GS SCORE
An Institute for Civil Services

MARCH
2024

GS ANALYST

MONTHLY CURRENT AFFAIRS MAGAZINE

- Coverage of Monthly topics for GS Paper 1,2 , 3 & 4
- Key Concepts & Prelims Specific Topics
- Questions for Answer Writing Practice

MAINS

- UK redefines Extremism
- India's Health Centres
- Judges in Politics
- India inks FTA with 4 European Nations
- India's Forex Reserves
- Warmer Oceans & Impact
- India's Pollution Worsens
- AI's Carbon Footprint
- Water Crisis in Bengaluru
- World's First AI Law
- Nuclear Power & Waste

QUICK BYTES

- Mohiniyattam
- Rupa Tarakasi
- Sabarmati Ashram
- La Nina set to return in India
- World Happiness Report
- Model Code of Conduct
- T-Safe
- Bima Sugam
- India launches Chakshu
- Agnibaan SOrTeD
- LCA Tejas
- INS Jatayu

KEY CONCEPTS

- New species of Spiders
- Panda
- Begonia tripurensis
- India's leopard population
- Red Sea
- Agalega Island
- Mannar, Sri Lsanka
- Mirnoye
- Ariyalur's Ramsar wetland
- Karaivetti Bird Sanctuary

CONTEMPORARY ISSUE BASED ESSAY

WORKERS, NOT TECH, SHOULD BE STATE'S PRIORITY

DISCLAIMER

The current affairs articles are segregated from prelims and mains perspective, such separation is maintained in terms of structure of articles. Mains articles have more focus on analysis and prelims articles have more focus on facts.

However, this doesn't mean that Mains articles don't cover facts and PT articles can't have analysis. You are suggested to read all of them for all stages of examination.

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SECTION A

ESSAY

- Workers, not tech, should be state's priority

In the contemporary global landscape, the debate over the prioritization of technological advancement versus the welfare of workers has gained significant traction. While technological progress holds promise for economic growth and efficiency, it often raises concerns about job displacement, income inequality, and social exclusion. In this essay, we will delve into the imperative of prioritizing workers in policy formulation, elucidating how a shift towards worker-centric approaches can foster inclusive development, mitigate socio-economic disparities, and ensure sustainable progress in the modern era.

To begin with, it is essential to acknowledge the pivotal role that workers play in driving economic activity and societal progress. Workers form the backbone of industries, providing the labor and expertise necessary for the production of goods and services. However, in the pursuit of technological innovation and automation, there has been a tendency to overlook the welfare and rights of workers, leading to job insecurity, exploitation, and marginalization. Therefore, it is incumbent upon governments and policymakers to prioritize the interests of workers in policy formulation to ensure equitable and sustainable development.

One of the primary reasons for prioritizing workers is the need to address the widening income inequality prevalent in many societies. As technological advancements reshape industries and labor markets, there is a growing concern that certain segments of the workforce may be left behind, exacerbating disparities in income and wealth. By adopting worker-centric policies that focus on creating decent and dignified employment opportunities, governments can help bridge the gap between the rich and the poor, fostering greater social cohesion and economic stability.

Furthermore, prioritizing workers is essential for promoting social justice and human rights. All individuals have the inherent right to fair and safe working conditions, adequate compensation, and opportunities for personal and professional development. However, in many parts of the world, workers, particularly those in low-wage sectors and informal economies, continue to face exploitation, discrimination, and precarious employment. By enacting policies that protect and empower workers, governments can uphold their obligations under international labor standards and ensure that all individuals are treated with dignity and respect in the workplace.

Moreover, prioritizing workers can contribute to enhancing productivity and competitiveness in the long run. Research has shown that investing in human capital development, including education, training, and skills upgrading, leads to higher levels of productivity and innovation. By equipping workers with the necessary

knowledge and capabilities to adapt to technological changes and industry demands, governments can create a more dynamic and resilient workforce, capable of driving sustained economic growth and prosperity.

In addition to economic considerations, prioritizing workers is crucial for fostering social cohesion and political stability. In societies where workers feel marginalized or disenfranchised, there is a heightened risk of social unrest, labor disputes, and political instability. By addressing the grievances and concerns of workers through inclusive and participatory policymaking processes, governments can strengthen social cohesion, build trust in public institutions, and promote democratic governance.

Furthermore, prioritizing workers aligns with the principles of sustainable development and environmental stewardship. As the world grapples with the challenges of climate change and environmental degradation, there is a growing recognition of the need to transition towards a more sustainable and equitable model of development. By promoting green and inclusive growth strategies that prioritize job creation, renewable energy, and resource efficiency, governments can foster a transition towards a more resilient and environmentally sustainable economy, benefiting both present and future generations.

In conclusion, prioritizing workers in policy formulation is essential for promoting inclusive development, reducing inequality, and ensuring sustainable progress in the modern era. By adopting worker-centric approaches that prioritize decent work, social justice, and human rights, governments can create a more equitable, resilient, and prosperous society for all. As we navigate the complexities of the 21st century, let us not forget the fundamental importance of placing workers at the center of our policy agendas, thereby reaffirming our commitment to a future where no one is left behind.

SECTION B

MAINS ARTICLES

- Atmospheric Research Testbed (ART)
- India eye critical minerals mining in Sri Lanka, Australia
- India Racing to Mine Battery Metals Undersea
- UK redefines Extremism
- Forced Labour profits nearly USD 250 billion: ILO
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- India's Nuclear Power Programme
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- Nuclear Power AND Waste

1. ATMOSPHERIC RESEARCH TESTBED (ART)

Context: The first phase of India's **Atmospheric Research Testbed in Central India (ART-CI) was inaugurated** at Silkheda in Sehore district, located about 50 km northwest of Bhopal in Madhya Pradesh.

1: Dimension- Significance of Atmospheric Research Testbed (ART)

- The ART is an **open-field, focused observational and analytical research programme** at Silkheda.
- The facility aims to conduct **ground-based observations of weather parameters** like **temperature, wind speeds**, etc. and **in-situ (on-site) observations** of the transient synoptic systems – like **low-pressure areas and depressions** that form in the Bay of Bengal – during the **southwest monsoon season** from June to September.
- Studying these systems and their associated cloud parameters will be used to generate high volumes of data over a long period.
- It can then be compared with the existing weather models so that improvements can be made to obtain **accurate rainfall predictions.**

2: Dimension-Need of having an Atmospheric Research Testbed

At present, 45% of **India's labour force is** employed in the agriculture sector. Much of Indian agriculture is **rain-fed**, as is cultivation along the **Monsoon Core Zone (MCZ),** which spans the central India region from Gujarat to West Bengal.

- The **southwest monsoon season** accounts for 70 per cent of the country's annual average rainfall (880mm). Throughout India, the majority of **Kharif cultivation** is undertaken between July and August, which see an average monthly rainfall of 280.4mm and 254.9mm (1971–2020 average), respectively.
- During this four-month-long season, several **rain-bearing synoptic systems**, namely the low pressures or depressions, develop in the **Bay of Bengal**. Inherently, these systems move westwards/north-westwards over to the Indian mainland and pass through the MCZ, causing bountiful rainfall.
- Though IMD issues rainfall forecasts, there is still limited understanding about the role of these synoptic systems, their associated cloud physics, cloud properties and their overall role in enhancing the monsoon rainfall.

FACT BOX: Important Details of the Mission

- **Developed and Funded by:** Ministry of Earth Sciences (MoES)
- The **Indian Institute of Tropical Meteorology (IITM), Pune**, is in charge of the operations.
- The facility will house 25 high-end meteorological instruments for studying vital cloud processes associated with the monsoons over central **India's Monsoon Core Zone (MCZ).**

2. INDIA EYE CRITICAL MINERALS MINING IN SRI LANKA, AUSTRALIA

Context: The Ministry of Mines hosted two meetings with industry stakeholders in January to discuss opportunities for the mining of critical minerals by Indian companies in Sri Lanka and Australia. These meetings were organised in line with the ministry's broader push to strengthen India's critical minerals supply chain through the acquisition of overseas mineral assets.

1: Dimension: Need:

- India's international commitments towards **reducing carbon emissions**, which require the country to urgently relook at its mineral requirements for **energy transition and net-zero commitments.**
- Critical Minerals forms part of multiple strategic value chains, including **clean technologies initiatives** such as **zero-emission vehicles**, wind turbines, solar panels; information and communication technologies, including semiconductors; and advanced manufacturing inputs and materials such as defence applications, permanent magnets, and ceramics.

2: Dimension: Major concerns globally and for India:

- **Dependence on China**: If India is not able to explore and produce these minerals, it will have to depend on other countries, including China, to power its energy transition plans to electric vehicles.
- **Lack of Expertise**: the reason India would not have found a place in the Minerals Security Partnership grouping is because the country does not bring any expertise to the table.
- **Difficult to mine**: Although they are more abundant than their name implies, they are difficult and costly to mine and process cleanly.
- **Monopoly of few**: Most of the reserves being present in few nations causes problems for most of the world because of the concentration of reserves in the hands of few countries.

- **Supply Chain**: Forming forward and backward supply chains will create problems when the reserves are mostly limited to one country.
- **Environmental Impact**: The chief concern is that the rare earth elements are bound up in mineral deposits with the low-level **radioactive element thorium**, exposure to which has been linked to an increased risk of developing lung, pancreatic, and other cancers.
- **Capital-Intensive:** The mining and extraction processes are capital-intensive and consumes large amounts of energy.
- **Health hazards:** The mining of these minerals releases toxic by-products which are harmful for the environment and human health.

FACT BOX: India's position on Critical minerals:

- Though India has **6% of the world's rare earth reserves**, it only produces **1% of global output**, and meets most of its requirements of such **minerals from China**.
- In 2018-19, for instance, **92% of rare earth metal imports** by value and 97% by quantity were sourced from China.
- In India, **monazite and thorium** is the principal source of rare earths.

3. INDIA RACING TO MINE BATTERY METALS UNDERSEA

Context: India is taking another step in its quest to find valuable minerals hidden in the depths of the ocean which could hold the key to a cleaner future. India applied to the **International Seabed Authority (ISBA), Jamaica,** for rights to explore **two vast tracts in the Indian Ocean seabed** that aren't part of its jurisdiction.

1: Dimension-The global race for mineral resources

- Countries including **China, Russia and India** are vying to reach the huge deposits of mineral resources - **cobalt, nickel, copper, manganese -** that lie thousands of metres below the surface of oceans. These are used to produce renewable energy such as solar and wind power, electric vehicles and battery technology needed to battle against climate change.
- The **UN-affiliated International Seabed Authority (ISA)** has issued 31 exploration licences so far, of which 30 are active.
- If the ISA approves India's new applications, its licence count will be equal to that of Russia and one less than China. India already has two deep-sea exploration licences in the Indian Ocean.
- India's application for two regions:
  - **AN Seamount:** One of these regions is a **cobalt-rich crust** long known as the **Afanasy Nikitin Seamount (AN Seamount).**
  - **Carlsberg Ridge:** One of India's applications seeks to explore **polymetallic sulphides - chimney-like mounds near hydrothermal vents containing copper, zinc, gold and silver -** in the **Carlsberg Ridge of the Central Indian Ocean.**
- India, China, Germany and South Korea already have exploration licences for polymetallic sulphides in the Indian Ocean ridge area.

2: Dimension-Rights for Open Ocean

- No countries can claim sovereignty over open oceans. **Around 60% of the world's seas are open ocean** and though believed to be rich in a variety of mineral wealth.
- **Currently no country** has commercially extracted resources from open oceans.
- Countries have exclusive rights up to **200 nautical miles**, and its underlying sea-bed from their borders.
- Some ocean-bound states may have a natural stretch of land, connecting their border and the edge of the deep ocean that extends beyond this 200, as part of their so-called **continental shelf.**
- UNCLOS-linked body, the **Commission on the Limits of the Continental Shelf** decides on the limits of a country's continental shelf.

3: Dimension-Environmental Concerns

- Deep seabed is the last frontier in the planet that remains largely unstudied and untouched by humanity and mining there could cause **irreparable damage**, no matter how pressing the need.
- Around two dozen countries - including the **UK, Germany, Brazil and Canada** - are also demanding either a halt or a temporary pause on **deep-sea mining**, given what they say is a lack of information about the marine ecosystems in those depths.

4. UK REDEFINES EXTREMISM

Context: Britain unveiled a new definition of extremism in response to an eruption of hate crimes against Jews and Muslims.

The new definition of 'Extremism'

- Extremism is the promotion or advancement of an ideology based on violence, hatred or intolerance that aims to:
  - negate or destroy the fundamental rights and freedoms of others; or

- undermine, overturn or replace the UK's system of liberal parliamentary democracy and democratic rights; or
- intentionally create a permissive environment for others to achieve the results in (1) or (2)

1: Dimension- Drivers of Extremism

- Religious/communal tension
- Revenge and retaliation against perceived or real
- discrimination/dis-affection/rights violations
- Unemployment and economic despair and poor governance
- Breakdown of social networks/social marginalisation

2: Dimension- Threats from extremism

- The threat from extremism has been steadily growing for many years.
- Extremism can lead to the radicalisation of individuals, deny people their full rights and opportunities, suppress freedom of expression, incite hatred, erode our democratic institutions, social capital and cohesion, and can lead to acts of terrorism.
- Labelling a group extremist will make the public and other bodies shun them. The initiative is not about banning groups but making clear who the government should not engage with.

5. FORCED LABOUR PROFITS NEARLY USD 250 BILLION: ILO

Context: Criminals are reaping "obscene" profits of nearly one-quarter of a trillion dollars from **forced labour**, says the International Labour Organization (ILO).

Key-highlights of the Report

- **Report Title**: 'Profits and poverty: The economics of forced labour'
- The report estimates that traffickers and criminals are generating close to USD 10,000 per victim, up from USD 8,269 (adjusted for inflation) a decade ago.
- **Forced labour** generates illegal profits worth USD 36 billion per year.
- In terms of profit per victim, figures were highest in **Europe and Central Asia**, followed by the **Arab States, the Americas, Africa, and Asia and the Pacific.**
- **Forced commercial sexual exploitation** accounts for more than two-thirds (73%) of the total illegal profits, despite accounting for only 27% of the total number of victims in privately imposed labour.
- These illegal profits are the wages that rightfully belong in the pockets of workers but instead remain in the hands of their exploiters, as a result of their coercive practices.

1: Dimension- Reason behind the situation

- **Forced labour and higher profits**: This increase is fuelled by both a growth in the number of people forced into labour (a form of **modern slavery**), as well as higher profits generated from the exploitation of victims.
- **Lack of adequate livelihood options** become more vulnerable to forced labour as they and may be easily tricked into accepting risky opportunities for survival.
- **Limited Government intervention**: While there are improved identification measures but legal frameworks, gaps in services available to survivors remained and only limited action has been taken to address systemic risk factors to forced labour.

2: Dimension- Impact of such exploitation

- **Cycles of poverty and exploitation**: Forced labour perpetuates cycles of poverty and exploitation and strikes at the heart of human dignity.
- **Multiple forms of coercion:** It encompasses various forms of exploitation, including **forced marriage, commercial sexual exploitation, human trafficking, deliberate and systematic withholding of wage, slavery-like practices and the sale and exploitation of children.**

MAINS PRACTICE QUESTION

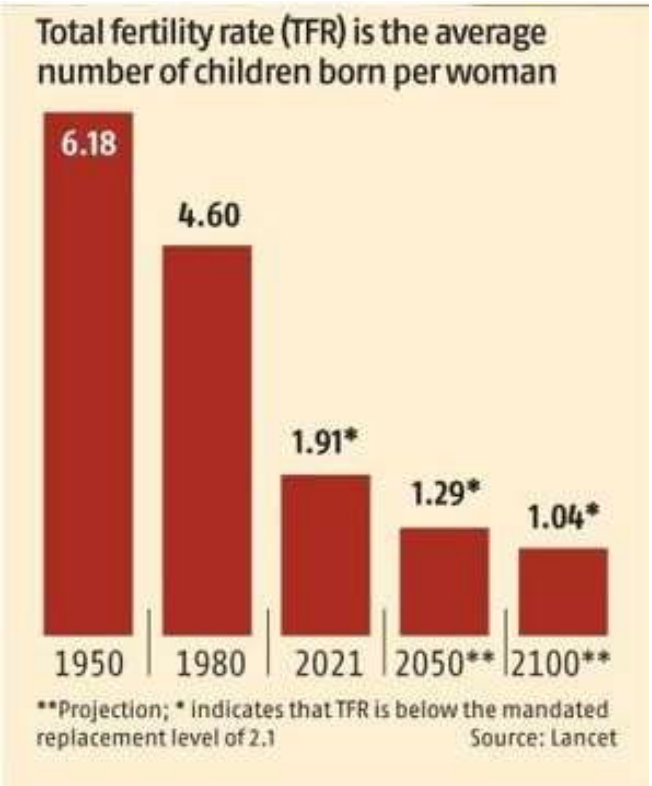
Q. "Forced labour is the most dangerous form of modern slavery". Comment

6. FALLING FERTILITY RATE AND IMPACT ON INDIA

Context: India's **total fertility rate (TFR)** is projected to decline to 1.29 children per woman by 2050 and slip further to 1.04 by 2100, according to a recent study by Lancet on **global fertility rates.**

Key-findings of the Lancet Study

- The study suggests that India's TFR, or the average number of children born to a woman, has been seeing a decline over the last century, with the fertility rate falling from 6.18 children per woman in 1950 to a projected 1.29 children per woman by 2050.
- The study stated that India has already fallen below the replacement level of fertility, required for a population to exactly replace one generation with another.



- In 2021, India's TFR was at 1.91 children per woman, below the necessary replacement fertility level of 2.1.
- The decline in TFR is in line with global trends, stating that its estimates forecast a decline in fertility rates all around the globe, over the coming century.

1: Dimension-Reasons behind the fall in the fertility rate

- **Delayed marriages:** With the delay in the age of marriage, the average age of first pregnancy has dropped from the mid-20's to mid to late 30's.
- **Women's workforce participation:** An increase in female literacy and women's workforce participation leads to busy lifestyles in urban areas and high stress jobs. It leads people to not consider having children at all.
- **Other factors**: The decline in fertility rates is also influenced by factors such as **extreme shifts in the global distribution** of live births due to:
  - **improved female education**
  - increasing usage of **modern contraception methods**

2: Dimension-Implications for the Economy

- **Imbalance:** Such a trend will pose challenges such as an **ageing population, labour force shortages, and potential social imbalances** due to gender preferences in the country.
- **Burdened economy**: The plummeting fertility rate in developed or high-income countries may result in an **ageing population, burdening national health insurance, social security programmes, and healthcare infrastructure.**
- **Political instability and security difficulties**: While the declining fertility rates might appear as a green signal for the environment, the uneven concentration of live births can lead to **tense situations** across the globe.

7. FRANCE MAKES ABORTION A CONSTITUTIONAL RIGHT

Context: France has become the first country in the world to explicitly include the right to abortion in its constitution. The constitutional change was prompted by recent developments in the US, where the right to abortion was removed by the Supreme Court in 2022. Individual states are now able to ban the procedure again, ending the right to an abortion for millions of women.

1: Dimension: Arguments in favour of Abortion

- **Mothers' rights supersedes the rights of the foetus:** A female is considered a moral person that is entitled to rights, including the **right to life**. So, abortion is deemed acceptable as the foetus is not a person. The mother, who is a person, has a right to life and it supersedes the rights of the foetus to choose whether or not it remains connected to her body.
- **Unwarranted:** Also, pregnancy is assumed to be a foreseeable consequence of heterosexual intercourse, that too when there is no intention to 'have a baby'. So, denying her the right to abort the child when she was not planning for it is unwarranted.
- **Self-defence**: It may be ethical for a mother to have an abortion to defend herself from the danger to her mental or physical health than continuing with the pregnancy would cause. Abortion is considered in relation to the 'Doctrine of double effect'.

2: Dimension: Arguments Against abortion

- '**Future like ours' argument:** Abortion is wrong because it deprives the foetus of a potential 'future like ours'. It suggests that death is a bad thing because it deprives people of all the experiences, enjoyments, opportunities that would make up their future personal life.
- **Moral conduct:** Killing an innocent human being is a moral wrong. Those who are against abortions believe that human life begins at conception, and by drawing the same analogy, the foetus is an innocent human being. So, killing the foetus is wrong and abortion is always wrong.

8. THE PINK ECONOMY

Context: The term "pink economy" or "rainbow economy" signifies the economic influence wielded by non-heterosexual individuals. In India, where societal attitudes towards the LGBTQ+ community are evolving, estimates suggest a substantial presence of around 135 million LGBTQ+ individuals, constituting approximately 10 percent of the population. This demographic not only holds significant production and consumption potential but also influences market dynamics, marking a noteworthy shift in the country's economic discourse.

1: Dimension: The Indian Scenario-Challenges and Opportunities

- **Significant influence on economy**: While the emergence of India's pink economy represents a sizable demographic capable of influencing the nation's economy, it is rooted in **pervasive stigma and discrimination** against the LGBTQ+ community.
- **Impact of societal attitude on economy:** This aligns with the **principles of queer economics**, indicating how societal attitudes shape economic outcomes.
- **Discrimination in education and employment**: There is discrimination across various aspects of life, including **education and employment**.
  - **High dropout rates in schools and limited access to formal education** restrict employment opportunities, contributing to a **cycle of discrimination** that hampers **human capital development and economic growth**.

2: Dimension: Economic Implications and Imperatives

- **Mapping economic loss:** The cost of homophobia in India spans from 0.1 percent to 1.7 percent of GDP, translating to significant economic losses ranging from **112 billion rupees to 1.7 trillion rupees.**
- **Plethora of economic issues**: Stigma and discrimination constrain **labor supply, reduce productivity, and lead to socio-economic setbacks** such as **elevated rates of poverty, depression, and suicide** within the LGBTQ+ community.
- Understanding the dynamics of the pink economy within the context of societal attitudes is crucial for achieving inclusive economic growth, a necessary condition for sustainable development.

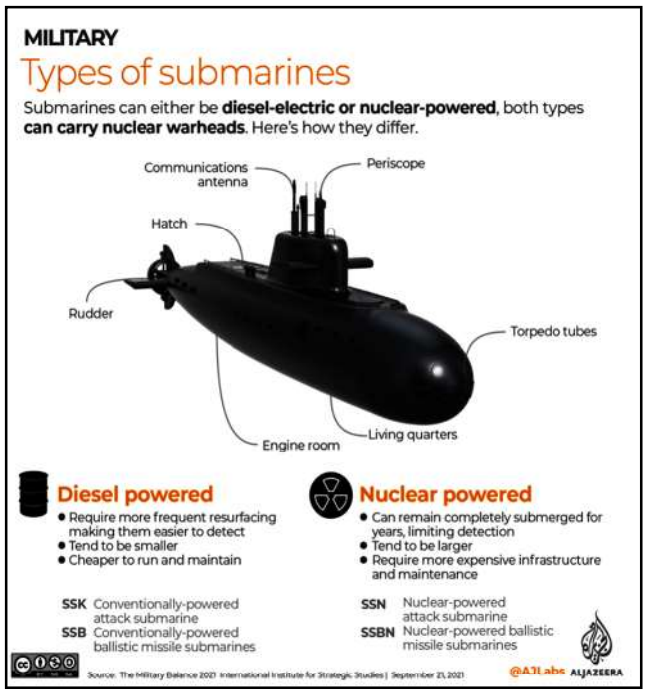
9. US, UK & AUSTRALIA TO BUILD SSN-AUKUS SUBMARINES

Contex: The **United States, the United Kingdom and Australia** have entered a new agreement to build **Australia's SSN-AUKUS submarines** and termed it a significant milestone in the endeavour of defence cooperation.

Key-highlights of the trilateral partnership

- Under the **new trilateral Security partnership**, Australia's ASC and UK-based BAE Systems will build the **SSN-AUKUS submarines** for the **Royal Australian Navy**.
- The SSN-AUKUS will be equipped for **intelligence, surveillance, undersea warfare and strike missions**.
- It will provide maximum interoperability among AUKUS partners.

1: Dimension-Why nuclear-powered submarines?



- Submarines can either **be diesel-electric or nuclear-powered** and either type can be used to launch nuclear warheads.
- **Diesel-electric submarines** involve diesel engines that power electric motors to propel the vessels through the water. But those engines require **fuel to operate**, which necessitates that the **submarines resurface regularly for refuelling.**
- **Nuclear-powered submarines** generate their own energy source **— nuclear propulsion technology** — and are not as constrained by the need to refuel as diesel-electric subs. They generate steam using an onboard nuclear reactor which is used to turn the vessel's turbines.
- Nuclear-powered submarines can **remain hidden at sea without detection** — potentially for years — and are limited primarily by their supplies of food and water for crews.

2: Dimension-Why Australia want nuclear-powered submarines?

- Australia's submarines face **long transits between ports**, let alone to potential distant hot spots

- Acquisition of nuclear-powered submarines has been described as 'the single biggest leap' ever in **Australia's defence capabilities.**
- Furthermore, the agreement is seen as a **counterweight to China's growing military presence** in the Asia Pacific.
- Australia **does not have the expertise** to build its own nuclear submarines so it had to buy or acquire the ability to build its fleet from either the US or the UK.
- SSN-AUKUS will increase opportunities for industrial base collaboration, strengthen collective industrial base capacity, and generate economic growth in defense and national security sectors in all three countries.
- The pact will see Australia become the **seventh nation to operate nuclear-powered submarines**.

UPSC PYQ

Q. The newly tri-nation partnership AUKUS is aimed at countering China's ambitions in the Indo-Pacific regions. Is it going to supersede the existing partnerships in the region? Discuss the strength and impact of AUKUS in the present scenario. (UPSC 2021)

10. INDIA BACKS PHILIPPINES' NATIONAL SOVEREIGNTY

Context: Amid a flaring up of tensions between **Beijing and Manila** over the **Spratly Islands** in the **South China Sea**, India has taken its side and backed the **Philippines** in upholding its **national sovereignty** and seeks "staunch adherence" to a rules-based order.

1: Dimension- India-Philippines' growing relations

- **Strategic cooperation** between India and the Philippines, especially in defence and security, has grown significantly in recent years.
- India's ties with the Philippines have grown in areas such as **trade, investment, health, food security, education, science and technology, defence and maritime cooperation.**
- In 2022, Manila became the first foreign customer for the **BrahMos cruise missile** by inking a USD 375-million order for the weapon system developed by India and Russia.
- India and the Philippines are also part of the **Indo-Pacific maritime domain awareness initiative.**
- Both countries are "staunch advocates" of freedom of navigation and adherence to international law, including **UNCLOS** and the 2016 ruling of the **Permanent Court of Arbitration in The Hague.**
  - This ruling declared China's claims in South China as unlawful.

2: Dimension-India's interests in the Region

- India is "deeply invested" in the region because of its **Act East policy** and **Indo-Pacific vision** and strongly supports ASEAN's centrality and unity.
- **Strategic interests, freedom of navigation, and oil and gas resources** are the three factors determining India's expanded involvement in the **South China Sea.**
- Geographically, Southeast Asia serves as a backyard for India and a **gateway to the Indian Ocean.**

11. DEFECTIONS AND DISQUALIFICATIONS, A BIG FARCE!

Context: The anathema of defections has been a prominent feature of **Indian political discourse** and has become a **big farce** in the recent years.

1: Dimension- Fundamental factors that create the breeding grounds for defection.

- According to the 1985 Bill, a 'defection' by **one-third of the elected members** of a political party was considered a 'merger,' but as per the **2003 amendment**, at **least two-thirds of the members of a party have to be in favour of a 'merger' for it** to have validity in the eyes of the law.

- In essence, the anti-defection law **does not apply if the defectors account for more than two-thirds of the party they are leaving.**
- Furthermore, the decision to disqualify MPs or MLAs lies with the speaker of the house, who customarily belongs to the ruling party or the party benefiting from the defections.
- Needless to say, this raises concerns about the impartiality of the speaker. As a result, defections have continued unabated.

2: Dimension-Ethical paradox

- There are two types of defections:
  - The first that is solely done solely for immediate political gains
  - The other that takes places **due to ideational or ideological grounds.**
- However, the mere idea of political defections has always involved a **paradoxical ethical question** in the practice of democratic politics.
- The act of sudden abandonment of the party to which the defector belonged and switching to another party (often rival parties) after winning the election under the banner of the earlier party, is largely perceived as an **act of political impropriety and opportunism.**
- However, the very act of defection **can not only be a product of unethical politics.**
  - **Moral Protest:** Defections might also be perceived as instruments for upholding democratic principles of equality, accommodation and justice.
  - From the defector's point of view, defection may be treated as a moral protest is aimed at restoring democracy, both within the party in question and in promoting democratic spirit in the polity.
  - Such defectors, in their feat of self-righteousness, may also locate the value of justice in the act of crossing over to other parties. Put differently, such moves of defection are seen as desirable as though they were driven by larger concerns for justice; justice that anticipates the party bosses to treat their leaders with fairness and dignity.
- This creates an intractable ethical dilemma in electoral democracies with regard to the act of defection.

MAINS PRACTICE QUESTION

Q. Discuss the ethical paradox surrounding political defections in India, highlighting the challenges posed by the existing anti-defection law and the imperative for comprehensive reforms to address this issue.

UPSC PYQ (2019)

Q. On what grounds a people's representative can be disqualified under the representation of people act 1951? Also, mention the remedies available to such a person against his disqualification.

12. PANEL RECOMMENDS SIMULTANEOUS ELECTIONS

Context: The **Ram Nath Kovind-led Panel** submitted its report on the feasibility of implementing **'one nation, one poll'**. In its report, the committee recommends that elections of the Lok Sabha and the State Legislative Assemblies take place **simultaneously**.

1: Dimension-Focus of the Report & recommendation

The key focus of the report is the establishment of a **unified electoral roll** for conducting elections at various levels of governance, including the **Lok Sabha, state assemblies, municipalities, and panchayats.**

- The committee recommends that the Government develop a legally tenable mechanism to restore the cycle of simultaneous elections. It further recommends-
  - **In the first step**, simultaneous elections to the **House of the People and the State Legislative Assemblies** be held.
  - **In the second step**, the elections to **Municipalities and Panchayats** will be synchronised with the House of the People (Lok Sabha) and State Legislative Assemblies in such a way that **elections to Municipalities and Panchayats** are held within a hundred days of the holding of **elections of the House of the People and the State Legislative Assemblies.**
- Introduce **Article 324A** for simultaneous elections in local bodies, amend **Article 325** for a single electoral roll and identity card.
- There are also points in regard to actions that should be taken in cases such as a hung house, no-confidence motion, etc.
- The committee also clarified in its report that the states do not need to ratify the constitutional amendment to hold simultaneous Lok Sabha and Assembly polls.

2: Dimension- Benefits of Synchronised elections

Pros

- **Economic gains**: Synchronised elections will lead to "higher economic growth, lower inflation, higher investments, and improved quality of expenditure".

- **Eased burden**: It would also ease the burden on administrative and security forces, who otherwise are engaged multiple times in election duties.
- **Increased turn out:** Simultaneous elections will increase voter turnout because it will be more easy for people to cast many ballots at once.
- **Better governance**: Also, the government can focus more on governance rather than being in an election mode, which often hampers policy implementation.

Cons

- **Synching issue:** The biggest challenge is to sync the terms of the various state legislative assemblies with those of Lok Sabha.
- **Increased complexity:** There is also no clarity on dealing with situations like midterm polls or the President's rule in case any party fails to get the majority.
- Regional political parties argue that having the two elections simultaneously would hamper their prospects because they won't be able to highlight local issues prominently.

FACT BOX: GLOBAL PRACTICE

Q. Many countries across the world hold elections for multiple levels of the government on the same day.

Q. Examples include the **United States, Brazil, Sweden, South Africa, Indonesia**, among others.

13. KERALA TO CHALLENGE PRESIDENTIAL ASSENT WITHHOLDING

Context: Kerala will soon challenge the legality of **President Droupadi Murmu** withholding her assent for the Bills that were passed by the Kerala Legislature before the Supreme Court. The President had withheld assent to **Kerala University Laws Bill 2022, University Law Amendment Bill, 2022, and the University Law Amendment Bill, 2021** from the seven Bills that were referred to her.

1: Dimension-Significance of the move

- The problem of delay in according assent to Bills passed by the legislature is a burning issue that confronts Indian polity.
- The unusual move of the Kerala Government will open doors for a **Constitutional debate on the scope of a judicial review** of the decisions of the President of India.
- The State would contend that the **legality of the President's decisions** and the factors that influenced it can be **judicially reviewed.**
- The State plans to bring up the issue before the Supreme Court. The state would argue:
  - Governor should not have referred the Bills to the President as its subject matters were confined to the **State List** of the Constitution where the State has powers to legislate.
  - None of the Bills were in conflict with any Central legislation.
  - The Bills did not belong to the special categories for which prior Presidential assent was required, sources pointed out.

2: Dimension-Impact of the Delay

- **Political implications:** The object of every legislation is **public good**, which is **defeated by delay**. Delay may also have political implications for the party in power in the State.
- **Unfulfilled objectives:** By such delay, fulfilment of laudable objectives sought to be achieved by the legislation gets delayed or even be defeated.
- **Affected Centre-State Relations:** The Union is not affected by such delay or inaction. It is the interests of the State that are jeopardized. Centre-State relations may also be adversely affected.

14. CROSS-VOTING & SANCTITY OF THE ELECTION PROCESS

Context: Heavy cross-voting by Opposition lawmakers turned the biennial Rajya Sabha elections into a thrilling contest.

1: Dimension- Challenges to the Sanctity of Rajya Sabha Elections: A Bigger picture

Despite constitutional provisions and legal safeguards in place, such incidents underscore the need for greater vigilance and accountability in ensuring free and fair elections.

- **Sanctity of the Electoral Process**: The fundamental principle of democracy relies on the sanctity of electoral processes. However, instances of cross-voting challenge this principle, raising doubts about the fairness and transparency of the elections.
- **Implementation of Anti-Defection Laws:** The Tenth Schedule of the Constitution, commonly known as the anti-defection law, aims to curb unethical practices such as defection and voting against party lines. However, the applicability of these laws to Rajya Sabha elections has been a subject of debate.
- **Role of the Judiciary:** The judiciary plays a crucial role in upholding the principles of democracy and ensuring

adherence to constitutional norms. While the Supreme Court has upheld the use of open ballot for Rajya Sabha elections to promote transparency, recent incidents of cross-voting highlight the need for judicial intervention to address electoral malpractices effectively.

- **Upholding Democratic Values**: At the core of the issue lies the imperative to uphold democratic values and principles. Cross-voting not only undermines the democratic mandate but also erodes public confidence in the electoral system.

2: Dimension-Required Reforms

- The incidents of cross-voting in Rajya Sabha elections underscore the pressing need for comprehensive reforms to safeguard the sanctity of the electoral process.
- Upholding democratic values and principles should be a collective endeavor involving all stakeholders, including the legislature, judiciary, and civil society.
- Only through concerted efforts can India's democratic institutions uphold the integrity of elections and preserve the essence of democracy.

15. A PRISON MAPPED BY CASTE

Context: The Centre has asked states and Union Territories not to segregate prisoners on the basis of their caste and religion and to stop assigning duties like managing prison kitchens according to the discriminatory approach.

1: Dimension- How caste is an "endless battle" in Indian society?

- Discrimination and violence against Dalits are common with the caste hierarchy condemning them to the bottom of the social ladder.
- Despite laws to protect the Scheduled Castes (SC), abuse is frequently reported from across the country.
  - In Andhra Pradesh alone, 2,014 crimes against SCs were recorded in 2021, of which 33 were murders and 49 were cases of rape of minor girls.
- Shunned by many in society who call them **'untouchable'**, Dalits, particularly in villages, are discriminated against, denied access to land, forced to work in degrading conditions like in scavenging, and routinely abused, even killed, sometimes at the hands of the police and at times by people of upper castes.
- This entrenched form of societal segregation, often described as hidden apartheid, has led to the complete isolation of many villages along caste lines.
- The prevalence of caste-based violence in Indian society is a **complex issue** rooted in historical, social, and economic factors.

2: Dimension- The in-discriminatory approach and required measures

- The jail manuals of some states provide for segregation of prisoners based on their caste and religion and they are being assigned duties in the prisons accordingly.
  - **Composition**: Two-third of prisoners in Indian jails are Dalits, tribals and from Other Backward Classes (OBCs), 19% are Muslims and 66% of 4.66 lakh inmates are either illiterate or have not studied beyond Class X
  - **Worse for women**: Unlike the male prisoners, women are fewer in number and so are the provisions made available to them.
- **Upholding Constitutional Principles:** There is constitutional imperative to ensure equality and non-discrimination within prison facilities.
- **Compliance with Model Prison Manual:** The **Model Prison Manual, 2016** serves as a guiding framework for prison administration, explicitly prohibiting any form of caste or religion-based discrimination. States and Union Territories are urged to act as per these guidelines.

3: Dimension- When the rules themselves are casteist?

- **Caste-based labour**, in fact, is sanctioned in the prison manuals of many states.
- The colonial texts of the late 19th century have barely seen any amendments, and caste-based labour remains an untouched part of these manuals.
- While every state has its own unique prison manual, they are mostly based on **The Prisons Act, 1894.**
- These jail manuals mention every activity in detail – from the measurement of food and space per prisoner to punishments for the "disorderly ones".

UPSC MAINS PYQ

Q. "Caste system is assuming new identities and associational forms. Hence caste system cannot be eradicated in India." Comment. **(2018)**

16. DOUBLE BURDEN OF HEALTH IN INDIA

Context: India has seen a steady increase in obesity levels — not only in adults but children too — over the last 32 years. At the same time, the prevalence of undernutrition has also remained high in the country. As a result, India has become one of the countries with a high "double burden," **according to a new *Lancet* study**, which examined the trends of malnutrition across the world over the last 32 years.

1: Dimension: Reason behind the double burden

- There is a **lack of access to affordable and nutritious food** for the prominence of undernutrition and obesity.
- While lack of access to food can lead to undernutrition, in**creased access to processed foods high in fats, salt, and sugar** has driven up obesity.
- **Why women are prone to putting on weight**: Because most of them do not have access to or time for physical activities such as walks or gyms. They are also likely to put the nutrition of the family above theirs. They are also likely to have fewer hours of proper sleep, waking up first and going to bed last".
- **Eating junk food is cheaper and easier**. While it is not nutritious, it is tastier. This has led to an increase in obesity even among the poor, especially in states that are better off such as Tamil Nadu, Punjab, and Goa.

2: Dimension: Rural-Urban Divide

- While obesity is affecting more people, there continues to be a rural-urban divide when it comes to obesity.
- An analysis of the NFHS-5 data shows that the prevalence of obesity was 31.7% in urban women and 19% in rural women. It was 28.6% among urban men and 18.8% among rural men.
- Undernutrition persists in extremely remote and rural parts of poorer states where access to any kind of food is low in states like **Bihar, Jharkhand, or Odisha**, where people might be eating just one meal a day.

DATA BOX

Obesity

- **Obesity in women** has spiked in the past three decades — it increased from 1.2% in 1990 to 9.8% in 2022, according to the study.
  - There were 44 million women living with obesity in 2022.
- **Obesity in men** increased by 4.9 percentage points during the same period, with 26 million men living with obesity in 2022.
- **Childhood obesity** has also recorded a significant increase. There has been a spike of 3 percentage points in girls and 3.7 percentage points in boys over the 32 years that the study examined.
  - In other words, while 0.2 million boys and 0.2 million girls were obese in 1990, 7.3 million boys and 5.2 million girls were obese in 2022.

Underweight and thinness

- Despite a significant decline, the prevalence of underweight and thinness continues to be high across genders and age groups.
  - The study found that 13.7% of women and 12.5% of men were underweight.
- Thinness — a measure of being underweight in children — in Indian girls was found to be the highest in the world, with a prevalence of 20.3%.
- And, it was the second highest in Indian boys, with a prevalence of 21.7%.

17. NO IMMUNITY TO MPS, MLAS FOR BRIBERY

Context: The Supreme Court overruled its 1998 verdict in **PV Narasimha Rao-JMM Bribery case** and ruled that MPs and MLAs **do not enjoy immunity from prosecution for taking bribes** to vote or make speech in the Parliament or State legislature. The court said that there is a grave danger of this Court allowing an error to be perpetuated if the decision in PV Narasimha Rao case were not reconsidered.

1: Dimension: Background and Narasimha Rao Verdict:

- In the **PV Narasimha Rao-JMM bribery case of 1998**, allegations of bribery arose during a **no-confidence motion** against the Congress government, implicating MPs who voted against it.
- The Supreme Court considered whether MPs enjoy immunity from prosecution for bribery under **Article 105 of the Constitution** and the scope of the **Prevention of Corruption Act, 1988.**
- The 5-judge bench ruled 3:2, granting **immunity to MPs** for acts associated with voting but not to those abstaining, stating that parliamentary privilege does not extend to criminal prosecution for bribery.

2: Dimension: Reasons for Overturning Narasimha Rao Verdict:

- **Immunity Not Essential for Legislative Duties**: The court ruled that immunity from prosecution for bribery is not essential for MPs and MLAs to discharge their legislative duties effectively.
- **Bribery Undermines Legislative Integrity**: Bribery undermines the integrity of legislative processes and contradicts the intent behind granting privileges to MPs and MLAs.
- **Corruption Not Protected by Legislative Privilege**: The court clarified that bribery is not shielded under Article 105(2) and Article 194(2) as it constitutes a criminal offense unrelated to the essential functions of voting or speech.
- **Distinct Jurisdiction of Courts and Legislature**: The jurisdiction of courts to prosecute criminal offenses and the authority of the House to discipline members for breaching legislative norms are separate domains.

- **Narasimha Rao Verdict's Paradoxical Outcome**: This interpretation contradicts the purpose and text of Articles 105 and 194, as it shields legislators from prosecution even after accepting bribes.

18. INDIA'S HEALTH CENTRES

Context: The deteriorating condition of public health centres in India, often described as emblematic of the country's failing healthcare system, has garnered attention due to a recent paper challenging this narrative. The paper highlights the ongoing struggles faced by these centres while also acknowledging signs of improvement and potential for redemption.

1: Dimension- Role of Health Centres in India's Healthcare System:

- **Backbone:** Health centres form the backbone of India's public healthcare system, providing **essential** primary care services across the country.
- **Accessible and affordable healthcare**: Comprising sub-centres, public health centres (PHCs), and community health centres (CHCs), these facilities aim to offer accessible and affordable healthcare, particularly in rural areas.

2: Dimension- Challenges Faced and Implications for Healthcare Equity:

- **Ineffectiveness:** Despite their vast number, reports indicate that less than 20% of these centres operate effectively, leading many underserved communities to rely on costly private healthcare services.
- **Burden on patients:** The prevalence of inadequate health centres contributes to significant health and financial burdens on patients, with nearly half of health expenditures in India still borne by individuals.

19. JUDGES IN POLITICS

Context: The recent resignation of a Justice Abhijit Gangopadhyay from Calcutta high court and subsequent entry into active politics has reignited discussions about the ethical boundaries for judges and raised concerns regarding the post-retirement activities of judicial officers. This transition from the judiciary to political involvement has sparked controversy and prompted calls for safeguards to uphold judicial independence and integrity.

1: Dimension- Judicial Independence and Post-Retirement Engagements:

- **Controversial Transition:** The development has raised concerns about the impartiality and integrity of the judiciary.
- **Ethical Dilemma:** The move highlights the ethical dilemma faced by judges regarding post-retirement engagements and political affiliations. Former Union Minister Arun Jaitley's proposition for a cooling-off period for judges underscores the need to address potential conflicts of interest arising from post-retirement appointments or political involvements.
- **Challenges to Judicial Independence:** While judges enjoy significant powers and privileges, concerns persist over external influences and pressures that could compromise judicial independence. The Constitution and international declarations emphasize the importance of judicial impartiality, integrity, and dignity in upholding the rule of law.

2: Dimension-Call for Judicial Reforms and Accountability:

- **Ensuring Judicial Integrity:** The episode underscores the imperative for robust mechanisms to ensure judicial accountability and uphold the sanctity of the judiciary.
- **Need for Proactive Measures:** Establishing clear rules prohibiting judges from engaging in partisan politics post-retirement can help maintain the integrity and impartiality of the judiciary.
- **Strengthening Judicial Oversight:** The judiciary must proactively safeguard its independence and credibility by enacting judge-made laws to regulate post-retirement engagements and uphold the principles enshrined in the Constitution and international conventions.

20. INTERNET IN INDIA'S TRIBAL VILLAGES

Context: The **Ministry of Tribal Affairs** is planning to collaborate with the **Indian Space Research Organisation (ISRO)** to deploy **V-SAT stations** on a pilot basis for around 80 tribal villages in Jharkhand, Madhya Pradesh, Odisha, and Maharashtra to bring Internet services there.

1: Dimension-e-Governance in India's remote regions

- In the remotest villages of India, the implementation of e-governance initiatives has emerged as a crucial necessity to **bridge the gap between rural communities and government services**.
- The collaboration with ISRO will see the government set up **V-SAT (very small apperture terminal) stations** for these 80 villages that are geographically remote and have difficult terrain, challenges that have kept them out of reach of connectivity for the longest time.
- This pilot project would be monitored so that it could be scaled up to other similar tribal villages in other States as well, adding the goal is also to help with e-governance in these remote areas.

Important e-Governance initiatives: Digital India Mission , Digi-Locker, Mobile Seva, myGov.in

2: Dimension-e-Governance empowering remote villages

- **Challenges:** With limited access to traditional administrative facilities, such as government offices and banks, remote villages often face challenges in accessing essential services and information.
- **Objective:** E-governance initiatives aim to address these challenges by leveraging digital technologies to provide efficient and accessible government services directly to the doorsteps of rural citizens.
- Through the establishment of digital infrastructure, including **internet connectivity and digital service centers,** villagers can now access a range of services such as **applying for government schemes, obtaining certificates, and accessing information on entitlements and benefits.**
- This transformation has had a **significant impact on rural communities**, empowering them with **greater access to government services, enhancing transparency and accountability** in governance, and fostering socio-economic development in the remotest corners of the country.

21. INDIA'S ZERO FOOD CHILDREN

Context: In a study conducted to assess the number of children aged six-23 months who have not consumed any food over a 24-hour period, India has disturbingly ranked high. With 19.3 per cent of children classified as 'zero-food,' India ranked third globally, following west African countries Guinea (21.8 per cent) and Mali (20.5 per cent).

1: Dimension-Scope of the problem

- India has by far the highest number of 'zero-food' children at 6.7 million (67,00,000), accounting for almost half of all 'zero-food children' across 92 countries in the survey.
- The problem of such extreme food deprivation is severe among children in U.P.
- The states of Uttar Pradesh (28.4%), Bihar (14.2%), Maharashtra (7.1%), Rajasthan (6.5%), and Madhya Pradesh (6%) account for nearly two-thirds of the total zero-food children in India.

2: Dimension-Root cause of the issue

- Alongside **poverty and marginalisation** in economic backgrounds, it's rapid **urbanisation and nuclearised families** that have contributed to such a large number of 'zero food children' in the India's most populous State.
- Women from underprivileged economic backgrounds work to sustain their families, resulting in their having **insufficient time to complement breastfeeding** for children above six months of age
- Most women are **not aware** of the government's schemes (e.g.,- **Poshan Abhiyan** targeting holistic development and adequate nutrition for children, pregnant women and mothers, and primarily focused on children in the 0-6 years age group)
- There is need to introduce solid or semisolid foods to a child's diet -- as breastfeeding alone is not sufficient to provide children with nutrition, which, in turn might hinder their growth and development.

FACT BOX: SHARE OF FOOD

- According to the Food and Agricultural Organization (FAO), the share of other food contributing to calorific requirements should be about 50% for children aged nine to 11 months (that is, 300 out of 700 Kcal/day), while the share of breastmilk should be greater than other food for children aged six-eight months (that is, 400 out of 600 Kcal/day).

22. GIG WORKERS ARE SUFFERING: STUDY

Context: A recent study of app-based workers shows they work long hours for low pay, with no social security, creating a loop of issues for them.

1: Dimension- Scope of the problem

- **Overburdened with work:** Almost a third of app-based cab drivers work for over 14 hours a day, while more than 83% work more than 10 hours and 60% work over 12 hours.
- **Social disparities**: Over 60% of the drivers from Scheduled Castes and Tribes working for over 14 hours a day, while only 16% from the unreserved category work such long hours.
- **Income disparities**: There exists income disparities and these income disparities further exacerbate the already existing social inequalities and perpetuate cycles of poverty and distress within these communities.
- **Risks:** Due to the demanding work hours, the drivers are physically exhausted, and exposed to an increased risk of road traffic accidents, especially due to the

'10-minute delivery at the doorstep' policy of certain e-commerce platforms.

- **Additional stress**: The lack of social and job security creates additional stress and leads to potential health issues.

2: Dimension-Rules in developed economies

- **UK Supreme Court**: In 2021, in a landmark judgment, the UK Supreme Court classified Uber drivers as 'workers' under the **UK Employment Rights Act 1996**, thus entitling them to various benefits like paid holidays and minimum wages.
- **Dutch High Court** also handed down a similar ruling, stating that the legal relationship between Uber and the drivers meets all the characteristics of an employment contract, making them entitled to workers' rights under local labour laws.
- **The Superior Court of California** struck down a **2020 ballot measure known as Proposition 22** that excluded gig workers from labour laws by declaring them 'independent contractors'.
- **Germany's Temporary Employment Act** provides for equal pay and equal treatment of gig workers.

23.CITIZENSHIP AMENDMENT ACT (CAA)

Context: The Ministry of Home Affairs notified the implementation of the **Citizenship Amendment Act (CAA)**, facilitating citizenship for undocumented **non-Muslim migrants** from **Pakistan, Bangladesh, and Afghanistan**, passed by Parliament in December 2019.

1: Dimension- Impact of CAA

- **Citizenship:** CAA was introduced to benefit the six minorities from the neighbouring countries of Pakistan, Afghanistan and Bangladesh. The citizens of India will not be impacted by the CAA.
- **Preservation:** The objectives of the CAA are centred around removing **legal barriers** that impede the resettlement and attainment of Indian citizenship for migrants, thereby **preserving their cultural, linguistic, and social identity.**
- **Economic benefits:** Furthermore, the legislation aims to ensure **economic, commercial, freedom of movement, and property acquisition rights** for these migrants.
- **Why only these three countries?** The CAA deals with religious persecution in three neighboring countries where the Constitution provides for a specific state religion. Followers of other religions have been **persecuted in these three countries.**

2: Dimension- Concerns vs Significance

Concerns

- **Discrimination against Muslims:** Critics argue that the CAA discriminates against Muslims. However, Muslims are not included in CAA as they are not in minority in the specified countries.
- **Potential Impact on NPR and NRC:** There are apprehensions about the potential implications of the CAA on the National Population Register (NPR) and the proposed National Register of Citizens (NRC).

Significance

- The Centre has defended the CAA on several grounds:
- **Historical Obligation:** India bears a historical responsibility and moral obligation to provide refuge to persecuted minorities from Afghanistan, Pakistan, and Bangladesh.
- **Humanitarian Grounds:** The CAA is framed as a humanitarian response to the plight of religious minorities who have endured persecution in the neighboring countries.
- **Protection of Religious Minorities:** The primary aim of the CAA is to offer legal protection and a pathway to citizenship for religious minorities.

24.INDIA INKS FTA WITH 4 EUROPEAN NATIONS

Context: India has signed a **free trade agreement (FTA)** with a group of four European countries that are not members of the **European Union.**

1: Dimension- Significance of the deal for India

- **Investment opportunity:** The deal with the European Free Trade Association (EFTA) will see investments in India of USD 100bn (£77.8bn). The investments do not cover foreign portfolio investment.
- **Major range of investment**: Under this deal, India will lift most **import tariffs** on industrial goods from the four countries in return for investments over 15 years. The investments are expected to be made across a range of industries, including pharmaceuticals, machinery and manufacturing.
- **Better market access**: The agreement enhances market access and simplifies customs procedures making it easier for Indian and EFTA businesses to expand their operations in the respective markets.

- **Boost to Make in India**: The agreement will give a boost to **Make in India** and provide opportunities to young & talented workforce. The FTA will provide a window to Indian exporters to access large European and global markets.
- **A show for UK: The** announcement comes as the UK and India have been holding negotiations over an FTA for the last two years. In the last two years, India has signed trade deals with **Australia and the United Arab Emirates.**

2: Dimension- Major Takeaways

- For the first ever time in the history of FTAs, a legal commitment is being made about promoting target-oriented investment and creation of jobs.
- **EFTA is offering** 92.2% of its tariff lines which covers 99.6% of India's exports. The EFTA's market access offer covers 100% of non-agri products and tariff concession on Processed Agricultural Products (PAP).
- **India is offering** 82.7% of its tariff lines which covers 95.3% of EFTA exports of which more than 80% import is Gold. The effective duty on Gold remains untouched. Sensitivity related to PLI in sectors such as pharma, medical devices & processed food etc. have been taken while extending offers. Sectors such as dairy, soya, coal and sensitive agricultural products are kept in exclusion list.

FACT BOX: EFTA

- EFTA is an inter-governmental organization set up in 1960 for the promotion of free trade and economic integration for the benefit of its four Member States.
- The EFTA is made up of **Norway, Switzerland, Iceland and Liechtenstein**.
- EFTA is one important economic block out of the three (other two - EU &UK) in Europe. Among EFTA countries, Switzerland is the largest trading partner of India followed by Norway.

25.INDIA – EURASIAN ECONOMIC UNION (EAEU) FTA TALKS

Context: India is "seriously considering" starting talks for a free trade agreement with the **Eurasian Economic Union (EAEU)**, as per the Foreign Minister of Belarus.

1: Dimension-The Scope of EAEU

- The Eurasian Economic Union (EAEU) is an economic union of five post-Soviet states — **Armenia, Belarus, Kazakhstan, Kyrgyzstan, and Russia** — with an integrated single market.
- Coming into force in 2015, the EEU currently consists of 183 million people and a gross domestic product of over USD 2.4 trillion.

2: Dimension- Impact of India-EAEU FTA

- The agreement is expected to boost New Delhi's exports to the region, particularly in areas such as engineering goods, electronics and agriculture, making trade more balanced.
- The FTA will help the two partners will help them to collaborate in key areas such as oil and gas, gold and diamond, timber, pharmaceuticals, agriculture, aviation, railways and logistics.
- If the trade agreement is concluded, it will further strengthen relations between India and Russia.

FACT BOX: TRADE TURNOVER

- India's trade turnover with the EAEU in the 2022-23 full year amounted to USD 50.3 billion.
- Meanwhile, trade turnover with Russia was USD 49.3 billion, with Kazakhstan USD 641 million, with Armenia USD 135.3 million, with Belarus USD 111.8 million and with Kyrgyzstan USD 56.6 million.
- Supplies of crude oil from Russia were the main cause for the growth of trade with Russia.

26.INDIA'S FOREX RESERVES

Context: India's foreign exchange reserves jumped by USD 10.47 billion to USD 636.1 billion, as per the latest data by the Reserve Bank of India (RBI).

1: Dimension- Impact of Indian Forex Reserve on the Economy

Positive Impact

- **Stabilisation of Currency:** The Indian forex reserves help stabilise the native currency by allowing the government to intervene in the foreign exchange market.
- **Enhanced Creditworthiness**: Having substantial reserves improves India's credit rating, attracting foreign investments.

Negative Impact

- **Opportunity Cost:** Holding large reserves means funds are not invested elsewhere, leading to potential opportunity costs.
- **Inflationary Pressures**: Excessive resources can lead to inflationary pressures within the economy.

COMPONENTS OF FOREX RESERVE	
Foreign Currency	**Major Currencies Held: USD, EUR, GBP** • **Purpose:** Facilitate international trade, provide liquidity • **Impact on Indian Forex Reserves**: Maintains the value of the local currency and ensuring that the country can meet its foreign obligations.
Gold	Gold is a hedge against inflation and provides a safety net during economic uncertainties. • **Purpose**: Hedge against inflation and safety during economic downturns • **Impact on Indian Forex Reserves**: An extra layer of protection and value, reflecting the traditional importance of gold in the Indian economy.
Special Drawing Rights (SDRs)	They are international reserve assets the IMF has created. They supplement the foreign exchange reserves of the member countries. • **Purpose:** Supplement foreign exchange reserves • **Impact on Indian Forex Reserves**: Enhances international liquidity
Reserve portion in the IMF	The reserve portion in the IMF represents India's quota in the **International Monetary Fund.** It reflects India's position and voting power within this global financial institution. • **Purpose:** Reflects India's position in the IMF • **Impact on Indian Forex Reserves**: Strengthens international standing

27. HUMAN DEVELOPMENT INDEX

Context: India's **Human Development Index (HDI)** value in 2022 has increased to 0.644 from 0.633 in 2021, placing it 134th out of 193 countries, according to **United Nations Development Programme's (UNDP's)** latest report on human development.

1: Dimension- Issues highlighted in the Report

Report Title: 'Breaking the Gridlock: Reimagining Cooperation in a Polarized World'. "It builds on the **2021–2022 Human Development Report findings** that saw the **global HDI value** fall for the first time — two years in a row.

- The report showed that the global HDI value fell for the first time in two years in a row.
- This report also revealed that while rich countries achieved record human development, half of the poorest remain below their **pre-crisis level of progress.**
- While HDI is projected to reach record highs in 2023 after declines in 2020 and 2021, there is a stark contrast in development levels between rich and poor nations.
- The report points out that **global inequalities** have been compounded by **substantial economic concentration** – almost 40% of global trade in goods is concentrated in three or fewer countries.
- The latest HDI assessment, however, presents a miserable picture of a world that, while recovering from the **pandemic's shocks**, is deeply divided and eclipsed by war.

2: Dimension- India's Position & Room for Improvement

- **Important ranking:** Categorised as **'Very High', 'High', 'Medium' and 'Low Human Development',** China and Sri Lanka, ranked at 75 and 78, respectively, in the High Human Development category compared to India, which stands at 134. India also ranks below Bhutan (125) and Bangladesh (129), despite all three being categorised under **'Medium Human Development'.**
- **Life expectancy:** In India, **life expectancy** rose from 67.2 to 67.7 years, **expected years of schooling** reached 12.6, which means that years of schooling increased to 6.57, and **GNI per capita** saw an increase from USD 6,542 to USD 6,951.
- **India's Gender Inequality Index (GII)**: However, India also has one of the **largest gender gaps** in the **labour force participation rate**—a 47.8 percentage points difference between women (28.3%) and men (76.1%).
- The HDI value places India in the medium human development category.

28. INDIA EMPLOYMENT REPORT 2024

Context: The **International Labour Organisation (ILO)** released its latest report on India and has said that India is poised to reap a demographic dividend but challenges related to youth unemployment persist.

Key-highlights of the Report

- **Report Title:** India Employment Report 2024

- India's youth was 27% of the population in 2021 and this number is set to decline to 21% by 2036, and each year 7-8 million youth are added to the workforce.
- **Vulnerable occupation:** Youth employment in India is by and larger of poorer quality than employment for adults, with employed youth being much more likely in vulnerable occupations or informal sectors.
- **Youth wages and earnings** have increased with age but are lower than what they are for adults for all categories of employment.
- **Poor condition of work:** There has been only a marginal gap between youth earnings from wage employment and self-employment, indicating poor conditions of work.
- **Highest unemployment among graduates: T**he highest youth unemployment rates are among those with a graduate degree and higher among women than men.
- **Women not in employment, education or training** amounted to a proportion nearly five times larger than among their male counterparts (48.4% versus 9.8%) and accounted for around 95% of the total youth population not in employment, education or training in 2022.

1: Dimension-Disruptive Factors

- **Fast-changing technological advancements:** There are increasing uncertainties in the labour market due to fast-changing technologies, including artificial intelligence (AI).
- **Demographic dividend:** India remains poised to reap a demographic dividend for at least another decade due to the youth population remaining at 23 per cent of the total in 2036 from 27 per cent in 2021.
- **Temporary Jobs:** Digital platforms and the gig economy are creating many new jobs, but these jobs are largely temporary, informal, and non-standard work.
- **Algorithmic management:** On the gig and platform economy front, autonomy and flexibility are non-existent due to algorithmic management and control as the subjective and unfair nature of ratings used through the algorithmic management in these platforms also creates difficulties.

2: Required Measures

- **Labour-intensive manufacturing employment:** The report calls for primacy to be given to labour-intensive manufacturing employment to absorb the abundant unskilled labour, along with the emerging employment-generating modern manufacturing and services sectors, with a direct and greater focus on **micro, small and medium-sized enterprises** by providing a more supportive and decentralised approach.
- **Green investment:** It also highlights investment in the green (environment-friendly) and blue (based on ocean resources) economies, developing rural infrastructure.
- **Revival of employment in rural areas:** There is a need for establishing an integrated market to **revive employment in the farm and non-farm sectors in rural areas.**

29.INDIA TO REPLACE MINIMUM WAGE WITH 'LIVING WAGE'

Context: India is preparing to replace the minimum wage with living wage by 2025 and has sought technical assistance from the **International Labour Organization (ILO)** to create a framework for estimating and operationalising these.

1: Dimension- Issues in India's Minimum Wage Rate

- **Disparities among states:** In India, the **disparity in minimum wage rates** across states poses a challenge for foreign companies seeking to establish offices or facilities within the country.
  - Unlike implementing a **uniform national standard**, each state in India sets its minimum wage, contributing to complexities for businesses navigating the diverse regulatory landscape.
- **Ineffective implementation of Acts:** The minimum wage regulation fell under the jurisdiction of the **Minimum Wages Act of 1948.** Although India notified the **Code on Wages Act in 2019**, trying to replace four labor regulations, including the **Payment of Wages Act of 1936, the Payment of Bonus Act of 1965, and the Equal Remuneration Act of 1976**, in addition to the **Minimum Wages Act of 1948**, the **Code on Wages Act** has not been implemented since notification.
- **Type of employment:** Of the nearly 500 million strong workforce, most of them are employed with the unorganised sector, this segment falls outside the purview of scrutiny. As a result of which, in many cases even the conditions of a minimum wage are not met.

2: Dimension- Significance of the Shift and Multidimensional Approach

- Integrating health, education, and living standards into the calculation of living wages strengthens **India's national poverty assessment framework** that employs **multidimensional indicators.**
- There is need for a comprehensive evaluation encompassing **economic, social, and demographic factors** to determine an **equitable living wage** standard tailored to the nation's development trajectory.

- With over **500 million workers in India's labor force**, the transition to living wages represents a monumental step towards **socioeconomic equality and sustainable growth.**

FACT BOX

About Living Wage

- According to ILO, a living wage level is deemed essential to ensure workers and their families can maintain a **decent standard of living**, considering the specific circumstances of each country.
- A living wage is calculated based on the work performed during regular working hours, adhering to the organization's principles for estimating such wages.

About Minimum Wage

- Minimum wage in simpler terms is the stipulated lower base of compensation that an employer is supposed to pay the employee.
- Here the primary unit is the amount accrued in an hour.
- An employer cannot make a payment below that mark.

30. SLOWDOWN IN FOREIGN DIRECT INVESTMENT

Context: The Indian economy is grappling with a slowdown in **foreign direct investment (FDI)**. In 2022-23, FDI equity inflows dropped by 22% year-on-year to USD 46 billion, following a 1% contraction from the previous year.

1: Dimension-Slowdown in FDI flows to developing countries

- **Affected global investments:** While overall global FDI flows rose 3% to an estimated USD 1.4 trillion in 2023, economic uncertainty and higher interest rates did affect global investment, reflected in FDI flows to developing countries falling by 9%.
  - The decline in **India's net foreign direct investment (FDI) inflow** is in line with the slowdown in such investments to developing countries.
- **Reductions for India:** Gross FDI inflows to India also dipped but only slightly in the period April 2023-January 2024 [from USD 61.7 billion to USD 59.5 billion]. In net terms, the comparable figures were USD 25.5 bn. vs. USD 36.8 billion.

2: Dimension-Risks for global market

- **Significant risks**: These risks include geopolitical risks, high debt levels accumulated in many countries, and concerns about further global economic fracturing.
- **Positive factors:** However, a modest increase in global FDI flows is likely this year, due to a **decline in inflation and borrowing costs in major markets** which may stabilise financing conditions for international investment deals.

3: Dimension-Need of FDI in Indian Economy

- **Long-term growth:** FDI leads to the long term growth of the economy. MNCs bring about technology transfer to the domestic companies which lead to the organic growth or expansion takes place in the companies also in the Employment.
- **Per capita income increases** and consumption improves. Tax revenues increase and government spending rises.
- **GDP increases** and there is also a lagged effect due to which subsequent years GDP too increases.
- **Higher growth rate:** FDI puts the companies and hence the economy on higher growth mode and the right process of FDI is selection of the strategic sectors in the economy that generate highest RoI.
- **Forex reserves rises significantly**: Exports get a fillip and balance of payments show surplus which causes rupee to appreciate vis-à-vis Dollar.
- **Skill development**: In FDI there is technology transfer or the movement of technical knowhow to the domestic country due to which skill development takes place and together with higher capital this raises productivity and profitability.

UPSC PYQ

Q. Justify the need for FDI for the development of the Indian economy. Why is there a gap between MOUs signed and actual FDIs? Suggest remedial steps to be taken for increasing actual FDIs in India. (UPSC 2016)

31. WORLD'S MIGRATORY SPECIES & THREATS

Context: The flocks of birds are dwindling in numbers as they navigate through regions that are becoming 'increasingly uninhabitable' for them. Nearly half of all migratory species are in decline.

1: Dimension-Factors responsible for decline

- **Loss of natural habitat and overexploitation**: These species face shifting landscapes due to **urbanisation, farming and climate change** among several other challenges.

- **Habitat loss** happens when land becomes urbanised, transformed for human use or degraded through pollution. Farming is a primary driver of this sort of fragmentation.
  - Migratory birds have experienced significant declines across certain regions, particularly those using the **Afro-Palearctic migratory route**. These birds typically travel southwards across Africa from Europe and Asia.
- **Agricultural and industrial activity** also release dangerous chemicals into habitats.

2: Dimension-Role of climate change in affecting migratory species

- **Decline:** Climate change is the second most significant factor contributing to the decline of migratory species.
- **Changes to natural landscape:** The changes in **temperature, precipitation and weather patterns** can affect the suitability of **breeding and stopover sites** along migration routes.
- **Direct mortality of species or less breeding**: Species may no longer be able to follow their usual migratory patterns.

3: Dimension-Impact of this decline on human and environment

- **Ecological, economic and cultural importance**: They help keep ecosystems from degradation and collapse. This can especially support carbon sequestration, the removal of carbon dioxide from the atmosphere, which mitigates climate change. This occurs through thicker vegetation or healthier coral reefs, for instance.
- **Strong coastal ecosystems:** They can also hold back floods and storm surges.
- **Other "ecosystem services":** Pollination, seed dispersal, and pest-control.

DATA BOX

IUCN Report

- **Migratory Birds:** About 14 percent of migratory birds around the world are threatened, which amounts to 134 of the 960 species listed by the UN.
- **Fish species:** Ninety-seven percent of the 58 fish species (monitored by UN) are threatened with extinction. They include several species of sturgeon, shark, ray and sawfish.
- An additional 399 species that are not currently listed in the CMS are also threatened or are at risk of coming under threat, which means they could also benefit from protective measures.
  - **Examples:** Indus River dolphin and albatross.
- About 44 percent of migratory species across the world are in decline while one in five faces the threat of all-out extinction.
- Some of the most critically endangered migratory birds include the **Amsterdam Island albatross** and **Balearic shearwater**

Migratory Flyways

- Migratory birds use flyways, a term for their established routes across geographical regions. There are five flyways covering Asia:
- **The Asian–East African Flyway** starts from the northern breeding grounds of waterbirds in Siberia and leads across Asia to East Africa.
- **The Central Asian Flyway** starts from the northern breeding grounds of water birds in Siberia and leads across Asia to the Indian subcontinent.
- **The East Asian–Australasian Flyway** starts at the Taymyr Peninsula in Russia and Alaska and extends southwards to southeastern Asia, Australia and New Zealand. About 60 species of shorebird use this route.
- **The West Pacific Flyway** links New Zealand and the east coast of Australia, through the central Pacific Ocean and the east coast of northern Asia, including Japan and the Korean Peninsula, ending up in eastern Siberia, including the Chukchi and Kamchatka Peninsulas, and Alaska. This flyway overlaps with the East Asian–Australasian Flyway.
- **The African-Eurasian Flyway** covers the whole of Europe, Africa and the Middle East as well as the Canadian Archipelago and parts of Central Asia.

MAINS PRACTICE QUESTION

Q. Migratory species globally are facing critical challenges, with nearly half in decline. Analyse the impact of climate change as an "amplifier" of other such threats as overexploitation and habitat loss along the Central Asian Flyway, citing specific examples.

32. WARMER OCEANS & IMPACT

Context: The **average global sea surface temperature (SST)** — the temperature of the water at the ocean surface — for February 2024 stood at 21.06 degree Celsius, the highest ever in a dataset that goes back to 1979. The previous record of 20.98 degree Celsius was set in August 2023.

1: Dimension- Reason behind the warming oceans

- **Trapped heat:** Since the beginning of the **Industrial Revolution** a few hundred years ago, humans have burned massive amounts of fossil fuels; cut down

huge swaths of forest; and undertaken many other activities that pump heat-trapping carbon dioxide into Earth's atmosphere. Most of the rest of the trapped heat has been absorbed into the planets' vast oceans.

- **El Nino:** The climate crisis is being compounded by the natural **El Niño climate pattern.**
- Marine heat waves—defined as periods of persistent anomalously warm ocean temperatures (warmer than 90 percent of the previous observations for a given time of year)—have occurred recently in several areas.
- **Weaker-than-average winds** have reduced the amount of **Saharan dust** in the atmosphere, which usually reduces sea temperatures by blocking some of the sun's energy.

2: Dimension-Impact of Warm Oceans

- **Marine life:** Hotter marine temperatures can have a devastating effect on marine life, and there have been multiple mass mortalities of marine animals and plants due to ocean heatwaves.
- **Displacement of species:** Heatwaves can also cause damaging **algal blooms, coral bleaching**, the displacement of marine species – as they search for colder water – and the disruption of food chains.
- **Extreme climatic events:** Increased marine temperatures can be harmful on land too, causing extreme weather, such as storms and hurricanes.
- **Vicious cycle of warming events**: Less sea ice not only means possible future sea level rises, it means that there's less ice to reflect the sun's energy, resulting in higher sea temperatures and more frequent marine heatwaves, a vicious cycle that could have global ramifications.

MAINS PRACTICE QUESTION

Q. What are the consequences of ocean warming? Discuss UNEP's six-sector approach to reduce emissions enough to keep the world below the 1.5°C mark.

33. INDIA'S POLLUTION WORSENS

Context: The **air quality global ranking** of cities for 2023 has been released by a **Swiss firm, IQAir**, which has been reporting this annually for over six years now.

Key-highlights of the Report

- Bangladesh is the world's most polluted country and Delhi is the most polluted capital.
- India has emerged as the world's third most polluted country.
- The world's most polluted city is Begusarai in the east Indian state of Bihar.
- Nine of the **top 10** most polluted cities are in India, up from six the previous year.
- Meanwhile, 42 cities in the top 50 are in India, up from 39; and an astounding 83 cities in the top 100 are Indian (up from 63 and 65 in the previous two years).
- Delhi is back to being the most polluted capital of the world, the fifth time in the last six years.
- It's PM 2.5 level has averaged over 102 micrograms per cubic metre, up 10 units from the previous year. **WHO's safe guideline is just 5 micrograms.**

1: Dimension-Reason behind high polluting levels

- **Transboundary Pollution**: Pollution from northern and southern India is funnelled in by winds and affects the entirety of eastern India and Bangladesh. This is known as transboundary pollution.
- **Climate change** could be exacerbating air pollution.
  - **Fossil fuel emissions** account for 65% of global CO2 emissions and are also the primary cause of the majority of PM2.5-related deaths.

2: Dimension- Why cities of Indo-Gangetic plains are heavily polluted?

- **Coal-powered plants:** The **Indo-Gangetic plain** is a highly productive and fertile river basin that supports more than 200 million people. This belt hosts 10% of India's coal-fired power generation plants – all located close to the Ganga.
- **High PM levels:** The entire Indo-Gangetic plain has **high level of nitrogen and sulphur oxides**, which are responsible for increased levels of **particulate matter** in the air.
- **Multiple sources:** There is no one source when it comes to air pollution, but many. These include dust, biomass burning, industrial emissions, coal-powered plants, deforestation and complex weather patterns.

FACT BOX: PM 2.5

- Fine particulate matter is defined as particles that are 2.5 microns or less in diameter (PM2.5). WHO's safe guideline is just 5 micrograms per cubic metre.

MAINS PRACTICE QUESTION

Q. 'Air pollution' is a major global environmental risk. How is India being affected by air pollution? Furthermore, delve into the enduring challenge of pollution in the Indo-Gangetic Plain, elucidating its persistent nature and impact on the region.

34. FOREST FIRES & IMPACT ON BIODIVERSITY

Context: For nearly a week now, forest fires have been raging in the **Coonoor forest range** in the **Nilgiris in Tamil Nadu.**

1: Dimension-Causes of Forest Fire

- According to the **Forest Survey of India**, nearly 36 per cent of India's forests are prone to frequent fires.
- Several factors like **temperatures, precipitation, vegetation, and moisture** contribute to the scale and frequency of these fires.
- Higher fire incidents are reported in March, April and May due to ample **availability of dry biomass (fuel load)** following the end of winter and the on-going summer season.
- Most forest fires are man-made due to changes in agriculture and unchecked land-use patterns.

2: Dimension-Impact of Forest Fire

- **Loss and displacement of species:** The impact of recurrent forest fires leads to the direct loss of trees and wildlife.
- **Pushing towards extinction:** Forest fires can meddle with the life cycle of species and push many of the threatened and endemic species closer to extinction.
  - **Affecting growth:** By destroying the leaves and foliage, a forest fire can significantly reduce the photosynthetic activity of surviving trees and thereby affect their growth.
  - **Affected seedlings:** It can also damage the seed bank, both above and below the ground, and wipe out the seedlings and saplings growing on the forest floor.
- **Impact on recovery rate:** The loss of **keystone organisms** in forest ecosystems, such **as invertebrates, pollinators, and decomposers,** can significantly slow the recovery rate of the forest.
- **Serious impact of reproduction:** Forest fires can also interfere with the reproduction and propagation of certain plants and animals. Such recurrent events can be deadly to the species that are native or endemic to the region.

FACT BOX: INDIA STATE OF FOREST REPORT (ISFR) 2021

- 35.46% of India's forest cover is susceptible to forest fires.
- Of this, 2.81% are extremely prone, 7.85% are very highly prone, and 11.51% are highly prone.
- India's 45–64% of forests will be impacted by changing climate and rising temperatures by 2030.

MAINS PRACTICE QUESTION

Q. The frequency of forest fire incidents in India has increased by more than 50 percent in the last two decades. Discussing the reason for forest fires, highlight the mechanism for controlling forest fires.

35.INDIA'S CLIMATE GOALS: NET-ZERO AND BLACK CARBON REDUCTION

Context: India's commitment to achieve net-zero emissions by 2070, announced at the COP26 climate talks, highlights its ambitious targets for carbon neutrality and renewable energy adoption. India's emphasis on **black carbon reduction**, particularly through initiatives like the **PMUY scheme**, underscores its commitment to addressing regional health issues and achieving sustainable development goals while contributing to global climate mitigation efforts.

1: Dimension- India's Climate Commitments and Renewable Energy Targets

- At the **COP26 climate talks in Glasgow** in November 2021, India pledged to achieve **net-zero emissions by 2070,** positioning itself as a frontrunner in the race to carbon neutrality.
- According to the **Ministry of New and Renewable Energy,** India has installed a renewable energy capacity of over **180 GW by 2023** and is expected to meet its target of **500 GW by 2030.**

2: Dimension-Risks of Black Carbon

- **Global warming:** Black carbon is the dark, sooty material emitted alongside other pollutants when biomass and fossil fuels are not fully combusted.
- **Severe health risks:** There is a direct link between exposure to black carbon and a higher risk of heart disease, birth complications, and premature death.
- **Source:** Most black carbon emissions in India arise from burning biomass, such as cow dung or straw, in traditional cookstoves.
  - **Residential sector** contributes 47% of India's total black carbon emissions.
  - **Industries** contribute a further 22%, diesel vehicles 17%, open burning 12%, and other sources 2%.
- Decarbonisation efforts in the industry and transport sectors in the past decade have yielded reductions in black carbon emissions, but the residential sector remains a challenge.

3: Dimension-Impact of Pradhan Mantri Ujjwala Yojana (PMUY)

- The programme has been able to play a vital role in reducing black carbon emissions, as it offers a **cleaner alternative to traditional fuel consumption.** The programme has provided connections to over 10 crore households as of January 2024.
- However, in 2022-2023, 25% of all PMUY beneficiaries — 2.69 crore people — availed either zero LPG refill or only one LPG refill, according to RTI data, meaning they still relied entirely on traditional biomass for cooking.
- The average PMUY beneficiary household consumes only 3.5-4 LPG cylinders per year instead of the six or seven a regular non-PMUY household uses. This means up to half of all the energy needs of a PMUY beneficiary household are still met by traditional fuels.
- A shortage of LPG and higher usage of traditional fuels also affect women and children disproportionately. They are more prone to higher levels of indoor air pollution, causing many health issues and leading to premature deaths.

36.SUSTAINABLE CONSTRUCTION

Context: India is witnessing an **unprecedented construction boom**, this growth brings economic opportunities and improved living standards but also poses significant **environmental challenges**. Therefore, **addressing energy inefficiency** in residential buildings is crucial, given India's rising energy and cooling demand due to **economic growth, urbanisation, heat islands, and climate change**.

1: Dimension-Unprecedented construction boom

- **Growth in building sector:** The building sector is a major energy consumer, it accounts for over 33% of India's electricity usage, contributing to environmental degradation and climate change. Over 3,00,000 housing units are getting erected annually.
- **Increasing cooling demand**: The **India Cooling Action Plan** forecasts an eight-fold increase in cooling demand between 2017 and 2037, emphasising the need for **thermal comfort** while reducing active cooling demand.
- **Challenges in construction sector:** Natural sand is fast becoming a scarce resource. Carbon dioxide emissions, especially from manufacturing cement or fired clay bricks, are increasing every year. The amount of **construction and demolition (C&D) waste** is on the rise—about 150 million tons are generated annually in India and the recycling rate is only about 1%.

2: Dimension-Initiatives to make construction sector energy efficient

- Initiatives like the **Eco-Niwas Samhita (ENS)** and the **Residential Energy Conservation Building Code** are steps in the right direction.
- **Eco-Niwas Samhita (ENS)** is India's building energy code for residential buildings. It was launched by the **Bureau of Energy Efficiency**. The ENS introduces the **Residential Envelope Transmittance Value (RETV),** a metric measuring heat transfer through a building's envelope. Lower RETV values lead to cooler indoor environments and decreased energy usage.
- **Energy Conservation Building Code (ECBC)** sets minimum energy standards for new commercial buildings having a connected load of 100 kW or contract demand of 120 kVA or more.

3: Dimension-Challenges and Required Measures

- **Issue (compromise in techniques):** Current construction trends favour fast-paced, energy-intensive techniques with active cooling strategies, leading to compromises in thermal comfort.
  - **Solution (awareness):** There needs to be more widespread knowledge about **climate-appropriate design and architecture**, with perceptions of high first costs as a barrier to the design and construction of climate-responsive buildings needing to change.
- **Issue (Sustainability concerns across materials):** Autoclaved Aerated Concrete (AAC) blocks, red bricks, fly ash, and monolithic concrete (Mivan) are most popular material. **Red bricks** exhibit moderate embodied energy, contributing to resource depletion, emissions, and waste. Monolithic concrete have an embodied energy 75 times greater than AAC. Monolithic concrete, despite its quick construction time, presents the highest embodied energy, significant environmental impact, and sustainability challenges.
  - **Solution (sustainable material):** AAC blocks consistently had the lowest RETV across all climatic conditions, indicating their potential as a thermally efficient material. Hence, AAC blocks offer a better balance between embodied energy and construction time than red bricks and monolithic concrete.
- **Issue (Untapped potential):** India has significant untapped potential for innovative building materials.
  - **Solution (re-imagining construction design and practices):** Building orientation, Window Wall Ratio (WWR), U-value (rate of heat transfer) of walls, roofs and window assemblies, glazing performance, active cooling systems, etc., can unlock the potential for a sustainable built environment.

37. 'EFFECTIVENESS' OF CARBON CREDITS

Context: The world is facing a critical threat with climate shifts. Though governments are employing **carbon trading** as a strategy to decrease their emissions, their "effectiveness" is questionable.

1: Dimension-Global shift towards Carbon Trading

- The global, multibillion-dollar voluntary carbon trading industry has been embraced by governments, organisations and corporations including oil and gas companies, airlines, fast-food brands as a way of claiming to reduce their greenhouse gas footprint.
- It works by carbon offset credits being tradable "allowances" or certificates that allows the purchaser to compensate for 1 ton of carbon dioxide or the equivalent in greenhouse gases by investing in environmental projects that claim to reduce carbon emissions.

2: Dimension-Role of Carbon credits in combating Climate Change

- The increasing pressure to act on nature loss led governments and companies worldwide to ramp up their decarbonisation commitments. Though carbon crediting offers a multitude of benefits, making it an effective tool in the fight against climate change, there persist some issues:
- **Greenwashing**: This does not lower the overall amount of greenhouse gases released by buyers. They are simply offset, which gives corporations a way to claim they are eco-friendly without reducing their overall emissions.
- **Lack of genuine efforts**: Carbon credits will entice businesses to engage in greenwashing by purchasing offsets and not making genuine efforts to reduce their GHG emissions.
- **Permanence:** The trees planted for additionality might be lost again and release the previously captured carbon back into the atmosphere.
- **Other ways for reduction:** The emissions reductions claimed by some carbon offset projects would have occurred anyway even without the offset project.
- **Multiple issues:** Over the years, offset projects have been dogged by allegations of land conflicts, human rights abuses, hampering conservation and furthering coal use and pollution.

CASE STUDY: AUSTRALIA'S CARBON CREDIT SCHEME

- Australia's carbon credit scheme was undermined by new research, which found a world-leading reforestation project had been an underperforming "catastrophe".
- Australis's offsets program was "one of the world's largest" natural carbon offset projects. Australia's offsets program is the **world's fifth biggest nature-based offsets program**, with projects covering nearly 42m hectares, an area larger than Japan.

Claims made by the Study

- **No change in tree cover**: The most popular technique used to create offsets in Australia, known as **"human-induced regeneration"** and pledged to regenerate **scrubby outback forests**, had mostly not improved tree cover as promised between about 2015 and 2022.
  - Forest cover had either barely grown or gone backwards in nearly 80%.
- **No reduction in emission:** These projects were therefore not reducing emissions as promised, and polluting companies that bought offsets created through these projects were often not reducing their impact on the climate as they claimed.
- **Questionable credits**: Despite this, Australia had used these projects to bank millions of tonnes in **questionable carbon credits**, which are used to supposedly **offset polluting industries**.

UPSC MAINS PYQ

Q. Should the pursuit of carbon credit and clean development mechanisms set up under UNFCCC be maintained even though there has been a massive slide in the value of carbon credit? Discuss with respect to India's energy needs for economic growth. (UPSC 2014)

38. AI'S CARBON FOOTPRINT

Context: The integration of artificial intelligence (AI) in addressing the climate crisis poses a paradox: while AI holds promise for solving environmental challenges, the energy demands of AI models contribute to carbon emissions, particularly through the infrastructure supporting data centers.

1: Dimension: Scope of the problem

- **Source of emission**: The emissions come from the infrastructure associated with AI, such as building and running the data centres that handle the large amounts of information required to sustain these systems.
  - To put things in perspective, training GPT-3 (the precursor AI system to the current ChatGPT) generated 502 metric tonnes of carbon, which is equivalent to driving 112 petrol powered cars for a year.
  - GPT-3 further emits 8.4 tonnes of CO_2 annually due to inference.

2: Dimension- Technological approach to reduce emission

- Different technological approaches to build AI systems could help reduce its carbon footprint. Two technologies in particular hold promise for doing this: spiking neural networks and lifelong learning.
- **Spiking neural networks (SNNs)** and **lifelong learning (L2),** have the potential to lower AI's ever-increasing carbon footprint, with SNNs acting as an **energy-efficient alternative to Artificial neural networks (ANN).**
  - **Artificial neural networks (ANNs),** which learn patterns from data to make predictions, require significant computing power due to their reliance on decimal numbers, leading to increased energy consumption as networks grow larger and more complex, mirroring the brain's structure with billions of interconnected neurons.
- **L2** is a set of algorithms aimed at minimizing forgetting in sequentially trained artificial neural networks (ANNs), allowing models to learn new tasks without losing previous knowledge, thereby reducing the need for energy-intensive retraining from scratch.
- **Advances in quantum computing** could revolutionize training and inference processes in ANNs and SNNs, potentially offering energy-efficient solutions for AI on a much larger scale

39.METHANESAT TO TRACK METHANE

Context: MethaneSAT — a satellite to **track and measure methane emissions at a global scale** — was launched aboard a **SpaceX Falcon9 rocket.**

1: Dimension- Methane's role in global warming

- Methane is an invisible but **strong greenhouse gas**, and the **second largest contributor to global warming** after **carbon dioxide**, responsible for **30 per cent of global heating** since the Industrial Revolution. Over a period of 20 years, methane is **80 times more potent** at warming than carbon dioxide.
- The gas also contributes to the formation of **ground-level ozone** — a colourless and highly irritating gas that forms just above the Earth's surface.
  - According to a 2022 report, exposure to ground-level ozone could be contributing to one million premature deaths every year.
- Therefore, it is crucial to cut methane emissions. And the main culprit: **fossil fuel operations**, which account for about 40 per cent of all **human-caused methane emissions**. The objective of MethaneSAT is to help achieve this goal.

2: Dimension- Role of MethaneSAT is filling critical data gaps

- Essentially, MethaneSAT will orbit the Earth 15 times a day, monitoring the oil and gas sector.
- It will create a large amount of data, which will tell "how much methane is coming from where, who's responsible, and are those emissions going up or down over time".
- The data is to be available public for free in near real-time to allow stakeholders and regulators to take action to reduce methane emissions.
- Equipped with a **high-resolution infrared sensor** and a **spectrometer**, MethaneSAT will fill critical data gaps.
- It can track differences in methane concentrations as small as three parts per billion in the atmosphere, which enables it to pick up smaller emissions sources than the previous satellites.
- MethaneSAT also has a wide-camera view — of about 200 km by 200 km — allowing it to identify larger emitters so-called **"super emitters".**

40. KERALA'S MAN-ANIMAL CONFLICT & MEASURES

Context: In the wake of recurring incidents of loss of lives in human settlements due to elephant attacks, Kerala has come up with long, short-term measures to prevent man-animal conflict. Also, the Kerala cabinet declared instances of **man-animal conflict** as a **state-specific disaster.** Declaration of the man-animal conflict as a state specific disaster will give more power to the district collectors to address the menace.

1: Dimension-The pressing issue of human-animal conflict

- In contemporary Kerala, particularly in the district of Wayanad, human-animal conflict is a pressing issue shaped by the intricate interplay of agrarian transformation and forest conservation efforts.
- As capitalist settler agriculture expands into forested areas, encroaching upon wildlife habitats, conflicts between humans and animals intensify.
- This conflict reflects a historical narrative of **ecological modernity**, where state-led and globalizing conservation initiatives intersect with agrarian changes, creating **complex dynamics of coexistence and competition** between human livelihoods and wildlife survival.

2: Dimension- States attempt to prevent the menace Measures

Long-term Measures:

- **Smart elephant fence**: A smart elephant fence to

prevent marauding wild elephants from reaching human habitations and reduce the instances of man-animal conflict in Wayanad.

- **Improvement of wildlife habitats: Eradication of invasive plants** such as **senna,** eco-restoration activities by removing **eucalyptus and acacia plantations**, supporting the regeneration of natural vegetation, improvement of wildlife habitats, and charging fees for entry of private vehicles into the forest area will also be explored.

Short-term Measures

- **Coordination**: The meetings of the inter-State coordination committee, the setting up of a Command Control Centre in Wayanad, and steps for strengthening the early warning system to alert people about the possible presence of wild animals in human habitations.
- **Deployment of drones for surveillance**, clearing compensation to victims of wild animal attacks, setting up of a new forest station, and closure of ecotourism destinations in the forest till the issue of man-animal conflict is reduced are also being implemented, the State informed the court.

41. WATER CRISIS IN BENGALURU

Context: India's **third-most populous city** is facing the worst potable water crisis in its nearly 500-year history.

1: Dimension- Factors related to Water Crisis

- There are several factors contributing to the water problem in Bengaluru, such as **insufficient precipitation, diminishing groundwater levels, poor planning of infrastructure, and the impact of water tanker operations.**
- The situation is further exacerbated by **insufficient rainfall** and the **proliferation of unscientifically drilled borewells.**
- The rapid **de-notification of lands** reserved for **green cover, wetlands, urban forests and river courses** is also one of the major factor.

2: Dimension- Impact of urbanisation (unplanned)

- Only uncertain rains and changing climatic conditions cannot be blamed for the water crisis in Bengaluru, population explosion, unplanned urbanisation, unfriendly industrial and agricultural policies have also resulted in this problem.
- Unplanned urbanisation leads to **haphazard growth, altering the local ecology, hydrology and environment.**
- The consequences of unplanned urbanisation are **enhanced pollution levels** and a **lack of adequate infrastructure and basic amenities.**
- This is evident in Bangalore with **severe scarcity of water, frequent flooding, enhanced pollution levels, uncongenial buildings, mismanagement of solid and liquid wastes**.

CASE STUDY

- Just like Bengaluru, **Cape Town** destroyed all its water bodies and wetlands in its pursuit of surfing the global real estate boom since 1990.
- In less than 25 years, the city is now totally dependent on a river hundreds of kilometres away through an augmented water supply system. Due to the drought situation prevailing year after year, even the river and the reservoirs are holding less water.
- Bengaluru appears to be following the same pattern. Bengaluru, up until 1961, had 262 lakes. This figure has now come down to 81.

FACT BOX: LAYERS HOLDING WATER

- The Deccan plateau broadly has three layers –
  - top soil on which plants grow
  - a 'weathered zone' beneath the top soil
  - hard rock (particularly important from a groundwater perspective)
- The weathered zone layer acts like a sponge and holds water in between particles. Water percolating further down fills up the fissures/ cracks/ faults in the hard rock.
- When it rains and water percolates down, it passes through the weathered zone and then into the hard rock fissures.
- A large connected set of fissures, in effect one single body of water under the ground, is called an **aquifer.**
- **Aquifers in the hard rock and are referred to as 'confined aquifers' as they are under pressure. Water in the weathered zone is shallow and is referred to as shallow unconfined aquifer.**

42. INDIA'S NUCLEAR POWER PROGRAMME

Context: Indian Prime Minister Narendra Modi witnessed the start of fuel loading at the **500 MWe Prototype Fast Breeder Reactor** at **Kalpakkam** in Tamil Nadu. **Fast breeder reactors** form the second stage of India's three-stage nuclear programme.

1: Dimension: India's three-stage programmes & Goals

- India has adopted a three-stage nuclear power

programme, with the long-term goal of deploying a **thorium-based closed nuclear fuel cycle.**

- The **first stage** involves the use of pressurised heavy water reactors (PHWRs), fuelled by natural uranium, and light water reactors.
- The **second stage** involves reprocessing used fuel from the first stage to recover the plutonium to fuel FBRs.
- In **stage 3,** Advanced Heavy Water Reactors (AHWRs) will burn thorium-plutonium fuels and breed fissile uranium-233.

- The PFBR will initially use a core of **uranium-plutonium mixed oxide (MOX) fuel**, surrounded by a **uranium-238 'blanket'**, with plans to use a blanket of uranium and thorium to "breed" plutonium and **U-233** for use as driver fuels for AHWRs.

2: Dimension: Significance

- The growth of the Indian nuclear power program is imperative to meet the twin goals of **energy security and sustainable development.**
- As a **responsible nuclear power with advanced technology**, India remains committed to expand peaceful applications of nuclear technology, both in power and non-power sector, while ensuring the security of nuclear and radiological materials.
- Once commissioned, India will be the second country after Russia to have a commercially operating fast breeder reactor. Many countries, including the US, Japan and France, have tried developing fast breeder reactors and have given up due to repeated failure to safely handle liquid sodium.

43. WORLD'S FIRST AI LAW

Context: European Union lawmakers gave final approval to a **landmark law** governing **artificial intelligence (AI)** to limit its use in businesses and organizations in Europe for everything from health care decisions to policing.

1: Dimension- Need of AI Act

- The rapid rise in **AI** has created many opportunities globally. However, these **rapid changes** also raise profound concerns.
  - **Concerns related to AI:** Privacy, Transparency, Accountability, Job Disruption, Safety, Inequality, Manipulation and Disinformation, Human Dignity and Autonomy, Cultural and Social Impact, Environmental Impact.
- The AI Act can make **AI trust worthy**.

2: Dimension- Objectives of the EU AI Act

- The Act is the **world's first major set of regulatory ground** rules to govern the mediatized AI at the forefront of tech investment.
- The main idea of the law is to regulate AI based on its capacity to cause harm to society. The higher the risk, the stricter the rules.
- The first-of-its-kind law imposes blanket-bans some "unacceptable" uses of the technology while enacting stiff guardrails for other applications deemed **"high-risk."**
  - **Areas of high-risk**: Critical infrastructure, education and vocational training, employment, essential services such as healthcare or banking, as well as law enforcement, migration and border management, justice, and democratic processes.
- The **EU AI Act** outlaws **social scoring systems** powered by AI and any **biometric-based tools** used to guess a person's race, political leanings or sexual orientation.
- It also bans the use of **AI to interpret the emotions of people in schools and workplaces**, as well as some types of automated profiling intended to predict a person's likelihood of committing future crimes.
- The law further outlines a separate category of '**high-risk' uses of AI**, particularly for education, hiring and access to government services, and imposes a separate set of transparency and other obligations on them.
- It also requires all **AI-generated deepfakes** to be clearly labelled, targeting concerns about manipulated media that could lead to disinformation and election meddling.

3: Dimension- EU's Landmark AI Law and the "Brussels Effect"

- **Impact on India:** The final approval could have significant implications for India, particularly in terms of **global regulatory standards and market access**.
  - The **"Brussels Effect" phenomenon**, whereby EU regulations become ***de facto*** global standards, may compel multinational companies operating in India to comply with the EU AI Act in order to access the lucrative EU market.
  - This could prompt India to consider aligning its own AI regulations with the EU standards to maintain competitiveness and facilitate international trade.
- **Regulatory Void in India's Surveillance Systems**: India's current deployment of surveillance systems, including facial recognition technology, lacks adequate regulatory oversight, raising concerns about potential privacy violations and discriminatory practices.
  - While India has historically pursued independent legislative efforts, it has drawn inspiration from international regulations like the **GDPR.**
  - The EU's AI Act may serve as a **benchmark for India** as it navigates the development of its own regulatory framework for emerging technologies, including AI and surveillance systems.

44. NUCLEAR POWER AND WASTE

Context: India recently reached a significant milestone in its nuclear program by loading the core of its **prototype fast breeder reactor (PFBR),** advancing towards stage II of its three-stage nuclear program, aimed at achieving energy independence through the utilization of thorium reserves. However, the large-scale use of nuclear power is accompanied by a difficult problem: **waste management**.

1: Dimension- Production of Nuclear Waste & Handling

- Nuclear waste is produced when atoms in a **fission reactor** absorb **neutron**s, resulting in the creation of radioactive elements that cannot undergo further fission. This waste, also known as spent fuel, contains **radioactive fission** products and elements formed through the conversion of uranium.
- It is **hot and highly radioactive**, and needs to be kept underwater for up to a few decades. Once it has cooled, it can be transferred to dry casks for longer-term storage.
- All countries with longstanding nuclear power programmes have accumulated a considerable inventory of spent fuel. For example, the U.S. had 69,682 tonnes (as of 2015), Canada 54,000 tonnes (2016), and Russia 21,362 tonnes (2014).

2: Dimension- Issues associated with nuclear waste

- **Danger for health:** These waste materials can remain radioactive and dangerous to human health for thousands of years.
  - Two of the world's biggest nuclear accidents – the Fukushima nuclear disaster (2011) and the Chernobyl disaster (1986) – were responsible for the release of a significant amount of **radioactive isotopes into the atmosphere**, which created huge consequences for people and the environment.
- **Costly maintenance**: Radioactive wastes are subject to special regulations that govern their handling, transportation, storage, and disposal to protect human health and the environment. The maintenance of these sites can be extremely costly and it requires a large amount of manpower.

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1. MOHINIYATTAM

Context: In a historic move, the **Kerala Kalamandalam** has decided to lift the ban on males studying '**Mohiniyattam**'.

About Mohiniyattam

- Mohiniyattam is **one of the eight classical dances of India** that developed and remained popular in the state of Kerala.
- Mohiniyattam dance gets its name from the word **Mohini** – a mythical enchantress avatar of the **Hindu god Vishnu**, who helps good prevail over evil by developing her feminine powers.
- Mohiniyattam's roots, like all **classical Indian dances**, are in the **Natya Shastra** – the ancient **Hindu Sanskrit text** on performance arts.
- However, it follows the **Lasya style** described in **Natya Shastra** which is a dance that is delicate and feminine. The delicate body movements and subtle facial expressions are more feminine in nature and therefore are ideally suited for performance by women.
- **Costumes:** The costume includes plain white or off-white such as ivory or cream coloured sari embroidered with bright golden or gold laced coloured brocade (similar to a ceremonial **Kasavu saree**).
- **Music and instruments:** The vocal (music) of Mohiniyattam involves various rhythms. There are numerous compositions for a Mohiniyattam repertoire, most of whose lyrics are in Manipravalam, a mixture of Sanskrit, Tamil and Malayalam.
  - The musical instruments usually used in **Mohiniyattam are Mridangam or Madhalam (barrel drum), Idakka (hourglass drum), flute, Veena, and Kuzhitalam (cymbals).**
  - The ragas (melody) are rendered in the sopana (steps) style, which is a slow melodic style with roots in the **Natya Shastra.**

India's recognised classical dances: Bharatanatyam, Kathak, Kuchipudi, Odissi, Kathakali, Sattriya, Manipuri, and Mohiniyattam.

2. CULTURAL NAMING PRACTICES

Context: Children of the **Lisu and Singpho communities** in Arunachal Pradesh and Assam are named according to the order they are born in the family, incorporating numbers into their names.

About the Numbering Tradition

- Numbering names is a tradition in Lisu and Singpho communities.
- Lisu boys and girls have separate sets of numbered names to indicate the order of their birth.
- The eldest girl in a family has **Ana** in her name, and the ones after her are called **Angyi, Acha, Ado, Achhi, Ata, Akhu, Agu, Aju, and Apshi**, for a tenth daughter.

Lisu and Singpho communities

- **The Lisus** belong to the Tibeto-Burman family and inhabit the contiguous hilly regions of **Arunachal Pradesh, China, Myanmar, and Thailand**. They number about 5,000 in India.
- **The Singphos** is an ethnic group inhabiting 27 countries, including China's Yunnan province. In India, they mostly inhabit the **Changlang and Namsai** districts of Arunachal Pradesh, and the **Tinsukia district** of Assam.
- The Lisus and Singphos have **similar usage of numbers** in their names, probably because they belong to the **Wunpong group**, which has four more communities in the **Kachin State of Myanmar.**

3. GI TAG FOR MAJULI MASKS OF ASSAM

Context: The traditional **Majuli masks** in Assam were given a **Geographical Indication (GI) tag** by the Centre. **Majuli manuscript painting** also got the GI label.

About Majuli Masks

- **Majuli,** the largest river island in the world and the seat of **Assam's neo-Vaishnavite tradition**, has been home to the art of mask-making since the 16th century.
- The **Samaguri satra located in Majuli stands** as the **epicenter of mask-making** art in the region.
- The handmade masks are traditionally used to depict characters in **bhaonas**, or theatrical performances with devotional messages under the **neo-Vaishnavite tradition**, introduced by the **15th-16th century reformer saint Srimanta Sankardeva**.
- The masks can depict **gods, goddesses, demons, animals and birds — Ravana, Garuda, Narasimha, Hanuman, Varaha Surpanakha** all feature among the masks.
- They can range in size from those covering just the face (*mukh mukha*), which take around five days to make, to those covering the whole head and body of the performer (*cho mukha*), which can take up to one-and-a-half months to make.

MANUSCRIPT PAINTING (XASIPAAT)

- Manuscript painting is practiced on the barks of ***Aquilaria malaccensis***, locally known as **'Sashi' (agarwood tree).**
- **Manuscript paintings** depict stories from Hindu mythological epics such as Ramayana, Mahabharata, and the Bhagavata Purana.

- These paintings primarily focus on events related to Lord Krishna, and the Bhagavata Purana is a testament to that.
- The region is known for three popular styles of manuscript writing, namely **Gargayan script, Kaithall, and Bamunia.**

4. RUPA TARAKASI

Context: Rupa Tarakasi, the silver filigree work of Cuttack in Odisha. This handicraft has recently received the **geographical indication (GI) tag**.

About

- Tarakasi is one of Odisha's most stunning handicrafts. The word ***"tara"*** in Odia means wire, while ***"kasi"*** means design.
- This handicraft involves cutting silver bricks into thin wires or foils to create jewellery and showpieces.
- The delicate silver wires are beaten and shaped into various objects, from jewellery and ornaments to intricate items such as peacocks, boxes, and even the Sun deity riding his chariot pulled by seven horses.
- Tarakasi craftsmen have even decorated idols of the goddess ***Durga*** with their exquisite workmanship.

OTHER PRODUCTS TO JOIN THE GI LEAGUE	
Ambaji White Marble	• It is a type of Indian marble that has a pure white color with light gray veins running through it. This marble is quarried in the marble mines located in Gujarat, India. • Ambaji Superior White Marble is formed when limestone undergoes a process of **recrystallization** under the earth's crust due to intense pressure and heat.
Banglar muslin	• Banglar muslin is a **traditional handloom craft** from Bengal that is very popular. • It is made from cotton, and the threads used to weave it maintain high tensile strength at counts above 300 counts and up to 600 counts. This makes it stronger than any other cotton product available.
Hyderabad Lac Bangles	• Lac bangles are a traditional form of jewellery made from **natural resin** and adorned with colorful stones and beads.
Lace crochet of Narsapur	• The origin of the lace industry is connected with the history of the missionaries in the Godavari delta. • The town's crochet craft is famous worldwide for its intricate craftsmanship, unique designs, and good quality.
Ratlam Riyawan Lahsun (Garlic)	• It is a variety of garlic named after **Riyawan village in Ratlam district of Madhya Pradesh.**
Tripura Risa Textile	• The traditional attire worn by Tripuri females consists of three parts - risa, rignai, and rikutu. **Risa** is a handwoven cloth that can be used as an upper garment, headgear, stole, or as a sign of respect. When worn as an upper garment, it is wrapped twice around the torso.

5. SABARMATI ASHRAM

Context: PM Modi launched the redevelopment of **Sabarmati Ashram**.

About the Ashram

- The Sabarmati Ashram (also known as Harijan Ashram) was home to **Mohandas Gandhi and Kasturba** from 1917 until 1930.
- It served as one of the main centres of the **Indian freedom struggle**.
- Originally called the **Satyagraha Ashram**, reflecting the movement toward passive resistance launched by the Mahatma, the Ashram became home to the ideology that set India free.
- Sabarmati Ashram named for the river on which it sits, was created with a dual mission.
- On the 12 March 1930, Gandhi launched the famous ***Dandi march*** 241 miles from the Ashram in protest of the **British Salt Law.**

6. LA NINA SET TO RETURN IN INDIA

Context: The **Asia-Pacific Economic Cooperation (APCC) Climate Center** has predicted that India is likely to experience above-normal precipitation during its peak monsoon season from July to September. This forecast change is attributed to the recent **ENSO** alert which predicts a smooth transition from **El Nino** to **La Nina** condition.

About

- The **El Nino** and **La Nina** are the two phases of the **El**

Nino Southern Oscillation (ENSO) phenomenon that occurs in the **equatorial Pacific Ocean.**

- **El-Nino** is the periodic warming of waters in the central Pacific Ocean. The phenomenon has a direct impact on the weather patterns prevalent over the Indian peninsula.
- **La Nina** refers to the periodic cooling of ocean surface temperatures in the central and east-central equatorial Pacific.
  - Typically, La Nina events occur every 3 to 5 years or so, but on occasion can occur over successive years.
  - La Nina represents the cool phase of the **El Nino/ Southern Oscillation (ENSO) cycle.**

7. HEAT WAVES

Context: With the State stepping into peak summer season, Kerala is staring at **heat wave**-like conditions at many places.

What is a heat wave?

- Heat wave is a condition of air temperature which becomes **fatal to human body** when exposed.
- Quantitatively, it is defined based on the **temperature thresholds over a region in terms of actual temperature or its departure from normal**.
- For declaring a heat wave, the temperature should be 4.5 °C above normal for that time in a region.
- The criteria for the coastal station maximum temperature should be greater than or equal to 37 °C.

8. BALTIMORE'S FRANCIS SCOTT KEY BRIDGE

Context: **Baltimore's Francis Scott Key Bridge** collapsed after a container ship smashed into a **pylon**.

About the Bridge

- The **Francis Scott Key Bridge** was one of three ways to cross the **Baltimore Harbor** and handled 31,000 cars per day or 11.3 million vehicles a year.
- The steel structure is four lanes wide and sits 185 feet (56 meters) above the river.
- It opened in 1977 and crosses the **Patapsco River.**
- The bridge leads to the **Port of Baltimore**, the deepest harbor in **Maryland's Chesapeake Bay.**
- **Reason behind the collapse:** The metal truss-style bridge has a suspended deck, a design that contributed to its collapse, engineers say. The ship appeared to hit a main concrete pier, which rests on soil underwater and is part of the foundation.

9. KAVERI RIVER

Context: Activists from Kodagu have urged the state government to put an end to the large-scale commercialization of land in the **Cauvery River catchment area**, noting that the rampant land use change has affected the water inflow to the river.

About Kaveri River

- Kaveri River, sacred river of southern India.
- It rises on **Brahmagiri Hill** of the **Western Ghats** in southwestern Karnataka state, flows in a southeasterly direction for 475 miles (765 km) through the states of Karnataka and Tamil Nadu, and descends the Eastern Ghats in a series of great falls.
- Before emptying into the Bay of Bengal south of Cuddalore, Tamil Nadu, the river breaks into a large number of distributaries forming a wide delta called the **"garden of southern India."**

10. TIGER TRIUMPH-24

Context: India and the US are carrying out a bilateral tri-service Humanitarian Assistance and Disaster Relief (HADR) exercise, Tiger Triumph-24, on the Eastern Seaboard, US.

About

- 'Tiger Triumph - 24' is in line with the established India-US partnership.
- It is a bilateral tri-service Humanitarian Assistance and Disaster Relief (HADR) military exercise between the two countries.
- Objective: To develop interoperability for conducting HADR operations.

11. WORLD HAPPINESS REPORT

Context: In the recently published **UN-sponsored World Happiness Report**, India ranked 126, the same as last year, in the happiness index.

Key-findings of the Report

- **Finland** remained the world's happiest country for a seventh straight year.
- **Nordic countries** kept their places among the 10 most cheerful, with **Denmark, Iceland and Sweden** trailing Finland.
- **Afghanistan**, plagued by a humanitarian catastrophe since the Taliban regained control in 2020, stayed at the bottom of the 143 countries surveyed.

- For the first time since the report was published more than a decade ago, the **United States and Germany** were not among the 20 happiest nations, coming in 23rd and 24th respectively.
- In turn, **Costa Rica and Kuwait** entered the top 20 at 12 and 13.
- **India's ranking**: India ranked 126, the same as last year, in the happiness index.
  - Factors such as **marital status, social engagement, and physical health** influence life satisfaction among older Indians.

FACT BOX

World Happiness Report

- The World Happiness Report is a publication released annually by the **United Nations Sustainable Development Solutions Network.**
- The happiness ranking is based on **individuals' self-assessed evaluations of life satisfaction**, as well as **GDP per capita, social support, healthy life expectancy, freedom, generosity and corruption.**

United Nations Sustainable Development Solutions Network

- The UN Sustainable Development Solutions Network (SDSN) has been operating since 2012 under the **UN Secretary-General.**
- SDSN mobilizes global scientific and technological expertise to promote practical solutions for sustainable development, including the implementation of the **Sustainable Development Goals (SDGs) and the Paris Climate Agreement.**

12. PM MODI CONFERRED BHUTAN'S HIGHEST CIVILIAN HONOUR

Context: The King of Bhutan conferred the **Order of the Druk Gyalpo** on Prime Minister Narendra Modi, who became the first foreign head of government to receive **Bhutan's highest civilian honour**.

About the Award

- The **Order of the Druk Gyalpo** holds immense significance within **Bhutan's honour system**, symbolising a lifetime of outstanding achievements and contributions to society.
- The Order of the Druk Gyalpo takes **precedence over all orders**, decorations and medals.
- Since its institution, the award has been conferred upon only four eminent personalities.
  - Queen Grandmother of Bhutan Ashi Kesang Choden Wangchuck in 2008
  - Je Thrizur Tenzin Dendup (68th Je Khenpo of Bhutan) in 2008
  - Je Khenpo Trulku Ngawang Jigme Choedra in 2018

13. MODEL CODE OF CONDUCT

Context: The Model Code of Conduct becomes active as soon as the dates for elections are announced and stays in place until the results are declared.

About Model Code of Conduct (MCC)

- The Model Code of Conduct (MCC) is like a rulebook for political parties and leaders during elections in India.
- It has guidelines to make sure that elections are fair and free from unfair influence.
- The MCC covers many things like what politicians can say in their speeches, how they should behave on voting day, and even what they can promise in their election manifestos.
- Legal enforceability: The MCC does not have legal enforceability on its own. Nevertheless, specific provisions within it may find enforcement through corresponding clauses in other statutes, including the Indian Penal Code of 1860, the Code of Criminal Procedure of 1973, and the Representation of the People Act of 1951.
  - Additionally, the ECI holds authority under paragraph 16A of the Election Symbols (Reservation and Allotment) Order of 1968 to suspend or withdraw a party's recognition.

14. SELECTION OF ELECTION COMMISSIONERS

Context: The President has appointed Gyanesh Kumar and Sukhbir Singh Sandhu, both retired IAS officers, as Election Commissioners (ECs) to fill up two vacancies in the three-member Election Commission of India under the **Chief Election Commissioner and other Election Commissioners (Appointment, Conditions of Service and Term of Office) Act, 2023.**

The new Selection Process

- The CEC and ECs are appointed by the **President of India** on the recommendation of a selection committee.
- **Selection Committee**: In terms of the new law, the two ECs were selected by a **three-member Selection Committee**, comprising

- **Prime Minister** (Narendra Modi)
- **Union Home Minister** (Amit Shah)
- **Leader of the largest party in the Opposition** (Adhir Ranjan Chowdhury)

- **Eligibility criteria**: Eligibility for the posts includes holding (or having held) a post equivalent to the Secretary to the central government. The CEC and ECs must:
  - be persons of integrity,
  - have knowledge and experience in the management and conduct of elections, and
  - be or have been Secretary (or equivalent) to the government
- **Term and reappointment**: Members of the Election Commission hold office for six years, or until they attain the age of 65 years, whichever is earlier.
  - Members of the Commission cannot be re-appointed. If an EC is appointed as a CEC, the overall period of the term may not be more than six years.

15. PILOT PROGRAM FOR ROAD ACCIDENT VICTIMS

Context: The Government of India, in line with its commitment to reduce fatalities due to road accidents and the legal mandate under **section 162 of Motor Vehicles Act, 1988**, is launching a pilot program to provide cashless treatment to the victims of road accidents caused by the use of motor vehicles.

About the Program

- **Developed by:** Ministry of Road Transport and Highways
- **Implementing Agency:** National Health Authority (NHA)
- The pilot program is aimed at establishing an **ecosystem for providing timely medical care** to the victims of road accidents, including during the **golden hour.**
- The broad contours of the pilot program are as follows:
  - Victims entitled to **cashless treatment upto a maximum of Rs. 1.5 lakhs per accident per person for a maximum period of 7 days from date of accident.**
  - **Applicable** to all road accidents caused by use of motor vehicle on any category of road.
  - **AB PM-JAY packages** for trauma and polytrauma cases being co-opted.
  - Claims raised by hospitals for providing treatment to be reimbursed from the **Motor Vehicle Accident Fund.**
- **Implementing Platform:** IT platform combining the functionalities of **eDAR application** of **MoRTH and Transaction Management System (TMS) of NHA.**
- Based on the outcome of the pilot program, expansion of the cashless treatment facility to the entire country will be considered.

16. T-SAFE

Context: With an aim to prioritize safety and security, **Travel Safe, (T-Safe)** a ride-monitoring service for women introduced by Telangana police was launched recently.

What is T-Safe?

- T Safe is the first of its kind ride-monitoring service in India, which aims at making Travel safer for Women, Children and other vulnerable groups in the State.
- It is not required for individuals to own a smartphone or download an app to avail the service. Hence, even if the woman has a basic phone, she can avail of the **T-Safe service.**

17. MAHARASHTRA FIRST STATE TO BUY LAND IN KASHMIR

Context: Maharashtra is set to become the first Indian state to buy land in union territory Jammu and Kashmir in order to construct a tourist facility for the state's people.

The legal framework

- Before the abrogation of **Article 370,** only the permanent residents of Jammu and Kashmir could buy land in the erstwhile state. However, at that, the government could lease lands for up to 99 years to industries and people from outside.
- This legal framework legal framework underwent significant changes following the abrogation, leading to new opportunities for land acquisition and development projects in the Union Territory.

18. BIMA SUGAM

Context: IRDAI (Insurance Regulatory and Development Authority of India) gave the go ahead to launch a new online marketplace for insurance. It's called '**Bima Sugam**'.

About Bima Sugam

- Bima Sugam is going to be a **one-stop platform** where Indians can find all kinds of insurance policies offered by different companies.

- And if something catches their eye, they can swipe right and make a purchase.

19. BHASHANET PORTAL

Context: MeitY successfully unveiled **BhasaNet portal.**

What is BhasanNet Portal?

- The BhashaNet portal is designed to support the cause of Universal Acceptance by providing resources, tools, and information to help developers, businesses, and organizations make their applications and systems UA-compliant.
- It works to provide a truly multilingual internet, where local language website name and local language email id, work everywhere seamlessly.

20. MADIGA MEMBER IN SCHEDULED CASTE PANEL

Context: The Union government has chosen to constitute the most-recent **National Commission for Scheduled Castes (NCSC)** by ensuring the presence of at least one member from the **Madiga community,** one of the most populous **Scheduled Caste communities** in Telangana and Andhra Pradesh.

Who are the Madigas?

- The Madiga community is a Telugu caste, mainly living in the southern states of Telangana, Andhra Pradesh, and Karnataka. However, Madigas also live in **Tamil Nadu, Maharashtra and Odisha.**
- The community has historically worked in handicraft, leatherwork, tannery, and agriculture.
- The Indian government categorises the community within the SC category.
- There are various sub-castes within Madigas.
- As per the 2011 census, the Madiga community in the undivided **Andhra Pradesh (before the creation of Telangana in 2014)** constituted more than 48 per cent of the SC population.

21. CABINET APPROVES INDIA AI MISSION

Context: The Cabinet approved the **India AI Mission** with an outlay of Rs 10,372 crore for five years to encourage AI development in the country.

About the Mission

- The approved corpus will be used to build a high-end scalable AI ecosystem in public-private partnership mode.
- The mission will be implemented through the **IndiaAI Independent Business Division (IBD)** under **Digital India Corporation (DIC).**
- **Supercomputing capacity**, comprising over 10,000 GPUs (graphics processing unit), will be made available to various stakeholders for creating an AI ecosystem.
- **An India AI Innovation Centre (IAIC)** will be set up under the mission. The IAIC will be a leading academic institution, ensuring streamlined implementation and retention of top research talent.
- **A National Data Management Office** will be set up under the mission that will coordinate with various government departments and ministries to improve the quality of data and make them available for AI development and deployment.

22. CENTRE EXTENDS UJJWALA SUBSIDY

Context: The Centre announced the extension of Rs 300 per LPG cylinder subsidy to poor women under the **Pradhan Mantri Ujjwala Yojana** (PMUY) for the next fiscal starting April 1.

About the Scheme

- **Launched in:** 2016
- To make **Liquified Petroleum Gas (LPG),** a clean cooking fuel, available to rural and deprived poor households, the government launched Pradhan Mantri Ujjwala Yojana (PMUY) to provide deposit-free LPG connections to adult women of poor households.
- While the connection was provided for free, the beneficiaries had to purchase LPG refills at market price.
- **Beneficiaries:** Adult women of poor households.

23. PM-SURAJ PORTAL

Context: Prime Minister Narendra Modi inaugurated the **'Pradhan Mantri Samajik Utthan and Rozgar Adharit Jankalyan' (PM-SURAJ) national portal.**

What is PM-SURAJ Portal?

- The PM-SURAJ portal symbolizes the ministry's dedication to placing the underprivileged at the forefront of development initiatives.
- The PM-SURAJ national portal will extend credit support to eligible individuals across the nation, with

assistance channelled through banks, **NBFC-MFIs**, and other relevant organisations.

- PM-SURAJ will help in providing financial assistance directly to beneficiaries, eliminating middlemen and commissions.
- Furthermore, Ayushman health cards and personal protective equipment (PPE) kits were distributed by the ministry to sewer and septic tank workers (**Safai Mitras**) under the **National Action for Mechanized Sanitation Ecosystem (NAMASTE).**

AYUSHMAN HEALTH CARD

- The Ayushman health card is a form of identification issued under the **Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB-PMJAY)**, a government-sponsored health insurance scheme in India.
- It provides beneficiaries with access to cashless and paperless healthcare services at empaneled hospitals.
- The card contains essential information about the beneficiary, including their unique identification number and details of covered healthcare services.

24.CAUVERY PANEL

Context: The Cauvery Water Regulation Committee (CWRC) is all set to meet in Puducherry after four years

About the Panel

- The distribution of Cauvery water has been a long-standing dispute between **Tamil Nadu and Karnataka.** It dates back to two agreements in 1892 and 1924 between the erstwhile Madras Presidency and the **Princely State of Mysore**.
- The Union government set up the **Cauvery Water Disputes Tribunal** in 1990, which delivered its verdict in 2007.
- However, the verdict did not settle the dispute as both Tamil Nadu and Karnataka filed petitions to review the decision.

THE CAUVERY DELTA

- The Cauvery river basin is one of the largest river basins in **South India** and covers an area of 81,155 km2.
- The basin is shared by the states of **Karnataka (42.23 percent), Kerala (3.53 percent), Puducherry (0.2 percent), and Tamil Nadu (54.04 percent) with Karnataka and Tamil Nadu** sharing the largest sections of the basin.
- The Cauvery river drains into the Bay of Bengal after traveling around 800 kmts.

25.UTTARAKHAND UCC BILL GETS PRESIDENT NOD

Context: The President gave her assent to the **Uniform Civil Code, Uttarakhand**, 2024 under **Article 201** of the **Constitution of India.**

About

- Uttarakhand is the **first state in the country** after **Independence to adopt the UCC.**
- The Bill, which has kept tribals out of its ambit, has a complete ban on practices like ***halala, iddat, and talaq*** (customs related to marriage and divorce in **Muslim Personal Law**).
- The UCC Bill also made it mandatory to register marriage and divorce, failing which the couple concerned will be deprived of the benefits of all government facilities.
- In case of divorce or domestic dispute between husband and wife, the custody of the child up to 5 years of age will remain with the mother.
- UCC will give **equal rights to all citizens.**

26.INDIA LAUNCHES CHAKSHU

Context: The Department of Telecommunications launched the **Digital Intelligence Platform** and **Chakshu** as part of the **Sanchar Saathi portal**, which was unveiled in May last year.

About

Chakshu

- Chakshu can be used by citizens to **report suspected fraudulent communication**, wherein users can report numbers, messages and phishing attempts.
- Users can log on to the Chakshu window inbuilt on the **Sanchar Saathi portal** and fill out a form with details pertaining to the medium of the fraud communication, such as SMS, call or WhatsApp.
- Users are then required to define what category the communication fits in, such as sextortion, fake consumer helpline, fake KYC, and impersonation, among others.
- This is followed by screenshots of the communication and any other details to be added.

Digital Intelligence Platform

- The Digital Intelligence Platform is an inter-agency effort to enable the sharing of cybercriminal data between banks, social media platforms, and wallet operators, among other stakeholders.

SANCHAR SAATHI PLATFORM

- **Launched in:** 2023
- **Introduced by:** Department of Telecommunications
- The Sanchar Saathi Portal is an innovative initiative aimed at empowering mobile subscribers and enhancing their security while increasing awareness of government initiatives.

27. PM SURYA GHAR: MUFT BIJLI YOJANA SCHEME

Context: The Union Cabinet approved a rooftop solar scheme as **'PM Surya Ghar: Muft Bijli Yojana'** to install rooftop solar panels across 10 million households with a total outlay of Rs 75,021 crore.

Key-details of the Scheme

- **PM Surya Ghar: Muft Bijli Yojana** is a government scheme that aims to provide free electricity to households in India.
- **Financial assistance**: The scheme provides a **Central Financial Assistance** of 60 percent of system cost for 2 kW systems and 40 percent of additional system cost for systems between 2 to 3 kW capacity.
- **Beneficiaries of scheme** will get free electricity of up to 300 units per month. It could result in savings of Rs 15,000-18,000 annually for households that install rooftop solar systems.
- **National Portal:** Households will apply for subsidy through the National Portal and will be able to select a suitable vendor for installing rooftop solar.
- **Model village**: Under the scheme, 'A Model Solar Village' will be developed in each district of the country to act as a role model for adoption of rooftop solar in rural areas.

28.HOLISTIC PROGRESS CARD (HPC)

Context: The **National Council for Educational and Research Training (NCERT)** has introduced a new "holistic" report card that incorporates feedback from parents, classmates, and even self-evaluation by students to track their overall progress regularly.

About Holistic Progress Card (HPC)

- **PARAKH**, a standard-setting body under the NCERT, has devised the **Holistic Progress Card (HPC)** for foundational stage (Classes 1 and 2), preparatory stage (Classes 3 to 5) and middle stage (Classes 6 to 8) and is currently working on developing one for the secondary stage.
- The HPC is aligned with the recommendations of the **National Curriculum Framework for School Education (NCFSE).**
- This attempt aims to move away from **traditional evaluation methods** that rely on marks and grades awarded by school teachers.

29. 'ARTICLE 371-LIKE' SHIELD FOR LADAKH

Context: In the backdrop of **protests across Ladakh**, the Centre is mulling granting Article 371-like protection to the Union Territory.

What is Article 371?

- Articles 371, 371A, 371B, 371C, 371D, 371E, 371F, 371G, 371H, and 371J define special provisions with regard to another state (or states).
  - Article 371, Maharashtra and Gujarat
  - Article 371A (13th Amendment Act, 1962), Nagaland
  - Article 371B (22nd Amendment Act, 1969), Assam
  - Article 371C (27th Amendment Act, 1971), Manipur
  - Article 371D (32nd Amendment Act, 1973; substituted by The Andhra Pradesh Reorganisation Act, 2014), Andhra Pradesh and Telangana
  - Article 371E
  - Article 371F (36th Amendment Act, 1975), Sikkim
  - Article 371G (53rd Amendment Act, 1986), Mizoram
  - Article 371H (55th Amendment Act, 1986), Arunachal Pradesh
  - Article 371J (98th Amendment Act, 2012), Karnataka

Articles 369 through 392 (including some that have been removed) appear in Part XXI of the Constitution, titled 'Temporary, Transitional and Special Provisions'.

30. APACHE ATTACK HELICOPTER

Context: The Indian Army raised its first squadron of Apache attack helicopters in Rajasthan's Jodhpur with the aim of supporting ground operations near the Pakistan border.

About Apache

- Developed by the US aviation giant Boeing, Apache choppers are known as the 'tanks in the air'.

- They are **advanced multi-mission helicopters** with the latest technology and have come to be known the **best attack helicopters** in the world.
- The **Army Aviation Corps**, which currently operates **utility helicopters** such as the **Dhruv and Chetak**, previously inducted the indigenously developed **Light Combat Helicopters (LCH) Prachand at Assam's Missamari** last year.
- Notably, the IAF already operates a fleet of **22 Apache helicopters** which have been deployed on the **eastern and western fronts.**

31. AGNIBAAN SORTED

Context: The Chennai headquartered space start-up **Agnikul Cosmos Private Limited** is set to launch its first rocket **Agnibaan Sub Orbital Technology Demonstrator (SOrTeD)**.

About Agnibaan SOrTeD

- Agnibaan SOrTeD - will be-
  - India's first launch from a private Launchpad
  - India's first semi-cryogenic engine powered rocket launch
  - India's first **liquid oxygen-kerosene rocket flight** in India, from India's first privately developed launchpad, in Sriharikota
  - The **world's first single piece 3D** printed engine designed and built indigenously.
- This is a **sub-orbital launch** but it is **not a sounding rocket**.
- It has the **full stack of closed loop feedback guidance and control** with a **gimballed thrust vector control.**

32. CHINESE SATELLITES HEADING TO MOON FAIL

Context: A pair of Chinese satellites (DRO-A and DRO-B) failed to reach a planned orbit on their way to the moon after experiencing abnormalities, a rare setback for Beijing's high-profile space programme.

About

- The satellites, DRO-A and DRO-B, were carried by A Yuanzheng-1S (Expedition-1S) upper-stage aircraft, attached to a Long March-2C carrier rocket.
- The first and second stages of the rocket operated normally, while the upper stage encountered an abnormality during flight, causing the satellites to fail to enter the pre-set orbit accurately.

33. MULTIPURPOSE APP SAKHI TO ASSIST GAGANYAAN CREW

Context: The **Vikram Sarabhai Space Centre (VSSC), the Indian Space Research Organisation (ISRO)**, has developed SAKHI, a **multi-purpose app** to help astronauts on the **Gaganyaan space flight mission.**

What is SAKHI App?

- The Space-borne Assistant and Knowledge Hub for Crew Interaction (SAKHI) will help astronauts on the Gaganyaan Human Spaceflight Mission carry out a range of tasks such as looking up vital technical information or communicating with one another.
- The app will, among other things, monitor the health of the astronauts, help them stay connected with Earth and even alert them about their dietary schedules.

34. NEW TOLL COLLECTION SYSTEM

Context: The government plans to implement a new highway toll collection system based on the global navigation satellite system.

What is the new proposed highway tolling system?

- The **global navigation satellite** system uses a large **constellation of satellites** to provide more accurate location and navigation information to users globally as compared to the GPS alone.
- The new system's implementation will involve an **On-Board Unit (OBU),** or a tracking device, fitted inside a vehicle whose location can be mapped using **GAGAN.**
- The co-ordinates of the entire length of the **country's national highways** will have to be logged with the help of **digital image processing**, and software will be used to assign the toll rate on a particular highway, calculate the toll amount for a vehicle as per the distance travelled by it and then deduct it from a wallet linked to the OBU.
- The system will additionally have **gantries, or arches** mounted with CCTV cameras, at various points on a highway for enforcement purposes.
- These will capture an image of the vehicle's high security registration plate and cross verify if a road user is trying to trick the system by either removing the tracking device or travelling without an OBU onboard.

FACT BOX: GPS AIDED GEO AUGMENTED NAVIGATION (GAGAN)

- It is a **Satellite Based Augmentation System (SBAS)** implemented jointly with **Airport Authority of India (AAI).**
- The main objectives of GAGAN are to provide **Satellite-based Navigation services** with accuracy and integrity required for civil aviation applications and to provide better Air Traffic Management over Indian Airspace.

35.5TH-GEN INDIGENOUS FIGHTER AIRCRAFT

Context: The Cabinet Committee on Security (CCS) has cleared the project to design and develop India's fifth-generation fighter jet **Advanced Medium Combat Aircraft (AMCA).**

Key-takeaways of the proposal

- The approval is for development and production of **five prototypes** in the next five years.
- The project involves designing and developing **twin-engine aircraft prototypes**.
- Under the plan, five prototypes of the AMCA will jointly be built by the **Aeronautical Development Agency (ADA)** and **state-run Hindustan Aeronautics Limited (HAL)** with support from private industries.
- The AMCA aims to elevate India into an **exclusive category of nations** that have successfully developed fifth-generation fighters.

About fifth-generation aircraft

- Fifth generation fighters are the most technologically advanced jets ever built.
- Such platforms typically include **stealth, low-probability-of-intercept radar, agile airframes** with **super cruise performance, advanced avionics features, and highly integrated computer systems** capable of networking with other elements within the battlespace for situational awareness and **C3 (command, control and communications) capabilities.**

Globally there are four fifth-generation aircraft – **F-22 Raptor and F-35A Lightning-II** from the **USA; J-20** of **China** and **Su-57** from **Russia.** Turkey's 5th-Gen fighter called **Kaan** also made it

36.MISSION DIVYASTRA

Context: In a major technological leap for India's nuclear deterrent, the Defence Research and Development Organisation (DRDO) conducted India's first successful flight test of the indigenously developed Agni-V missile.

Key-highlights

- The flight test was named **Mission Divyastra.**
- The weapon is equipped **Multiple Independently Targetable Re-entry Vehicle (MIRV) technology.**

About Agni-5 missiles

- **Agni V** is a **nuclear-capable intercontinental ballistic missile.**
- It has a range of up to 5,000 km.
- It is road-mobile and can be transported by a truck and launched via a canister.
- This system is also equipped with indigenous Avionics systems and high-accuracy sensor packages that ensure that the re-entry vehicles reach the target points with the desired accuracy.
- With its range, it can bring almost the entire Asia including the northernmost part of China as well as some regions in Europe under its striking range.
- It will greatly enhance India's national security — delivering multiple warheads to different targets with precision.
- The country has already deployed the **Agni 1 to 4 missiles** — with ranges from 700 km to 3,500 km.

FACT BOX: MIRV TECHNOLOGY

- The technology that goes into putting multiple warheads on a single rocket or missile is known as "multiple independently targetable re-entry vehicle" (MIRV) technology.
- It involves **launching a single missile** carrying 4-6 warheads, each of which can be programmed to strike a separate target, several hundred kilometres apart.
- Launching a MIRV-tipped missile – say an **Agni-IV or Agni-V** – offers several tactical and strategic advantages. It provides more target options to the attacker.
- Meanwhile, the defender is forced to defend all of them simultaneously, with its anti-missile defences possibly being overwhelmed.

37. LCA TEJAS

Context: A Tejas aircraft of the **Indian Air Force** crashed near Jaisalmer, minutes after taking part in a tri-services exercise. This marks the first crash of the **light combat aircraft (LCA) Tejas**, which IAF began inducting in July 2016.

What is Tejas Mk-1?

- The Tejas Mk-1 is light **supersonic multirole jet**, capable of doing multiple missions including-
  - air-defence (air-to-air)
  - intelligence, surveillance and reconnaissance (ISR)
  - air-interdiction (striking enemy targets deep into enemy territory)
  - maritime strike and reconnaissance missions
- The jet carries, an **Israeli laser designating pod**, multi-mode radar, helmet mounted display system and self-protection suite.
- The Indian Air Force currently operates 40 Tejas MK-1 aircraft and it has 83 Tejas MK-1A fighters on order in a deal worth over ₹ 46,000 crore.

LCA PROGRAM

- The **Light Combat Aircraft (LCA) program** was started in the early 1980s, with the Government of India (GoI) establishing the project in 1983 to replace **Mig-21 fighters**.
- The first prototype took its first flight in January 2001.

38.INDIA REMAINS WORLD'S TOP ARMS IMPORTER: SIPRI REPORT

Context: India continues to be the world's top arms importer, according to a new report by the Stockholm International Peace Research Institute (SIPRI).

Key-highlights of the Report

- The period between 2014 and 2018 was the first five-year stretch in 50 years (since 1960-1964) when deliveries from Russia or the erstwhile Soviet Union (prior to 1991) made up less than half of India's arms imports.
- India was the world's top arms importer. Its arms imports increased by 4.7 per cent between 2014–18 and 2019–23. Although Russia remained India's main arms supplier (accounting for 36 per cent of its arms imports), this was the first five-year period since 1960–64 when deliveries from Russia (or the Soviet Union prior to 1991) made up less than half of India's arms imports.
- The increase in French arms exports was largely due to deliveries of combat aircraft to India, Qatar and Egypt. India was the largest single recipient of French arms exports, accounting for nearly 30 percent in the period 2019-2023.
- France's overall arms exports increased by 47 percent between 2014–2018 and 2019–2023. This is the first time that the country became the second-biggest arms exporter after the US and just ahead of Russia.
  - The Indian Air Force operates 36 Rafale fighter jets customised in accordance its needs, which were procured after a Euro 7.87 billion deal the two countries signed in September 2016.
  - Furthermore, India is in talks for 26 Rafale Marine jets to be procured for the Navy's aircraft carrier INS Vikrant.
- Pakistan significantly increased its arms imports by 43 percent. Pakistan was the fifth largest arms importer in 2019-23 and China became even more dominant as its main supplier, providing 82 percent of its arms imports.
- For the first time in 25 years, the US has become the largest supplier to Asia and Oceania.

39.DENGUE VACCINE

Context: Indian Immunologicals Limited, a wholly owned subsidiary of the National Dairy Development Board has finished the first phase of clinical trials of dengue vaccine to determine the safety of the vaccine. The vaccine could be available commercially as early as mid-2026.

About Dengue

- Dengue (break-bone fever) is a viral infection that spreads from mosquitoes (Aedes aegypti mosquito) to people. It is more common in tropical and subtropical climates.
- Symptoms: High fever, headache, body aches, nausea and rash.
- Treatment: There is no specific treatment for dengue. In severe cases, dengue can be fatal.
- Global burden: There are around 100–400 million infections per year and nearly half the world's population is at risk.

40. CAMERA TO EXPERIENCE ANIMALS' VISION

Context: Researchers have put together a new camera with the ability to view the world like animals do. The device can even reveal what colours different animals see in motion.

Photoreceptors

- Organisms with the ability to see have two or more eyes that capture light reflected by different surfaces in their surroundings and turn it into visual cues.

- But while all eyes have this common purpose, the specialised cells that respond to the light, called **photoreceptors,** are unique to each animal. For instance,
  - Human eyes can only detect wavelengths of light between 380 and 700 nanometres (nm); this is the visible range.
- Honey bees and many birds on the other hand can also 'see' ultraviolet light (10-400 nm).
- Animals use colours to intimidate their predators, entice mates or conceal themselves. Detecting variations in colours is thus essential to an animal's survival.
- Animals have evolved to **develop highly sensitive photoreceptors** that can detect light of **ultraviolet and infrared wavelengths**; many even notice polarised light as part of their **Umwelt**.
  - Umwelt is the biological systems that make a specific system of meaning-making and communication possible.

41. GOOGLE'S SIMA

Context: Researchers at Google DeepMind have developed an AI, a **Scalable Instructable Multiworld Agent, or SIMA**, which can play nine different video games and virtual environments it hasn't seen before using just the video feed from the game.

What is SIMA?

- SIMA, a **versatile AI agent** capable of following natural language instructions across a wide range of 3D virtual environments, from bespoke research settings to complex commercial video games.
- This research marks the first time an AI system has demonstrated the ability to ground language in perception and action at such a broad scale.

42. NEW DIGITAL ARREST CYBER FRAUD

Context: A new form of cybercrime known as "digital arrest" scams is emerging, where fraudsters impersonate law enforcement officials to deceive individuals into believing they are facing imminent digital arrest for fabricated legal violations.

What is digital arrest?

- Digital arrest is a new form of cybercrime where fraudsters pretending to be law enforcement officials deceive targets into believing their aadhaar card SIM, or bank account has been used for criminal activities.
- They make victims believe that they will be arrested if they don't agree to be interrogated over video call and then extort money.

43. DEVIN, WORLD'S FIRST AI SOFTWARE ENGINEER

Context: A US-based AI lab, Cognition, has announced the launch of what it calls the world's first fully autonomous AI software engineer, named Devin.

About

- The **new AI assistant** could change the way code is written and the way apps are deployed.
- Devin, which according to the start-up, is **"a tireless, skilled teammate,"** is trained to perform a number of tasks, including building and deploying apps and finding and fixing bugs in codebases.
- Besides this, the **AI chatbot** can recall relevant context at every step, learn over time, and fix mistakes.
- Devin is equipped with common developer tools including the **shell, code editor, and a browser**, and it can perform tasks independently.
- Devin is a software development assistant in the vein of Copilot, which was built by **GitHub, Microsoft, and OpenAI.**

44. CO-NATAL STARS

Context: Scientists have found a twin star pair which gobbles planets.

What are twin stars?

- Twin stars are formed within the same intersteller cloud of gas and dust.
- Also called as co-natal stars as they have same chemical makeup, and roughly equall mass and age.
- They are not binary system as they are not gravitationally bound to each other.

45. CHINA UNVEILS Z-20 HELICOPTER

Context: China has introduced a new heavyweight in its aerial arsenal, the **Z-20 attack helicopter**, surpassing the capabilities of its predecessors, the **Z-10 and Z-19,** with a robust 10-tonne capacity.

About

- The strategic addition of the **Z-20,** which is now being referred to as the **Z-21** for its attack configuration,

is viewed by military analysts as a crucial element in potential conflicts involving **Taiwan or India.**

- **Objective:** to conduct close air support and **airborne anti-armor missions.**
- **Z-20 attack helicopter** shares the characteristics of three aircraft: **the American AH-64, the Russian Mi-28 attack helicopters, and the Z-20 medium utility helicopter.**
- **Need of Z-20:** The PLA currently employs both the **Z-19 light attack/reconnaissance and the Z-10 medium attack helicopters** in the attack helicopter role, but both lack the necessary firepower for them to fulfill the role.
- The **Z-19 and Z-10** are comparable to the **OH-58 Kiowa** and the **AH-1Z helicopters**, which are considered reconnaissance and light attack helicopters, respectively.

46. INDIA DEPLOYS 11 SUBMARINES

Context: Marking a significant milestone for the Navy in three decades, India simultaneously deployed **11 conventional submarines** for operations.

Conventional Submarines in India

- Currently, India operates 16 conventional submarines, including five **Kalvari-class (French Scorpene),** four **HDWs Shishumar-class (German Type-209)** and seven **Sindhugosh-class (Russian Kilo) submarines.** An additional **Scorpene class (Kalvari-class submarine)** is still to be commissioned.
- **Operational Availability:**
  - **Scorpene class:** The Scorpene submarines are brand new, hence, their availability ratio is much higher.
  - **HDWs (German):** The German HDWs are the most reliable and high on performance. These submarines will last another 10-15 years.
  - **Kilo-class (Russian):** The Kilos are very good but their availability ratio is down. Also, they have undergone upgrades. Most of them were commissioned in the 1980s and one of them has already been decommissioned.

47. PUSHPAK 'VIMAN' LANDS SUCCESSFULLY

Context: The Indian Space Research Organisation (ISRO) has reached a significant milestone in **reusable launch vehicle technology** with the successful landing experiment of the **RLV LEX-02**. The experiment marks a crucial step forward in the **development of reusable launch vehicles (RLVs)**.

What is Reusable Launch Vehicle Autonomous Landing Mission (RLV LEX-02)?

- Building upon the success of the **RLV-LEX-01** mission last year, the **RLV-LEX-02 mission** demonstrated the **autonomous landing capability** of the reusable launch vehicle from challenging challenging initial conditions after release from a helicopter.
- Named **Pushpak**, the winged vehicle was lifted by an **Indian Air Force Chinook helicopter** and released from an altitude of 4.5 km.
- It autonomously approached the runway with cross-range corrections and landed precisely, coming to a halt using its **brake parachute, landing gear brakes, and nose wheel steering system.**
- The Pushpak launch vehicle is India's bold attempt to make access to space most affordable.

48. INS JATAYU

Context: The Indian Navy commissioned a new naval base, **INS Jatayu**, in the **Minicoy Islands of Lakshadweep**.

About

- INS Jatayu is India's forward operating naval base in the Arabian Sea, acting as India's sentinel and a primary responder to the escalating threats.
- INS Jatayu is **India's second naval base** in Lakshadweep after **INS Dweeprakshak in Kavaratti.**
- Other key forward-operating bases and radar stations in Lakshadweep include INS Androth, INS Bitra, and INS Minicoy.
  - **Minicoy Islands** is the southernmost island of Lakshadweep, about 215 nautical miles southwest of Kochi, which straddles the vital Sea Lines of Communications (SLOCs).

49. FAMINE

Context: Report claims that famine is now imminent in Northern governorates of Gaza.

What is Famine?

- Famine is essentially a technical term, referring to a **population that faces widespread malnutrition and hunger-related deaths** due to a **lack of access to food.**

- There is a famine when **three conditions** come together in a specific geographic area-
  - At least 20 per cent of the population in that particular area are facing extreme levels of hunger;
  - 30 per cent of the children in the same place are **wasted,** or too thin for their height; and
  - The **death – or mortality – rate** has doubled, from the average, surpassing two deaths per 10,000 daily for adults and four deaths per 10,000 daily for children.

50. NEGATIVE INTEREST RATE POLICY

Context: Japan ended its negative interest rate policy, as the Bank of Japan (BoJ) raised interest rates for the first time since 2007. This marks an end to a prolonged period of ultra-loose monetary policy aimed at stimulating the economy.

What are negative interest rates?

- Negative interest rates are when central banks make their **commercial counterparts** pay to park their **excess cash at the institution.**
- This method is usually adopted during **deflationary periods** when consumers hold **too much money** instead of spending as they wait for a turnaround in the economy.
- Consumers may expect their money to be worth more tomorrow than today during these periods.
- When this happens, the economy can experience a **sharp decline in demand**, causing prices to plummet even lower.
- **Japan's objective behind the rate:** To encourage spending and inflation in an ageing society with a negative population growth.
- These negative interest rates were first introduced by Swedish Riksbank in 2009. This was followed up others such as the central banks of Denmark, Switzerland and then Japan.

51. MEME COINS

Context: Meme coins, a unique category of cryptocurrencies, have gained significant popularity in the digital currency space.

What are meme coins?

- Also known as **'memetic tokens' or 'community coins'**, meme coins are digital currencies created as a form of satire or humorous tribute to the internet culture.
- They often feature quirky names, logos, and branding that reference popular memes, jokes, or internet phenomena.
- Unlike traditional cryptocurrencies such as **Bitcoin or Ethereum**, meme coins are characterised by their lighthearted and often comedic nature, designed to go viral and be shared widely.

52. T+0 SETTLEMENT SYSTEM

Context: India's stock market is set to usher in the **T+0 settlement system**, making it among the handful of countries to implement the **shorter trade settlement cycle.**

What is T+0 system?

- In the **T+0 system (T refers to the day of the trade and 0 is the day of settlement)**, trades done in shares will be settled on the same day.
- This means shares will be transferred to the buyer's account and the funds will be deposited in the seller's account on the same day of the trade.
- **Impact:** A shorter settlement cycle on full implementation is aimed at making the system more dynamic. Since funds will be available on the same day of selling, it is expected to improve liquidity, allowing traders to use cash better.
- **Evolution:** Currently, India follows the **T+1 cycle**, which means trades are settled by the next day.
  - After following a **T+5 settlement cycle**, India moved to T+3 in 2002 and further reduced it to **T+2** in 2003.
  - In 2021, Sebi introduced the **T+1 system** before making it the norm in 2023. The regulator has also set its sights on instant trade settlement.

53. UPPER-MIDDLE INCOME COUNTRY

Context: The Indian economy is likely to transition to an **upper-middle income country**, with per capita income of USD 4466, between the financial years 2033 and 2036, as per **India Ratings and Research (Ind-Ra).**

About

- Until 2006, the World Bank classified India as a **low-income country**. In 2007, India moved to the lower-middle income country and since then has remained there.
- India's per capita GDP stood at USD 2,390 in 2022.
- A country with per capita income in the range of USD 4,466 to USD 13,845 is categorised as **upper-middle income economy.**

54. INDIA'S FIRST-EVER UNDERWATER METRO ROUTE

Context: Prime Minister Narendra Modi inaugurated **India's first-ever underwater metro route** in Kolkata, a landmark project showcasing the nation's stride towards infrastructure development.

About

- The underwater service is part of the **Howrah Maidan-Esplanade section** of **Kolkata Metro's East-West corridor**, which will cover a distance of 16.6 km under the Hooghly river.
- The metro service will connect **Howrah and Salt Lake** -- the West Bengal state capital's twin cities. Three out of six stations will be underground.
- It is expected to zoom through a 520-meter stretch under the **Hooghly** in just 45 seconds.

55.POBITORA WILDLIFE SANCTUARY

Context: The Supreme Court froze the Assam government's move to withdraw a nearly 26-year-old notification constituting the **Pobitora wildlife sanctuary**, which hosts one of the largest rhino populations in the country. The Assam government had established a committee to redraw the boundary of the Pobitora Wildlife Sanctuary.

About

- Covering an area of 38.81 sq km, the **Pobitora Wildlife Sanctuary** was notified by the Assam forest department in March 1998.
- According to a census carried out in 2022, the sanctuary has a population of 107 rhinos, which is the highest density of the species in the world.

RHINOS

- There are five species and 11 subspecies of rhino. **White, Black, Indian, Javan, and Sumatran** make up the five species of rhino in the world.
  - White and black rhinoceros are native to **Africa.**
  - Indian, Javan and Sumatran can be found in **India and Asia**.
- **Habitat:** The animal is primarily found in the Himalayan foothills — India and Nepal.
- **Conservation Status**
  - The **IUCN** lists the one-horned rhino, also known as the Indian rhinoceros, as **vulnerable.**
  - Rhinoceros are listed in **Schedule 1** of the **Wildlife (Protection) Act, 1972,** as **endangered animals**.
  - The **Wildlife Protection Act, 1972** allows for destruction of wildlife parts (including rhino horn) under **Section 39 (3).**
  - There is an **international ban** on trade of rhino horns under the **Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES).**

56.MISSING SPRING SEASON

Context: Indian States have been gradually registering a **withdrawal of Spring**.

Reason behind this situation

- Spring is the period of relatively benign weather between the winter of January and the scorching summers of April.
- As the Earth orbits the Sun, sunlight strikes the surface at **varying angles** because of the planet's **tilt**. This creates seasons. However, temperatures in February have become warmer, leading to a missing spring season.
- The warming of winter in southern India and the lack of rainfall in the north in winter due to an aberration in the pattern of **Western Disturbances** and the **jet stream, winds** that originate in the Mediterranean and bring moisture to north India during winter.

57. NEW SPECIES OF SPIDERS

Context: A study of researchers has discovered four new species of spiders from the Western Ghats region of Tamil Nadu and Kerala.

The new species

- Total: *Indopadilla kanniyakumari, Tetragnatha jaculator, Tetragnatha lauta and Tetragnatha serra*
- Jumping spiders**:** *Indopadilla kanniyakumari* mimicks spider belongs to the group of jumping spiders.
- Long-jawed spiders: Three species of long-jawed spiders were identified as their first report from the country. These three species of web-building spiders, *Tetragnatha jaculator, Tetragnatha lauta and Tetragnatha serra*, possess very long jaws which are used for handling the prey, so the name Tetragnatha (long-jaw).

58.PANDA

Context: National Panda Day is celebrated annually on 16 March to save the species (only 1,864 Panda remaining in the wild).

About

- Pandas are unique bears that are native to China and are easily identifiable by their white face and black eyes and body. There are two sub-species of

Panda-Giant Panda (*Ailuridae*)

- The giant panda belongs to the Ursidae family (Bears)
- The giant panda inhabits the six major mountain ranges in Sichuan, Shaanxi and Gansu provinces of China.
- IUCN Status: Vulnerable

Red Panda (Ailurus fulgens)

- The red panda belongs to its own taxonomically unique Family: Ailuridae.
- Nearly 50 percent of the red panda's habitat is in the Eastern Himalayas, including Nepal, Tibet, India, Bhutan, and Myanmar.
- IUCN Status: Endangered
- Convergent evolution: The giant panda and the red panda do however share some of the same characteristics and a common ancestor. This is called "convergent evolution".

59.SPARROW (PASSER DOMESTICUS)

Context: **World Sparrow Day** is an annual event that is marked on **March 20**.

About

- House sparrows belong to a group known as **passerines**, from the order **Passeriformes.**
- These small, grey-brown birds are **sexually dimorphic**, meaning that the males and females do not look similar.
- **Sparrows are vital for the ecosystem**: These little birds support in further developing biodiversity and supporting plant growth in the ecosystem, resulting in healthier and greener environments. Sparrows consume and discharge seeds, helping in better spread of plant seeds, making the climate around us flourish.
- **IUCN Status**: Endangered. They are **highly opportunistic feeders.**

60. GEE'S GOLDEN LANGUR (TRACHYPITHECUS GEEI)

Context: There are an estimated 7,396 golden langurs in India, the latest survey of the primate has revealed.

About

- Gee's golden langur (*Trachypithecus geei*), also known as simply the golden langur, is an **Old World monkey** found in a small region of Western Assam, India and in the neighboring foothills of the Black Mountains of Bhutan.
- Adult males have a cream to golden coat with darker flanks while the females and juveniles are lighter.
- It has a black face and a long tail up to 50 cm (19.69 in) in length.
- It lives in high trees and has a herbivorous diet of ripe and unripe fruits, mature and young leaves, seeds, buds and flowers.
- The average group size is eight individuals, with a ratio of several females to each adult male.
- The entire distribution range of the species covers the Manas Biosphere Reserve and all fragmented forests in the western part of Assam.
- The previous population estimation in 2008-09, recorded 6,000 golden langurs in India.

61. NEW SCORPION SPECIES

Context: During a wildlife expedition in the Kaeng Krachan National Park, Thailand, a team of researchers made a remarkable discovery- a previously unknown species of scorpion.

About

- This new species belongs to the subgenus *Euscopiops* and has been named *Euscorpiops Krachan* after the national park in Thailand, where it was found.
- The new species presents most features exhibited by scorpions of the subgenus Euscorpiops.
- They are 'very small in comparison to most other species of the subgenus'.
- They are brownish in colour; however, females are darker than males. They also have eight eyes and eight legs.

62.BEGONIA TRIPURENSIS

Context: *A new plant species, Begonia tripurensis*, was discovered in Dumboor Lake, Tirthamukh, Gomati district.

About

- It is discovered in the moist deciduous forest of Tirthamukh near Dumboor Lake, Tripura, India.
- It is similar to *B. scintillans, B. chindwinensis* and *B. thomsonii* but differs in plant size, hair characters, petiole length, flowers, stamens and fruits.
- The North Eastern Region of India is a hotspot for the genus Begonia. Tripura boasts moist to dry deciduous forests, Sal forests, secondary bamboo forests, and grasslands.

63.EUNECTES AKIYAMA: NEW SPECIES OF GREEN ANACONDA

Context: Researchers studying the genetic makeup of various types of anacondas in the Amazon rainforest have discovered that there are two genetically distinct types of green anaconda — a species previously categorized as a single animal.

About

- It was thought that there was only one species of green anaconda in the wild, the Eunectes murinus (southern green anaconda), but the recent research revealed that the new "northern green anaconda" belongs to a different, new species, Eunectes akiyama (northern green anaconda).
  - **The southern green anaconda** can be found in **Peru, Bolivia, French Guiana and Brazil.**
  - **The northern green anaconda** in **Ecuador, Colombia, Venezuela, Trinidad, Guyana, Suriname and French Guiana.**
- The two species split from each other almost 10 million years ago.

64. INTERNATIONAL BIG CAT ALLIANCE

Context: India's initiatives to conserve big cats, including the establishment of the International Big Cat Alliance, have drawn global attention and recognition. The Union Cabinet recently gave a go-ahead to establishing the **International Big Cat Alliance**.

IBC Alliance

- It is one of the most significant steps to bring range and non-range countries on a common platform.
- International organisations and IBCA: Nine international organisations have given consent; they are IUCN, Science and Conservation International Snow Leopard Trust, Global Tiger Forum, FAO; HE Zurab Pololikashvii, Secretary General of UNWTO; The Amur Tiger Centre; WWF International; World Customs Organization, Midori Paxtor; Director Nature Hub Bureau for Policy and Programme Support, UNDP.
- IBC Alliance Headquarters: The International Big Cat Alliance's headquarters will be in India.

65.COMMITTEE FOR PRESERVATION OF GREAT INDIAN BUSTARD

Context: The Supreme Court has recently appointed an expert committee to look into the preservation of the **Great Indian Bustard** which is **"non-negotiable"** and "need for sustainable development in the context of meeting the international commitments of the country towards promoting **renewable sources of energy**.

About Great Indian Bustard

- The **Great Indian Bustard** *(Ardeotis nigriceps*)**,** is a bustard native to the Indian subcontinent. Bustards are large terrestrial birds found in dry grasslands and steppe regions. It is also known as the Indian Bustard; it is **among the heaviest of flying birds in existence**.
- It is the **State bird of Rajasthan** and is considered India's most critically endangered bird.
- It is considered the **flagship grassland species**, **representing the health of the grassland ecology.**
- **Latest survey** shows the number of GIB reached alarmingly to 150 including 25 GIBs in captive government's breeding centre.
- **Protection Status:**
  - International Union for Conservation of Nature Red List: **Critically Endangered**
  - Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): **Appendix I**
  - Convention on Migratory Species (CMS): **Appendix I**
  - Wildlife (Protection) Act, 1972: **Schedule 1**

66. NEW SPECIES OF DEEP-SEA ISOPOD

Context: Researchers have named a new species of **deep-sea isopod** discovered off the Kollam coast after the **Indian Space Research Organisation (ISRO).**

About

- The tiny fish-parasitic crustacean, belonging to the **genus Brucethoa**, was recovered from the base of the gill cavity of the **Spinyjaw greeneye**, a marine fish.
- The new species has been named **Brucethoa isro** in honour of the Indian space agency's successful space

missions, including the recent successful lunar mission titled **Chandrayaan-3.**

- Brucethoa isro adds to the biodiversity of marine life in the **Kollam coastal region.**

FACT BOX

- **Isopods** are an order of **invertebrates** (animals without backbones) that belong to the greater crustacean group of animals, which includes **crabs and shrimp**.

67. TWO NEW SPECIES IDENTIFIED IN KAZIRANGA NATIONAL PARK

Context: Researchers unveiled two previously unknown species (**Binturong and Small-clawed otter**) within the dense forests of **Kaziranga National Park and Tiger Reserve.**

About

Binturong (*Arctictis binturong*):

- The binturong, also known as the **bearcat,** is a **mammal indigenous** to South and Southeast Asia.
- This elusive creature, known for its nocturnal behaviour and preference for arboreal habitats, is rarely encountered.
- It is particularly scarce within its range, with its distribution in India limited to the Northeast.
- Classified as a vulnerable species by the **IUCN** due to dwindling numbers, the binturong faces significant threats to its survival.

Small-clawed otter (*Aonyx cinereus*):

- The small-clawed otter, recognised as the **smallest otter species** globally, boasts a widespread distribution that stretches from India across South and Southeast Asia to southern China.
- This unique otter species is adapted to a variety of aquatic habitats, including rivers, streams, lakes, and wetlands, where they forage for **fish, crustaceans, and other aquatic prey.**
- The species is included in **Schedule I** of the **Wildlife Protection Act of 1972** and is classified as **vulnerable** on the **IUCN Red List.**

68. CLOUDED LEOPARD (NEOFELIS NEBULOSA)

Context: The species is being in news due to ongoing effort to count it in spite of its **elusive nature.**

About

- The clouded leopard (*Neofelis nebulosa*) is a wild cat that lives in the cloud forests of Southeast Asia, from the foothills of the Himalayas through **Northeast India** and **Bhutan** to mainland **Southeast Asia** into South China.
- They are named for their **cloud-like spots**, and are one of the **oldest cat species.**
- Clouded leopards are **stocky, larger than small cats, and smaller than large cats.**
- They have large paws with specialized footpads for **gripping branches**, and specialized anklebones that allow them to climb in different positions.
- They can open their mouths to a 100-degree angle, and are one of only two cat species that can climb down trees headfirst.
- **IUCN Status:** Vulnerable

69. INDIA'S LEOPARD POPULATION

Context: India's leopard population has reached 13,874, with 1.08 percent per year growth between 2018 and 2022, as per a report released by the **Environment Ministry.**

Key-highlights of the Report

- The report is based on the **fifth cycle of the leopard population estimation**, conducted in 2022.
- **Madhya Pradesh** houses the largest population of leopards in the country: 3907 (2018: 3421), followed by **Maharashtra (1985), Karnataka (1,879) and Tamil Nadu (1,070).**
- **Tiger Reserves or sites with the highest leopard population** are, Nagarajunasagar Srisailam (Andhra Pradesh), followed by Panna (Madhya Pradesh), and Satpura (Madhya Pradesh).

ABOUT LEOPARD

- **Leopard** *(Pathera pardus)* **is** one of the five big cat species of the genus *Panthera*.
- They are the smallest of the large cats, which includes lions, tigers, and jaguars.
- **Habitat**: Leopard habitats include forests, subtropical and tropical regions, savannas, grasslands, deserts, and rocky and mountainous regions. They can live in both warm and cold climates. Of all the big cat species, leopards are the only known species that live in both desert and rainforest habitats.
- **Geography:** Their range covers a large stretch of **Africa, parts of the Middle East, and Asia, including China, India, and eastern Russia.**

70.RED SEA

Context: Indian Navy warship **INS Kolkata** rescued 21 crew members, from the **Barbados-flagged cargo vessel** which was reportedly hit by a missile in the **Gulf of Aden**.

About

- The fresh incident comes amidst growing global concerns regarding attacks on commercial vessels in the Red Sea, particularly by Houthi militants.
- The Red Sea is an inlet of the **Indian Ocean** between **Africa and Asia.**
- The connection to the ocean is in the south through the ***Bab el Mandeb*** sound and the **Gulf of Aden.** In the north are the **Sinai Peninsula, the Gulf of Aqaba, and the Gulf of Suez (leading to the Suez Canal).**

71. AGALEGA ISLAND

Context: India and Mauritius inaugurated a strategic **airstrip and jetty** in the country's outer **Agaléga Island**.

The island

- The Agalega is a group of two small islands-
  - the North island which is the main island
  - the South Island, located in the Indian Ocean, 1122 Km (697 miles) north of Mauritius
- Both islands are part of the territories and dependencies of the Republic of Mauritius.

72.MANNAR, SRI LSANKA

Context: A wind power project (Mannar Wind Farm-Adani Green) in northern Sri Lanka has run into controversy, with locals and environmentalists raising concern over its possible impact on the coastal region and livelihoods.

About

- Mannar is the largest island, off the northwestern coast of Sri Lanka, linked to the mainland by a causeway.
- It lies at the eastern end of Adam's Bridge, a chain of shoals.
- It is a dry and barren island; the area is sandy.

73.MIRNOYE

Context: Russia has taken the townlet of Mirnoye in Zaporizhzhia from Ukrainian forces.

About

- Mirnoye, which translates into English as 'peaceful,' had a population of about 500 before the conflict between Russia and Ukraine.
- The village is located 14 kilometers southwest of the town of Guliaipole and 77 kilometers southeast of the city of Zaporozhye.
- Both Guliaipole and Zaporozhye remain under Ukrainian control.

74.ARIYALUR'S RAMSAR WETLAND KARAIVETTI BIRD SANCTUARY

Context: Karaivetti Bird Sanctuary in Ariyalur district, which was recently recognised as a Ramsar site hosts over 20,000 feathered visitors from all over the world.

About

- Covering 453.7 hectares, Karaivetti is home to over **500 species of flora and fauna**.
- Its geographical location on the **Central Asian Flyway** makes it an important breeding and foraging ground for birds.
- It is surrounded by paddy fields and so far has been free from the human wildlife conflict. More than 20,000 migratory birds visits the wetland regularly.
- The **heronry of Karavetti Birds Sanctuary** has more than 10,000 individuals of colonial nesting water birds.
- **Near-threatened bird species** like **Spot-billed Pelican, Black-headed Ibis and Oriental Darter** nest in the trees of the wetland.
- The **Indian Flap-shelled Turtle** can be found nesting in the swampy regions here.

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SECTION D

TERMS OF THE MONTH

S.NO.	TERMS	ABOUT
1	**Aadhaar Mitra**	• **Aadhaar Mitra** is a chatbot launched by the Unique Identification Authority of India (UIDAI) to assist individuals with their Aadhaar-related queries.
2	**Brussels Effect**	• The Brussels Effect refers to the remarkable ability of European Union regulations to influence global standards and policies.
3	**Carbon offsets**	• Carbon offsets are used by the government and polluting companies as an alternative to cutting carbon dioxide emissions.
4	**Core Forest zone**	• Core zone is where the actual forest exists and there are no villages inside this core zone.
5	**Central Asian Flyway**	• The Central Asian Flyway is a major migratory route for birds, covering 30 countries from the **Arctic Ocean to the Indian Ocean.**
6	**Dehyphenation**	• Dehyphenation in international relations refers to the practice of engaging with countries independently, rather than grouping them together based on regional or ideological affiliations.
7	**Dimorphism**	• The term dimorphism denotes a trait that occurs in two distinct forms or morphs within a given species and traits that differ consistently between males and females are sexual dimorphisms.
8	**Forced labour**	• Forced labour can be understood as work that is performed involuntarily and under the menace of any penalty.
9	**Foreign portfolio investment (FPI)**	• Foreign portfolio investment (FPI) is securities and other assets passively held by foreign investors, allowing individuals to invest overseas.
10	**Gross national income (GNI)**	• GNI is the total income earned by a country's people and businesses, no matter where it was earned. GNI is an alternative to gross domestic product (GDP) as a measure of wealth. It calculates income instead of output.
11	**Foreign portfolio investment**	• Foreign portfolio investment (FPI) is securities and other assets passively held by foreign investors, allowing individuals to invest overseas.
12	**GI Tag**	• A GI tag is conferred upon products originating from a specific geographical region, signifying unique characteristics and qualities.
13	**Global navigation satellite system**	• The global navigation satellite system is a term used to refer to any satellite-based navigation system, including the United States' Global Positioning System (GPS).
14	**Low Income Country**	• The World Bank classifies economies for analytical purposes into four income groups: low, lower-middle, upper-middle, and high income. The Low Income designation is defined by the World Bank as all countries with a gross national income per capita less than USD 1,036.
15	**Import Tariff**	• Import tariffs are taxes charged by the customs authority on the importation of goods into a country.
16	**Jet streams**	• Jet streams are narrow bands of strong wind that generally blow from west to east all across the globe. Earth has four primary jet streams: two polar jet streams, near the north and south poles, and two subtropical jet streams closer to the equator.

17	**Micro Finance Institutions (MFIs)**	• MFIs are institutions primarily focused on providing microfinance services to individuals and small entrepreneurs, particularly in rural and economically disadvantaged areas.
18	**National Register of Citizens (NRC)**	• The National Register of Citizens (NRC), established in 1951, serves as a comprehensive database of Indian citizens. It is kept within the administrative domains of deputy commissioners and sub-divisional officers.
19	**Oceania**	• **Oceania** is collective name for the islands scattered throughout most of the Pacific Ocean. The term, in its widest sense, embraces the entire insular region between Asia and the Americas.
20	**Peninsula**	• A Peninsula is any landmass which is surrounded by water on three sides and land on one side. India is called as Peninsula because it is surrounded by the Indian Ocean on the south, the Arabian Sea on the west and the Bay of Bengal on the east.
21	**Seamount**	• A seamount is an underwater mountain with steep sides rising from the seafloor. Most seamounts are remnants of extinct volcanoes, while others are actively erupting and growing. Typically, they are cone shaped, but often have other prominent features such as craters and linear ridges.
22	**Supersonic**	• Supersonic refers to any object traveling faster than the speed of sound. When an object moves faster than the speed of sound, it is actually "outrunning" the sound waves it generates as it moves.
23	**Saharan dust**	• Saharan dust is a type of particulate matter (PM) that originates in the Sahara Desert (largest hot desert in the world.) in Northern Africa. The desert spans just over 9 million square kilometers, from the Atlantic Ocean to the Red Sea, from the Mediterranean sea to the Niger River valley and the Sudan region in the south.
24	**Zero-food children**	• **They are** those between 6-23 months who had not consumed any animal milk, formula, solid, or semisolid food in the last 24 hours.
25	**3D-printed rocket**	• A 3D-printed rocket is a spacecraft that features additively manufactured components using 3D-printing technology. Compared to most traditional rockets, the 3D-printed variety is more fuel efficient, lighter in weight and built in a fraction of the time.

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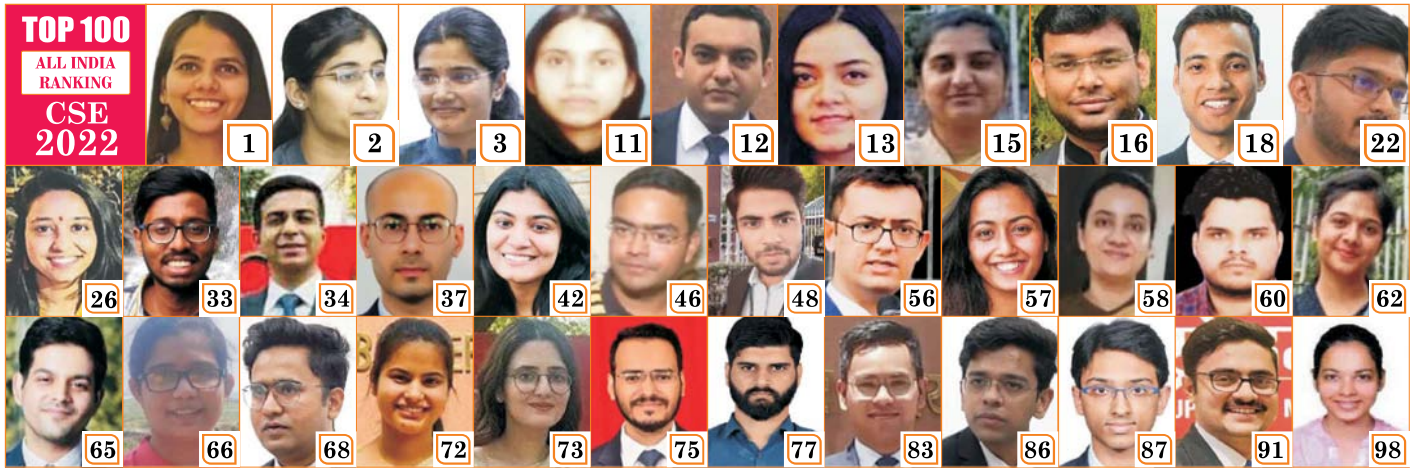
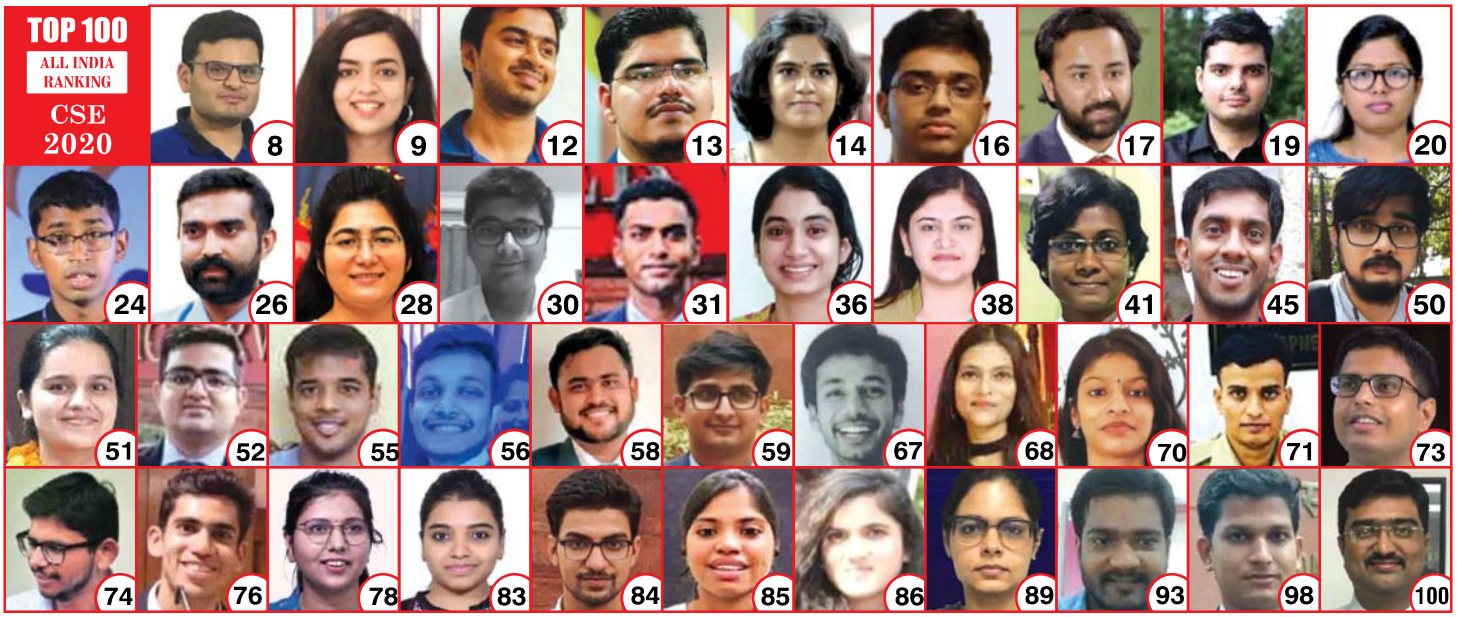
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