stimulate the growth of phytoplankton** that consume carbon dioxide and transfer it to the deep ocean.

Solar Radiation Management (SRM): These techniques aim to reduce the amount of solar energy that reaches the Earth's surface, thereby cooling the planet. **Various SRM Techniques are:**

- **Stratospheric Aerosol Intervention (SAI):** It would introduce aerosols into the stratosphere to create a cooling effect via global dimming and increased **albedo**, which occurs naturally from volcanic winter.
- **Space-Based Reflectors (SBR):** Placing mirrors or other devices in orbit around the Earth to deflect or block some of the incoming sunlight.
- **Marine Cloud Brightening (MCB):** Spraying seawater droplets or other substances into low-level clouds over the ocean to increase their reflectivity and albedo.
- **Cirrus Cloud Thinning (CCT):** Reducing the formation or persistence of high-level cirrus clouds that trap heat by cloud seeding them with ice crystals or other agents.
- **Surface Albedo Modification (SAM):** Changing the reflectivity of the land or sea surface by painting roofs white, covering deserts with reflective sheets, or increasing the ice cover.

"Stratospheric Aerosol Intervention: Plan B for Climate Change Mitigation"

- SAI mimics volcanic eruptions by injecting **sulphur dioxide into the stratosphere**, forming reflective aerosol particles.
- NASA reports a drop in average global temperature of about **0.6 degrees Celsius over 15 months** due to SAI.
- SAI impacts agriculture differently based on **precipitation and solar radiation**.
- Uncontrolled climate change leads to crop production in **cold, high-latitude areas like Canada and Russia**.
- Large amounts of climate intervention could increase agricultural production in the tropics, including **Mexico, Central America, the Caribbean, South America, Africa, parts of the Middle East, India, Southeast Asia, Australia, and Oceania**.

DROUGHT IN THE AMAZON RAINFOREST

GS III – ENVIRONMENTAL DEGRADATION

Context: The Amazon Rainforest, often referred to as the "lungs of the earth," is currently facing an unprecedented and severe drought.

Drought Factors in Amazon Rainforest

- **El Niño:** Abnormal warming of Pacific Ocean surface waters leads to decreased humidity and reduced rainfall, exacerbating drought conditions.
- **High Water Temperatures in the Northern Tropical Atlantic Ocean:** Warm air inhibits cloud formation, causing sharp drop in rainfall.
- **Human-Induced Climate Change:** Deforestation from agriculture and logging hampers climate regulation and moisture retention, increasing drought susceptibility.
- **Unregulated Mining Activity:** Creates land banks impeded by mining, releasing pollutants and greenhouse gases.
- **Hydroelectric Dams:** Construction and operation on Madeira River contribute to drought scenarios.
- **Infrastructure Construction:** Cuts through conserved areas, increases deforestation, and intensifies climate

anomalies.

Impacts of the drought caused in the Amazon rainforest:

- It has caused water levels to drop drastically in many rivers, including the **Rio Negro a tributary of the Amazon, one of the world's largest rivers by discharge levels**, which has fallen to a record low level.
- This has left tens of thousands of people stranded in remote jungle villages, with **limited access to food, drinking water, medicine, and other supplies**. Some communities have reported outbreaks of diseases such as **diarrhoea and skin infections due to the contaminated water**.
- The drought has also affected the biodiversity and wildlife of the rainforest. Hundreds of fish and **Amazon River dolphins** also known as **boto or pink river dolphin**, have been found dead, their rotting carcasses polluting the water. Many animals are also suffering from hunger and thirst, as their habitats and food sources are shrinking.
- The drought has also increased the **risk of forest fires**, which have reached a record high in some areas. The fires have destroyed large swathes of vegetation, released huge amounts of **carbon dioxide into the atmosphere**, and created a thick haze of smoke that has worsened the air quality and visibility in many cities.

Amazon Rainforest:

- These are large tropical rainforests occupying the **drainage basin of the Amazon River** and its tributaries in northern South America and covering an area of 6,000,000 square km.
- The Amazon Basin supports the **world's largest rainforest**, which accounts for more than half the total volume of rainforests in the world.
- Comprising about **40% of Brazil's total area**, Peru, and also parts of Guyana, Colombia, Ecuador, Bolivia, Suriname, French Guiana, and Venezuela, the **Amazon River Basin is the world's largest drainage system**.
- It is bounded by the **Guiana Highlands** to the north, the **Andes Mountains** to the west, the **Brazilian Central Plateau** to the south, and the **Atlantic Ocean** to the east.

CENTRAL BANK DIGITAL CURRENCY (CBDC)

GS III – DEVELOPING NEW TECHNOLOGY

Context: The Reserve Bank of India (RBI) Governor has highlighted the potential of Central Bank Digital Currency (CBDC) or E-rupee in improving cross-border payments' efficiency.

What do you mean by Central Bank Digital Currency (CBDC)?

- CBDCs are a digital form of a **paper currency and unlike cryptocurrencies** that operate in a regulatory vacuum, these are **legal tenders issued and backed by a central bank**.
- It is the same as a **fiat currency** and is exchangeable one-to-one with the fiat currency.
- It is different from decentralised virtual currencies and crypto assets, which are not issued by the state and lack the 'legal tender' status.
- CBDC can be transacted using wallets backed by **blockchain**.

Objectives of CBDC:

- It aims to mitigate the risks and trim costs in handling physical currency, costs of phasing out soiled notes, transportation, insurance, and logistics.
- It will also wean people away from cryptocurrencies as a means of money transfer.

CBDC's Significance and Challenges in India

Significance of CBDC:

- Revolutionizes cross-border transactions with instant settlement feature.
- Provides faster, cheaper, **transparent, and inclusive cross-border payment services**.
- Supports economic growth, **international trade, and financial inclusion**.
- Can gradually shift cultural norms towards virtual currency by reducing currency handling costs.
- **Exploration of CBDC for various** financial activities to push informal economy into formal zone.

Challenges in Adopting CBDC in India:

- High user privacy risk due to potential handling of **large amounts of data**.
- Potential impact on banks' ability to reinvest funds into credit intermediation.
- Challenges for weaker **banks to retain low-cost deposits with e-cash**.
- Threat of faster obsolescence of technology leading to higher upgradation costs.
- Operational risks of intermediaries due to staff retraining.
- Elevated cyber security risks and firewall protection costs.

Fiat currency:

It is a national currency that is not pegged to the price of a commodity such as gold or silver.

Global Trends of CBDC:

- Bahamas has been the first economy to launch its nationwide CBDC — Sand Dollar in 2020.
- Nigeria is another country to have rolled out eNaira in 2020.
- China became the world's first major economy to pilot a digital currency e-CNY in April 2020.

LEPROSY

GS III – HEALTH

Context: World Leprosy Day is observed every year on the last Sunday of January. In **India, it is observed on 30th January every year.**

What is Leprosy?

- Leprosy, also known as **Hansen's disease**, is a **chronic infectious disease** caused by a type of bacteria called "**Mycobacterium leprae**".
- The disease affects the **skin, the peripheral nerves, mucosal surfaces** of the upper respiratory tract, and the eyes.
- Leprosy is known to occur at **all ages ranging from early childhood to old age**.
- Leprosy is not inherited, but it is **transmitted via droplets, from the nose and mouth**, during close and frequent contact with untreated cases.

Classification of Leprosy:

- **Paucibacillary (PB)** leprosy includes all **smear-negative cases (smaller bacterial load)**.
- **Multibacillary (MB)** leprosy includes all **smear-positive (more infectious compared to smear-negative PTB) cases**.

Treatment:

- **Leprosy is curable** and treatment during early stages can prevent disability.
- The currently recommended treatment regimen consists of three drugs: **dapsone, rifampicin, and clofazimine**. The combination is referred to as multi-drug therapy (MDT).

Global Burden of Leprosy:

- Leprosy is a **neglected tropical disease (NTD)** that still occurs in more than 120 countries, with more than 200,000 new cases reported every year.
- In 2022, **182 countries reported over 1.65 lakh cases** of leprosy, including 174,087 new cases.
- According to the WHO, most countries with high rates of new leprosy cases are in the **WHO African and South-East Asia Regions**.

India and Leprosy:

- India has achieved the **elimination of leprosy as a public health problem** as per WHO criteria of less than **1 case per 10,000 population at the National level in 2005**.
- The prevalence rate of leprosy is 0.4 per 10,000 population in the country.

Global initiatives to tackle Leprosy:

- In 2016 WHO launched the Global Leprosy Strategy 2016–2020, which aims to reinvigorate efforts to control

leprosy and avert disabilities, especially among children still affected by the disease in endemic countries.

- **Global Partnership for Zero Leprosy (GPZL)** is a coalition of individuals and organizations committed to ending leprosy.
- Every year **last Sunday in January** is observed as World Leprosy Day to raise awareness about **leprosy disease and to teach people about this ancient disease** that is now easily curable. The theme for World Leprosy Day 2024 is "Beat Leprosy".

India initiatives to tackle Leprosy:

- **National Strategic Plan (NSP) and Roadmap for Leprosy (2023-27)** is launched to achieve **zero transmission of leprosy by 2027** i.e. three years before the **Sustainable Development Goal (SDG) 3.3**.
- **National Leprosy Eradication Programme (NLEP)** is a centrally sponsored health scheme introduced in **1983** and it has been implemented with the major objective of reducing the **disease burden, preventing disability, and improving awareness** among the masses about Leprosy and its curability.

- **Note:**

SDG 3.3 is by 2030, to **end the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases** and combat hepatitis, water-borne diseases, and other communicable diseases.

INVASIVE ALIEN SPECIES

GS III- Environmental Conservation

Context: The Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) has released an "Assessment Report on Invasive Alien Species and their Control."

What are Invasive Alien Species?

- They are also known as **invasive exotic species or non-native species**, referring to organisms that have been introduced to regions or ecosystems outside of their native range and **have established self-sustaining populations**.
- They often **outcompete native species** and **disrupt the balance of ecosystems**.

Factors responsible for increasing invasive species:

- Increased international trade and travel have facilitated the **unintentional movement of species across borders**. **Cargo ships, airplanes, and vehicles** can inadvertently carry invasive species within **cargo, through ballast water, or attached to their surfaces**, facilitating their unintentional spread.
- Elevated temperatures and shifts in precipitation patterns promote **environments conducive to the colonization and proliferation of invasive species**.
- Deliberate introduction: **gardening, landscaping, and pest control** can lead to invasions when these species escape cultivation.

Impacts of invasive alien species:

- Some invasive species may become **predators of native species**, causing declines in prey populations.
- Species like **Zebra mussels can clog water pipes and infrastructure**, leading to expensive repairs and maintenance.
- The reduction of food supply is the most common consequence of alien invasive species. Examples include the **Caribbean false mussel damaging fisheries in Kerala**.
- Invasive species like **Aedes albopictus and Aedes Aegyptii** spread diseases like **malaria, Zika, and West Nile Fever**, impacting human health.

Key findings of the "Assessment Report on Invasive Alien Species and their Control":

- It reveals the **presence of approximately 37,000 alien species**, introduced by **human activities**, across

various regions and biomes. Of these, more than **3,500** are classified as **invasive alien species**, posing severe threats to local ecosystems.

- About **6% of alien plants, 22% of alien invertebrates, 14% of alien vertebrates**, and 11% of alien microbes are known to be invasive.
- The **water hyacinth** ranks as the **world's most widespread invasive alien species on land**. **Lantana**, a **flowering shrub**, and the **black rat** hold the second and third positions on the global invasion scale.
- Invasive alien species are now recognized as **one of the five primary drivers of biodiversity loss**, alongside **land and sea use change, direct exploitation of organisms, climate change, and pollution**.
- **Nearly 80% of the documented impacts of invasive species** on nature's contribution to people are **negative**.
- **Invasive alien species are most damaging on islands**. On more than 25% of all islands, the number of alien plants now exceeds the number of native plants.

International initiatives to address invasive alien species:

- In the **Kunming-Montreal Global Biodiversity Framework (2022)**, governments have committed to reducing the rate of introduction and establishment of invasive alien species **by at least 50% by 2030**.
- **Convention on Biological Diversity (CBD - 1992)** was adopted at the **1992 Earth Summit in Rio de Janeiro** recognizes invasive alien species as a major threat to the environment.
- **Convention on the Conservation of Migratory Species (CMS - 1979)** is an intergovernmental treaty that aims to **conserve migratory species** and includes measures to control or eliminate invasive alien species already present.
- **The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES - 1975)** focuses on ensuring **international trade does not threaten the survival of wild animals and plants**; it also considers the impact of invasive species involved in trade.

INFRASTRUCTURE

GSIII- Infrastructure

Context: Lakshadweep's proximity to international shipping routes confers on it the potential to become a logistics hub.

Significance of Lakshadweep:

- Lakshadweep's pristine beaches, **coral reefs**, and clear waters present a **remarkable tourist destination**. With proper infrastructure development and sustainable tourism practices, Lakshadweep **could become a premier tourist hotspot**.
- As it is situated near international shipping routes, Lakshadweep holds the potential to become a strategic logistics hub. Its proximity to **coastal Karnataka, particularly Mangaluru (a Major Port)**, offers opportunities for trade partnerships and cargo handling.
- Lakshadweep's **designation as a restricted area** underscores its ecological significance.
- The development initiatives for Lakshadweep, as outlined in the **Interim Budget 2024-25** proposal, not only benefit the islands but also contribute to regional growth, particularly for areas like Mangaluru.

Issues/Concerns related to development in Lakshadweep:

- The **delicate ecosystem of the islands**, including coral reefs and marine life, is vulnerable to damage from construction, pollution, and increased human activity.
- The **traditional way of life and cultural heritage of the indigenous communities** could be at risk with rapid development and increased tourism.
- **The lack of adequate infrastructure**, including transportation, accommodation, and healthcare facilities, poses a significant challenge to tourism and trade in Lakshadweep.

Lakshadweep:

- It is India's **smallest Union Territory**, is an archipelago consisting of 36 islands with an area of 32 sq km.

- It is a uni-district Union Territory and comprises 12 atolls, three reefs, five submerged banks, and ten inhabited islands in the emerald **Arabian Sea**.
- It is directly under the control of the Centre through an administrator.

Way Forward:

- Developing modern infrastructure while preserving the islands' natural beauty and unique character requires careful planning and investment.
- Engaging local communities in the planning and implementation of development projects is crucial for their success and sustainability.
- Ensuring that the benefits of development are **equitably distributed among residents** and that their concerns are addressed is essential for fostering social cohesion and support for growth initiatives.

FUNGI

GS III – Environmental Conservation

Context: United Nations Biodiversity has urged people globally to use the word 'funga' whenever they say 'flora and fauna', to highlight the importance of fungi.

What are Fungi/ fungus ?

- Are a diverse group of **eukaryotic microorganisms or macroscopic organisms** that belong to their **biological kingdom**, distinct from **plants, animals, and bacteria**.

Characteristics of Fungi:

- Like **plants, animals, and protists, fungi** have complex, **membrane-bound cell organelles and a true nucleus**.
- **Fungi** are primarily **decomposers or saprophytes**, i.e. obtain nutrients by **absorbing organic matter** from their **surroundings**.
- Fungi secrete enzymes to **break down complex organic compounds** into simpler substances, **which they can then absorb**.

Benefits of Fungi:

- **Fungi** can convert nutrients to make them accessible to **plants**, acting as **decomposers by breaking down organic matter**, thereby enhancing **nutrient cycling and soil fertility**.
- **Fungi** play a vital role in **soil carbon storage** by participating in the **carbon cycle**.
- Applications: **Yeasts**, for instance, are used in **baking and brewing**. Also produce **antibiotics** like **penicillin**.
- Some **fungi**, like **mushrooms and truffles**, are **edible and prized in cuisine**. Others, like **molds**, are used in **cheese production**.
- **Fungi** have been found to help degrade **various pollutants** from the **environment**, such as **plastic** and other **petroleum-based products, pharmaceuticals and personal care products, and oil**.

Harmful Effects of Fungi:

- Causes a variety of diseases in **humans and animals**. Examples include **athlete's foot (caused by dermatophytes), ringworm, histoplasmosis, and aspergillosis**. Some fungi produce **toxic compounds known as mycotoxins, which can contaminate food** and lead to **health problems when consumed**.
- **Fungal pathogens** can infect and damage **crops and plants**, leading to **significant economic losses** in agriculture. Examples include **rust, powdery mildew, and various types of fungal blights**.
- Exposure to **fungal spores**, especially in **indoor environments with high humidity**, can **trigger allergies and respiratory problems** in some individuals. Conditions like **allergic rhinitis and allergic bronchopulmonary aspergillosis** are associated with **fungal allergens**.
- **They break down** materials such as **textiles, leather, and paper**, which can be detrimental if these materials are not properly preserved or stored.

Why has the UN Biodiversity urged to use the word 'Funga'?

- According to **UN Biodiversity**, "It is time for **fungi** to be recognised and protected on an equal footing with **animals** and plants in **legal conservation frameworks**".
- There would be **no life on Earth** without **fungi, yeasts, molds, and mushrooms** as they are critical to **decomposition and forest regeneration, mammalian digestion, carbon sequestration, the global nutrient cycle, and antibiotic medication**.

CARBON NANOFLORETS

GS III –Science and Technology: Developments and their Applications

Context: Researchers at IIT Bombay have created carbon nanoflorets capable of converting sunlight into heat with unmatched efficiency.

What are Carbon Nanoflorets?

- These are a **unique nanostructure composed of carbon atoms arranged in a distinctive floret-like morphology**.
- They have a high surface area and various potential applications in fields such as materials science, electronics, and nanotechnology due to their exceptional properties and structure.
- The carbon nanoflorets, developed by researchers from IIT Bombay, demonstrate an impressive **light absorption efficiency of 87%**.
- They can absorb multiple frequencies of sunlight, including infrared, visible light, and ultraviolet, in stark contrast to **traditional solar-thermal materials** that typically **absorb only visible and ultraviolet light**.

Applications of Carbon Nanoflorets:

- They are ideal for water heating applications, offering a **sustainable and cost-effective solution** that reduces reliance on **fossil fuels**.
- Nanoflorets **can be applied to diverse surfaces**, such as paper, metal, and terracotta clay, making them versatile for various applications.
- By utilizing nanofloret coatings, users can harness **solar energy** for heating their homes in an environmentally friendly manner, thereby reducing their carbon footprint.
- Coated nanoflorets exhibit exceptional stability with a minimum **lifetime of eight years**.

ASTEROIDS

GS III –Awareness in the field of space

Context: NASA's OSIRIS-REx mission brought the sample from carbon-rich asteroid Bennu back to Earth.

What do you mean by Asteroids?

- They are sometimes called **minor planets** are rocky objects that orbit the Sun, much **smaller than planets**.

Division of Asteroids based on their location:

- **The Main Asteroid Belt is found in the main asteroid belt between Mars and Jupiter**, which is estimated to contain somewhere between 1.1-1.9 million asteroids. The total mass of all the asteroids in the main asteroid belt combined is less than that of Earth's Moon.
- **Trojans are asteroids** that share an orbit with a larger planet but do not collide with it.
- **Near-Earth Asteroids** have orbits that pass close to the Earth. Asteroids that cross the Earth's orbit are called Earth-crossers.

Bennu:

- It is believed to be a **primitive asteroid**, dating back to the early solar system, about 4.5 billion years ago. It is considered a carbonaceous asteroid, suggesting that it contains carbon-rich and potentially organic materials.
- It is a **relatively small asteroid** with a diameter of approximately 492 meters (about 1,614 feet). It is roughly spherical.
- It has a slow rotation period of about 4.3 hours, which is relatively rapid for an object of its size.
- It follows an elliptical orbit around the Sun, which brings it close to Earth's orbit. It is classified as a near-Earth asteroid (NEA).

What is OSIRIS-REx's mission?

- **OSIRIS-REx is an acronym for** Origins, Spectral Interpretation, Resource Identification, and Security -Regolith Explorer.
- The goal of the mission is to **collect samples from asteroid Bennu and deliver them to Earth.**
- In 2023, it became the first U.S. mission to deliver a sample of an asteroid to Earth.
- **After its sample delivery, OSIRIS-REx continued on a new mission to asteroid Apophis. Hence renamed as OSIRIS-APEX (OSIRIS-Apophis Explorer).**

Significance/Contributions of Asteroid Exploration to Astronomy:

- **Asteroids like Bennu are considered remnants of the formation of our solar system.** Analysing these samples can help us understand the conditions and materials present at that time.
- Samples can provide insights into the chemical and organic compounds that may have played a role in the origin of life on Earth. For example, initial studies of the Bennu sample show evidence of high-carbon content and water, which together could indicate the building blocks of life on Earth.
- The mission demonstrates advanced technology in spacecraft design, navigation, and sample collection which can be applied to future space missions. **JAXA (Japan) will launch its MMX (Martian Moons eXploration) mission in 2024** to study the Martian moons and will collect surface samples from Phobos.
- By analysing the **composition of Bennu's materials, we can assess the potential for resource utilization, such as mining asteroids for valuable minerals or water.**
- The mission highlights the **significance of global collaboration in space exploration and the scientific community's ability to work together on ambitious projects.** This includes **global missions for gathering samples from space in general and exploration of asteroids in particular.**

PLASTIC POLLUTION

GS III –Environmental Pollution

Context: A parliamentary panel raised concerns over the ineffective handling of plastic waste in the country, citing a report from the **Comptroller and Auditor General (CAG).**

What is Plastic Pollution?

- Plastic pollution refers to the accumulation of plastic waste in the environment, leading to negative impacts on ecosystems, wildlife, human health, and overall ecological balance.

Issues associated with plastic waste in India:

- Like much of the world, India is struggling to dispose of its growing quantities of plastic waste given how ubiquitous it has become- **from our toothbrushes to debit cards. A little over 10,000 tonnes a day of plastic waste remains uncollected.**
- India's packaging industry is the biggest consumer of plastics. A 2020 study on **packaging in India projects a loss of almost 133 billion dollars' worth of plastic material value over the next decade due to unsustainable packaging.** Unsustainable packaging involves **general packaging through single-use plastic.**

- The popularity of online retail and food delivery apps, though restricted to big cities, is contributing to the rise in plastic waste. India's **biggest online delivery start-ups Swiggy and Zomato are each reportedly delivering about 28 million orders a month.**
- Polluting **plastics can affect the world's tiniest organisms, such as plankton.** When these organisms become poisoned due to plastic ingestion, this **causes problems for the larger animals that depend on them for food.** Larger items, such as plastic bags and straws, can choke and starve **marine life**, while smaller fragments (microplastics) can cause liver, reproductive, and gastrointestinal damage in animals and it can **directly impact the blue economy as well.**
- The **World Health Organisation** published shocking research in 2018 that exposed the **presence of microplastics in 90% of bottled water.** Plastic toxicity in humans can lead to hormonal disruption and adverse reproductive and birth outcomes.

How is India addressing the concerns regarding plastic waste?

- India launched a **nationwide awareness campaign on single-use plastics** on **World Environment Day** in June 2022. A **mobile app for Single Use Plastics Grievance Redressal** was also launched to empower citizens to check the sale/usage/manufacturing of SUP in their area and tackle the plastic menace.
- **Plastic Waste Management Amendment Rules of 2022 prohibits the manufacture, import, stocking, distribution, sale, and use of several single-use plastic items as of July 1, 2022.** It has also mandated **Extended Producer Responsibility (EPR)** that incorporates circularity by making **manufacturers of products responsible for collecting and processing their products upon the end of the product's lifetime.**
- **India Plastics Pact** is the **first of its kind in Asia.** The Plastics Pact is an ambitious and collaborative initiative to **bring stakeholders together to reduce, reuse, and recycle plastics within the material's value chain.**
- **Project REPLAN (stands for REducing PLastic in Nature)** launched by the **Khadi and Village Industries Commission (KVIC)** aims to reduce the consumption of plastic bags by providing a more sustainable alternative.

What are the effective solutions to plastic waste management?

- Identifying key **hotspots of plastic leakage associated with the production, consumption, and disposal of plastic** can assist governments in developing effective policies that address the plastic problem directly.
- Identifying plastic items that can be replaced with non-plastic, recyclable, or biodegradable materials is the first step. Find alternatives to single-use plastics and reusable design goods by working with product designers. Promoting the use of **Oxo-biodegradable plastics**, that are manufactured to be **broken down by ultraviolet radiation and heat, more quickly than regular plastics.**
- Plastic has become so enmeshed in our ecosystem that **bacteria have evolved to digest it.** **Plastic-eating bacteria, discovered in Japan,** have been cultivated and modified to digest polyester plastics (food packaging and plastic bottles).
- **Circular economy** is not just applicable to the global currents of plastic and clothes, but can also **contribute significantly to the achievement of sustainable development goals.** The circular economy can reduce material use, redesign materials to be less resource-intensive, and **recapture "waste" as a resource to manufacture new materials and products.**
- Government ministries at the **national and local levels must collaborate** in the **development, implementation, and oversight of policies,** which includes **participation from industrial firms, non-governmental organisations, and volunteer organisations.**

MINIMUM SUPPORT PRICE

GS III –Issues related to Minimum Support Price

Context: Farmers from Punjab, Haryana, and Uttar Pradesh are marching towards Delhi in the 'Delhi Chalo' protest, demanding legal guarantees for the Minimum Support Price (MSP).

Minimum Support Price (MSP):

- It is an **agricultural product price set by the Government to purchase directly from the farmer.**

- The reason behind the idea of MSP is to counter the price volatility of agricultural commodities due to factors like variation in their supply, lack of market integration, and information asymmetry.

Significance/Advantages of MSP:

- It ensures **adequate food grain production** in the country and hence, maintains food security.
- It **protects the farmers from any sharp fluctuations in price**. MSP is **announced before the sowing season** so that the farmers can make an informed decision.
- MSP **increases the farmers' income** and when they have more disposable income in hand, they can invest in new technology.
- It acts as a surety for farmers that their produce will get a fair amount and hence encourages them.

Constraints/Issues in MSP:

- The Minimum Support Price, though announced every year, **does not increase in proportion to the increase in cost of production**.
- **Not all farmers have equal access to the benefits given by the government through MSP.**
- Government interference in the market is seen as killing of the competition which disturbs the working of open markets.
- The Minimum Support Price scheme by the Indian government has been criticized by various countries at the **WTO on the grounds of being highly trade-distorting by its method of calculation**.
- MSP has raised the maintenance cost of procuring food grains by the government.
- Rising transportation and storage costs of the FCI are other contributing factors to this increase. This rising cost affects the investment in other sectors like agri-infrastructure.

Way forward:

- The **awareness among the farmers needs to be increased** and the information disseminated at the lowest level so that the knowledge would increase the bargaining power of the farmers.
- The basic source of livelihood for the farmers is farming and the delay in payment has a negative effect. The **delay in payment needs to be corrected and immediate payment should be ensured**. For sustainability of farming prompt payment at remunerative rates should be made.
- It has been **found that MSP rates are announced after the sowing season begins** or at the time when the farmers have already initiated the necessary preparation for sowing a particular crop. Rather, as intended by the policymakers, MSP should be announced well in advance of the sowing season to enable the farmers to plan their cropping.
- The **farmers should receive their MSP rate in the case on the spot the same day** so that they will be encouraged to improve their production and create a more marketable surplus.

PAPER 4

ETHICS AND THE INDIAN ARMED FORCES

GS IV – INTEGRITY

Context: The **The President** of India has dismissed an Indian Army Major stationed in a **Strategic Forces Command (SFC)** unit due to their involvement in serious national security breaches, as determined by an Army inquiry.

Ethical Concerns in Army Major's Dismissal

- An **Army inquiry in March 2022** revealed ethical violations by the Major, including sharing classified information, suspicious transactions, and connections with a Pakistani intelligence operative.
- The **Major's possession of secret documents on electronic devices** was against Army regulations.
- The **President issued orders to terminate the Major's services**, demonstrating the commitment to uphold ethical standards and maintain military integrity.
- **The termination orders underscore the importance** of ethical conduct, integrity, and national security in the armed forces.

Important Provisions of the Army Act of 1950

- Specifies procedures for enlisting and terms of service for army personnel.
- Provides a detailed framework for maintaining discipline within the army.
- Establishes the legal framework for convening courts-martial to try military personnel accused of offenses.
- Outlines legal rights and safeguards for individuals facing court-martial.
- Allows for the detention of military personnel in certain circumstances.
- Establishes the Armed Forces Tribunal, a specialized judicial body to hear appeals and petitions related to military matters.

Article 309:

- It empowers the Parliament and the State legislature to **regulate the recruitment, and conditions of service of persons appointed**, to public services and posts in connection with the affairs of the Union or of any State respectively.

Article 310:

- According to this article, except for the provisions provided by the Constitution, a **civil servant of the Union works at the pleasure of the President**, and a civil servant under a State works at the pleasure of the Governor of that State (English doctrine of Pleasure).

Article 311 (1):

- It says that no government employee either of an all-India service or a state government shall be dismissed or removed by an authority subordinate to the own that appointed him/her.

Article 311 (2):

- It says that no civil servant shall be dismissed or removed or reduced in rank except after an inquiry in which s/he has been informed of the charges and given a reasonable opportunity of being heard in respect of those charges.

Strategic Forces Command (SFC): It looks after the delivery and operational control of the country's nuclear assets. It was created in 2003, but because it has no specific geographic responsibility and a designated role, it is not an integrated theatre command but an integrated functional command.

BRAIN-COMPUTER INTERFACE

GS IV – Ethics and Human Interface

Context: Elon Musk made a recent announcement concerning the successful implantation of a Neuralink device in a human subject.

What is the Brain-Computer Interface (BCI)?

- BCI is a technology that **enables direct communication between the brain and external devices, such as computers or prosthetics**, without using traditional neuromuscular pathways like nerves and muscles.
- BCI typically involves the use of sensors to detect brain activity, which is then translated into **commands or actions**, allowing individuals to control devices or interact with the external world **using their thoughts**.

Potential applications of Brain-Computer Interface:

- Monitoring and treating **neurological conditions** like **epilepsy, Parkinson's disease, and neurodegenerative disorders** by directly interfacing with the brain.
- Assisting in **motor function recovery** and rehabilitation after a stroke.
- Enabling individuals with paralysis or motor impairments to control devices, such as **prosthetics, wheelchairs, or robotic limbs**, using their thoughts. Restoring communication for individuals with conditions like **locked-in syndrome** (paralyzed except for the muscles that control eye movement).
- Providing real-time data for monitoring and managing mental health conditions, such as **depression or anxiety**.

Ethical considerations related to Brain-Computer Interface (BCI):

- BCIs can potentially decode thoughts and emotions. Unauthorized access to this information raises **concerns about cognitive privacy**. As with any technology that involves the collection and storage of sensitive data, there are **risks of hacking and unauthorized access to brain data**, which could lead to identity theft or other malicious uses.
- Critics argue that BCIs could exacerbate existing social inequalities if only specific socioeconomic groups can afford the technology due to its high cost and may lead to a situation of **cognitive divide**.
- Distinguishing between **therapeutic uses of BCIs and threats** to normal cognitive function is subjective.



Practice Questions



Q1) Consider the following statements about Curative petition:

1. It is explicitly mentioned in the constitution of India.
2. Supreme Court has to mandatorily accept curative petition as it is the right of aggrieved person.
3. It cannot be filed in the case of a death sentence.

Which of the statements given above are correct?

- a. 1 only
- b. 2 only
- c. 2 and 3 only
- d. **None of the above**

Q2) Consider the following statements:

1. Kyasanur Forest Disease (KFD), is a tick-borne haemorrhagic fever endemic to the southwestern part of Africa.
2. KFD is caused by the Kyasanur Forest disease virus.

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 individuals:

1. L.K.Advani
2. Sachin Tendulkar
3. C.N.R.Rao
4. Lata Mangeshkar
5. Amartya Sen

Who among the above are recipients of Bharat Ratna?

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

Q4) consider the following statements about high altitude pseudo satellite vehicles (HAPS)

1. India is the only country to have a full fledged working model of HAPS.
2. HAPS relay on solar energy.
3. The cost of operating HAPS is several times lower than that of a satellite.

Which of the above statements is/are incorrect?

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

Q5) Consider the following statements about Rajya Sabha Election:

1. Members of state legislative councils participate in the election.
2. NOTA option is provided in the RS election.
3. A person, to be elected to Rajya Sabha from a particular state, should be a registered voter in that state.

Which of the above statement is/are correct?

- a. 1 and 2
- b. 3 only
- c. 2 only
- d. **None of the above**

Q6). Consider the following statements:

1. The Citizenship Amendment Act (CAA), 2019 amended the Citizenship Act, 1955.
2. The CAA intends to give Indian Citizenship for the persecuted people from all the neighbouring countries of India.
3. The amendment reduces the required period of residence in India for naturalization from twelve years to 8 years for all migrants.

How many statements given above is/are not correct?

- a. Only one
- b. **Only two**
- c. All three
- d. None

Q7) Which one among the following terms describe a period of dormancy or slowed activity in reptiles?

- Hibernation
- Brumation**
- Anabolism
- Catabolism

Q8) Consider the following countries:

- Israel
- Jordan
- Sudan
- Lebanon
- Yemen
- Ethiopia

How many of the above-mentioned countries share border with Red Sea?

- Only two
- Only three
- Only four**
- Only five

Q9) Consider the following statements in relation to Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana (AB-PMJAY):

- It was launched as per recommendations of National Health Policy 2017.
- It aims at providing a health cover of ₹ 5,00,000 per family per year for secondary and tertiary care hospitalization.
- There is no cap on family size or the age of members under this scheme
- The households included is based on the deprivation and occupational criteria of the Socio-Economic Caste Census 2011.

How many of the statements given above are correct?

- Only one
- Only two
- Only three
- All four**

Q10) Which among the following industries are part of core industries as classified under Index of Industrial Production (IIP) :

- Electricity
- Coal
- Cement
- Steel
- Fertilisers

Select the correct answer using the code given below:

- 1, 2 and 5
- 3 and 4
- 1,2 and 3
- All of the above**

Q11) Consider the following pairs

Naval Exercise	Countries
1. Konkan	India and the UK
2. Naseem Al Bahr	India and Oman
3. Zayed Talwar	India and the UAE
4. Varuna	India and France

How many of the above pairs are correctly matched?

- Only one
- Only two
- Only three
- All four**

Q12) With reference to Insolvency and Bankruptcy Board of India (IBBI), consider the following statements:

- It was established on 1st October, 2016 under the Insolvency and Bankruptcy Code, 2016.
- It makes regulations and guidelines for the implementation of the Code and the Rules, and enforces them through inspections, investigations, and penalties.

Which of the statements given above is/are correct?

- 1 only
- 2 only
- Both 1 and 2**
- Neither 1 nor 2

Q13) Consider the following freedom fighters:

- Lala Lajpat Rai
- Ram Prasad Bismil
- Lala Hardayal
- Madan Mohan Malaviya

How many of above are associated with/influence by Arya Samaj?

- One only
- Two only
- Three only
- All four**

Q14) In relation to Rooftop Solar Scheme, consider the following statements:

1. It aims to provide free electricity and cost savings to one crore households by installing solar panels on their rooftops.
2. The scheme will help India reach its target of 40 GW of rooftop solar capacity by 2026.
3. The scheme will also contribute to India's climate pledge of reducing its greenhouse gas emissions intensity by 33-35% by 2030.
4. Rooftop solar power will help in lowering the carbon footprint of the residential sector.

How many statements given above are correct?

- a. Only one
- b. Only two
- c. Only three
- d. **All four**

Q15) Consider the following statements:

Statement-I:

India joined the MSP in June 2023, as part of its efforts to secure its energy transition and reduce its dependence on China for critical minerals.

Statement-II:

In July 2023, the Government India has identified 30 minerals as Critical Minerals by amending the Mines and Minerals (Development and Regulation) Act, 1957.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. **Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I**
- c. Statement-I is correct but Statement-II is incorrect
- d. Statement-I is incorrect but Statement-II is correct

Q16) With reference to 16th Finance Commission (XVI-FC), Consider the following statements:

1. Recommending the division of tax proceeds between the Union and the States.
1. Establishing the principles for grants-in-aid to the States from the Consolidated Fund of India.
2. Reviewing the current financing structures for Disaster Management initiatives.

How many of the above are the terms of reference for the 16th Finance Commission?

- e. Only one
- f. Only two
- g. **Only three**
- h. None

Q17) With reference to Windfall tax, consider the following statements:

1. It is a higher tax rate levied by governments on certain industries or sectors that experience significantly above-average profits due to unexpected market conditions.
1. India hasn't imposed any form of windfall taxes on any sector/industry yet.

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

Q18) The Terai Arc Landscape is one among the World Restoration Flagships selected as part of the UN Decade on Ecosystem Restoration. Which of the following protected area is not a part of it?

- a. Valmiki National Park
- b. Dudhwa National Park
- c. Corbett National Park
- d. **Mukundhara National Park**

Q19) Consider the following statements:

1. Anti-dumping duty is a tariff imposed by a government on imported goods that are sold at a price lower than their normal value in the exporting country.
2. The United Nations Conference on Trade and Development (UNCTAD) regulates

dumping practices through the Anti-Dumping Agreement.

3. Ministry of Commerce and Industry has the final authority to impose anti-dumping duty in India.

How many statements given above are not correct?

- a. Only one
- b. Only two**
- c. All three
- d. None

Q20) Consider the following countries:

1. Iceland
1. France
2. Liechtenstein
3. Norway
4. Germany
5. Switzerland

How many of the above are the members of the European Free Trade Association (EFTA)?

- a. Only two
- a. Only three
- b. Only four**
- c. Only five

Q21) With reference to Outer Space Treaty, consider the following statements:

1. The Outer Space Treaty is a multilateral treaty that forms the basis of international space law.
2. Treaty prohibits the placement of nuclear weapons or other weapons of mass destruction in outer space.
3. India became a party to the Outer Space Treaty in 2023.

How many statements given above is/are correct?

- a. Only one
- b. Only two**
- c. All three
- d. None

Q22) Which among the following international treaties is India a member of?

- a. Outer Space Treaty**
- b. Partial Nuclear Test Ban Treaty
- c. Comprehensive Nuclear-Test-Ban Treaty
- d. Non-Proliferation of Nuclear Weapons

Q23) With reference to National Livestock Mission (NLM), consider the following statements:

1. It is an initiative of the Ministry of Agriculture and Farmers' Welfare.
2. The mission aims to achieve sustainable development of the livestock sector.
3. NLM aims to enhance the level of nutrition and standard of living of livestock keepers and farmers.

How many statements given above are correct?

- a. Only one
- b. Only two
- c. All three**
- d. None

Q24) Consider the following statements:

1. The Fair and Remunerative Price (FRP) is the minimum price that sugar mills are required to pay to farmers for sugarcane.
2. The Fair and Remunerative Price is fixed by the Cabinet Committee on Economic Affairs.
3. The largest producer of sugarcane in India is Maharashtra.

How many statements given above are correct?

- a. Only one
- b. Only two
- c. All three**
- d. None

Q25) Operation APSIDES, recently seen in news is aims to

- a. Protect civilians from Israel- Hamas war
- b. Resume Black Sea grain deal
- c. Protect shipping in the Red Sea region from Yemen's Houthi rebels**
- d. Defending the Ukrainian border from Russian invasion

Q26) With reference to Foreign Exchange Management Act (FEMA), consider the following statements?

1. The Act gives powers to the Central Government to regulate the flow of payments to and from a person situated outside the country.
2. All financial transactions concerning foreign securities or exchange cannot be carried out without the approval of FEMA.

3. The Act is in consonance with the frameworks of the World Trade Organisation (WTO).

How many statements given above is/are correct?

- Only one
- Only two
- All three**
- None

Q27) Consider the following statements:

Statement-I:

The Wildlife Protection Act, 1972 is a significant legislation in India that provides a legal framework for the protection of various species of wild animals and plants.

Statement-II:

According to the Section 11 of the Act, the chief wildlife warden is empowered to trap, catch, and, if necessary, shoot wildlife.

Which one of the following is correct in respect of the above statements?

- Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I**
- Statement-I is correct but Statement-II is incorrect
- Statement-I is incorrect but Statement-II is correct

Q28) The provisions in Fifth Schedule and Sixth Schedule in the Constitution of India are made in order to

- protect the interests of Scheduled Tribes**
- determine the boundaries between States
- determine the powers, authority and responsibilities of Panchayats
- protect the interests of all the border States

Q29) Consider the following pairs:

- | Reservoirs | Rivers |
|------------|--------|
| 1. Bhakra | Sutlej |
| 1. Pong | Beas |
| 2. Thein | Ravi |

How many of the above pairs are correctly matched?

- Only one
- Only two
- All three**
- None

Q30) Which among the following country rejoined African Union in 2017 despite some countries opposing it due to question over disputed territory of western sahara ?

- Algeria
- Botswana
- Morocco**
- Mauritius

Q31) Exercise Dharma Guardian is an annual joint military exercise between the Indian Army and the defence force of

- Maldives
- Australia
- France
- Japan**

Q32) With reference to the Prevention of Money-Laundering Act (PMLA), consider the following statements:

- The act criminalizes disguising the origin of illegally gained money.
- The act allows for the confiscation of property involved in money laundering.
- Enforcement Directorate (ED) is the primary authority responsible for investigating and prosecuting money laundering offenses under the PMLA.

How many of the above statements are correct?

- Only one
- Only two
- All three**
- None

Q33) Consider the following countries:

- Armenia
- Azerbaijan
- Russia
- Ukraine
- Afghanistan
- Kazakhstan

How many of the above-mentioned countries are members of the Collective Security Treaty Organization (CSTO)?

- Only two
- Only three**
- Only four
- Only five

Q34) With reference to the European Union's Carbon Border Adjustment Mechanism (CBAM), consider the following statements:

- CBAM encourages cleaner industrial production in non-EU countries.
- The CBAM will allow the EU to charge tariffs on carbon-intensive imports from 2026.
- It aims to equalize the price of carbon between domestic and imported products in the affected sectors.

How many of the above statements are correct?

- Only one
- Only two
- All three**
- None

Q35) With reference to Infrastructure Investment Trusts (InvITs), consider the following statements:

- InvITs aims to pool funds from individual and institutional investors for direct investment in infrastructure projects.
- The returns from InvITs come in the form of dividends, interest, and capital gains.
- Interest income from deposits in InvITs is exempted from tax.
- InvITs are regulated by the Reserve Bank of India.

How many of the above statements are correct?

- Only one
- Only two
- Only three**
- All four

Q36) Considering the following statements about G-33:

- The G-33 is a coalition of developing nations within the World Trade Organization (WTO).
- It was established prior to the 2003 Cancun ministerial conference.
- India was part of the G33 since its inception.

How many of the above statements are not correct?

- Only one
- Only two
- All three
- None**

1) Consider the following pairs:

SCHEME	MINISTRY
Pradhan Mantri Matru Vandana Yojna	Ministry of Women and Child Development
Pradhan Mantri Awas Yojna	Ministry of Finance
RashtriyaSwachhta Kendra	Ministry of Jal Shakti

How many of the above pairs are correctly matched?

- Only one
- Only two**
- All three
- None

Q37) Consider the following statements

Statement-I :

Antyodaya Anna Yojna (AAY) is under the Ministry of Agriculture.

Statement-II :

It aims to provide food grains at a highly subsidized rate under TPDS (Targeted Public Distribution System).

Which one of the following is correct in respect of the above statements?

- Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- Statement-I is correct but Statement II is incorrect
- Statement-I is incorrect but Statement II is correct**

Q38) With reference to the Gangetic dolphin, consider the following statements:

- Its scientific name is Susu.
- They emit an ultrasonic sound that reaches the prey.
- They are among the oldest creatures in the world.

How many of the statements given above is/are correct?

- 1 only
- 1, 2 and 3 only
- 2 and 3 only**
- 3 only

Q39) Consider the following pairs:

NATONAL PARK	STATE
Mouling	Arunachal Pradesh
Nameri	Manipur
Kanger Valley	Himachal Pradesh

How many of the above pairs are correctly matched?

- Only one**
- Only two
- All three
- None

Q40) With reference to the Nilgiri Biosphere Reserve (NBR), consider the following statements:

- It was established in the year 1986.
- It is located in the Eastern Ghats.
- The Nilgiri Biosphere Reserve is only in Karnataka.

How many of the statements given above is/are correct?

- 1 only**
- 1, 2 and 3 only
- 2 and 3 only
- 3 only

Q41) Consider the following pairs:

AGENCIES	HQ
Central Bureau of Investigation	Mumbai
National Crime Records Bureau	New Delhi
Securities and Exchange Board of India	Kolkata

How many of the above pairs are correctly matched?

- Only one**
- Only two
- All three
- None

Q42) Consider the following statements

Statement-I :

Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAY-NRLM) was launched in 2015.

Statement-II :

It is under the Ministry of Rural Development.

Which one of the following is correct in respect of the above statements?

- Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- Statement-I is correct but Statement II is incorrect
- Statement-I is incorrect but Statement II is correct**

Q43) With reference to the Nano-DAP, consider the following statements:

- It is an advanced agricultural fertilizers.
- It is developed to enhance efficiency in nutrient delivery to plants.
- It contains 8% Nitrogen and 16% Phosphorus by volume.

How many of the statements given above is/are correct?

- 2 only
- 1, 2 and 3 only**
- 1 and 3 only
- 3 only

Q44) Consider the following pairs:

SPECIES	IUCN STATUS
Malabar Civet	Vulnerable
Forest Owlet	Extinct
Pondicherry Shark	Critically Endangered

How many of the above pairs are correctly matched?

- Only one**
- Only two
- All three
- None

Q45) With reference to the Sphaerotheca varshaabh, consider the following statements:

- It has adapted to its rural surroundings.
- Sphaerotheca Varshaabh, meaning a genus of frog which welcomes rain.
- It is named after its behaviour of coming out of burrows during early showers.

How many of the statements given above is/are correct?

- 2 only
- 1, 2 and 3 only
- 2 and 3 only**
- 3 only

Q46) Consider the following pairs:

EXERCISE	COUNTRIES
Samudra Shakti	India & Indonesia
Garuda Exercise	India & France
Surya Kiran	India & Nepal

How many of the above pairs are correctly matched?

- Only one
- Only two
- All three**
- None

Q47) With reference to Soda Lake, consider the following statements:

- These are the most productive aquatic environments on Earth because of the availability of dissolved carbon dioxide.
- They occur naturally in both arid and semi-arid areas.
- These are dominated by prokaryotes like bacteria and archaea, especially in lakes with higher levels of alkalinity.

How many of the statements given above is/are correct?

- 2 only

b. 1, 2 and 3 only

c. 2 and 3 only

d. 1 only

Q48) Consider the following statements

Statement-I :

International Energy Agency (IEA) was established in 1974.

Statement-II :

Its Headquarters are in New York.

Which one of the following is correct in respect of the above statements?

- a. Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b. Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c. **Statement-I is correct but Statement II is incorrect**
- d. Statement-I is incorrect but Statement II is correct

Q49) With reference to the Indian Gray Wolf, consider the following statements:

- 1. It is a subspecies of grey wolf found from Southwest Asia to the Indian Subcontinent.
- 2. They are nocturnal
- 3. It is under the Appendix II of CITES.

How many of the statements given above is/are correct?

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

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