

# CURRENT AFFAIRS MAGAZINE



**MAY, 2024**

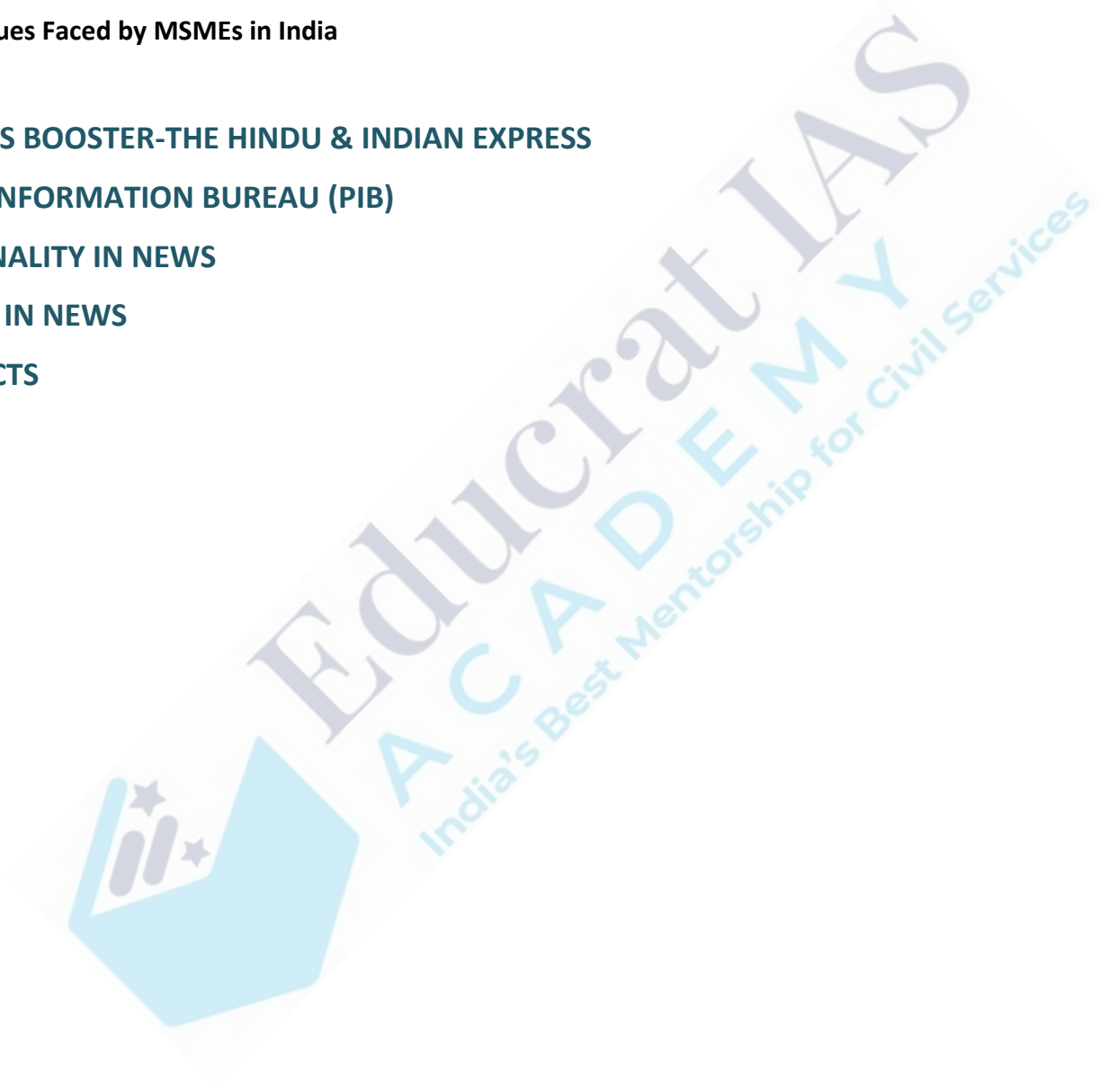


- ▶ Cyclone Remal and its landfall
- ▶ Fire safety regulations in India
- ▶ RBI balance sheet grows in FY 24
- ▶ Indian manufacturing sector
- ▶ Why Youth unemployment is India's biggest challenge



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# Mains Daily Analysis

## General Studies-I

### 1. Dispelling Population Myths Triggered by a Working Paper

#### Context

- **The discourse surrounding the religious demography of India has often been clouded by sensationalism and misinterpretation**, particularly by media and political figures.
- A recent working paper by the Economic Advisory Council to the Prime Minister (EAC-PM), titled "**Share of Religious Minorities: A Cross-Country Analysis (1950-2015)**," has become a focal point of such misinterpretations.
- Therefore, it is important to critically examine the findings and interpretations of the EAC-PM's working paper, contextualizing them within broader socio-economic dynamics and demographic trends.

#### The Core Misinterpretation

- **The crux of the misinterpretation** lies in the portrayal of the **Muslim population growth as a significant threat to the Hindu majority**.
- **The EAC-PM paper acknowledges its limitations**, stating that the factors influencing religious demography are multifaceted and complex.
- Despite this, **it makes a flawed assertion** that an increase in the Muslim population signifies thriving minorities in India, a claim that lacks substantive evidence.
- **Fertility rates alone are not indicative of a flourishing community**; rather, they reflect underlying socio-economic conditions.

#### An Analysis of Socio-Economic Factors and Population Growth of Muslim Population

- **The Role of Education**
  - **Education is a critical determinant of fertility rates** and overall population growth.
  - **Communities with higher levels of educational attainment**, particularly among women, tend to have **lower fertility rates**.
  - **Education empowers individuals with knowledge about family planning**, reproductive health, and the economic implications of having more children.
  - **In India, disparities in educational attainment** between different religious communities can partly **explain variations in population growth rates**.
  - **The Muslim community**, which has historically faced barriers to accessing quality education, exhibits **higher fertility rates compared to the Hindu community**.
  - **This suggests that the higher population growth rate among Muslims is not a reflection of religious doctrine** but rather a consequence of limited educational opportunities.
- **Economic Conditions**
  - **Economic conditions significantly influence family size** and population growth. Families with better economic stability tend to have fewer children, as they can invest more resources in each child's health, education, and overall well-being.
  - **Conversely, in economically disadvantaged communities, higher fertility rates can be a coping mechanism** for economic insecurity, with children often seen as contributors to the household income.
  - **The higher growth rate of the Muslim population in India can be attributed to the community's lower average income levels** and limited access to economic opportunities.
  - **Addressing economic disparities is essential for moderating population growth** and improving overall human development.
- **Healthcare Access**
  - **Access to healthcare**, particularly reproductive health services, **plays a crucial role in determining fertility rates**.

- Communities with better access to healthcare services, including contraception and maternal health care, tend to have lower fertility rates.
- **The Muslim community in India has historically faced challenges** in accessing healthcare services, which has contributed to higher fertility rates.
- Improving healthcare access for all communities is vital for achieving balanced population growth and enhancing quality of life.
- **Cultural Factors and Gender Norms**
  - **Cultural factors and gender norms also influence fertility rates.** In some communities, traditional norms that value large families and early marriage can lead to higher fertility rates.
  - **Efforts to promote gender equality and empower women to make informed reproductive choices are essential** for moderating population growth.
  - Programs aimed at changing cultural attitudes towards family size and encouraging later marriages can have a significant impact on reducing fertility rates.
- **Urbanisation and Migration**
  - Urbanization and migration patterns also affect population growth.
  - **Urban areas typically have lower fertility rates** than rural areas due to better access to education, healthcare, and economic opportunities.
  - **Migration from rural to urban areas can lead to a decline in fertility rates** as individuals adapt to the socio-economic conditions of urban life.
  - **In India, rural areas, where the Muslim population is relatively more concentrated,** tend to have higher fertility rates.
  - Promoting urbanization and facilitating the integration of rural communities into urban settings can contribute to balanced population growth.
- **Human Development Indicators**
  - **Overall human development indicators, such as life expectancy, child mortality rates, and literacy rates, are closely linked to population growth.**
  - Communities with higher human development indicators tend to have lower fertility rates.
  - **The Muslim community's lag in human development indicators compared to the Hindu community highlights the need for targeted interventions** to improve education, healthcare, and economic opportunities for all.

#### The Broader Context of Religious Demography

- **Historical Stability in Religious Composition**
  - Historical data suggests that the religious composition of India has remained relatively stable over the decades.
  - **According to the 2021 Pew Research Centre report,** which analysed Census data from 1951 to 2011, the proportions of India's major religious groups have shown remarkable stability since Partition.
  - **This stability is a significant counterpoint to claims of dramatic demographic shifts.**
  - **The Hindu population has consistently constituted a large majority,** while the proportions of other religious groups, including Muslims, have grown at a predictable rate.
  - **This historical perspective is crucial for understanding that changes in religious demography** are gradual and not indicative of sudden or alarming shifts.
- **Projections and Future Trends**
  - **Projections by leading demographers** provide a more nuanced understanding of future demographic trends. P. N. Mari Bhat and Francis Zavier, in their 2005 study, projected that the proportion of Muslims in India's total population would peak at around 18.8% by 2101.
  - This projection is based on historical trends and accounts for factors such as declining fertility rates and improvements in socio-economic conditions.
  - **The recent National Family Health Survey (NFHS) data shows a significant decline in Muslim fertility rates,** suggesting that the peak proportion might be even smaller if similar studies were conducted today.
  - **These projections highlight that fears of Muslims overtaking Hindus in population numbers are unfounded** and not supported by empirical evidence.

- **Socio-Economic Development and Demographic Trends**
  - **Socio-economic development plays a critical role** in shaping demographic trends.
  - Improved education, healthcare, and economic opportunities lead to lower fertility rates across all communities.
  - **The decline in Muslim fertility rates, as observed in the NFHS data, is a direct result of better access to education and healthcare.**
  - This trend is expected to continue as development efforts reach more communities.
  - **Therefore, socio-economic development is a key factor in achieving balanced population growth** and should be the focus of policy interventions.

## Conclusion

- **The sensationalism and misinterpretation of the EAC-PM working paper's findings are detrimental** to an informed public discourse.
- **Accurate understanding of population dynamics requires a nuanced analysis of socio-economic conditions and demographic data.**
- As India awaits updated Census data, **it is crucial to foster a more informed and balanced discussion on religious demography, free from divisive political narratives.**

## 2. AMRUT scheme

**Why in news?** Around 36% of India's population is living in cities and by 2047 it will be more than 50%. The World Bank estimates that around \$840 billion is required to fund the bare minimum urban infrastructure over the next 15 years. Against this backdrop, the **AMRUT (Atal Mission for Rejuvenation and Urban Transformation)** scheme was launched in June 2015, with its 2.0 version launched on

### Atal Mission for Rejuvenation and Urban Transformation (AMRUT)

- **About**
  - AMRUT was launched to provide **basic civic amenities as to improve the quality of life** for all especially the poor and the disadvantaged.
  - The **focus of the Mission is on infrastructure creation** that has a direct link to provision of better services to the citizens.
  - The **Mission covers 500 cities** that includes all cities and towns with a population of over one lakh with notified Municipalities.



### AMRUT 2.0

- **About**
  - **The target in the second phase of AMRUT is to**
    - improve sewage and septic management,
    - make our cities water safe cities and
    - ensure that no sewage drains anywhere in our rivers'
  - In other words, **AMRUT 2.0 focused on enhancing sewerage and septic management** and to make all Indian cities water secure.
- **Aim**
  - providing 100% coverage of **water supply** to all households in around 4,700 urban local bodies by providing about 2.68 crore tap connections
  - **100% coverage of sewerage and septage in 500 AMRUT cities** by providing around 2.64 crore sewer or septage connections
- **Principles and Mechanism**

- AMRUT 2.0 will adopt the **principles of circular economy** and promote conservation and rejuvenation of surface and groundwater bodies.
- The **Mission will promote data led governance in water management and Technology Sub-Mission** to leverage latest global technologies and skills.
- **'Pey Jal Survekshan' will be conducted to promote progressive competition among cities.**
- **Coverage**
  - Extends coverage from 500 cities under the first phase to 4,700 cities and towns.
  - It will benefit more than 10.5 crore people in urban areas.

#### Analysis of AMRUT scheme

- **Performance of scheme**
  - The AMRUT dashboard shows that as of **May 2024, a sum of ₹83,357 crore has been dispersed so far.**
  - This amount has been utilised to provide a total of 58,66,237 tap connections, and 37,49,467 sewerage connections.
  - A total of 2,411 parks have been developed, and 62,78,571 LED lights have been replaced.
- **Criticism**
  - It is estimated that **about 2,00,000 people die every year due to inadequate water, sanitation and hygiene.**
    - In 2016, the disease burden due to unsafe water and sanitation per person was 40 times higher in India than in China. This has not improved much.
    - Huge amounts of waste water and little treatment enhances the vulnerability and incidence of diseases.
  - Around 21 major cities are going to run out of ground water. In a **NITI Aayog report it was stated that 40% of India's population will have no access to drinking water by 2030.**
  - Nearly 31% of urban Indian households do not have piped water; 67.3% are not connected to a piped sewerage discharge system.
  - Average water supply per person in urban India is 69.25 litres/day, whereas the required amount is 135 litres.
  - Additionally, air quality in AMRUT cities and in other large urban settlements continue to worsen.
    - **A National Clean Air Programme was launched by the central government in 2019, as AMRUT 2.0 focused only on water and sewerage.**
- **Challenges**
  - The AMRUT scheme was fundamentally flawed, adopting a project-oriented rather than holistic approach.
  - It **lacked city participation and was driven by bureaucrats, parastatals, and private companies**, with minimal involvement from elected city governments.
  - Governance was dominated by non-elected officials, violating the 74th constitutional amendment.
    - The apex committee was headed by the MOHUA secretary, and state committees were led by chief secretaries.
    - **It excluded people's representatives and favored a private nexus** of consultants and professionals.
  - Water management in cities must consider climate, rainfall patterns, and existing infrastructure.
  - Sewage treatment plants are inefficiently designed, with faecal matter traveling longer distances than the average worker's commute.
  - Urban planning, driven by private players and real estate developers, often leads to the disappearance of water bodies, disrupted storm water flows, and a lack of proper storm water drainage systems.

#### Way forward

- The scheme needs nature-based solutions and a comprehensive methodology with a people centric approach and empowering local bodies.

### 3. Delhi sizzles as one station records 52.9°C

**Why in news?** The Mungeshpur weather station in Delhi recorded a maximum temperature of 52.9 degree Celsius, an all-time record for any location in India. However, later, in an update, the India Meteorological Department (IMD)

clarified that the record-breaking temperature was an error in sensor or local factor. The IMD is currently examining the data and sensors to verify the accuracy of the recorded temperature.

### Temperature Anomaly in Delhi

- **Anomaly**
  - The maximum temperature across Delhi NCR varied from 45.2 degrees Celsius to 49.1 degrees Celsius in different parts of the city.
    - **The IMD runs 20 weather stations in Delhi, 15 of which are automatic weather stations, or AWS, including Mungeshpur.**
    - AWS record and transmit weather parameters without human intervention.
  - **Mungeshpur reported 52.9 degrees Celsius as an outlier compared to other stations.**
  - The IMD stated that this discrepancy could be due to an error in the sensor or specific local factors.
- **Factors leading to high temperature in Delhi**
  - The **rain deficit** contributed to the heat build-up.
  - **Clear skies and westerly winds from Rajasthan** where temperatures have hit 50 degrees have contributed to the heat in Delhi-NCR.
  - Climatology-wise, this is also the time of intense heating across northwest India, including Delhi-NCR.
- **Heatwave conditions to reduce in next 2-3 days**
  - **As per IMD, heatwave conditions will reduce during the next 2 - 3 days due to:**
    - gradual fall in temperature in association with approaching western disturbance,
    - rainfall/thunderstorm and
    - South-westerly wind blowing from the Arabian Sea to northwest India.

### Why do temperatures vary from place to place within the same city?

- Temperatures experienced by a particular region are largely governed by weather. However, several anthropogenic factors also play a role, especially in a large urban centre such as Delhi.
- **These factors include the concentration of pavements, buildings, roads, and parking lots.**
  - In general, hard and dry surfaces provide less shade and moisture, thereby leading to higher temperatures.
- **The material used to build infrastructure also has an impact.**
  - For instance, **places where most of pavements and buildings are made of concrete, witness warmer temperatures.**
  - That's because concrete can hold nearly 2,000 times as much heat as an equivalent volume of air.
- **The geometry and spacing of buildings are a factor as well.**
  - If a **location is densely populated by buildings, surfaces and structures there become large thermal masses as they fail to release heat readily.**
  - Very narrow streets and tall buildings obstruct natural wind flows that generally bring temperatures down.
- **The heavy use of air conditioners in shopping malls and residential areas result in localised higher temperatures — ACs release an enormous amount of heat outdoors.**
- **These factors can collectively lead to the creation of 'urban heat islands' at a location.**
  - These islands experience higher temperatures relative to outlying areas.
  - The likelihood of a place becoming an urban heat island is higher when it does not have trees, vegetation, and water bodies.
  - Natural landscapes bring down temperatures because they provide shade, and the processes of transpiration from plants and evaporation from water bodies produce cooling.

### How temperature records are tumbling across the world?

- **Statistics from around the world**
  - **United Kingdom crossed 40 degree Celsius for the first time ever in July 2022.**
  - A small town in China's northwest recorded 52 degree Celsius last year, the highest ever for that country.



- In **2021, Sicily in Italy recorded 48.8 degree Celsius, the highest for Europe ever.**
  - The highest ever temperature recorded anywhere on Earth, 56.7 degree Celsius in a place called Death Valley in the desert of California, United States, was recorded more than 100 years ago, in 1913.
- **Study report by Carbon Brief (UK-based publication focused on climate change)**
  - The study showed that nearly **40% of the Earth had recorded its highest-ever daily temperature between 2013 to 2023.**
  - This includes places in Antarctica as well.
- **Global Warming**
  - The year 2024 was predicted to be extremely warm. Last year had emerged as the warmest year on record, globally, and the effect was expected to continue this year as well.
- **Warming in India**
  - The warming over India is not as pronounced as the world taken as a whole.
  - **Annual mean temperatures over India have risen by about 0.7 degree Celsius compared to 1900 levels.**
  - This is significantly lower than the 1.59 degree Celsius rise for average land temperatures across the world.
    - If oceans too are included, global temperatures right now are at least 1.1 degree Celsius higher than pre-industrial averages.
  - However, heatwaves over India are noticeably more severe.
  - In 2023, heatwave conditions prevailed even in February, technically a winter month for which heatwave thresholds are not even defined because they are not expected.

## 4. Landslides in India

### Why in news?

**Six people were killed in West Bengal in incidents triggered by cyclone Remal** that struck the coastline recently. In Northeast, heavy rain caused by the cyclone triggered landslides in several places in **Meghalaya, Mizoram, Assam, and Nagaland, which have resulted in the deaths of at least 30 people so far.**

Almost the entire region, including Sikkim and northern West Bengal, is landslide prone. Cyclone-triggered landslides have hit Northeastern states on earlier occasions as well. Cyclone Aila had caused landslide events in this region in May 2009.

### Landslide and factors responsible

- A landslide is defined as the movement of a mass of rock, debris, or earth down a slope.
- Landslides are a type of "**mass wasting**," which denotes any down-slope movement of soil and rock under the **direct influence of gravity**.
- Landslides occur mainly in mountainous terrains where there are conducive conditions of soil, rock, geology and slope.
- **Natural Causes** that trigger includes heavy rainfall, earthquakes, snow melting and undercutting of slopes due to flooding.
- Landslides can also be caused by **Anthropogenic Activities** such as excavation, cutting of hills and trees, excessive infrastructure development, and overgrazing by cattle.
- In India, rainfall-induced landslide events are more common.

### Classification and mapping of landslides

Landslides are broadly classified based on the –

#### Types of Movement

**Falls:** Falls are rapid movements of rocks and boulders detached from steep slopes or cliffs along fractures, joints, and bedding planes.

**Topple:** It is the forward rotation of a mass of debris or rock out of a slope. The slope failure generally occurs at point near the base of the block of rock.

**Slides:** A slide is a downslope movement of material that occurs along a slip surface.

**Rotational slide:** In this slide the slide movement is roughly rotational about an axis which is parallel to the ground surface and transverse across the slide.

**Translational slide:** In this slide the landslide mass moves along a planar surface with rotation or backward tilting

#### Types of Materials

**Rock:** hard or firm mass.

**Debris:** 20% to 80% of the particles are larger than 2mm, and the remainder is less than 2mm<sup>2</sup>.

**Earth:** material in which 80% or more of the particles are smaller than 2mm.

**Soil:** an aggregate of solid particles, generally of minerals and rocks.

**Mud:** material in which 80% or more of the particles are smaller than 0.06mm.

#### Types of flows

**Debris flow:** It is a form of rapid mass movement in which a combination of loose soil, rock, organic matter, slurry that flows downslope. They are commonly caused by intense precipitation or rapid snow melt.

**Earth flow:** It is down slope viscous flow of fine grained material saturated with water.

**Mudflow:** A mudflow is wet or viscous fluid mass of fine and coarse grained material flows rapidly along drainage channels.

**Creep:** Creep is the slow, steady, downward movement of material under gravity occurs in large area.

**Lateral Spreads:** It is the lateral movement usually occur on very gentle slopes or flat terrain. The failure is caused by liquefaction due to earthquake.

#### Landslide vulnerability of India

- According to the Geological Survey of India (GSI), about **42 million square km of India's landmass, or about 13% of its area, spread over 15 states and 4 UTs is prone.**
- This covers almost all the hilly regions in the country. About 0.18 million square km, or 42% of this vulnerable area is in the Northeastern region, where the terrain is mostly hilly.

#### Steps taken by India to deal with landslides

- **NDMA is working with GSI**
  - The National Disaster Management Authority (NDMA) has been working with GSI and other agencies to mitigate and manage the risks from landslides.
- **National Landslide Risk Management Strategy finalized**
  - A National Landslide Risk Management Strategy was finalised in 2019.
  - This strategy talked about **vulnerability mapping, identifying the most vulnerable locations, development of an early warning system, and preparation of mountain zone regulations.**
- **Early warning**
  - Some early warning systems have been developed and deployed on a trial basis at a few locations. These warning systems are linked to rainfall forecasts from IMD.
    - The rainfall prediction is combined with soil and terrain information to calculate whether it is likely to result in displacement of land.
  - Since earthquakes themselves cannot be predicted, building landslide early warning based on earthquakes can be difficult.
  - But rainfall-based early warning systems for landslides seem to work well.

#### Way forward

- **Need to factor in the carrying capacity of mountains**
  - The risk from landslides has been exacerbated by the failure to remain mindful of the terrain's ability to withstand the load.

- Many hilly areas do not have building regulations. Often, regulations are not implemented effectively.
- **New constructions, infrastructure development, and even agricultural practices can increase the risk of landslides.**
- **Need for building resilience to multi-hazard disasters**
  - One event can trigger another, and can lead to multiple disasters simultaneously.
  - Over the last few years, India has witnessed events in which heavy rainfall has resulted in a breach of **glacial lakes, causing flash floods that have resulted in landslides and flooding.**

## 5. Cyclone Remal and its landfall

### Why in news?

**Cyclonic storm "Remal", originating in the central Bay of Bengal, is expected to escalate into a severe cyclonic storm by May 25.** As per the IMD, the cyclone is expected to make landfall between Sagar Island in West Bengal and Khepupara in Bangladesh around the midnight of May 26.

### Cyclone

- **About**
  - A **cyclone is a large-scale system of air that rotates around the centre of a low-pressure area. It is usually accompanied by violent storms and bad weather.**
  - It is **characterised by inward spiralling winds** that rotate anticlockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.
- **Characteristics of a Tropical Cyclone:**
  - The **centre of a cyclone is very calm and clear with very low air pressure.** The average speed is **120 kmph.**
  - They have closed **isobars** which leads to greater velocity.
    - Isobars are imaginary lines on a weather map that connect locations with equal atmospheric pressure.
  - They **develop over oceans and sea only. They are seasonal in nature.**
  - They move from east to west under the influence of trade winds.

### Classification of cyclones

Cyclones are classified **on the basis of wind speed** by the Indian Meteorological Department (IMD):

- **Depression:** Wind speeds of between 31–49 km/h
- **Deep Depression:** Between 50-61 km/h
- **Cyclonic Storm:** Between 62–88 km/h
- **Severe Cyclonic Storm:** Between 89-117 Km/h
- **Very Severe Cyclonic Storm:** Between 118-166 Km/h
- **Extremely Severe Cyclonic Storm:** Between 167-221 Km/h
- **Super Cyclonic Storm:** Above 222 Km/h

### Landfall of a cyclone

- Landfall is the event of a tropical cyclone coming onto land after being over water.
- As per the IMD, a **tropical cyclone is said to have made a landfall when the center of the storm – or its eye – moves over the coast.**
  - The "eye" of a cyclone is a region of relatively calm weather found at the center of the storm.
  - It is a **circular or oval-shaped area characterized by light winds, clear or partly cloudy skies, and decreased precipitation.**
  - Within the eye, winds are light and variable, often with clear or only partially cloudy skies.
  - The size of the eye can vary significantly, ranging from a few kilometers to over 50 kilometers (30 miles) in diameter in larger cyclones.
- During landfall, the outer bands of the storm may have already reached the coast, bringing strong winds, heavy rain, and storm surge.

- A landfall should not be confused with a 'direct hit', which refers to a situation where the core of high winds (or eyewall) comes onshore but the centre of the storm may stay remain offshore.

### Bay of Bengal: a cyclone hotspot



- Historical data underscore Bay of Bengal's predisposition to cyclones, with **approximately 58% of them making landfall on India's eastern coast, compared to just 25% in the Arabian Sea.**
- The **Arabian Sea gets fewer cyclones due to its narrower and deeper nature, cooler water and higher salinity.** Its partially landlocked geography also contributes to reduced cyclonic activity.

### Cyclone management – Steps taken by India

- **National Cyclone Risk Mitigation Project (NCRMP):**
  - Launched by the MHA, **this project aims to reduce the vulnerability of coastal communities and infrastructure to cyclones and storm surges.**
  - It focuses on capacity building, early warning systems, cyclone shelters, evacuation planning, and community awareness.
- **IMD's Colour Coding of Cyclones:** Four colours - Green, Yellow, Orange, and Red – are used by IMD to make people aware about the severity of cyclones.
- **Integrated Coastal Zone Management (ICZM) Project**
- **Coastal Regulation Zones (CRZ)**
- **Other general steps taken:**
  - National Disaster Response Force (NDRF)
  - National Disaster Management Plan (NDMP)
  - National Institute of Disaster Management (NIDM)
  - State Disaster Management Authorities (SDMAs)

### Cyclone Remal

- **Coordination efforts are underway**
  - To ensure the safety of maritime traffic, the Coast Guard's remote operating stations at **Haldia and Paradip** are broadcasting regular and multilingual VHF (very high frequency) alerts.
  - Merchant vessels at anchorages have been alerted, and port authorities have been advised to take appropriate actions.
  - **Nine disaster relief teams have been positioned at strategic locations, including Haldia, Paradip, Gopalpur, and Frazerganj.**
  - Fishing activities have been banned.
  - **West Bengal has a high adaptive capacity against cyclones because of cyclone multi-hazard Early Warning Systems (EWS).**
    - EWS is made available under the National Cyclone Risk Mitigation Project (NCRMP) Phase II.
  - The state's high tele-density ratio allows people to access early warnings via telephone or mobile.

## 6. Young People Fade Away When There Is No Vision

### Context

- Recent incidents in Kota, Rajasthan, have highlighted a disturbing trend: **young people driven to suicide by the overwhelming pressures of entrance examinations** and this alarming phenomenon is not isolated to only Kota.
- **The pressure to excel in competitive exams, compounded by familial and societal expectations**, has created an environment where the mental health and well-being of students are severely compromised.
- Therefore, **it is imperative to understand the root causes of this issue and to implement solutions** that prioritise the holistic development of young people.

### The Pressure Cooker Environment: Cause and Consequence

- **The Rise of Coaching Institutes**
  - **Kota has earned its reputation as the coaching capital of India** due to the proliferation of coaching institutes that prepare students for entrance exams like the IIT-JEE (Joint Entrance Examination) and NEET (National Eligibility cum Entrance Test).
  - These **institutes promise high success rates** and have become the default choice for students aiming for top-tier engineering and medical colleges.
  - However, **this comes at a substantial cost to students' mental and emotional well-being**.
- **Inhumane Methods and Rigid Schedules**
  - Many coaching **institutes employ rigorous and often inhumane teaching methods**.
  - **Students are subjected to gruelling schedules** that leave little time for relaxation or personal development.
  - A **typical day in such an institute might begin at 5 a.m. and extend until 10 p.m. or later**, packed with study sessions, tests, and more study sessions.
  - These **schedules are designed to maximise academic output but often disregard the basic needs of the students**, such as adequate sleep, recreation, and social interaction.
- **Loss of Adolescent Normalcy**
  - The **relentless focus on academic performance means that students miss out on crucial aspects** of adolescent development.
  - Normal activities like sports, hobbies, and social interactions are sidelined or completely sacrificed.
  - As a result, **students often become socially isolated**, their lives revolving solely around academics.
  - **This isolation can lead to a range of psychological issues**, including anxiety, depression, and a profound sense of loneliness.
- **The High Cost of Failure**
  - The **stakes are extraordinarily high in this pressure cooker environment and success in entrance exams is often seen as the sole determinant** of a student's future.
  - **Failure, on the other hand, can lead to severe consequences**, including social stigma and disappointment from family members who have invested heavily in their child's education, both emotionally and financially.
  - **The fear of failure and the resulting consequences can be overwhelming**, driving some students to extreme measures.
- **Psychological Toll and Mental Health Crisis**
  - **The constant pressure to perform well academically takes a significant toll on students' mental health**.
  - Reports of stress, anxiety, and depression are common among those attending these coaching institutes.
  - **Unfortunately, mental health issues are often stigmatised in Indian society**, leading to a lack of adequate support and resources for struggling students.
  - The **tragic suicides in Kota are symptomatic of this larger mental health crisis**.

### Impact of India's Education System's Reliance on Entrance Examinations (NEET, JEE, CUET, etc)

- **Decline in Cognitive Skills and Critical Thinking**
  - A **significant consequence of the narrow focus on entrance exams is the decline in cognitive skills** and critical thinking among students.

- The **coaching institute model emphasises rote learning and memorisation** over conceptual understanding and analytical thinking.
- **Students are trained to excel in multiple-choice questions and standardised tests**, but this often comes at the expense of deeper learning and intellectual curiosity.
- **Teachers in universities and colleges have reported a noticeable decline in the quality of students** admitted through entrance exams like the Common University Entrance Test (CUET).
- **These students often struggle with basic concepts** and lack the ability to engage in higher-order thinking.
- This **decline is concerning as it suggests that the current system is failing to prepare students for the intellectual challenges** of higher education and beyond.
- **Educational Equity and Accessibility**
  - Access to high-quality coaching centres is often limited to students from affluent backgrounds who can afford the high fees.
  - This **creates a significant disparity in opportunities between wealthy students and those from lower socio-economic backgrounds**.
  - As a result, the education system perpetuates and even deepens social inequalities, limiting upward mobility for disadvantaged students.
  - Moreover, **the pressure to attend coaching centres has led many families**, including those of first-generation learners, **to take on substantial financial burdens**.
  - These families invest heavily in their children's education, often at the cost of other essential needs.
  - **Despite this investment, the high-stakes nature of entrance exams means that many students still do not achieve the desired outcomes**, leading to financial strain and disappointment.
- **Broader Societal Implications**
  - The narrow focus on entrance exams has broader implications for society. It **fosters a culture of competition rather than collaboration**, where success is measured solely by academic achievement.
  - This **mindset can perpetuate a zero-sum view of success**, where individuals see their peers as rivals rather than potential collaborators.
  - Furthermore, the emphasis on standardized testing and narrow academic criteria limits the diversity of talents and skills within the workforce.

## Way Forward

- **The Need for a Holistic Approach**
  - To address these consequences, **a shift towards a more holistic approach to education is essential**.
  - This **approach should value diverse aspects of student development**, including academic performance, critical thinking, creativity, and emotional intelligence.
  - **Educational reforms should also focus on improving the quality and accessibility of schooling**, reducing reliance on coaching centres, and ensuring that all students have the opportunity to succeed regardless of their socio-economic background.
  - **By nurturing a supportive and inclusive educational environment, we can better prepare students for the challenges** of the modern world and create a more equitable society.
- **Strengthening School Education**
  - **Strengthening government schools by recruiting qualified teachers** and improving infrastructure can provide a solid foundation for students.
  - **The National Education Policy's emphasis on school education is a step in the right direction**, but it needs to be implemented effectively.
  - **Schools should be seen as the primary institutions for learning**, with coaching centres playing a supplementary role rather than dominating the educational experience.
- **Focus of Personal Interviews**
  - **One of the most effective ways to humanise the admission process** is to incorporate personal interviews as a significant component of entrance exams.
  - **Personal interviews can assess a student's personality**, interests, and talents, providing a more holistic view of

their capabilities.

- **Institutions like St. Stephen's College have successfully used personal interviews for over 70 years, proving that this method can mitigate the pressure** associated with high-stakes exams and offer students a sense of worth beyond their academic scores.

## Conclusion

- **The crisis of student suicides in India is a multifaceted issue** that requires a comprehensive approach involving educators, policymakers, parents, and society at large.
- **By prioritising the well-being of students** over mere academic performance, and by implementing policies that recognise the importance of holistic development, **we can create an educational environment that nurtures rather than destroys young minds.**
- The incorporation of personal interviews and the strengthening of school education are crucial steps in this direction.

## 7. What are Northern and Southern Lights

### Why in News?

Early on Saturday morning, the **northern lights or the aurora borealis illuminated the night sky over Hanle village in Ladakh.**

Other places of the world, such as the US and the UK, have also reported seeing the northern lights. On the other hand, **Australia and New Zealand witnessed the southern lights or aurora australis.**

### What are Auroras?

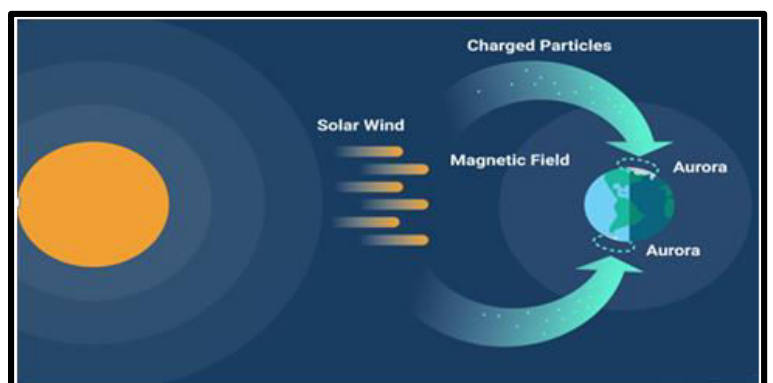
- **An aurora is a natural light display in Earth's sky,** predominantly seen in high-latitude regions (around the Arctic and Antarctic).
- **Auroras display dynamic patterns of brilliant lights** that appear as curtains, rays, spirals, or dynamic flickers covering the entire sky.
- They are also commonly known as the **northern lights (aurora borealis) or southern lights (aurora australis).**

### What is the Aurora Borealis?

- Often called the **Northern Lights,** it occurs in the **northern hemisphere,** predominantly in regions near the **Arctic Circle.**
  - This includes countries like Norway, Sweden, Finland, Iceland, Canada, and Alaska.
- **The northern lights result from charged particles from the sun,** mainly electrons and protons, colliding with the Earth's magnetosphere and interacting with gases in the Earth's atmosphere.
- **These collisions produce colourful displays of light,** primarily in green, red and purple

### What is the Aurora Australis?

- Also known as the **Southern Lights,** it occurs in the **Southern Hemisphere,** primarily around the **Antarctic Circle.**
  - It can be seen in countries such as Australia, New Zealand, Antarctica, and parts of southern South America.
- **The southern lights have the exact underlying cause as the Northern Lights,** i.e., charged particles from the sun interact with the Earth's magnetic field and atmosphere in the Southern Hemisphere, creating similar colourful light displays.



### Understanding the Northern and Southern Lights Phenomenons:

- **They occur due to activity on the surface of the Sun.** The star **continuously releases a stream of charged particles**, mainly electrons and protons, and magnetic fields called the solar wind.
- **As the solar wind approaches the Earth**, it is **deflected** by the planet's magnetic field, which acts like a protective shield.
- However, **some of the charged particles are trapped in the magnetic field** and they travel down the magnetic field lines at the north and south poles into the upper atmosphere of the Earth.
- **These particles then interact with different gases present there**, resulting in tiny flashes that light up the night sky.
  - **For example**, when solar wind particles collide with **oxygen**, a **green colour light** is produced. Interaction with **nitrogen produces shades of blue and purple**.

### Can the Auroras Expand to Midlatitudes?

- **When the solar wind is extremely strong**, auroras can expand to midlatitudes.
- This happens when the activity on the Sun's surface goes up, leading to **solar flares and coronal mass ejections (CMEs)**, which are essentially extra bursts of energy in the solar wind.
- In these situations, **the solar wind can be so strong that it can cause a geomagnetic storm/ a magnetic storm**, which is a brief disruption of the Earth's magnetic field.
  - **Geomagnetic storms can also affect** space-dependent operations like Global Positioning Systems (GPS), radio and satellite communications, flight operations, power grids, and space exploration programmes.
- One such geomagnetic storm that was triggered after a CME (from the AR13664 region of the sun) struck the Earth was the cause of the **recent aurora events** that were observed in many regions of the world.



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# General Studies-II

## 1. Legal status of the right to vote and the right to be elected

**Why in news? Amritpal Singh, the jailed head of the pro-Khalistan outfit Waris Punjab De, announced his intention to contest the Lok Sabha elections from Punjab's Khadoor Sahib seat on June 1.**

Despite facing criminal charges, he can run for office unless convicted. However, like other accused persons in Indian prisons, he will be barred from voting in the upcoming elections.

**What is the legal status of the right to vote and the right to be elected?**

- **The right to vote and the right to be elected are 'statutory rights'**
  - In 1975, the Supreme Court in **Indira Gandhi v Raj Narain** recognized free and fair elections as part of the Constitution's basic structure, allowing laws violating this principle to be struck down.
  - However, the Apex Court has held that the rights to elect and be elected do not enjoy the same status.
  - In 2006, a five-judge Bench in **Kuldip Nayar v. Union of India** ruled that **voting is a statutory right, not a fundamental right, and can be regulated by laws enacted by Parliament.**
    - The same was held for the right to be elected by the Bench.

**Disqualification on conviction for certain offences and associated challenges**

- **Bar against contesting elections only after conviction**
  - **Section 8 of the Representation of People Act, 1951 (RP Act)** is titled **"Disqualification on conviction for certain offences"**.
  - It mandates that **individuals convicted of specified offences are disqualified from contesting elections to Parliament or state legislatures from the date of conviction.**
  - Additionally, **they face a six-year disqualification period from contesting elections**, starting from the date of their release.
  - This disqualification only kicks in once a person has been **convicted** and does not apply if they have only been charged with criminal offences.
- **Challenges**
  - **Section 8 of the RP Act challenged in SC**
    - In 2011, a petition filed by the Public Interest Foundation argued **that persons who have criminal charges framed against them or file false affidavits regarding their criminal history should also be disqualified.**
    - However, a five-judge bench unanimously held that only the legislature could alter the RP Act.
    - In 2016, a petition was filed in SC for the permanent disqualification of convicted persons. The case is still ongoing.
  - **Delays in criminal cases against MPs and MLAs**
    - In November 2023, the Supreme Court noted delays in criminal cases against MPs and MLAs.
    - It ordered **Chief Justices of all High Courts to register a suo motu case titled "In Re: Designated Courts for MPs/MLAs."**
    - The High Courts were instructed to ensure the "expeditious and effective" disposal of these cases.
    - However, a report in April 2024 showed 4,472 such cases are still pending.
- **Exceptions to disqualification**
  - **ECI's Power to Modify Disqualification Period**
    - In 2019, the Election Commission of India (ECI) used its power under **Section 11 of the RP Act to reduce the disqualification period for Sikkim Chief Minister Prem Singh Tamang.**
    - As per Sec 11, EC may, for reasons to be recorded, remove any disqualification under this Chapter (except under section 8A) or reduce the period of any such disqualification.
    - He had been released after a one-year prison sentence for misappropriating funds and subsequently won a bye-election.

- **Apex court staying the conviction**
  - Disqualified MPs or MLAs can contest if their conviction is stayed on appeal.
  - In 2019, the Supreme Court ruled that staying a conviction removes the associated disqualification.

#### **Bar against the right to vote for confined persons**

- **Voting Restrictions Under Section 62 of the RP Act**

- Section 62 of the RP Act restricts voting rights, stating that no person shall vote if they are confined in prison or in police custody, except for those in preventive detention.

- **SC on such restrictions**

- Section 62 of RP Act bars individuals with criminal charges from voting unless released on bail or acquitted.
- In 1997, the Supreme Court upheld this rule in **Anukul Chandra Pradhan v. Union of India**.
- It rejected the argument that it violated the right to equality by discriminating against undertrials and those unable to pay bail.

- **Grounds on which SC rejected the argument that it violated the right to equality**

- The **court re-affirmed that the right to vote was a statutory right and could be subject to statutory limitations**.
- The court held that there is a resource crunch as infrastructure would have to be provided and police would have to be deployed.
- A person in prison because of their conduct cannot claim equal freedom of movement, speech and expression.
- Last, restrictions on prisoners' right to vote are reasonable as it is connected to keeping persons with criminal background away from the election scene.

## **2. Fire Safety Regulations in India**

#### **Background:**

- The recent fire tragedies at a gaming zone in **Gujarat's Rajkot** and a **children's hospital in Delhi** have claimed the **lives of at least 40 people in a span of 24 hours**.
- This has shifted the spotlight on fire safety regulations and the need for stringent enforcement of safety measures, particularly in buildings vulnerable to man-made disasters.
- According to the latest **Accidental Deaths and Suicides in India (ADSI) Report**, released by the National Crimes Records Bureau (NCRB), as many as **7,435 people were killed in over 7,500 fire accidents in 2022**.

#### **Fire Safety Regulations in India:**

- Published in 1970, the **National Building Code (NBC)** is India's central standard for fire safety. It was last updated in 2016.
- It provides detailed guidelines for general construction, maintenance, and fire safety of buildings.
- State governments are required to incorporate NBC recommendations into local building bylaws, as **fire services are a state subject**.
- The '**Model Building Bye Laws 2016**' guide states and urban areas in drafting building bylaws.
- Apart from that, the **National Disaster Management Authority (NDMA)** also provides guidelines on fire safety in homes, schools, and hospitals.

#### **About the National Building Code:**

- The **National Building Code outlines measures to ensure fire safety**, focusing on measures that can be reasonably achieved.
- It **defines fire zones, such as residential areas and educational institutions, to prevent industrial and hazardous structures** from coexisting with residential, institutional, and business buildings.
- The **Code also categorizes buildings into nine groups based on occupancy, such as hotels, hospitals, and assembly buildings**.
- It **emphasizes the use of non-combustible materials and minimum 120-minute rating for internal walls in staircase enclosures**.

- The Code also outlines maximum height, floor area ratio, open spaces, and fire-resistant openings.
- The Code emphasizes the importance of flame-retardant electrical installation, with medium and low voltage wiring in separate shafts and false ceilings.
- **All metallic items should be bonded to the earthing system.**
- An emergency power-supplying distribution system is recommended for critical requirements, including exit signage, lighting, fire alarm systems, and public address systems.
- The Code also recommends technologies for fire protection, such as automatic fire detection systems, down-comer pipelines, sprinklers, fireman's lifts, fire barriers, and escape routes.

#### Challenges Associated with Fire Safety in India:

- **Fire safety rules in all states, including the National Building Code (NBC), are often ignored due to the absence of uniform safety legislation and the NBC being a "recommendatory document."**
- Even mandatory certifications are not complied with. Fire safety audits are underutilized due to the failure of local bodies to conduct regular checks and enforce compliance.
- Shortage of staff exacerbates the issue, leading to tragic loss of lives in fires like the Rajkot game zone and Delhi hospital fires.
- The National Institute of Disaster Management (NIDM) highlights the need for community resilience and compliance with safety norms.

### 3. Chabahar's Opportunities and Challenges

#### Context

- **The recent renewal of the contract between India and Iran, allowing New Delhi to invest in and operate the Shahid-Beheshti terminal at Chabahar Port for another decade, highlights the strategic and economic importance of this project.**
- This agreement comes at a tumultuous time in West Asia, marked by ongoing conflict in Gaza, heightened Israel-Iran tensions, and a destabilizing helicopter crash that killed Iran's President and Foreign Minister.
- **Despite these challenges, the Chabahar project remains a pivotal element** anchoring the economic relations between India and Iran.

#### Strategic Significance of Chabahar for India

- **Economic Connectivity and Trade Facilitation**
  - The Chabahar Port serves as a **pivotal point in the International North-South Transport Corridor (INSTC)**, a multi-modal network aiming to connect India with Central Asia, Russia, and beyond.
  - By offering a direct sea-land route that bypasses Pakistan, **Chabahar significantly reduces the transportation time and costs for Indian goods** destined for these regions.
  - **This enhanced connectivity facilitates increased trade, economic integration, and access to new markets,** boosting India's export potential and economic growth.
- **Geopolitical Leverage and Strategic Autonomy**
  - For India, **Chabahar is a strategic tool to assert its influence in the region and reduce its dependency on Pakistani routes,** which are fraught with geopolitical tensions.
  - By investing in Chabahar, **India secures a strategic foothold in Iran, a country with significant influence in West Asia and Central Asia.**
  - This **port allows India to project power and maintain a strategic presence in a region where China, through its Belt and Road Initiative (BRI), and Pakistan are also vying for influence.**
  - This **strategic autonomy is crucial for India's foreign policy,** allowing it to navigate complex regional dynamics independently.
- **Regional Security and Stability**
  - **Chabahar Port also plays a critical role in India's approach to regional security and stability,** particularly concerning Afghanistan.

- **With the Taliban's endorsement and financial commitment to Chabahar, the port emerges as a key transit point** for humanitarian aid and economic goods to Afghanistan, thereby stabilising a region plagued by conflict.
- **By fostering economic development** and providing alternatives to Pakistani ports, **Chabahar helps mitigate the risk of economic isolation for Afghanistan**, contributing to regional stability.
- **Counterbalancing Chinese Influence**
  - **Chabahar is strategically positioned to counterbalance Chinese influence in the region**, particularly with respect to the China-Pakistan Economic Corridor (CPEC) and the Gwadar Port.
  - **While China's Gwadar is geographically close to Chabahar, the Indian port offers an alternative route** that is crucial for diversifying regional supply chains.
  - By strengthening Chabahar, **India not only mitigates the strategic risks posed by Chinese dominance in regional infrastructure but also provides a viable alternative for international trade routes** that seek to avoid Chinese-controlled pathways.
- **Diplomatic Engagement and Multilateralism**
  - **Chabahar Port exemplifies India's commitment to diplomatic engagement** and multilateralism.
  - **Through this project, India demonstrates its ability to collaborate with diverse international partners, including Iran, Afghanistan, and Central Asian countries**, developing a cooperative regional environment.
  - **The port also aligns with broader international efforts to enhance connectivity and economic integration across Eurasia**, positioning India as a central player in regional development initiatives.
- **Energy Security**
  - Given Iran's vast energy resources, **Chabahar Port also holds potential for enhancing India's energy security**.
  - By providing a strategic entry point for Iranian oil and gas, **the port can facilitate energy imports, diversify India's energy sources**, and reduce dependency on any single country or route.
  - **This diversification is crucial for ensuring a stable and resilient energy supply**, critical for India's growing economy.

#### Challenges Surrounding Chabahar Port and India-Iran Relations

- **Sanctions and International Pressure**
  - **The imposition of international sanctions on Iran, particularly by the United States, has significantly impacted India-Iran economic relations.**
  - **Projects like the Farzad-B gas field and the Irano Hind Shipping Company suffered** directly due to sanctions.
  - **Even the Chabahar Port project has had to navigate the complexities of U.S. sanctions**, requiring India to obtain periodic exemptions to continue its development.
- **Geopolitical Alignments**
  - **India's geopolitical alignments, especially its strategic partnership with the United States, sometimes clash with its engagements with Iran.**
  - For instance, **during the Obama administration, India reduced its oil imports from Iran** to align with U.S. policies on Tehran's nuclear program.
  - **This decision affected bilateral trade relations and reduced Iran's position as one of India's top oil suppliers.**
- **Competing Regional Interests**
  - Both countries have regional interests that sometimes diverge.
  - **While Iran seeks to maintain its influence in West Asia** and strengthen its ties with countries like China and Russia, **India's regional focus includes countering China's Belt and Road Initiative and securing its interests in Afghanistan.**
  - These differing priorities can lead to friction and limit the scope of bilateral cooperation.

#### Recommendations for Future Engagement

- **Diversifying Economic Cooperation**
  - **While the Chabahar Port is a critical element of India-Iran relations, it should not be the sole focus.**
  - **Both countries should identify and invest in other sectors** such as energy, agriculture, pharmaceuticals, and technology.

- **Reviving stalled projects** like the Farzad-B gas field or **initiating new joint ventures can help diversify economic ties.**
- Establishing a more robust trade framework can enhance bilateral commerce.
- This **could involve reducing tariffs, simplifying customs procedures, and creating incentives for businesses** to invest in each other's countries.
- **Enhancing Diplomatic Engagement**
  - **Regular high-level visits and dialogues can help address misunderstandings,** align strategic interests, and foster a deeper mutual understanding.
  - **Such engagements should be institutionalised,** ensuring continuous and structured communication.
  - **Both countries should leverage their participation in multilateral forums** like the United Nations, the Non-Aligned Movement, and regional organizations to coordinate their positions on global issues.
  - **Joint initiatives in these forums can enhance their diplomatic leverage** and foster closer ties.
- **Balancing Geopolitical Alignments**
  - **India must adeptly balance its strategic partnership with the United States** while engaging with Iran.
  - This **requires clear communication with the U.S. regarding the strategic importance of Chabahar** and other bilateral projects with Iran.
  - **Diplomatic efforts should focus on securing exemptions from sanctions** that hinder critical projects.
  - Strengthening ties with other regional players can also bolster India-Iran relations.
  - **This includes deepening cooperation with Afghanistan, Central Asian countries, and Russia.**
  - **Collaborative projects that include these countries can create a network of interdependencies,** enhancing regional stability and economic integration.

#### Conclusion

- **The Chabahar port project encapsulates the multifaceted nature of India-Iran relations,** blending economic interests with strategic imperatives.
- As both nations navigate their geopolitical landscapes, **Chabahar stands out as a testament to their enduring yet evolving partnership.**
- **Balancing this legacy project with broader economic cooperation and nuanced diplomacy will be crucial** in sustaining and enhancing India-Iran ties in the future.

## 4. How will Iran President's death impact the region?

#### Why in news?

Ebrahim Raisi, Iran's President, and eight others, including Foreign Minister Amir Abdollahian, died in a helicopter crash on May 19.

#### Geopolitical situation at the time of accident

- The timing of Iranian President Ebrahim Raisi's death is highly significant given the current regional and domestic context.
- **Tensions in West Asia are particularly high following Iran's first direct attack on Israel in April 2024, and the ongoing war in Gaza,** where Iran supports Hamas and other anti-Israeli forces.
- Domestically, Iran has faced increasing protests in recent years, adding to the regime's challenges.
- Amid this turbulent backdrop, **Iran now faces the additional uncertainty of electing a new president.**

#### Iran under Raisi

- **During Raisi's tenure, Iran:**
  - sought **closer strategic and economic cooperation with Russia and China,**
  - doubled down on its support for the so-called '**axis of resistance**' (non-state actors such as Hamas, Houthis and Hezbollah) and
  - expanded the country's nuclear programme.

- During his tenure, Iran also adopted a more aggressive policy towards Israel, which saw the April 14 drone and missile attack.

### Implications of death of Iranian President

- **Domestic Impact**

- **Succession Crisis**

- **Raisi was considered a potential successor to Supreme Leader Ayatollah Ali Khamenei.**
- In Iran's semi-representative theocratic system, the role of the elected president is limited compared to that of the Supreme Leader, who is appointed by a clerical body.
- The President's primary responsibility is to run the day-to-day affairs of the government.
- On the other hand, **critical policies and long-term strategies are set by the Supreme Leader.**
- His death may lead to a power struggle within Iran's political elite, creating uncertainty and potential instability.

- **Political Uncertainty**

- The immediate effect includes heightened uncertainties in Iran's domestic politics.
- The process of selecting Raisi's successor could be contentious and may influence Iran's future direction.

- **Economic Policy**

- **The new president's economic policies could have implications for Iran's relations with other countries and its approach to issues such as sanctions and economic reform.**
- Raisi's clueless handling of the economy has been criticized, and his death could lead to changes in Iran's economic strategy.

- **Regional Impact**

- **Continuity in Foreign Policy**

- Despite Raisi's death, **Iran's fundamental foreign policy goals are unlikely to change significantly.**
- Iran's efforts to influence regional dynamics, including its adversarial stance towards Israel and the US, will continue.

- **Relations with Neighbors**

- The death could affect Iran's interactions with regional powers, potentially impacting negotiations and alliances.
- However, Iran's long-standing strategies, particularly its support for the so-called axis of resistance and its alliances with countries like Russia, are expected to persist.

### Impact on India

- India has built a good relationship with Iran since the revolution of 1979.
- Despite setbacks in trade in recent years, ties due to American sanctions on Iran, India and Iran have maintained a strong bilateral partnership.
- **A prime example is India's significant investment in the Chabahar port project.**
  - Earlier in May 2024, **India signed a long-term agreement to further develop and operate one of the two terminals of the Chabahar port.**
- **Indian External Affairs Minister S. Jaishankar attended President Raisi's inauguration in August 2021** and returned to Tehran in January amid regional tensions.
  - At that time, Iran-backed Houthi militants were attacking vessels in the Red Sea, but India chose not to join a U.S.-led coalition against the Houthis.
  - This underscores its independent foreign policy stance.
- **India was careful not to take a direct position in the West Asian crisis.**
  - When tensions broke out between Iran and Israel, India expressed deep concerns but stopped short of condemning any party.
- The fact that **India sent Vice President Jagdeep Dhankhar to Tehran to offer condolences shows that retaining the current momentum in ties remains a priority for New Delhi.**

## 5. Election in the Time of Deep Fakes

### Context

- In the evolving digital age, **public figures such as PM Modi, West Bengal Chief Minister Mamata Banerjee etc. share an unexpected commonality**; they have all been **victims of deep fake videos**.
- **These deep fakes**, generated through advanced artificial intelligence (AI) technology, **pose significant challenges, particularly in the context of elections**.
- Therefore, **it is crucial to explore the consequences of deep fakes on the electoral process**, the existing legal frameworks to combat them, and the need for more robust legal mechanisms to safeguard democratic integrity.

### Understanding Deep Fakes and Their Impact

- **The Technology Behind Deep Fakes**
  - **Deep fakes utilise generative adversarial networks (GANs)**, a class of AI algorithms where two neural networks, the generator and the discriminator, are pitted against each other.
  - The **generator creates fake media, while the discriminator attempts to detect which media are real and which are fake**.
  - Through this adversarial process, **the generator improves its ability to produce convincing fakes over time**.
  - **This technology can swap faces in videos, mimic voices, and even create entirely new video content from scratch**.
- **Historical Context and Evolution**
  - The concept of manipulating images and videos is not new. Traditional methods, such as photo editing and video effects, have been used for decades.
  - However, **the advent of deep learning has exponentially increased the capability to produce high-quality forgeries**.
  - The ease with which deep fakes can now be created and the difficulty of detecting them pose unprecedented challenges.
- **Political and Social Ramifications**
  - Deep fakes have **profound implications for politics and society and during elections**, deep fakes can be used to create misleading content that appears to show political figures saying or doing things they never did.
  - This **can be used to smear opponents, spread disinformation, or manipulate public opinion**.
  - For instance, **a deep fake could be used to fabricate a scandalous statement by a candidate on the eve of an election**, potentially altering the outcome by swaying undecided voters.
  - The **impact of deep fakes extends beyond politics** and celebrities and public figures are frequent targets.
  - **Fake videos or audio recordings can damage reputations**, lead to financial loss, and cause emotional distress.
  - **Scarlett Johansson's allegation that her voice was used without permission in an AI application** highlights the issue of consent and intellectual property in the age of deep fakes.
- **Psychological and Cultural Impacts**
  - The **existence of deep fakes also contributes to a broader erosion** of trust in media.
  - As **people become aware of the possibility of sophisticated forgeries**, they may start to **doubt the authenticity** of genuine content.
  - This **phenomenon, known as the "liar's dividend,"** benefits wrongdoers who can **deny genuine evidence** by claiming it is a deep fake.
  - This **undermines the credibility of all media and complicates the public's ability to discern truth** from falsehood.
- **Economic and Security Concerns**
  - From a **security perspective, deep fakes pose significant risks** and they can be used for blackmail, to incite violence, or to create diplomatic conflicts.
  - For example, **a deep fake video of a government official making inflammatory statements could lead to international tensions** or even conflict.

- The ability of malicious actors to create convincing false narratives can undermine national security and public safety.
- **The economic impact of deep fakes is also noteworthy and businesses can be targeted through deep fake audio** or video messages that could manipulate stock prices, deceive investors, or disrupt operations.
- Fake news driven by deep fakes can lead to significant financial consequences, as seen in instances where false information has led to stock market fluctuations.

### Available Legal Provisions in India to Address the Issue of Deep Fakes

#### • Indian Penal Code Sections

- **Section 468 - Forgery for the Purpose of Cheating**
  - This section **deals with the creation of false documents** or electronic records intended to deceive others.
  - While **traditionally applied to paper documents, it can be extended to include digital forgeries** like deep fakes.
  - For instance, a deep fake video intended to mislead the public about a political figure's actions or statements could be prosecuted under this section.
- **Section 505 - Statements Conducive to Public Mischief**
  - This section **criminalises the making, publishing, or circulating of any statement, rumour, or report** intended to cause fear or alarm among the public.
  - **Deep fakes** that incite violence, panic, or unrest **fall under this provision**.
  - An example is a deep fake video falsely showing a government official making inflammatory remarks.
- **Section 416 - Cheating by Personation**
  - This **provision addresses cases where an individual pretends to be someone else**, including digital impersonation.
  - **A deep fake that convincingly portrays one person as another**, thereby deceiving viewers, **could be prosecuted under this section**.

#### Information Technology Act, 2000

- **Section 66C - Identity Theft**
  - This section **penalises the use of electronic means to assume someone else's identity** with fraudulent intent.
  - **Deep fakes used to impersonate individuals for fraudulent purposes**, such as financial scams or defamation, **can be addressed under this provision**.
- **Section 66D - Cheating by Personation Using Computer Resource**
  - This section **specifically targets cheating by personation using digital tools**, making it directly applicable to deep fakes.
  - It **provides for imprisonment up to three years**, which serves as a deterrent against the creation and dissemination of deep fakes intended to deceive.
- **Sections 66E and 67 - Violation of Privacy and Obscene Content**
  - These sections **deal with the privacy invasion** and distribution of obscene material.
  - **Deep fakes that violate someone's privacy** by depicting them in compromising situations or distributing non-consensual intimate images **can be prosecuted under these sections**.

#### International Threats and Legal Responses

- The threat of deep fakes is **not confined to domestic politics; it has international implications**.
- In 2024, as major democracies like India, the US, and the UK prepare for elections, **there are concerns about foreign interference**.
- **British Home Secretary James Cleverly warned that adversaries like Iran or Russia could generate manipulative content** to sway voters.
- Similarly, **the Microsoft Threat Analysis Centre (MTAC) cautioned that China might use AI-generated content to influence elections in India, South Korea, and the US**.
- Forbes reported on **Russia's attempts to shape US opinion against Ukraine and NATO** using deep fake videos.



- These **developments underscore the necessity for a global response** to the challenges posed by deep fakes.
- **Europe's Artificial Intelligence Act, set to come into force in June 2024, provides a framework for addressing offenses related to AI and deep fakes** aimed at manipulating human behaviour.
- This legislation offers valuable insights for other countries looking to bolster their legal defences against AI-driven misinformation.

### Conclusion

- **The rise of deep fakes represents a formidable challenge to the integrity of electoral systems** and the formation of informed public opinion.
- **The battle for electoral integrity has moved into the virtual domain**, demanding innovative legal solutions to safeguard the future of democracy.
- Therefore, as we navigate this digital frontier, **it is imperative to ensure that democratic processes remain secure and that public trust in elections is maintained.**

## 6. Reservations cannot be Granted Solely on the Basis of Religion

### Why in News?

A series of orders passed by the West Bengal government, giving **reservation to 77 communities/classes (75 of which were Muslim) under the Other Backward Classes (OBC) category**, has been quashed by the Calcutta High Court (HC). However, the court observed that those who got employment using the certificates and were already in service through such reservation would not be affected by the order.

The ruling from the HC coincides with the midst of an election campaign where Muslim reservations have been a contentious topic.

### What's in Today's Article?

- The Orders Passed by the WB Govt to Grant Reservation on the Basis of Religion
- The Orders Challenged in the Calcutta HC
- What was the Ruling Given by the Calcutta HC?
- What is said Regarding Religiously-Based Reservations in the Constitution and Court Orders?

### The Orders Passed by the WB Govt to Grant Reservation on the Basis of Religion:

- **In 2010**, the WB government issued notifications (on the recommendations of the **West Bengal Backward Classes Commission**), including 42 classes (of which 41 were from the Muslim community) as OBCs.
  - Also, the notifications entitled them to reservation and representation in Government Employment **under Article 16(4) of the Constitution.**
- In the same year, an order was issued **sub-categorising** the 108 identified OBCs in the state (66 pre-existing and 42 newly identified) into 56 OBC-A (more Backward) and 52 OBC-B (Backward) categories.
- **In 2012**, the WB government included 35 classes (of which 34 were from the Muslim community) as OBCs.
- **In 2013**, the West Bengal Backward Classes (Other than Scheduled Castes and Scheduled Tribes) (Reservation of vacancies and posts) **Act 2012** gave recognition to all 77 new OBCs.

### The Orders Challenged in the Calcutta HC:

- The above orders/ legislation of the WB govt was challenged in the HC on the grounds that -
  - **The declaration of classes as OBCs was based purely on religion.**
  - **The categorisation is not based on any acceptable data.**
  - **The survey conducted by the Commission was unscientific.**

### What was the Ruling Given by the Calcutta HC?

- **The court found that religion had been the sole basis** for the state government to provide reservation, which is prohibited by the Constitution and court orders.

- The HC relied heavily on the Supreme Court's judgment in **Indra Sawhney v Union of India** (Mandal judgment).
  - **In 1992**, a nine-judge Bench held that **OBCs cannot be identified and given reservation only on the basis of religion**.
  - The SC also held that all states must establish a Backward Classes Commission to identify and recommend classes of citizens for inclusion and exclusion in the state OBC list.
- The HC noted that the Commission's recommendation had been made with **"lightning speed" and without using any "objective criteria"** to determine the backwardness of these classes.
- There is no question in this court's mind that the said communities have been used as a political prop for **vote banks politics**.
- **The court also struck** down some provisions of WB's 2012 Act, including
  - The provision that allowed the state government to sub-classify OBC reservations into OBC-A and OBC-B categories, and
  - The provision allowing the state to amend the Schedule of the 2012 Act to add to the list of OBCs.
- The court held that **sub-classification is meant to address the different levels of deprivation** faced by different communities and could only be done on the basis of scientific data.
- Since the Commission acknowledged that the govt did not consult it prior to sub-classification within OBC, **the court ruled that the state govt must consult the Commission** for creating a fair and unbiased classification.

#### What is said Regarding Religiously-Based Reservations in the Constitution and Court Orders?

- **The Constitution of India:**
  - **Article 15 (1)** specifically prohibits the state from discriminating against citizens on grounds **only of** both religion and caste (along with sex, race, and place of birth).
  - **Article 16 (2)** specifically prohibits the state from discriminating against citizens on grounds **only of** religion, race, caste, sex, descent, place of birth, residence or any of them, in respect of any employment or office under the State.
- **The Observations of SC:**
  - **In M R Balaji (1962)**, the SC held that while **castes among Hindus** may be an important factor to take into account when assessing the social backwardness of certain groups or classes of citizens, **it cannot be the only test in this regard**.
  - **In the E P Royappa vs State Of Tamil Nadu (1973)**, the SC has held that equality is a dynamic concept and cannot be confined within traditional limits.
  - **In the State of Kerala vs N M Thomas (1975)**, the SC held that the crucial word **'only'** in Articles 15 and 16 implies that -
    - If a religious, racial, or caste group constitutes a **weaker section** (under Article 46) or constitutes a backward class,
    - **It would be entitled to special provisions for its advancement.**
  - **The SC in Indra Sawhney (1992)** laid down that any social group, if found to be backward under the same criteria as others, will be entitled to be treated as a **backward class**.

## 7. Personality Rights and Their Protection

### Why in news?

Recently, **Hollywood Actress Scarlett Johansson** claimed that the **GPT-4o's voice, sounds very similar to her own**. She has accused OpenAI of using her voice without permission despite previously declining licensing requests from CEO Sam Altman.

### Background:

- **GPT-4o**
  - Recently, **OpenAI unveiled its latest AI model called GPT-4o, saying it would improve on the existing features of ChatGPT**.

- One such feature, named **Voice Mode**, lets users have voice conversations with the AI chatbot, and lets them choose from five kinds of voices.
- **Johansson and Sky**
  - Johansson said one of these voices, named 'Sky', was allegedly copying her voice.
- **Response of OpenAI**
  - OpenAI later said it was pausing the availability of Sky.
  - It added in a statement that Sky was not Johansson's voice but another voice actor's, and was never intended to resemble hers.

#### The personality rights:

- **About**
  - The name, voice, signature, images or any other feature easily identified by the public are markers of a celebrity's personality and are **referred loosely as personality rights**.
  - These could **include a pose, a mannerism or any aspect of their personality**.
  - Many celebrities even register some aspects as a trademark to use them commercially.
    - For example, Usain Bolt's "bolting" or lightning pose is a registered trademark.
  - The idea is that only the owner or creator of these distinct features has the right to derive any commercial benefit from it.
- **Types of personality rights**
  - **Personality rights are divided into two categories:**
    - **The right of publicity**, or the right to keep one's image and likeness from being commercially exploited without permission. It is similar (but not identical) to the use of a trademark.
    - **The right to privacy** or the right to not have one's personality represented publicly without permission.

#### Personality rights in India

- **Legal/Constitutional basis**
  - Personality rights or their protection are not expressly mentioned in a statute in India.
  - However, these rights are traced to fall under the **right to privacy and the right to property**.
    - Even as the **Delhi High Court and the Madras High Court have passed interim orders, the law is at a nascent stage in India**.
- **Existing provisions**
  - In India, the publicity rights are governed by statutes like the **Trademarks Act 1999 and the Copyright Act 1957**.
  - With the **2017 judgment (Justice K. S. Puttaswamy (Retd.) v. Union of India)**, the **personality rights were elevated to the position of constitutional rights**.
    - The ruling recognised the right to privacy as a fundamental right derived from the right to life & personal liberty (Article 21 of Indian Constitution).
    - The court ruled that an individual may be permitted to prevent others from using his/her image, name and other aspects of his/her personal life and identity for commercial purposes without his/her consent.
- **Other SC judgements**
  - **Shivaji Rao Gaikwad (aka Rajinikanth) v. Varsha Production**: Though there is no definition for the personality right under any statute in India, the Courts in India have recognized the personality right in various judgments.
  - **ICC Development (International) Ltd., Vs. Arvee Enterprises**: The right of publicity has evolved from the right of privacy and any effort to take away this right from the individuals would be violative of Articles 19 and 21 of the Constitution of India.
- **Personality rights on internet**
  - In 2011, the Delhi HC (in **Arun Jaitley vs Network Solutions Pvt Ltd**) stated that the popularity or fame of individuals will be no different on the internet than in reality.
  - Name, due to its peculiar nature/distinctive character, coupled with the gained popularity has become a well-known personal mark under the trademark law.
- **Personal rights vs consumer rights**

- Celebrities are protected from commercial misuse of their name and personality.
- However, there have also been instances where the consumers are misled owing to false advertisements or endorsements by such personalities.
- Due to such cases, the Ministry of Consumer Affairs has made a notification - **Guidelines on Prevention of Misleading Advertisements and Endorsements for Misleading Advertisements, 2022**
  - It aims to keep a check on misleading adverts of consumer products by imposing a penalty on the endorser.
- **Recent examples from India**
  - In **September 2023, the Delhi High Court had passed an interim order protecting the personality rights of Anil Kapoor.**
    - Anil Kapoor had sought to restrain the use of his name, the acronym AK, his voice, image, as well as his characters like Lakhan, Mr. India, Majnu Bhai, Nayak and the phrase jhakaas with his photo without his consent.
  - In **May 2024, the Delhi High Court protected the personality and publicity rights of Jackie Shroff.**
    - It restrained various e-commerce stores, AI chatbots, etc. from misusing the actor's name, image, voice, and likeness without his consent.

## 8. BIMSTEC charter comes into force

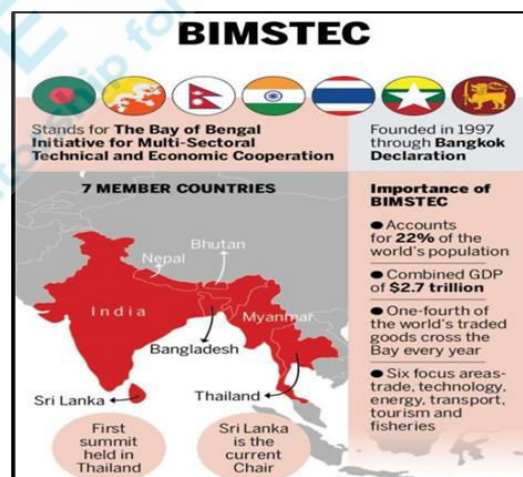
### Why in news?

The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) can now accept new members and observers. This follows after the first charter of BIMSTEC came into force on May 20.

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

#### About

- BIMSTEC It is an economic bloc that came into being in June 1997 through the Bangkok Declaration.
  - **BIMSTEC was initially formed with four member states- Bangladesh, India, Sri Lanka and Thailand on June 6, 1997.**
  - Nepal became an observer state in 1998 and became full-time member of the bloc along with Bhutan in February 2004.
- **Members** - Bangladesh, India, Myanmar, Sri Lanka, Thailand, Nepal and Bhutan.
- **Permanent Secretariat** - Dhaka, Bangladesh
- **Aim**
  - Its aim is to **counter the onslaught of globalisation by accelerating regional growth** through mutual cooperation by utilising regional resources and geographical advantages.
- **Areas of cooperation**
  - It is sector-driven cooperative organisation in which, initially, 6 sectors had been included:
    - **Trade, Technology, Energy, Transport, Tourism and Fisheries**
  - **As of now, BIMSTEC has 14 priority areas of cooperation.**
    - Climate change was added as the 14th priority area of cooperation in 2008.
  - Among these priority areas, a member country chooses which of the 14 priority areas it is willing to take lead.
  - **India is lead country** for Transport & Communication, Tourism, Environment & Disaster Management, Counter-Terrorism & Transnational Crime.
- **Importance of BIMSTEC**
  - Around **22% of the world's population** live in the seven countries around the Bay of Bengal, with a **combined GDP close to \$2.7 trillion.**
  - All seven countries have sustained average annual rates of growth between 3.4% and 7.5% from 2012 to 2016.
  - A fourth of the world's traded goods cross the bay every year.
- **Growth of BIMSTEC as a regional forum**



- The grouping had been largely ignored until **India gave it a renewed push in October 2016**, a month after the terrorist attack in Uri.
- Alongside the BRICS summit in Goa, India hosted an outreach summit with leaders of BIMSTEC countries.
  - After the Uri attack, various countries had supported New Delhi's call for a boycott of the South Asian Association of Regional Cooperation (SAARC) summit scheduled in Islamabad that November.
- **Significance of BIMSTEC for all member countries**
  - **Bangladesh** views BIMSTEC as a platform to position itself as more than just a small state on the Bay of Bengal.
  - **Sri Lanka** sees it as an opportunity to connect with Southeast Asia and serve as the subcontinent's hub for the wider Indo-Pacific region.
  - **Nepal and Bhutan** aim to connect with the Bay of Bengal region and escape their landlocked geographic positions.
  - For **Myanmar and Thailand**, connecting more deeply with India would allow them to access a rising consumer market and, at the same time, balance Beijing and develop an alternative to China's massive inroads into Southeast Asia.
  - **For India**, the region's largest economy, a lot is at stake. It is a natural platform to fulfil India's key foreign policy priorities of Neighbourhood First and Act East.
- **Challenges**
  - There is a growing discord between Bangladesh and Myanmar which has displaced more than a million Rohingya refugees who entered Bangladesh in 2017.
  - Similar refugees from Myanmar have also streamed into Thailand ever since the February 2021 coup.
  - BIMSTEC has become a new battleground in the India-China battle for dominance.
    - China has undertaken a massive drive to finance and build infrastructure in South and Southeast Asia through the Belt and Road Initiative.
    - It has done so in almost all BIMSTEC countries, except Bhutan and India.

#### **BIMSTEC charter comes into force**

- **Background**
  - Following the pandemic, the leaders of the BIMSTEC nations met virtually on 30 March 2022 under the chairship of Sri Lanka and adopted the charter.
    - **BIMSTEC charter was adopted during its 5<sup>th</sup> Summit in March 2022.**
  - The chair of BIMSTEC was taken up by Thailand after the 5th leaders' summit.
- **Charter comes into force**
  - In **April 2024**, **Nepal's parliament took up the BIMSTEC charter and ratified it which paved the way for the coming into force of charter.**
  - As a result, BIMSTEC charter is said to have come into force on May 20, 2024.
- **BIMSTEC has acquired a legal personality**
  - With **the coming into force of the charter, the BIMSTEC has acquired a 'legal personality'**.
    - Legal personality means that a person or entity has rights and duties in law.
  - Now, it will be able to enter into structured diplomatic dialogue with other groupings and countries.
  - The coming into force of the charter will provide legal and institutional framework for meaningful cooperation and deeper integration of the Bay of Bengal region.

## **9. Ireland, Spain, Norway to formally recognise Palestine**

### **Why in news?**

**Norway, Ireland and Spain have announced that they will formally recognise the state of Palestine.** The recognition of Palestine is expected to take place on May 28. This step may encourage other EU countries to do the same. This, in turn, could also lead to more action at the United Nations, further isolating Israel.

### **Israel- Palestine: Synopsis of the Conflict**

- **Early Phase**

- In the 19th century the land of **Palestine was inhabited by a multicultural population** (approx. 86% Muslim, 10% Christian, and 4% Jewish) – living in peace.
- **In the late 1800s**, a group in Europe decided to colonize this land. **Known as Zionists**, their goal was to create a Jewish homeland.
  - They considered locations in Africa and the America, before settling on Palestine.
- Hitler's rise to power, led to increased Jewish immigration to Palestine. With the steady influx of Jews, the conflict in Palestine started to grow.

- **UN Partition Plan**



- In 1947 the **United Nations decided to intervene**. However, it did not choose the principle of “self-determination of peoples.”
- Under considerable Zionist pressure, the UN recommended giving away 55% of Palestine to a Jewish state.
- **1947-1949 War**
  - Fighting began almost as soon as the Resolution of November 1947 was approved.
  - On **May 14, 1948**, day before the **British Mandate (Palestine was a British colony) expired**, **Britain declared the establishment of a Jewish State in Eretz-Israel, to be known as the State of Israel**.
  - This sparked a full-scale war (1948 Arab–Israeli War).
  - By the end of the war, Israel had conquered 78 percent of Palestine; and a new map was drawn up.
- **Oslo peace process**
  - In the 1993 a breakthrough agreement was negotiated between Israeli and Palestinian leaders in Oslo, Norway.
  - Under this process, the Israeli government and the Palestine Liberation Organization (PLO) agreed on a **plan to implement a two-state solution**.

### The issue of statehood to Palestine

- **Control of the Palestinian territories remains divided**

- The **1948 UN decision created Israel envisaged a neighboring Palestinian state**.
- However, even today, the control of the Palestinian territories remains divided and bids for UN membership have been denied.
  - The Palestine Authority currently has observer status at UN.

- **Current status**

- **Around 144 out of 193 member-states of the United Nations recognise Palestine as a state**, including most of the global south, Russia, China and India.
- However, so far, only a handful of the 27 EU members have done so, mostly former Communist countries as well as Sweden and Cyprus.
- **Britain, Australia and EU member Malta** have indicated in recent months that they could soon follow suit.

- **Increasing support in favour of Palestine**

- Recently, in **May 2024, 143 of 193 countries in the United Nations (U.N.) General Assembly voted for full membership to the U.N. for the State of Palestine**.

- The International Criminal Court (ICC) prosecutor has sought arrest warrants for Israeli Prime Minister Benjamin Netanyahu and Defence Minister Yoav Gallant.
- **Stand of Western Countries**
  - The United States, Britain and other Western countries have backed the idea of an independent Palestinian state existing alongside Israel.
  - However, they insist Palestinian statehood should come as part of a negotiated settlement.
    - There have been no substantive negotiations since 2009.
- **Palestinian statehood and stand of India**
  - **India and Palestine have had a relationship since 1974, when India became the first non-Arab state to recognize the Palestine Liberation Organisation (PLO).**
  - In 1988, **India was one of the first countries to recognize the Palestinian State.**
  - In 1996, India opened its Representative Office to Palestine in Gaza City which was shifted to Ramallah in 2003.
  - India has advocated the resumption of direct negotiations towards establishing a sovereign, independent and viable State of Palestine living within secure and recognized borders, side by side at peace with Israel.

#### **Ireland, Spain, Norway to formally recognise Palestine**

- **Recognition to State of Palestine:** Ireland, Spain and Norway announced that they would recognise a Palestinian state on May 28.
- **Significance:** Although the EU countries and Norway aren't recognizing a current Palestinian state, their support symbolizes a boost for the Palestinians' global image.
  - This increases pressure on Israel to start peace talks.
  - Also, this would mark a significant accomplishment for the Palestinians, who believe it confers international legitimacy on their struggle.
- **Israel's response:** Israel reacted rapidly by recalling its ambassadors to Ireland, Norway and Spain.
  - The Israeli government slams talk of Palestinian independence as a reward for the Hamas October 7 attack on southern Israel.
  - It rejects any move to legitimize the Palestinians internationally.

## **10. SC to Reconsider its Judgement in Indian Medical Association vs V P Shantha**

### **Why in News?**

The SC held that lawyers (as 'professionals') could not be subjected to legal proceedings for providing faulty 'service' under the Consumer Protection Act 2019 (CPA).

However, the apex court **rejected similar arguments for those in the medical profession** and ruled that its judgement in Indian Medical Association vs V P Shantha (1995) to be referred to a **larger bench for reconsideration**.

### **What is the Consumer Protection Act (CPA)?**

- **The CPA is aimed at** protecting the interests of consumers with respect to products or services they avail.
- **The first version** of the act was enacted in **1986** and it was subsequently repealed, and a new act was brought in its place in **2019** to keep up with the changing times.
- **A consumer who is unhappy with a product or service** can file a complaint of deficiency in the consumer commission.
- **The act defines deficiency in service** as any fault, imperfection, shortcoming or inadequacy in the quality, nature and manner of performance which is required to be maintained under law.
- **The 2019 act defines service** as something that is made available to potential users and includes the provision of facilities in connection with banking, insurance, transport, housing construction, entertainment, amusement, etc.
- However, **it does not include** the rendering of any service free of charge or under a contract of personal service.

### **What the Apex Court Ruled in Indian Medical Association vs V P Shantha (1995)?**

- In 1995, a three-judge bench of the SC ruled that **doctors would be covered under the consumer protection law**, allowing the filing of several medical negligence lawsuits filed against doctors for deficiency in service.
- The court also acknowledged that **professional occupations are often “skilled” work** that require “mental rather than manual” effort.
- **This differs from other occupations** as success often depends on factors “beyond the professional man’s control”.

#### What was the Recent Case Before the SC?

- **In 2007**, the National Consumer Disputes Redressal Commission held that lawyers provide a service to their clients and hence they can be sued for deficiency of service.
  - This case ultimately reached the apex court where the judgement was passed recently.
- **The court concluded that** the object of the CPA 2019 was to provide protection to consumers from unfair trade practices and unethical business practices.
- **The law was not intended to include** professions or services rendered by professionals within its purview.
- **The court noted that the legal profession is unique in nature** and cannot be compared with any other profession.
- The court said that hiring or availing of an advocate is “**a contract of personal service**” and is therefore **exempted** from the scope of the consumer protection law.

#### Arguments for Exempting Medical Profession from the Purview of CPA:

- Representing the Indian Medical Association, a senior advocate argued that a **medical practitioner cannot be judged based on fixed norms or standards**, and thus cannot be covered under the CPA.
- **Legal proceedings under the CPA** are heard by Consumer Redressal Commissions which are constituted at the District, State, and National levels.
  - Under the 1986 version of the CPA (applicable in 1995), **the President of each Commission** would be a person who was/ is qualified to be a judge at the District, HC, and SC respectively.
  - **The rest of the members** would be individuals who have the knowledge, experience, or capacity to deal with problems relating to economics, law, commerce, accountancy, industry, public affairs or administration.
  - Since there is **no requirement for commission members to have knowledge in medical matters**, they are not suited to deal with complex medical issues.
- In 2024, another SC bench appeared to be more sympathetic to the medical practitioners, and held that **these professionals should not be held to the same standard as other occupations**.

#### Why does the Apex Court not Exempt Medical Profession from the Purview of CPA?

- **The court held that a doctor owes certain duties to their patients** - duties of care in deciding whether to treat the patient, what treatment to give, and how the treatment is administered.
- If the doctor does not exercise a “reasonable degree of care” and breaches one of these duties, **they can be liable for deficiency in service** under the CPA.
- Members to have knowledge and experience that is specifically relevant to each case would lead to impossible situations.
  - Such as District Commissions being able to deal with cases that the State Commission would be barred from purely.
  - **The burden is instead on the parties** to provide the necessary evidence and material to allow the members to make an informed decision.

## 11. Takeaways from Mumbai Hoarding Tragedy

#### Why in News?

At least **16 people were killed when a massive 250-tonne advertisement hoarding (on Government Railway Police land) in Mumbai's Ghatkopar collapsed during a dust storm**. In the wake of this tragedy, it is important to examine the safety regulations pertaining to hoardings and who is legally responsible for



### What Safety Norms Apply to Hoardings?

- **Local bodies issue licences for advertisement hoardings.**
- **In Mumbai's case,**
  - **The Mumbai Municipal Corporation (MMC) Act 1888** (amended over time) stipulates that written permission of the Municipal Commissioner is needed for erecting such structures.
  - **The Policy Guidelines for Display of Advertisements 2018** makes structural stability certification from a registered structural engineer a condition for putting up hoardings.
  - **The policy guidelines** also say hoardings existing as of May 1, 2014 should be reinstalled incorporating structural stability requirements.
- **From a technical perspective,** the Bureau of Indian Standards (BIS) lays out specifications for wind loads on hoardings.
  - **It gives formulae** on how to calculate the force coefficients applicable to these wind-facing structures.

### What Led to Ghatkopar Incident?

- **The massive hoarding did not meet size norms:** But was not brought down by official agencies in spite of being a highly visible hazardous structure.
- **Safety norms were apparently liberalised:**
  - This was done through the Policy Guidelines for Display of Advertisements 2018 to tap the city's full financial potential.
  - Also, the MMC Act 1888 provides some regulatory exemptions to hoardings on railway land.
- **Administrative lethargy:** The Government Railway Police cited an ongoing dispute with the Corporation for not enforcing the safety laws on hoardings.
- **No database of permits available:** For example, no database of permits could be located on the BMC website in the hoardings section.
- **Extreme weather events:** The Ghatkopar disaster demonstrates that extreme weather, such as high winds or a cyclone sweeping a city, quickly exposes the weakest infrastructure links, with deadly consequences.

### Who is Legally Responsible for the Ghatkopar Incident?

- **The government and the owners of the private structures** are legally responsible for the incident.
- **The right of passage on a public pathway** makes several connected individuals liable for negligence in the Ghatkopar case, including
  - The owners of the land,
  - The agency that put up the structure and the line officials responsible for enforcement,
  - The civic officials and police who witnessed flagrant violation of rules but took no action, etc.
- **In 2022,** the Delhi HC, after fixing the liability of a public sector bank (BoB), granted compensation in a case where a man was struck by a sign board and the head injury led to his death.

### What Needs to be Done to Avoid Ghatkopar like Incidents?

- **Governments have to show due diligence** to avert harm to citizens from official actions.
- **Capacity building** of the administrative machinery and **reducing corruption** at the administrative level is the need of the hour.
- **The advent of digital boards** has brought with it the possibility of **moving displays**, opening up avenues for different advertisers to use the same screens to show messages, raising rents for hoardings companies greatly.
- **The focus should be on strengthening disaster management** practices of municipalities to deal with the fallout in crowded cities.
  - **In the Mumbai incident,** the presence of a petrol pump prevented personnel from using gas cutters, thus reducing the efficiency of disaster management expertise.
- **As climate change is becoming a challenge,** the city governments need to review conventional ideas on giant outdoor open-sky hoardings put up close to human activity.

## 12. SC Verdict on Newslick Shows Adherence to Due Process is Much More Than a Procedural Requirement

### Context

- The **Supreme Court of India** has recently reaffirmed its commitment to due process, countering claims that it has become subservient to the executive branch.
- In a significant judgment, the **Court highlighted the essential nature of due process, particularly in the context of the arrest and detention** of Newslick founder-editor Prabir Purkayastha.
- This **judgement highlights the critical distinction between reasons of arrest and grounds of arrest**, reinforcing that the latter must be specific to the individual and communicated in writing to ensure the protection of personal liberty.

### Historical Foundations of the Due Process

- Due process is not merely a procedural formality but a **substantive safeguard against the arbitrary exercise of state power**.
- Its **roots can be traced back to the Magna Carta of 1215**, which, although initially applicable only to nobles, established the principle that **no person should be deprived of liberty without lawful judgment**.
- The **concept evolved over centuries, with the term due process first appearing in British law** during the reign of King Edward III and **later enshrined in the American Constitution's Fifth and Fourteenth Amendments**.
- These **amendments cemented due process as a constitutional guarantee of fairness, reasonableness, and non-arbitrariness**, a principle that has led to the striking down of numerous unjust laws in the United States.

### The Struggle for Due Process in India

- **Pre-Independence Era and Early Advocacy**
  - The **struggle for due process in India can be traced back to the early 20th century** when the Indian National Congress began to challenge the oppressive laws imposed by the British colonial regime.
  - In 1918, the **Congress demanded the revocation of laws that permitted state authorities to arrest or detain individuals without due process**.
  - This **advocacy was a response to the widespread misuse of power** by the colonial government, which often detained political activists without fair trials.
  - **Prominent leaders like Bal Gangadhar Tilak and Mahatma Gandhi were vocal proponents** of due process.
  - They **invoked this principle in their defence against colonial laws** that sought to curb dissent and political activism.
  - **Tilak's trials for sedition and Gandhi's numerous imprisonments highlighted the need for procedural safeguards** to protect individual liberties.
- **The Drafting of the Indian Constitution**
  - When the Constituent Assembly convened to draft the Indian Constitution, **the inclusion of due process was a significant topic of debate**.
  - **K.M. Munshi**, a member of the Fundamental Rights Sub-Committee, proposed a draft provision stating, **"No person shall be deprived of his life, liberty or property without due process of law."**
  - This **proposal reflected the influence of the American Constitution** and its Fifth and Fourteenth Amendments, which had successfully enshrined due process as a constitutional right.
  - **Dr. B.R. Ambedkar**, the principal architect of the Indian Constitution, **also included the expression "due process of law" in his draft**.
  - The Fundamental Rights Sub-Committee approved this clause on April 15, 1947.
- **Opposition to the 'Due Process'**
  - However, during subsequent deliberations, **several members of the Advisory Committee, including C. Rajagopalachari and Govind Ballabh Pant, expressed concerns** that the due process clause might **unduly restrict the legislative powers of the state**.

- The **most significant opposition** came from **B.N. Rau**, an advisor to the Constituent Assembly, who argued for a more restrictive approach.
- Drawing inspiration from the Irish and Japanese constitutions, **Rau proposed replacing "due process" with "procedure established by law"** and inserting the term "personal" before liberty.
- This **shift was aimed at providing a clear and more manageable framework** for the state to follow, rather than subjecting laws to potentially broad judicial scrutiny.
- Despite the lack of quorum, **this major dilution was approved by the Drafting Committee on January 18, 1948.**
- **Disappointment and Dissent in the Constituent Assembly**
  - The **decision to exclude the due process clause from Article 21 of the Constitution was met with disappointment** and criticism from several members of the Constituent Assembly.
  - **H. V. Pataskar warned about the dangers of routine detentions** for indefinite periods without due process.
  - K.C. Sharma emphasised that due process ensured minimum standards of fairness and without it, Article 21 could not be considered a true Fundamental Right.
  - **Kazi Karimuddin lamented this as a regrettable chapter in India's constitutional history.**
  - Despite these concerns, Article 21 was adopted without the due process clause on December 7, 1948.
  - **Ambedkar's inability to secure a clear position in favour of due process led to criticism from some quarters**, with Bakshi Tek Chand describing it as **"one of great mysteries"** and K.T. Shah expressing fears that people could be detained without trial under false pretences.
- **Post-Independence Judicial Interpretations**
  - The **Supreme Court's interpretation of Article 21 initially reinforced the narrow scope of procedure established by law.**
  - In the **A.K. Gopalan case (1950)**, the Court upheld the detention of a communist leader under the **Preventive Detention Act**, emphasising the procedural aspects over substantive fairness.
  - This **approach continued with the ADM Jabalpur case (1976) during the Emergency period**, where the Court **controversially ruled that even the right to life could be suspended during emergencies**, severely undermining the principle of due process.
  - However, a **significant shift occurred with the Bank Nationalisation case (1970)** and, more prominently, **the Maneka Gandhi case (1978).**
  - In **Maneka Gandhi**, the Supreme Court expanded the interpretation of Article 21 to include **substantive due process**, ensuring that laws affecting life and personal liberty must be just, fair, and reasonable.
  - **Justice Fazal Ali's dissent in the earlier Gopalan case**, which argued for a broader understanding of due process, **became the majority opinion in Maneka Gandhi.**
  - This **landmark judgment effectively restored the essence of due process** within the framework of procedure established by law.

#### **Continued Challenges and Preventive Detention Laws**

- Despite these judicial advancements, **India continues to face challenges related to preventive detention laws.**
- **These laws**, remnants of the colonial era, **allow for the detention of individuals without trial under certain conditions.**
- The **Supreme Court, in the Pramod Singla case (2023)**, reiterated the potential for abuse inherent in preventive detention laws and emphasised the need for strict adherence to procedural safeguards.
- The **National Crime Records Bureau (NCRB) reported that over 12,000 people were detained under preventive detention laws in 2021**, with 76 percent of prison inmates being undertrials in 2022.
- These **statistics underscore the ongoing struggle to balance state security concerns with individual liberties.**
- Moreover, **the 44th Amendment to the Constitution**, which aimed to make the right to life and personal liberty non-derogable(absolute) even during emergencies, **remains partially unimplemented.**
- The **section of the amendment concerning preventive detention has not been notified**, leaving a critical gap in the protection of civil liberties.

#### **Conclusion**

- The Supreme Court's recent judgment in Prabir Purkayastha's case reaffirms the importance of due process, delineating its substantive role in safeguarding individual liberties against arbitrary state actions.
- This ruling not only underscores a fundamental constitutional principle but also reflects a broader historical struggle for civil rights and justice.
- As India continues to confront the legacy of colonial-era laws and the complexities of modern governance, the judiciary's steadfast commitment to due process remains crucial in upholding the rule of law and protecting human rights.

### 13. Land Acquisition Valid Only if it Passes Constitutional Test

#### Why in News?

In a landmark verdict to protect the interests of landowners against acquisition of their property by the government, the Supreme Court of India ruled that all acquisitions would have to pass the test of Article 300A. The SC quashed the decision of Kolkata Municipal Corporation to acquire private land to build a public park, as the law does not authorise the body to acquire the land and the acquisition was illegal.

#### The Right to Property in India:

- **Before the enactment of the 44th Constitutional Amendment (1978):**
  - Part III of the Indian Constitution (Fundamental Rights) included Article 19 (1) (f) and Article 31.
  - Indian residents were given the right to purchase, possess, and dispose of their property under **Article 19(1)(f)**.
  - **Article 31** safeguarded the right against being deprived of one's property. The right was absolute and could not be denied in any circumstance.
  - However, **there was a clash**, because the above provisions limited the state's ability to acquire any movable property in the public interest because the right to property was a fundamental right.
- **The 44th Amendment to the Indian Constitution:**
  - It abolished **Article 19 (1) (f) and Article 31**, and a modified version of it (Article 31) was inserted as **Article 300-A**.
  - This changed the very nature of the right to property in India from being a fundamental right to a legal/constitutional right.
- **What is stated in Article 300-A?**
  - Article 300-A states that "**no person shall be deprived of his property except by authority of law**".
  - The article gives the government the authority to seize someone else's property for the benefit of the general welfare.
- **How the courts interpreted Article 300-A?**
  - **The Madhya Pradesh HC (2022)** clarified that the law requiring the property acquisition needed to be legitimate and that the state's acquisition of land had to be for the benefit of the public.
  - **In Vidya Devi v. the State of Himachal Pradesh (2022)**, the SC ruled that under a welfare state, even the government authorities cannot seize property without following the necessary legal process.
  - **In Vimlaben Ajitbhai Patel vs. Vatslaben Ashokbhai Patel**, the SC ruled that although it may no longer be a fundamental right, the right to property is still a **human right**.

#### What were the Observations Made by the SC in the Recent Case?

- **Nature of right to property:** Under the current constitutional scheme, the right to property is protected as a **constitutional** right and has even been interpreted to be a **human**
- **Seven basic rights:**
  - The court said Article 300A confers seven basic procedural rights to landowners and similar duties upon the state which must be followed and fulfilled for any valid acquisition. These are:
  - **First**, duty of State to inform the owners that it intends to acquire his property - **right to notice**;
  - **Second**, duty of State to hear objections - **right to be heard**;
  - **Third**, duty of State to inform its decision on acquisition - **right to a reasoned decision**;

- **Fourth**, duty of State to demonstrate that acquisition is for public cause - **acquisition only for public purpose**;
- **Fifth**, duty of State to retribute and rehabilitate - **right to fair compensation**;
- **Sixth**, duty of State to conduct the process of acquisition efficiently and within prescribed timelines - **right to an efficient conduct**; and
- **Seventh**, final conclusion of the proceedings - **the right of conclusion**.
- **Procedural justice - A significant mandate of Article 300A**: The existence of and adherence to procedural safeguards is crucial for the protection of the right to property as they ensure -
  - Fairness,
  - Transparency,
  - Natural justice, and
  - Non-arbitrary exercise of power in the process of acquisition.

## 14. Jobs Picture in Perspective: Why Youth Unemployment is India's Biggest Challenge

### Context

- Recently, the **India Employment Report 2024**, was jointly published by the Institute for Human Development (IHD) and the International Labour Organisation (ILO).
- The report has sparked significant interest, yet **certain findings within it have been subject to misunderstanding or misinterpretation**.
- It becomes imperative to **examine the key insights presented in the report, examining both positive developments and emerging challenges** in India's labour market over the past two decades, including the impacts of the COVID-19 pandemic.

### Positive Developments in India's Labour Market Outlined in the India Employment Report 2024

- **Improvement in Employment Quality**
  - One of the significant findings of the report is the **improvement in the quality of employment across various states, as evidenced by the robust Employment Condition Index**.
  - This **index captures various dimensions of job quality**, including wages, benefits, job security, and working conditions.
  - The **observed improvement suggests that a greater proportion of the workforce is gaining access to better-paying and more secure employment opportunities**, contributing to overall economic well-being and social stability.
- **Transition from Agriculture to Non-Farm Employment**
  - **Another positive trend highlighted in the report is the transition of workers from agriculture to non-farm sectors**.
  - This **shift signifies a structural transformation of the economy**, mirroring the experience of many developing countries as they progress towards industrialisation and services-led growth.
  - **As agricultural employment declines and non-farm sectors expand, it reflects increased productivity and diversification within the economy**, offering opportunities for upward mobility and skill development for workers.
- **Rise in Regular Employment and Decline in Unorganised Sector Employment**
  - The **report also points to a steady increase in regular employment, accompanied by a decline in unorganised sector employment**, except for disruptions caused by the COVID-19 pandemic.
  - **Regular employment typically offers greater job security, social protections, and opportunities for career advancement** compared to informal or precarious work arrangements.
  - The **shift towards regular employment indicates progress in formalising the labour market and extending social security coverage** to more workers, contributing to overall welfare improvements.
- **Resilience Amidst COVID-19 Pandemic**
  - **Despite the challenges posed by the global economic slowdown** triggered by the COVID-19 pandemic, **India's labour market exhibited resilience**.

- **Wages for casual workers**, particularly those in the lower-income brackets, **continued to increase during the pandemic years**.
- This **resilience suggests effective policy responses**, such as social safety nets and stimulus measures, aimed at mitigating the adverse impacts of the crisis on vulnerable segments of the workforce.
- **It also underscores the adaptability of the labour market to external shocks**, reflecting its underlying strength and flexibility.
- **Increase in Female Workforce Participation**
  - A **noteworthy development highlighted in the report is the significant increase in the female workforce participation rate**, particularly in the agricultural sector.
  - While the **predominance of women in agriculture may reflect persistent gender inequalities in access to education and employment opportunities**, the rising participation rates indicate **progress towards gender parity** in labour force participation.
  - Efforts to promote women's empowerment and economic inclusion through targeted interventions, such as skill-building programs and access to credit and markets, may have contributed to this positive trend.

### **Persistent Challenges and Emerging Trends**

- **Dominance of Agriculture in Employment**
  - Despite progress in diversifying the economy, **agriculture continues to dominate employment in India**, employing nearly half of the workforce.
  - This overreliance on agriculture underscores the need for structural reforms and investments to facilitate the transition of workers to non-farm sectors.
- **Skills Mismatches and Education Disparities**
  - The **increasing capital and skill-intensity of production processes have led to mismatches between the skills possessed by the workforce and those demanded by employers**.
  - **This gap**, particularly prevalent among educated youth, **exacerbates unemployment and underemployment rates**, despite rising educational attainment levels.
- **Gender Disparities in Workforce Participation**
  - **Women's participation in the workforce remains low**, with many engaged in low-paying and informal roles in agriculture, unpaid family work, and own-account enterprises.
  - **This gender disparity reflects entrenched social norms**, limited access to education and skills training, and inadequate support for women's economic empowerment.
- **Youth Unemployment and NEET Population**
  - **Youth unemployment emerges as a pressing challenge**, with educated youth constituting a significant proportion of the unemployed population.
  - **Despite educational attainment, many young people struggle to secure meaningful employment opportunities**, leading to disillusionment and social unrest.
  - The proportion of youth **not in employment, education, and training (NEET) is quite high at around 28 per cent in 2022**, with the share of females being around five times more than males.
- **Informality and Low Productivity in Employment**
  - A **significant portion of employment in India remains informal**, characterised by low wages, lack of social protections, and limited access to formal employment benefits.
  - **Informal workers, including those in the gig economy, face precarious working conditions** and are often excluded from labour regulations and social safety nets.
  - **Over 90 per cent employment is informal**, and 83 per cent are in the informal sector — it was close to 90 per cent in 2000.

### **Recommendations by the India Employment Report 2024 to Address Emerging Challenges**

- India is likely to have a demographic advantage for at least another decade.
- With robust economic growth likely to be witnessed in the coming years, the country can reap this advantage.
- **The India Employment Report 2024 offers a set of recommendations and policy implications** to address emerging

challenges and capitalise on opportunities for inclusive and sustainable growth.

- **Some of the key recommendations are:**

- **Making production and growth more employment-intensive** with emphasis on labour-based manufacturing and appropriate focus on employment-generating services and agriculture.
  - **Enhancing the quality of employment** is essential for ensuring decent work and promoting social inclusion.
  - **Overcoming labour market inequalities**, particularly by boosting women's employment and effective policies to tackle NEET.
  - **Making systems for skills training and active labour market policies more effective**, particularly by bridging the supply-demand gap in jobs and active involvement of the private sector.
  - **And generating reliable statistics so as to better capture the complexities of the changing pattern of labour market** due to rapid technological change.
- **Implementing these recommendations effectively requires a coordinated and multisectoral approach** involving government, employers, civil society, and other stakeholders.

#### **Conclusion**

- **The India Employment Report 2024 provides valuable insights** into the evolving landscape of India's labour market.
- **While acknowledging positive developments, it also highlights persistent challenges** that require concerted policy efforts.
- By implementing the recommended measures, **India can harness its demographic dividend and achieve inclusive and sustainable growth in the years ahead.**



# General Studies-III

## 1. RBI balance sheet grows in FY24

### Why in news?

The Reserve Bank of India (RBI) reported a 17% increase in its FY24 income to ₹2,75,572.32 crore. Its

### How does the RBI make money?

- **Interest on Loans and Advances:**
  - **To Commercial Banks**
    - The RBI lends money to commercial banks and charges interest on these loans, typically through mechanisms like the repo rate.
  - **To the Government**
    - The RBI also provides temporary loans to the government through mechanisms like **Ways and Means Advances (WMA)**.
      - **WMA is a facility for both the Centre and states to borrow from the RBI.**
      - These borrowings are meant purely to help them to tide over temporary mismatches in cash flows of their receipts and expenditures.
      - **Section 17(5) of the RBI Act, 1934** authorizes the central bank to lend to the Centre and state governments subject to their being repayable “not later than three months from the date of the making of the advance”.
      - The interest rate on WMA is the RBI’s repo rate, which is basically the rate at which it lends short-term money to banks.
- **Investments in Government Securities**
  - The RBI invests in various government securities (bonds, treasury bills).
  - The interest earned on these investments constitutes a significant portion of its income.
- **Foreign Exchange Operations**
  - The RBI holds and manages India’s foreign exchange reserves.
  - It earns income from investing these reserves in foreign assets, such as US Treasury bonds and other high-quality foreign securities.
  - The RBI also profits from the buying and selling of foreign currencies.
- **Issue of Currency**
  - **The RBI has the exclusive right to issue currency in India.**
  - **It earns seigniorage**, which is the difference between the value of money and the cost to produce it.
    - For instance, if it costs Rs. 1 to print a Rs. 200 note, the seigniorage profit is Rs. 199.
- **Management of Government Accounts**
  - **The RBI acts as a banker to the government.**
  - It manages the government’s accounts, collects taxes, and disburses payments. The RBI charges the government for these services.
- **Fees and Commissions**
  - The RBI charges fees and commissions for various services provided to the government, financial institutions, and the general public, such as managing public debt and conducting auctions of government securities.
- **Open Market Operations (OMO)**
  - **The RBI buys and sells government securities in the open market.**
  - Profits are made from the difference between the purchase price and the selling price of these securities.
- **Earnings from Discount and Rediscount Operations**
  - **The RBI provides liquidity to commercial banks by rediscounting their bills and charging interest on these transactions.**
- **Penalties and Fines**
  - The RBI imposes penalties and fines on banks and other financial institutions for non-compliance with regulatory requirements. This also contributes to its income.



- **Miscellaneous Income**

- The RBI earns miscellaneous income from various other activities, including income from its subsidiary organizations, sale of data and publications, and other financial services.

### Key highlights of the financial performance of RBI in FY 24

- **Increase in balance sheet**

- The size of the RBI's balance sheet increased by 11.08 per cent year-on-year (Y-o-Y) to Rs 70.47 trillion as of March 31, 2024 (FY24).
  - The size of the balance sheet was Rs 63.44 trillion a year ago.
- This **increase is driven by its liquidity and foreign exchange (forex) operations**.
- The increase on the asset side was due to a rise in **foreign investments** (13.9 per cent), **gold** (18.26 per cent), and **loans and advances** (30.05 per cent).
- On the liability side, the expansion was due to an increase in **notes issued** (3.88 per cent), **deposits** (27 per cent), and **other liabilities** (92.57 per cent).

- **Balance sheet has now normalised to its pre-pandemic level**

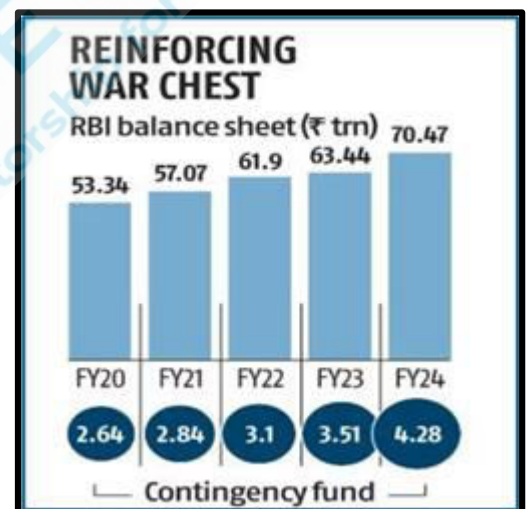
- The bank's balance sheet size grew to 24.1 per cent of gross domestic product at the end of March 2024 from 23.5 per cent at the end of March 2023.
- The **balance sheet has now normalised to its pre-pandemic level**.
  - The balance sheet of the central bank reflects activities carried out in pursuit of various functions, including the issuance of currency, monetary policy, and reserve management objectives.

- **Surge in net income of RBI**

- The central bank's net income surged by 141.22 per cent Y-o-Y for the financial year ended March 2024.
- This is primarily due to a sharp reduction in expenditures, particularly lower provisions.

- **RBI's expenditure declined**

- The RBI's expenditure declined by 56.29 per cent Y-o-Y to Rs 64,694.33 crore.
- This included a provision of Rs 42,819.91 crore made and transferred to the contingency fund (CF).
  - The provision for CF is for unexpected and unforeseen contingencies.
  - It covers depreciation in the value of securities. It addresses risks from monetary or exchange rate policies.
  - It also handles systemic risks and other special responsibilities of the RBI.
- **The amount is kept within the RBI.**



- **Amount transferred to the central government**

- The surplus transferred to the central government amounted to Rs 2.1 trillion in FY24, up from Rs 874.16 billion crore in FY23.

## 2. Spurt in Transnational Organised Cyber Crimes in India

### Why in News?

According to the Indian Cyber Crime Coordination Centre (I4C), with 46% of scammed money being lost to cybercrimes originating in southeast Asian nations, Jamtara and Mewat have been overshadowed as centres of financial cyber fraud in India.

**Organised cybercrime gangs in Cambodia, Myanmar and Lao PDR are hiring Indian job-seekers and then compelling them to defraud fellow citizens in India (through investment, digital arrest, trading and dating scams).**

### What is the Indian Cyber Crime Coordination Centre (I4C)?

- I4C has been established under the **Ministry of Home affairs (MHA)** to act as a **nodal point at National level in the fight against cybercrime.**
- The scheme to set up the **I4C was approved by the MHA in October 2018**, however, it was inaugurated in New Delhi in January **2020**.
- **It aims to provide a platform to deal with cybercrimes** by improving coordination between various Law Enforcement Agencies and stakeholders.
- One of the important objectives of I4C is **to create an ecosystem** that brings together academia, industry, public and government in prevention, detection, investigation and prosecution of cybercrimes.
- **I4C has envisaged the Cyber Crime Volunteers Program** to bring together citizens with passion to serve the nation on a single platform and contribute in the fight against cybercrime in the country.

#### **Findings of the I4C:**

- A large number of Indians are falling prey to financial fraud carried out over the Internet, allegedly by criminals based in three contiguous south east Asian countries: **Myanmar, Laos, and Cambodia.**
- The I4C found that **46% of such frauds** reported between January - April this year originated in these three countries, in which the **victims cumulatively lost an estimated Rs 1,776 crores.**
- **The Indian government had set up an inter-ministerial committee** comprising various law enforcement and intelligence agencies to tackle the recent 'spurt' in transnational organised cybercrimes.

#### **Types of Cybercrimes Originating from these Southeast Asian Countries:**

- **Trading scams:**
  - The **alleged fraudsters issued ads on social media offering free trading tips, often using pictures of well-known stock market experts and fake news articles.**
  - The victims would be asked to install some specific trading applications and start investing on the apps.
  - The victims deposited money in particular bank accounts to buy shares, and were shown some fake profits in their digital wallets. But when they tried to withdraw this money, they were unable to do so.
  - **Between January and April this year, Indians lost Rs 222 crore to 20,043 trading scams.**
- **Digital arrest:**
  - A caller would inform potential victims that they had either sent or were the intended recipients of a package containing contraband, illegal products, drugs, forged passports, etc.
  - Once they had the target, the criminals would contact them over **Skype or another video calling platform.**
  - **They would pose as law enforcement officials** and demand money for a compromise and closure of the case.
  - **The victims were digitally arrested**, which meant they were forced to stay visible to the criminals until their demands had been met.
  - **Between January and April this year, Indians lost Rs 120 crore to 4,600 digital arrest scams.**
- **Investment/ task-based scams:**
  - Scammers target victims through WhatsApp, promising money for boosting social media ratings of some entities.
  - They are then asked for bank details, receive a small sum, and are lured into larger investments with promised returns.
  - Profits never materialise, leaving victims trapped in a fraudulent scheme, highlighting the exploitation of trust for financial gain.
  - **Between January and April this year, Indians lost Rs 1,420 crore to 62,587 investment scams.**
- **Dating scams:**
  - The male victims were seduced by individuals they mistook for foreign women.
  - These "women" would make preparations to meet in person after making marriage or relationship proposals.
  - The victim would receive a call from the "woman" explaining that she had been held at the airport and needed money to be released.
  - **Between January and April this year, Indians lost Rs 13 crore to 1,725 romance/dating scams.**

### 3. Patent Process in India

#### Background:

- In 2018, the Indian Patent Office had rejected the request of the Proctor and Gamble (P&G) for its patent application.
  - The **Indian Patent Office is an agency under the Department for Promotion of Industry and Internal Trade which administers the Indian law of Patents, Designs and Trade Marks.**
- The P&G challenged the Patent Office's ruling in the Delhi High Court. The High Court reprimanded the Patent Office saying that the manner of dealing with the application filed by the American multinational company was "extremely arbitrary and whimsical".

#### What is a Patent?

- A patent is the **granting of a property right by a sovereign authority to an inventor.**
- This grant provides the inventor exclusive rights to the patented process, design, or invention for a designated period in exchange for a comprehensive disclosure of the invention.
- Government agencies typically handle and approve applications for patents.
- The Office of the Controller General of Patents, Designs and Trade Marks (CGPDTM), also known as **India Patent Office**, grants patent so that any invention can be freely commercialised or utilised without any fear of infringement.
  - The head patent office is located in Kolkata, West Bengal.
- The **Indian Patent Office grants patents which are governed by the Indian Patents Act, 1970.**

#### Indian Patents Act, 1970:

- The Patents Act 1970, along with the Patents Rules, 1972, came into force in April 1972, replacing the **Indian Patents and Designs Act, 1911.**
- The Patents Act was largely based on the recommendations of the **Ayyangar Committee Report** headed by Justice N. Rajagopala Ayyangar.
- Later, India became signatory to many international arrangements with an objective of strengthening its patent law and coming in league with the modern world.
- One of the significant steps towards achieving this objective was becoming the member of the **Trade Related Intellectual Property Rights (TRIPS) system.**
- Significantly, India also became signatory of the **Paris Convention** and the **Patent Cooperation Treaty** in 1998 and thereafter signed the **Budapest Treaty** in 2001.
  - Being a signatory to TRIPS, India was under a contractual obligation to amend its Patents Act to comply with its provisions.
- Subsequent amendments were made to the Indian Patents Act, 1970 by the introduction of the **Patents (Amendment) Act, 1999**, the **Patents (Amendment) Act, 2002**, the **Patent (Amendment) Act, 2005**, and **Patents (Amendment) Rules, 2006** and the **Patents (Amendment) Rules, 2021.**

#### Draft Patents (Amendment) Rules, 2023:

- In August 2023, the Ministry of Commerce and Industry proposed and published Draft Patent (Amendment) Rules, 2023 (the "draft rules") invited objections and suggestions from all stakeholders within a timeline of 30 days from the date of the publication of the draft Rules.
- **Key Highlights of the Draft Rules:**
  - **Pre-Grant Opposition**
    - Controller can decide a maintainability of the representation and dismiss a pre-grant opposition if found to be frivolous.
    - At present, Controller cannot dismiss the representation without offering a chance of hearing to Opponent.
    - Time period for applicant to reply to notice has been reduced from 3 months to 2 months.
    - Also, Controller has to issue a decision ordinarily within 3 months from the completion of the proceedings.

- Currently, there is no such in which the Controller has to issue a decision.
- **Reduced timeline for filing Request for Examination**
  - As per the draft Rules, the timeline for filing the RFE is now proposed to be **reduced to 31 months**, which currently is 48 months from the priority date or filing date, whichever is earlier.
- **Statement and undertaking regarding foreign applications**
  - Applicant shall keep the Controller informed of the details in respect of applications filed in any country **within two months** from the date of issuance of first statement of objections.
  - Earlier the duration was six months.
- **Annual Working Report**
  - The draft Rules propose that the Annual Working Report is to be filed in respect of every period of **three financial years** (currently this is to be filed for every financial year).

#### India's Patent Delays & Withdrawals:

- In 2018, the anti-corruption branch of the Central Bureau of Investigation (CBI) booked SP Subramaniyan, Deputy Controller and branch head in the office of Controller-General of Patents, Designs and Trademarks for demanding a bribe of Rs 10 lakh for releasing a patent.
  - The patent applicant in this case had first applied for the patent in 2010 and was allegedly made to wait for five years to get a patent.
- In March 2023, the Delhi High Court pulled up the patent office for passing “mechanical, cut-paste order” while rejecting Blackberry Ltd.’s invention application.
  - The Court said that the patent office “must bear in mind that the question of grant and rejection of a patent is a serious matter”.

#### Impact of Delays & Withdrawals:

- Arbitrary refusals and procedural inconsistencies have marred the track record of India's patent office.
- It has pushed the share of patent applications withdrawn in India to one of the highest in the world.
- This is at a time when countries such as the **US, Japan, South Korea and China are using their patent processing systems to foster scientific research and technological innovation.**
- Government officials contend that they have begun addressing these issues and started conducting open house sessions to address grievances, which have improved the process of granting patents over the last 12 months.

#### Rise in Patent Filing in Recent Times:

- India reported a sharp 44.6% growth in international patent filing in 2023 compared to 2022, as per the World Intellectual Property Organization (WIPO).
- **WIPO ranked India third** in terms of trademark registrations in force in 2022 at nearly **2.9 million**, after **China (42.7 million)** and the **US (3.1 million)**.
- The Patent Office has granted about 1 lakh patents for the year 2023-24. Everyday about 250 patents are issued and the patent office receives patent applications every six minutes online.

## 4. Joblessness in India

#### Background:

- In April this year, **CSDS-Lokniti**, a research organisation tracking the behavior of India's voters for decades, came out with the results of its pre-poll survey.
- It found that the single most important issue for voters in 2024 is **unemployment**.
- **According to 29% of the people surveyed, unemployment will be the biggest factor as they decide their vote.**
- The second biggest issue was price rise; as many as 23% of the people surveyed said it was the biggest factor.
- These two issues were found to be the most important ones by 52% of the people surveyed.

#### What is Unemployment & LFPR?

- According to the CMIE, the **labour force consists of persons who are of age 15 years or older**, and belong to either of the following two categories:
  - **Employed**
  - **Unemployed and are willing to work and are actively looking for a job**
- There is a crucial similarity between the two categories — they both have people “demanding” jobs. This demand is what **Labour Force Participation Rate (LFPR)** refers to.
- While those in category 1 succeed in getting a job, those in category 2 fail to do so.
- Essentially, **LFPR is the number of people ages 15 and older who are employed or actively seeking employment, divided by the total non-institutionalized, civilian working-age population.**
  - LFPR represents the demand for jobs in an economy.
- On the other hand, **Unemployment Rate (UER) is nothing but the number of unemployed (category 2) as a proportion of the labour force.**
  - All over the world, the UER is often the most widely used metric to assess the health of the labour market.
- **Employment Rate (ER) is the ratio of the total number of employed people and the total size of the working-age population.**

#### Religion-wise Data From the Survey:

- **Religion-wise Working-Age Population:**
  - India’s working-age population grew from 96.45 crore in 2016-17 to 113.86 crore in 2023-24.
  - Hindus make up 86% of the working age population. Muslims account for 9.54% of the working age population.
- **Religion-wise LFPR:**
  - India’s overall LFPR was low in 2016-17 and has further declined by 5.8% over the past eight years.
  - **The percentage of working-age Hindus openly looking for a job has fallen from 46.6 per cent in 2016-17 to just 40.53% as of March 2024.**
- **Religion-wise UER:**
  - Given that almost 86% of the working age population is Hindus, the UER among Hindus influenced the overall UER.
  - It was highest in the Covid year 2020-21 at 8.73%, but dropped by more than a percentage point over the next two years to 7.59% in 2022-23, and rose to 8.07% in 2023-24.
  - The unemployment rate among Muslims was highest among all communities in 2016-17 at 8.79%. It was lowest at 5.31% in 2017-18, and hit 9.22% in the Covid year, 2020-21.
- **Religion-wise ER:**
  - India’s overall ER fell by 5.6 percentage points over the past eight years.
  - In other words, the proportion of working-age Indians with a job dropped from 42.8% in 2016-17 to 37.2% in 2023-24.
  - The employment rate among Hindus fell the most — almost 6 percentage points to 37.26% in 2023-24.

#### Caste-Wise Data From the Survey:

- **Caste-wise Working-Age Population:**
  - Almost 60% of the total working-age population belongs to the OBCs and another 23% is accounted for by SCs.
- **Caste-wise LFPR:**
  - The LFPR has fallen for all castes. Upper-caste Hindus have the lowest LFPR.
- **Caste-wise UER:**
  - The UER among upper castes was 8.62% in 2016-17, but at 9.83% in 2023-24, almost touched double-digits.
- **Caste-wise ER:**
  - The OBCs and SCs, which had much higher ER compared with the upper caste in 2016-17, were the worst affected with their ERs in 2023-24 lower by 6.36 percentage points for both the categories.
  - **The upper caste Hindus had the lowest employment rate in 2016-17 and even in 2023-24 it remains the lowest amongst all caste categories.**

## 5. Thematic Report on Rangelands and Pastoralists by UNCCD

**Why in news?** Recently, the UN Convention to Combat Desertification (UNCCD) has released the Global Land Outlook Thematic Report on Rangelands and Pastoralists. As per the report, up to 50% of

### UN Convention to Combat Desertification (UNCCD)

- **About**
  - UNCCD is a **legally binding agreement that aims to protect and restore land, and combat desertification and drought.**
  - **It was adopted in 1994 and became effective in 1996.**
  - The UNCCD is one of the three Rio Conventions. **The other two are:**
    - Convention on Biological Diversity (UNCBD); and
    - United Nations Framework Convention on Climate Change (UNFCCC).
  - The **UNCCD focuses on drylands, which are arid, semi-arid, and dry sub-humid areas that are home to some of the most vulnerable ecosystems and peoples.**
- **Secretariat:** The UNCCD's permanent Secretariat is located in Bonn, Germany.
- **Goals**
  - Protecting and restoring land
  - Ensuring a safer, just, and more sustainable future
  - Mitigating the impact of land degradation
  - Providing food, water, shelter, and economic opportunity to all people

### Rangelands

- **About**
  - **Rangelands are large areas of land that are covered by grasses, shrubs, woodlands, wetlands, and deserts and are used by wild animals and domestic livestock for grazing.**
  - Rangelands cover 80 million square kilometres, or over 54% of the terrestrial surface, constituting the largest land cover/use type in the world
  - Rangelands are often **characterized by low and erratic precipitation, poor drainage, rough topography, and low soil fertility.**
- **Types**
  - **Types of rangelands include:**
    - Tallgrass and shortgrass Prairies; Desert grasslands and shrublands; Woodlands; Savannas; Chaparrals; Steppes; Tundras; Alpine communities; Marshes and meadows etc.
- **Significance**
  - **Rangelands are important for:** Storing carbon; Providing habitats for wildlife; Supporting the world's largest rivers and wetlands; and Keeping carbon in the ground.
  - **These areas support many ecosystem services, including:** grazing, wildlife habitat, watershed health, and recreational opportunities.
  - These areas account for one sixth of global food production and **represent nearly one third of the planet's carbon reservoir.**

### Key highlights of the report: Overall observation

- **Degradation of rangelands**
  - Almost half of the world's rangelands are degraded due to climate change, population growth, land-use change and growing farmlands.
- **Conversion of rangelands generates little public reaction**
  - When we cut down a forest, when we see a 100-year-old tree fall, it rightly evokes an emotional response in many of us.
  - The conversion of ancient rangelands, on the other hand, happens in silence and generates little public reaction.

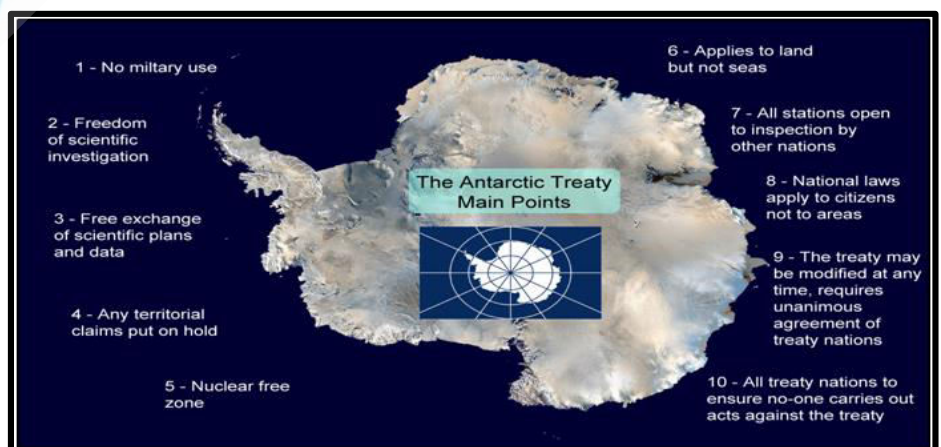
## Key highlights of the report: India specific observation

- **Pastoralists contribute a lot to the economy**
  - Pastoralists contribute to the economy through livestock rearing and milk production.
    - The livestock sector of the economy contributes 4 per cent of national gross domestic product and 26 per cent of agricultural gross domestic product.
    - The country also accounts for 20 per cent of the world's livestock population.
- **Pastoralists in India need better recognition of their rights and access to markets**
  - Millions of pastoralists in India rear livestock and depend on grasslands, shrubs and plateaus for sustenance.
  - They need better recognition of their rights and access to markets.
  - Although their exact numbers in India are unknown, it is estimated that there are 20 million or more people in pastoralist communities.
    - These include groups like the Maldharis, Van Gujjars, and Rabaris.
- **Pastoralists in India are a marginalised community**
  - Pastoralists are a marginalised community with little influence on policy decisions, resulting in uncertainty over access to common land and land rights.
- **Protection of grasslands in India**
  - Although grasslands are considered threatened ecosystems in India, they have been virtually overlooked in environmental conservation.
    - Ecosystem restoration policies in India are in favour of forestry-based interventions.
    - These includes converting natural grasslands into plantation forests or other uses.
  - **Less than 5 per cent of India's grasslands fall within protected areas**, and the total grassland area declined from 18 to 12 million hectares between 2005 and 2015.
- **Successes highlighted by the report**
  - Some laws such as the Forest Rights Act 2006 have helped pastoralists obtain grazing rights across states in the country.
  - E.g., Van Gujjars won grazing rights and received land titles in the Rajaji National Park, following a high court judgment.
- **Gradual shift in attitude**
  - The report noted that there was a gradual shift towards recognition of the socio-ecological role of rangelands and pastoralism in India.
  - It cited the example of welfare schemes and assistance provided to pastoralists under the National Livestock Mission, Animal Husbandry Infrastructure Development Fund and the Rashtriya Gokul Mission on sustainable dairy production.

## 6. The 46th Antarctic Treaty Consultative Meeting (ATCM 46)

### Why in News?

- The **Ministry of Earth Sciences (MoES)** through the **National Centre for Polar and Ocean Research (NCPOR)** is hosting the **ATCM 46 from May 20 to 30, 2024, in Kochi, Kerala.**
- Kochi will also host the 26th Meeting of the Committee for Environmental Protection (CEP 26).
- This is consistent with India's ability to foster positive



international discourse on scientific cooperation, environmental responsibility and Antarctica cooperation.

### What is the Antarctic Treaty?

- The Antarctic Treaty was **signed in Washington on 1 December 1959** by the twelve countries whose scientists had been active in and around Antarctica during the International Geophysical Year (IGY) of 1957-58.
  - **The 12 original signatories were** - Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, the Soviet Union, the UK, and the US.
- **It entered into force in 1961** and has since been acceded to by many other nations, taking the total number of Parties to the Treaty to 56 now.
- **There are two types of parties to the Antarctic Treaty** - Consultative (29) and non-Consultative (27).
- **The latter** are invited to attend the Consultative Meetings but do not participate in the decision-making.
- **India** has been a **Consultative Party** (those demonstrate their interest in Antarctica by conducting substantial research activity there) to the Antarctic Treaty since **1983**.

### What is ATCM and CEP under the Antarctic Treaty?

- **Antarctic Treaty Consultative Meeting (ATCM):**
  - **Convened annually**, these meetings serve as forums for Antarctic Treaty Consultative Parties and other stakeholders to address Antarctica's pressing environmental, scientific, and governance issues.
  - **From 1961 to 1994** the ATCM generally met once every two years, but **since 1994** the meetings have occurred annually.
  - **The ATCM is hosted by the Consultative Parties** according to the alphabetical order of their English names.
- **Committee for Environmental Protection (CEP):**
  - The CEP was established under the Protocol on Environmental Protection to the Antarctic Treaty (the Madrid Protocol) in **1991**.
  - The CEP **advises** the ATCM on environmental protection and conservation in Antarctica.
- **The Antarctic Treaty Secretariat (ATS):**
  - Established in **2004**, it serves as the administrative hub for the Antarctic Treaty System and coordinates the ATCM and CEP meetings.
  - **It also monitors compliance** with Antarctic Treaty provisions and agreements and provides assistance and guidance to Antarctic Treaty Parties on treaty implementation and enforcement matters.

### Key Items on the ATCM 46 and CEP 26 Agenda:

- **ATCM 46 agenda includes:**
  - Strategic planning for sustainable management of Antarctica and its resources;
  - Policy, legal, and institutional operations;
  - Biodiversity prospecting;
  - Inspections and exchange of information and data;
  - Research, collaboration, capacity building and cooperation;
  - Addressing climate change impacts;
  - Development of tourism framework; and promoting awareness.
- **CEP 26 agenda focus on:**
  - Antarctic environment evaluation, impact assessment, management, and reporting;
  - Climate change response; Area protection and management plans including marine spatial protection; and
  - Conservation of Antarctic biodiversity.

### India's Presence in the Antarctic:

- India's first Antarctic research station, **Dakshin Gangotri**, was established in 1983.
- **At present**, India operates two year-round research stations: **Maitri (1989)** and **Bharati (2012)**.
- The permanent research stations **facilitate Indian Scientific Expeditions to Antarctica**, which have been ongoing annually since 1981.
- In **2022**, India enacted the **Antarctic Act**, reaffirming its commitment to the Antarctic Treaty.



### Significance of Hosting ATCM 46 and Challenges for India:

- **Significance:**
  - **Through open dialogue, collaboration, and consensus-building,**
    - India remains committed to upholding the principles of the Antarctic Treaty and
    - Contributing to the sustainable management of one of Earth's last pristine wilderness areas.
  - The hosting of the 46th ATCM and 26th CEP meeting **reflects India's growing role as a responsible global stakeholder** in efforts to preserve Antarctica for future generations.
- **Challenges:**
  - The 46th Antarctic Treaty Consultative Meeting begins **under the shadow of the Ukraine-Russia conflict**, an issue that has been affecting the discussions for the past two years.
  - **Russia's increase in surveys** of the Antarctic region for oil and gas reserves has also caused some anxiety among the partner nations.
  - **Canada and Belarus** are seeking consultative status but their petitions have run into opposition.

## 7. Hurdles on the Path to Green Growth and How to Remove Them

### Context

- The **recent heatwave is reminder of the growing threats posed by climate change**, underscoring the urgent need for robust climate action.
- **As confirmed by the World Meteorological Organisation, 2023 marked the warmest year on record**, refocusing attention on carbon-intensive sectors such as power and industry.
- **India, the third-largest carbon emitter globally, faces heightened scrutiny over its emissions and to address these challenges, significant efforts are being made** to transition towards green energy, supported by various government initiatives and policies.

### The Current Landscape of Green Growth in India

- **Indian industries**, particularly those in high-carbon emitting sectors, **are increasingly recognising the imperative of adopting greener practices.**
- Many companies are **proactively initiating steps to transition towards sustainable energy.**
- **For instance, leading firms in refining, chemical production, and fertilisers are exploring the potential of Green Hydrogen** to decarbonise their operations.
- **These sectors are pivotal as they contribute significantly to greenhouse gas emissions**, and their transformation can substantially impact India's overall carbon footprint.
- **Despite the lack of mandatory regulations** for green technology adoption, **many entities are voluntarily making the shift**, driven by stakeholder expectations and the recognition of transition risks.
- **These risks include policy, regulatory, technology, market, reputation, and legal challenges, with technological risk being the most immediate concern** for entities adopting green technologies.

### Hurdles on the Path to Green Growth in India

- **Transition from Fossil Fuel Based Power to Renewable Energy**
  - Fossil fuel-based power is the major source of carbon emissions in India.
  - With the government's climate target of enhancing non-fossil power to 50 per cent by 2030, **various schemes have been launched to boost renewable energy.**
  - ICRA projects India to achieve the climate goal with the share of non-fossil fuel-based installed capacity in overall installed capacity **rising from 41 per cent in 2022-23 to 59 per cent by 2029-30.**
  - However, this transition will need huge investment **and India would need an estimated Rs 11-12 lakh crore of investments in RE power until 2030**, along with over Rs 5-6 lakh crore towards investments in transmission infrastructure and storage capabilities.
- **The availability of round-the-clock supply from RE**

- The **availability of round-the-clock supply from RE sources remains important** to achieve the targeted level of its share, given their intermittent generation.
- This **can be made possible through the use of hybrid RE projects (wind and solar)** complemented with energy storage systems.
- For **hard-to-abate sectors like steel and cement, the government needs to explore more ways of carbon sequestration.**
- Installation of carbon capture utilisation and storage (CCUS) will be inevitable.
- **Cement Sector Challenges**
  - The cement manufacturing process is highly resource and energy-intensive and **while producing one tonne of cement, an equivalent amount of carbon dioxide is released.**
  - As maximum emissions are generated while producing clinker, **CCUS will reduce more than 60-70 per cent of the emissions in the process** of cement manufacturing.
  - **Niti Aayog's report on CCUS estimates that the cement sector would need two million tonnes per annum CCUS capacity by 2030 and its capital cost will be Rs 1,600-1,800 crore.**
- **Steel Sector Challenges**
  - Given the abundance of virgin iron ore and lack of domestic scrap, **the domestic steel industry overwhelmingly uses coal as a reducing agent**, leading it to remain high on the emission curve.
  - However, **following India's 2070 net zero target and policies on carbon tax implemented by some countries, domestic steel-makers have sharpened their focus on reducing their carbon footprint** by as much as 25-30 per cent through various technological interventions by 2030.

#### **Government Initiatives Towards Transition to Green Energy and Reduce the Country's Carbon Footprint**

- **Production Linked Incentive (PLI) Scheme**
  - The **scheme provides financial incentives to manufacturers**, encouraging them to set up production facilities in India.
  - This **not only strengthens the local solar manufacturing industry but also aims to make solar energy more affordable** and accessible.
- **Viability Gap Funding (VGF) for Offshore Wind and Battery Storage Projects**
  - **VGF schemes help make large-scale renewable energy projects** more financially viable, attracting private investment.
  - **Offshore wind projects and battery storage systems, in particular, benefit from this support**, addressing the intermittency and variability of renewable energy sources.
- **Faster Adoption and Manufacturing of Electric Vehicles (FAME) Scheme**
  - The **FAME scheme offers subsidies for the purchase of EVs** and supports the establishment of charging infrastructure.
  - This **initiative aims to reduce vehicular emissions**, decrease oil dependency, and promote sustainable urban mobility.
- **National Green Hydrogen Mission**
  - Green hydrogen, produced using renewable energy, **has the potential to significantly reduce emissions in hard-to-abate sectors.**
  - The mission supports research and development, pilot projects, and the establishment of production facilities, positioning India as a global leader in green hydrogen technology.
- **Amendments to the Energy Conservation Act**
  - The **amendments include provisions for energy efficiency standards** and the establishment of energy management systems.
  - These **measures aim to reduce energy consumption, lower emissions**, and promote sustainable industrial practices.

#### **Suggestions for the Government to Remove the Hurdles on the Path to Green Growth**

- **Renewable Purchase Obligations (RPOs)**

- The **government should mandate certain percentages** of electricity consumption to be sourced from renewable energy.
- RPOs compel power distribution companies and large electricity consumers to purchase a specified proportion of their energy from renewable sources.
- **It will ensure a steady demand for renewable energy** and promote its development.
- **Implementation of National Action Plan on Climate Change (NAPCC)**
  - Policymakers **should outline strategies to promote sustainable development** while addressing climate change.
  - **NAPCC includes eight national missions focusing on various aspects** such as solar energy, energy efficiency, sustainable agriculture, and water conservation.
  - **These missions coordinate efforts across sectors to integrate climate resilience** and sustainability into national policies.
- **Tax Incentives and Subsidies**
  - Government should provide financial benefits to support the adoption of renewable energy and green technologies.
  - **Tax incentives, such as accelerated depreciation and tax holidays for renewable energy projects**, reduce the financial burden on investors.
  - Subsidies for solar power, electric vehicles, and energy storage systems make these technologies more affordable and attractive to consumers and businesses.
- **Need for More Viability Gap Funding (VGF)**
  - The **government should focus on addressing the financial shortfall in projects that are otherwise economically viable** but lack sufficient initial investment.
  - **VGF schemes support large-scale renewable energy projects**, including offshore wind farms and battery storage systems, by making them financially feasible and reducing investment risks.

## Conclusion

- **India's path to green energy and sustainability is marked by significant challenges and opportunities** and the government's proactive measures and the voluntary efforts of various entities are paving the way for a greener future.
- However, **achieving the ambitious climate targets will require continued support, substantial investments, and technological innovation.**
- As the world faces the escalating impacts of climate change, **India's commitment to reducing carbon emissions and transitioning to renewable energy sources is both a necessity and a model for other nations to follow.**

## 8. Indian manufacturing sector

### Why in news?

Recently, Finance Minister Nirmala Sitharaman said that Indian manufacturing needs to develop greater sophistication in its products and the government will assess how to provide policy support in this endeavour. She made those remarks while addressing the annual business summit of the Confederation

### Manufacturing in India

- **Intro**
  - Due to performance of **key sectors like automotive, engineering, chemicals, pharmaceuticals, and consumer durables, manufacturing has emerged as an integral pillar in the country's economic growth.**
  - With 17% of the nation's GDP and over 27.3 million workers, the manufacturing sector plays a significant role in the Indian economy.
  - India has the capacity to export goods worth US\$ 1 trillion by 2030 and is on the road to becoming a major global manufacturing hub.
- **Performance – Statistics**
  - The Indian manufacturing sector has performed well in FY 2023-24, with a growth of 11.6%.

- **Manufacturing exports have registered highest ever annual exports of US\$ 447.46 billion with 6.03% growth during FY23.**
- Value added in the Manufacturing market is projected to amount to US\$231.5bn in 2024.
- **Initiatives**
  - The **National Manufacturing Policy** aims to increase the share of manufacturing in GDP to 25 percent by 2025.
  - The **Production Linked Incentive (PLI) Scheme** for manufacturing was launched in 2022 to develop the core manufacturing sector at par with global manufacturing standards.
  - India is planning to offer incentives of up to Rs. 18,000 crore (US\$ 2.2 billion) to spur local manufacturing in six new sectors including chemicals, shipping containers, and inputs for vaccines.
  - **Slew of measures were announced in the Union Budget 2023-24:**
    - Startups incorporated within a time-period and meeting other conditions can deduct up to 100% of their profits;
    - The income tax rate for new co-operative societies engaged in manufacturing activities has been lowered from 22% to 15%.
  - Ministry of Defence has set a target of achieving a turnover of US\$ 26 billion in aerospace and defence Manufacturing by 2025, which includes US\$ 5 billion exports.
    - A new category of capital procurement '**Buy {Indian-IDDM (Indigenously Designed, Developed and Manufactured)}**' has been introduced in Defence Procurement Procedure (DPP)-2016.
  - By 2030, the Indian government expects the electronics manufacturing sector to be worth US\$ 300 billion.
    - The **PLI for semiconductor manufacturing** is set at Rs. 760 billion (US\$ 9.71 billion), with the goal of making India one of the world's major producers of this crucial component.
  - Initiatives like **Make in India, Digital India and Startup India** have given the much-needed thrust to the Electronics System Design and Manufacturing (ESDM) sector in India.
  - In September 2022, the **National Logistics Policy** was launched to ensure quick last mile delivery, end transport-related challenges.
  - The **Mega Investment Textiles Parks (MITRA)** scheme to build world-class infrastructure will enable global industry champions to be created, benefiting from economies of scale and agglomeration. Seven Textile Parks will be established over three years.
  - The '**Operation Green**' scheme of the Ministry of the Food Processing Industry, which was limited to onions, potatoes and tomatoes, has been expanded to 22 perishable products to encourage exports from the agricultural sector.

#### Key highlights of the speech delivered by the Finance Minister

- **Greater sophistication in manufacturing is needed**
- **Manufacturing must increase its share:** For India to become more self-reliant, manufacturing must increase, and with the help of policies, India must increase its share in manufacturing and global value chain.
- **Opportunities in India:** The consumer market in India presents a \$2.9 trillion opportunity.
  - Also, spending on food is expected to rise to \$1.4 trillion while financial services will climb to \$670 billion by 2031.
    - Together this would create another \$1.39 trillion of opportunities.
- **India's demographic dividend will persist for the next 30 years:** It comes with an added advantage of a historically lowest dependency ratio, means the net benefit is going to be towards more increase in consumption.
  - In order to reap the benefit, skilling is being ramped up.
- **India's consistent high growth** is a result of policy stability, absence of flip-flops, corruption-free decision-making combined with facilitation in legislative and legal frameworks.
  - These frameworks are based on industry feedback for rapid changes in the compliance regime.

## 9. The CDS That Should Be: Has the Chief of Defence Staff Post Improved India's Combat Efficiency?

## Context

- The **ongoing discussions and media reports indicate a significant policy shift towards the reorganisation of India's military** into integrated theatre commands (ITC).
- This initiative, driven by the armed forces' need to enhance jointness and operational efficiency, proposes **the introduction of a Vice Chief of Defence Staff (VCDS) and a Deputy Chief of Defence Staff (Dy CDS)**.
- While the formal announcement is awaited, **it is timely to review the implications of these changes and the role of the Chief of Defence Staff (CDS)** within India's higher defence management.

## The Need for Jointness of Tri-Military Services

- The **Indian military has long recognised the lack of sufficient jointness** among its three branches; Army, Navy, and Air Force as a structural weakness.
- Addressing this, **Prime Minister Narendra Modi announced the creation of the CDS in August 2019**, marking a bold step towards military integration.
- The **CDS was envisioned to be a pivotal role**, bridging the gap between military and governmental defence operations, thus necessitating a combination of military expertise, bureaucratic skills, and political advisory capabilities.

## Role and Responsibilities of the Chief of Defence Staff

- **First Among Equals**
  - As a four-star general, **the CDS is positioned alongside the chiefs of the Army, Navy, and Air Force**.
  - This **role demands a fine balance of authority and cooperation**, ensuring that each branch of the armed forces operates in unison rather than in silos.
  - The **CDS must foster inter-service collaboration and resolve any conflicts** that arise between the services.
- **Secretary to the Government of India in the Ministry of Defence**
  - This **bureaucratic role involves significant administrative responsibilities**.
  - The **CDS acts as a bridge between the military and the civilian government**, ensuring that military strategies and operations are aligned with national policies.
  - This **role requires not only military expertise but also an in-depth understanding of governmental processes** and the ability to navigate the complexities of civilian-military relations.
- **Principal Adviser to the Defence Minister on Inter-Service Matters**
  - The **CDS provides crucial strategic advice to the Defence Minister**, particularly on issues that involve multiple branches of the military.
  - This **advisory role is pivotal in shaping defence policy and ensuring that the minister is well-informed** on the intricacies of military operations and needs.

## Challenges Before the Chief of Defence Staff

- **Operational Challenges**
  - **Harmonising Diverse Interests**
    - One of the primary challenges is **to harmonise the interests and operational philosophies** of the three services.
    - **Each branch of the armed forces has its own traditions, priorities, and strategic doctrines**.
    - The **CDS must mediate these differences and promote a unified approach** to defence strategy.
  - **Administrative Overload**
    - Serving as the **Secretary to the Government of India in the Ministry of Defence entails significant administrative duties** that can detract from the CDS's primary military functions.
    - This **dual responsibility can lead to an overload**, making it difficult to focus on strategic military leadership.
    - The **proposal to create a Vice CDS to handle some of these bureaucratic tasks aims to address this issue**, allowing the CDS to concentrate more on operational and strategic matters.
  - **Maintaining Professional Independence**

- As the principal military adviser to the Defence Minister, **the CDS must provide unbiased, professional advice** that serves the best interests of national security.
- This **requires maintaining a delicate balance between supporting the government's policies and advocating for the military's operational needs** without succumbing to political pressures.
- **Upholding professional independence is crucial** to the credibility and effectiveness of the CDS.

### Institutional Challenges

- **Initial Transition and Tragic Setbacks**
  - The **initial transition saw General Bipin Rawat appointed as the first CDS in January 2020.**
  - However, **his tenure was abruptly ended by a tragic air accident in December 2021.**
  - This sudden loss not only created a leadership vacuum but also disrupted the continuity of policies and initiatives that were in progress.
  - The **subsequent delay of nine months in appointing Lt Gen Anil Chauhan (retd) as the new CDS further compounded these challenges**, highlighting the fragility and complexities inherent in this role.
- **Unprecedented Appointments and Reactions**
  - The **decision to recall and promote a retired officer to the position of CDS was unprecedented** and stirred significant debate.
  - **Critics questioned the rationale behind bypassing serving officers** and the potential implications for military hierarchy and morale.
  - **This move underscored the need for clear guidelines** and transparent processes in such high-stakes appointments.
- **Structural and Hierarchical Adjustments**
  - The **proposed creation of additional high-ranking positions, such as the Vice CDS, brings with it concerns** about rank dynamics and command authority.
  - The **military's hierarchical structure is central to its functioning**, and any changes to this structure must be carefully managed to avoid confusion and ensure clear lines of command.
  - **Integrating these new roles while maintaining the effectiveness and morale of the armed forces is a delicate task** that requires thoughtful planning and execution.

### Ways Ahead to Overcome the Challenges and Ensure the Success of CDS

- **Clearly Defining the Roles**
  - **Clarifying the roles and responsibilities** of the CDS, VCDS, and other senior military positions is
  - This will help in delineating the boundaries of authority and reduce the risk of overlapping duties that can lead to inefficiencies.
- **Strengthening Inter-Service Cooperation**
  - Initiatives to enhance **jointness among the services should be prioritised.**
  - Regular joint training exercises, integrated planning sessions, and shared resources can foster a more cohesive approach to defence strategy.
- **Focus on Strategic Leadership**
  - **By delegating bureaucratic responsibilities** to the VCDS, **the CDS can focus more on strategic leadership** and long-term defence planning.
  - This will enable the CDS to drive initiatives that enhance the military's operational capabilities and readiness.
- **Maintaining Professional Integrity**
  - Upholding the professional independence of the CDS is crucial.
  - **Mechanisms should be in place to ensure that the CDS can provide honest and unbiased advice to the government** while also advocating effectively for the needs of the armed forces.

### Conclusion

- The proposed restructuring and the **introduction of new posts within India's military command are steps in the right direction.**

- However, **their successful implementation will require careful consideration of rank dynamics**, operational logistics, and long-term strategic objectives.
- **Ensuring that these changes enhance jointness and overall combat efficiency without compromising the military's integrity** and effectiveness is paramount.

## 10. Impact of Solar Storms

### Why in News?

ISRO said it closely monitored (through Aditya-L1 and Chandrayaan-2 orbiter) and captured the signatures of the powerful solar storm triggered by the highly active sunspot region (AR13664), that impacted Earth. The **astronomers of the IIA (Bengaluru), who captured the auroras (triggered by the solar storm) around the IAO in Hanle (Ladakh), explained why auroras were seen across a wider region, including India.**

### What is Happening to the Sun and How Hazardous are Solar Storms?

- Currently, **there are several magnetically active regions** on the visible solar disk, producing multiple high-energy flares.
  - **For example**, a series of Coronal Mass Ejections (CMEs), emerged from **AR13664** (currently an active region on the Sun), that hit the Earth recently.
  - **CMEs** are large ejections of magnetic particles and plasma from the Sun's corona - the outermost part of its atmosphere.
- These continuous solar storms **hold a strong potential for disturbing Space weather** and causing major disturbances to the Earth's magnetosphere.
- Intense solar storms can be harmful as they can **interfere with and threaten the smooth operations of satellites** operating in the Low Earth Orbit/ LEO (an altitude ranging between 200-1,600km).
- The highly energetic particle environment created by these solar storms **can also induce heating in the upper atmosphere.**
- This increases the **risk of radiation hazards**, causing a drag effect/ friction on satellites positioned at LEO, which in extreme cases can ignite and burn down the satellites.

### What are the Observations Made by the ISRO About Solar Storm?

- **Spacecraft OK:**
  - Earth observation satellites including the 30 GEO spacecraft operated by ISRO were reported to be **operating normally.**
  - However, the increased atmospheric density caused by the solar event led to **increased orbit decay**, with some satellites experiencing 5-6 times higher decay.
    - **Orbital decay** is a gradual decrease of the distance between two orbiting bodies at their closest approach (the periapsis) over many orbital periods.
  - Also, ISRO's navigation centre has not observed any significant decline in the **NavIC service**
- **Ground observations:**
  - On 11 May daytime Total Electron Content (TEC) **was high by about 10%** with large variations indicating disturbed ionosphere.
  - **TEC** is the total number of electrons present along a path between a radio transmitter and receiver.
  - **Radio waves are affected by the presence of electrons.** The more electrons in the path of the radio wave, the more the radio signal will be affected.
- **Aditya-L1 observations:**
  - Aditya-L1 spacecraft **recorded high-speed solar wind**, high-temperature plasma, and energetic ion flux associated with the CMEs using its **ASPEX payload.**
  - **The X-ray instruments on-board Aditya-L1 (SoLEXS and HEL1OS)** also captured the powerful X-class flares, while the magnetometer detected changes in the interplanetary magnetic field.
- **Chandrayaan-2 observations:**

- Chandrayaan-2 orbiter's X-ray Monitor (**XSM**) observed many interesting phenomena associated with a geomagnetic storm.
- **It captured solar X-ray flux**, autonomously identified large solar flares, and monitored the local high-energy particle environment.

#### Why were Auroras Visible from Ladakh?

- **It has to do with increased space solar flare activity.**
  - Solar physicists at the IISER (Kolkata) said that **at least four strong solar storms arrived** over Earth between 10-11 May. **The source of these storms was CMEs.**
- Travelling at 700 km/s (close to the Earth's atmosphere) and at a speed of 815 km/s (when they hit the Earth), **the intensity of these incoming solar storms** (most intense since 2003) **was much higher** than average.
- One of the manifestations of the solar storm's interactions with the Earth's atmosphere was the emergence of **auroras** in red, violet and blue colours.
- So strong were the storms that the aurora lights were visible from many lower-latitude regions.

## 11. Different Types of Investment Models and the Challenges in NH Construction

#### Why in News?

Credit rating agency CareEdge Ratings expects the execution pace of national highways (NH) in India to decline by 7-10% year-on-year - from 12,350 km in FY24 to about 11,500 km in FY25.

This is mainly because projects under the **hybrid annuity model (HAM)** - a PPP model that combines EPC

#### What is the Need of the Different Investment Models?

- If India wants to achieve double-digit growth, **infrastructure development** will be critical.
- As a result, the Government of India **has increased investment in the infrastructure sector**, which can be better utilised through efficient distribution of funds as well as consistent and uninterrupted implementation of infrastructure projects.
- For the smooth implementation of such plans, the government may occasionally involve and enter into contracts with other private companies and such contracts are known as **public-private partnership (PPP)**.
- In these agreements, **a private entity is hired by the public body** and is remunerated on a performance basis.
- They are typically **long-term arrangements** (for a 20-30 years term), whose rationale is to **combine the capabilities** of the public and private sector to achieve optimal results.
- Such models are intended to enable the completion of projects in a **timely and cost-effective manner**.
- Some of the important types of PPP contracts are **BOT, Build-Own-Operate (BOO), Build-Operate-Own-Transfer (BOOT), Buy-Build-Operate (BBO)**.

#### What is the Build-Operate-Transfer (BOT)?

- **Meaning:**
  - Under this, a private player is granted a concession to finance, build and operate a project for a set period of time (20 or 30 years).
  - The developer recovers its investments through user fees or tolls charged to customers who use the facility, after which it is taken over by the government.
- **Pros of BOT model:** Partnerships between private companies (contributes by bringing **technology and innovation**) and governments (**provides incentives** for the private sector to deliver projects on time and within budget) provide advantages to both parties by -
  - Improving the operational efficiency of providing public services.
  - Creating economic diversification.
- **Downsides of BOT model:**
  - **Private partners may face special risks:** Such as the construction risks, availability (of promised services) risk, demand risk, etc.



- **Lack of accountability:** Partnerships may shield the private players from accountability to the public, offering subpar service.
- **May Lead to monopoly of private entities:** The private partner may be in a position to raise tolls, tariffs and fees for consumers who may be compelled to pay for their services.
- **Can result in crony capitalism:** This may facilitate corrupt dealings, pay-offs to political cronies and general rent-seeking activity.

### What is the Engineering, Procurement and Construction (EPC) Model?

- **Meaning:**
  - These are the contracts used primarily in **complex industrial and infrastructure projects** like power plants, bridges, dams etc.
  - It entails a **contract between the owner and a contractor** who is responsible for delivering specified design, construction, logistics, transportation and other associated activities to the Project financier.
- **EPC vs PPP:**
  - In the PPP model one party is a government or public sector enterprise and the other is a private party while the EPC model can have **two private entities as parties to the contract**.
  - **In the PPP model,**
    - While implementing the project, if there is a delay in the project, the private entity will have to fix the problem, which will incur expenditures.
    - It will now have to submit a new offer to be compensated for the costs incurred and have to deal with the government's slow machinery in order to get the new proposal approved.
  - **In an EPC model,**
    - The government would invite individual bids for engineering expertise, raw material procurement and actual construction work.
    - **The government carries the whole financial burden and will handle any difficulties that emerge.**
    - As a result, the private party can concentrate on project planning and design, **boosting the project's efficiency.**
    - As a result, the Government of India chose the EPC model over the PPP model for national highway construction.

### What is the Hybrid Annuity Model (HAM)?

- **Meaning:**
  - As the name suggests, it is a **mix of the EPC and BOT models**.
  - Under the **HAM model, 40% of the project cost is paid by the government as construction support to the private developer, and the remaining 60% is to be arranged by the developer.**
  - Here, the developer usually invests not more than 20-25% of the project cost, while the remaining is raised as debt.
- **Importance:**
  - HAM arose from the need for a more efficient financial mechanism for road development.
  - **HAM is a good trade-off because it spreads risk among developers and the government.**
  - In this case, the government contributes 40% of the project cost, which reduces overall debt and improves project returns.

### What are the Challenges in NH Construction?

- **Declining pace of execution:** NH construction is expected to slow from 34 km/day in FY24 to 31 km/day in FY25 (a 7-10% annual decline), primarily due to an influx of mid-level developers post-March 2020.
- **HAM model setbacks:** HAM projects face delays, with nearly one-third delayed by 4-6 months, and others awaiting 'appointed dates' for over a year.
  - This resulted in cost over-run and thus impacting execution.
- **Regulatory and financial concerns:**

- Regulatory ambiguity and financing challenges exacerbate delays.
- Recent RBI draft guidelines on project financing, which **increased equity requirements for HAM projects**, potentially resulted in reducing developer interest.
- Also, **a large increase in provisioning requirements** during the construction phase - from 0.4 to 5% - is probably going to reduce developers' desire to bid in the medium run.
- Therefore, **regulatory clarity and alternative funding avenues** are needed for smoother implementation.

## 12. Pharma sector in India

### Why in news?

India's drug regulator, the Central Drugs Standard Control Organisation (CDSCO), has taken back the authority given to State licensing authorities to issue no objection certificates (NOCs) for making unapproved, banned, or new drugs for export.

This change comes as India faces criticism for providing low-quality drugs to other countries. Now, CDSCO alone can give manufacturing licenses for drugs intended for export.

### The pharmaceutical industry in India

#### Notable achievements

- The Indian pharmaceutical industry, often referred to as **'the pharmacy of the world'**, contributes immensely to global public health and promoting universal healthcare access.
- **India ranks 3rd worldwide for production by volume and 14th by value.**
- India is the largest provider of generic medicines globally, occupying a 20% share in global supply by volume.
  - The pharmaceutical industry in India offers 60,000 generic brands across 60 therapeutic categories.
- It is **the leading vaccine manufacturer globally 62% of the world's vaccines comes from India.**
  - At least 70% of WHO's vaccines (as per the essential immunisation schedule) are sourced from India.

#### Industry scenario

- **Foreign Direct Investment (FDI)**
  - 100% FDI in the Pharmaceutical sector is allowed under the automatic route for **greenfield pharmaceuticals**.
  - 100% FDI in the pharmaceutical sector is allowed in **brownfield pharmaceuticals**; wherein 74% is allowed under the automatic route and thereafter through the government approval route.
- **Market Size**
  - The pharmaceutical industry in India is valued at \$50 bn in 2022-23 and exports accounting for 50% of the production.
    - It is expected to reach \$65 bn by 2024 and to **\$130 bn by 2030**.
- **Export**
  - India is a major exporter of Pharmaceuticals, with over 200+ countries served by Indian pharma exports.
  - **India supplies over 50% of Africa's requirement for generics, ~40% of generic demand in the US and ~25% of all medicine in the UK.**
  - For the period 2021-22, export of drugs and pharma products stood at \$24.6 bn.
  - The Indian pharma industry witnessed exponential growth of 103% during 2014-22 from \$11.6 bn to \$24.6 bn.

#### Centralization of the licensing authority

- **About**
  - CDSCO has taken back the authority from state licensing authorities to issue NOCs for exporting unapproved, banned, or new drugs.
    - In 2018, the CDSCO had permitted State and UTs' drug licensing authorities to grant permissions to export some specific drugs.
  - The head of the CDSCO zonal office will now grant NOCs.

- Manufacturers must obtain NOCs online through the Sugam Portal before getting a manufacturing license from the State Licensing Authorities.
- **Impact**
  - The centralising of the licensing authority is significant because India needs to get ready to take advantage of drug sales worth \$251 billion going off-patent this coming decade.
    - According to a study conducted by the Department of Pharmaceuticals, in the years between 2022 and 2030 several drugs are expected to go off-patent.
    - Expiry of patents is very promising for the Indian generic drug market as it is expected to expand and grow further with inclusion of these new drugs.
  - Hence, the move is welcome as the centralization of NOCs will formalize the Indian pharma industry bringing in efficiency of the overall process.
    - It will help to **bring uniformity in protocols, achieve the target of reaching \$450 billion by 2047.**
  - Also, it was noted that getting NOCs from local drug regulators for pharmaceutical products is a tedious process, leading to delays.
- **Challenges**
  - **Tackling intellectual property rights**, lack of research and development etc.
  - Understanding the political, economic, socio-cultural, technological, environmental, and legal factors is vital for assessing the opportunities and challenges in the pharmaceutical market in India.

#### Steps taken to ensure the quality of manufacturing

- **Crack down by Indian Govt.**
  - Indian government had taken steps on 18 drug companies for poor quality manufacturing.
  - It had **cancelled the licences of over 10 pharmaceutical companies as part of a crackdown on poor quality manufacturing.**
  - The government is also understood to have given notices to a further 26 companies for not complying with good manufacturing processes.
- **Vision Pharma 2047**
  - Make **India a global leader in the manufacturing of affordable, innovative & quality pharmaceuticals & medical devices for the goal of Vasudhaiva Kutumbakam.**
- **National Pharmaceutical Policy (2023)**
  - The policy is being drafted to serve as a comprehensive framework to address the challenges faced by Indian Pharmaceutical industries.
  - **The draft policy encompasses five key pillars:**
    - **Fostering Global Pharmaceutical Leadership, Promoting Self-Reliance, Advancing Health Equity and accessibility, Enhancing Regulatory Efficiency and Attracting investments.**

### 13. An AI-infused World Needs Matching Cybersecurity

#### Context

- **The integration of generative artificial intelligence (AI) into various sectors has revolutionised operations.**
- However, it has also ushered in a **new era of cyber threats and safety concerns.**
- Recent incidents, **such as the misuse of AI by hackers impersonating kidnappers, underscore the urgent need for comprehensive analysis** and proactive measures to mitigate risks associated with generative AI.

#### Evolution of Generative AI, Emerging Threats, and Vulnerabilities

- **A Paradigm Shift**
  - While generative AI has exceptionally transformed how we operate, with its integration into sectors such as education, banking, health care, and manufacturing, **it has also transformed the paradigm of cyber-risks and safety as we know it.**

- With the generative AI industry projected to increase global GDP by as much as \$7 to \$10 trillion, **the development of generative AI solutions (such as ChatGPT in November 2022) has spurred a vicious cycle of advantages and disadvantages.**
- According to a recently published report, **there has been a 1,265% increase in phishing incidents/emails, along with a 967% increase in credential phishing** since the fourth quarter of 2022 arising from the exacerbated utilisation/manipulation of generative AI.
- **Exponential Increase in Phishing Incidents and Credential Theft**
  - One of the most prevalent cyber threats stemming from generative AI is the **proliferation of phishing incidents and credential theft.**
  - Hackers leverage AI-generated content to craft highly convincing emails, messages, and websites that mimic legitimate communication from trusted sources.
  - **These deceptive tactics often exploit human vulnerabilities,** such as curiosity or fear, to lure unsuspecting individuals into disclosing sensitive information or clicking on malicious links.
  - Moreover, **generative AI enables cybercriminals to create sophisticated deepfake videos and audio recordings,** further blurring the line between reality and manipulation.
- **Rising Susceptibility to Novel Cyber-Attacks**
  - The widespread adoption of generative AI has **expanded the attack surface for cybercriminals,** who continuously exploit novel vulnerabilities to orchestrate sophisticated cyber-attacks.
  - With the proliferation of AI-powered tools and platforms, **malicious actors can automate various stages of the cyber kill chain,** from reconnaissance and weaponisation to delivery and exploitation.
  - This **automation not only accelerates the pace of attacks but also amplifies their impact,** making them more difficult to detect and mitigate.
- **Emerging Challenges for Organisations**
  - **Organisations across all sectors are increasingly susceptible to a wide range of cyber threats,** including ransomware attacks, data breaches, and supply chain compromises.
  - The **interconnected nature of modern digital ecosystems further exacerbates the risk landscape,** as vulnerabilities in one system can cascade to others, resulting in widespread disruption and financial loss.
  - Moreover, **the anonymity and global reach afforded by the internet enable cybercriminals to operate with impunity,** posing significant challenges for law enforcement agencies and regulatory bodies.

#### **The Bletchley Declaration to Address the Challenges Posed by AI**

- **A Significant Global Effort**
  - The **Bletchley Declaration marks a significant milestone in the global effort to address the ethical and security concerns** surrounding the use of artificial intelligence, particularly generative AI.
  - **Named after Bletchley Park, the site of the British code-breaking efforts during World War II, this declaration reflects a collective commitment** among world leaders to safeguard consumers and society against the potential harms associated with AI misuse.
- **Global Recognition of AI Risks**
  - The signing of the Bletchley Declaration at the AI Safety Summit **underscores the growing recognition among world leaders of the potential risks posed by AI,** particularly in the context of cybersecurity and privacy.
  - By acknowledging the need for coordinated action, **participating countries have signalled their commitment to prioritising AI safety and security** on the global agenda.
- **Inclusive Collaboration**
  - **The inclusion of diverse stakeholders,** including major world powers such as China, the European Union, India, and the United States, **highlights the inclusive nature of the Bletchley Declaration.**
  - By bringing together governments, **international organisations, academia, and industry leaders, the declaration creates collaboration and knowledge** sharing across borders and sectors.
  - This **collective approach is essential for addressing the multifaceted challenges posed by AI** and ensuring that regulatory frameworks are effective and equitable.
- **Emphasis on Consumer Protection**

- At its core, the **Bletchley Declaration emphasises the importance of protecting consumers against the adverse effects of AI misuse.**
- By prioritising consumer rights and safety, participating countries commit to developing policies and regulations that mitigate the risks associated with AI technologies.
- This **includes measures to enhance transparency, accountability, and oversight in AI development and deployment**, as well as mechanisms for redress in the event of harm or abuse.
- **Promotion of Ethical AI**
  - Another key aspect of the Bletchley Declaration is its **emphasis on promoting ethical AI practices.**
  - **Participating countries pledge to uphold principles of fairness, accountability, and transparency in AI development and use**, as well as to prevent discriminatory or harmful outcomes.
  - This **commitment to ethical AI aligns with broader efforts to ensure that AI technologies are deployed responsibly** and in the best interests of society.

#### **Some Other Proposed Measures to Mitigate the Risks Associated with AI**

- **Institutional-Level Initiatives**
  - Governments and regulatory bodies **can implement stringent ethical and legislative frameworks to govern the development, deployment, and use** of generative AI technologies.
  - These **frameworks should prioritise consumer protection**, transparency, and accountability while fostering innovation and economic growth.
  - **Implementing watermarking technology can help identify AI-generated content**, enabling users to distinguish between authentic and manipulated information.
  - This **can significantly reduce the risk of misinformation and cyber threats** originating from AI-generated content.
- **Continuous Innovation and Adaptation**
  - **Continued investment in research and development is essential** for staying ahead of emerging cyber threats and developing innovative solutions to address them.
  - **By supporting cutting-edge research in AI security**, cryptography, and cybersecurity, governments, academia, and **industry can drive technological advancements that enhance cybersecurity resilience** and mitigate the risks associated with generative AI.

#### **Conclusion**

- **Addressing the challenges posed by generative AI requires a multi-faceted approach** that involves regulatory, collaborative, and educational initiatives at the institutional, corporate, and grassroots levels.
- **By implementing robust regulatory frameworks, stakeholders can collectively mitigate the risks** associated with AI-driven cyber threats and create a safer and more secure digital ecosystem for all.

## **14. Need for a new agricultural export-import policy**

### **Why in news?**

India's agricultural exports decreased by 8.2% in the fiscal year ending March 31, 2024, due to

### **Overall agricultural scenario in India**

- **Growth rate and contribution**
  - According to the second advance estimates, agriculture and allied sector is projected to grow 0.7% in FY24.
  - The agricultural sector is estimated to constitute 18 percent of India's GVA in FY24.
- **Production**
  - The total food grains production for FY23 was 329.7 million tonnes, marking a rise of 14.1 million tonnes compared to the previous year.
    - The horticulture production was 355.25 million tonnes which is the highest ever for Indian Horticulture (as per third advance estimates).

- India's global dominance extends across agricultural commodities, making it the largest producer of milk, pulses, and spices worldwide.
- **Additionally, India ranks second-largest producer of fruits, vegetables, tea, farmed fish, sugarcane, wheat, rice, cotton, and sugar.**

### Analysis of Agricultural export

#### • Statistics

- The total value of farm exports was \$48.82 billion in 2023-24, according to Department of Commerce data.
- It has shown a decline from the record \$53.15 billion in 2022-23 and \$50.24 billion in the previous fiscal year.

#### • Trends Over Years

- During the initial years of the present govt, agricultural exports dropped from \$43.25 billion in 2013-14 to \$35.60 billion in 2019-20, accompanied by an increase in imports from \$15.53 billion to \$21.86 billion (during the same period).
- During this period, global agri-commodity prices fell significantly, leading to a decline in India's agricultural exports.
  - The UN Food and Agriculture Organization's (FAO) food price index dropped from an average of 119.1 to 96.5 points between 2013-14 and 2019-20.
- Low international prices made India's exports less competitive and increased its vulnerability to imports.

#### • Impact of Global Events

- The global price recovery after the Covid-19 pandemic and Russia's invasion of Ukraine caused India's farm exports and imports to reach all-time highs in 2022-23, with the FAO index soaring to 140.8.
- However, exports decreased in the fiscal year that just ended.

### Agri exports: key trends

#### • Impact of ban on export of sugar and non-basmati rice

- The fall in exports to have been led primarily by sugar and non-basmati rice.
- The government hasn't allowed any sugar to go out of the country during the current production year from October 2023.
  - Exports of the sweetener were valued at only \$2.82 billion in 2023-24, after peaking at \$5.77 billion and \$4.60 billion in the preceding fiscals.
- Concerns over domestic availability and food inflation have similarly triggered a ban on exports of all white non-basmati rice since July 2023.
  - Currently, only parboiled grain shipments are being permitted within the non-basmati segment, while also attracting a 20% duty.
  - These restrictions have pulled down overall non-basmati exports from a record \$6.36 billion in 2023-23 to \$4.57 billion in 2023-24.

#### • Impact of export restrictions on wheat and onion

- Wheat exports were altogether stopped in May 2022, following which their value plunged to \$56.74 million in 2023-24, after reaching an all-time-high of \$2.12 billion in 2021-22.
- Similarly, the onion export was also banned.
  - On May 4, 2024, the Centre lifted a ban on exports of the bulb. Simultaneously, a floor price of \$550 per tonne, along with a 40% duty, was imposed.

#### • Trend of other major agri export items

- Most of the other major agri export items — barring marine products, castor oil and other cereals (mainly maize) — have posted growth.
- Basmati rice exports fetched \$5.84 billion in 2023-24, surpassing the previous high of \$4.86 billion achieved back in 2013-14.
- Spices exports, too, crossed the \$4 billion mark for the first time.

### Agri imports – key trends

- **Dip in imports of edible oils**
  - Analysis of data shows that the 7.9% dip in overall agri imports during 2023-24 was largely due to a single commodity - edible oils.
  - India's imports of vegetable fats topped \$20 billion in 2022-23.
    - That was the year immediately after the Russia-Ukraine war when the global price of vegetable oils increased.
  - However, 2023-24 saw lowering of global prices of the vegetable oil. This, in turn, reduced the import bill to below \$15 billion during last fiscal.
- **Increase in import of pulses**
  - The import of pulses almost doubled to \$3.75 billion in 2023-24, the highest since the \$3.90 billion and \$4.24 billion levels of 2015-16 and 2016-17 respectively.

### Key takeaways

- **Policy stability and predictability is the key**
  - Farmers and agri-traders, like all businessmen, want policy stability and predictability.
  - When governments resort to banning/restricting agri exports, they usually privilege the interests of consumers over producers.
    - These actions hurt more when taken overnight, like with wheat exports.
  - Building export markets takes time and effort.
  - **A more predictable and rules-based policy — say, introducing temporary tariffs instead of outright bans or quantitative restrictions — is what is recommend.**
- **Zero/low import duties are not suitable for crop diversification**
  - The govt has done away with import duties on most pulses — arhar (pigeon pea), urad (black gram), masoor (red lentils), etc.
    - The rate has been kept at 5.5% for crude palm, soyabean and sunflower oil.
  - The above zero/low tariffs are at variance with the government's own objective to promote crop diversification.
    - The govt is taking steps to wean away farmers from rice, wheat and sugarcane to growing pulses and oilseeds, which are less water-guzzling and also significantly imported.

## 15. Carbon farming – challenges and opportunities

### Context:

Carbon is found in all living organisms and many minerals. It is fundamental to life on earth and plays a crucial role in various processes, including photosynthesis, respiration, and the carbon cycle.

Farming is the practice of cultivating land, raising crops, and/or livestock for food, fibre, fuel, or other resources. It encompasses a wide range of activities, from planting and harvesting crops to managing livestock and maintaining agricultural infrastructure.

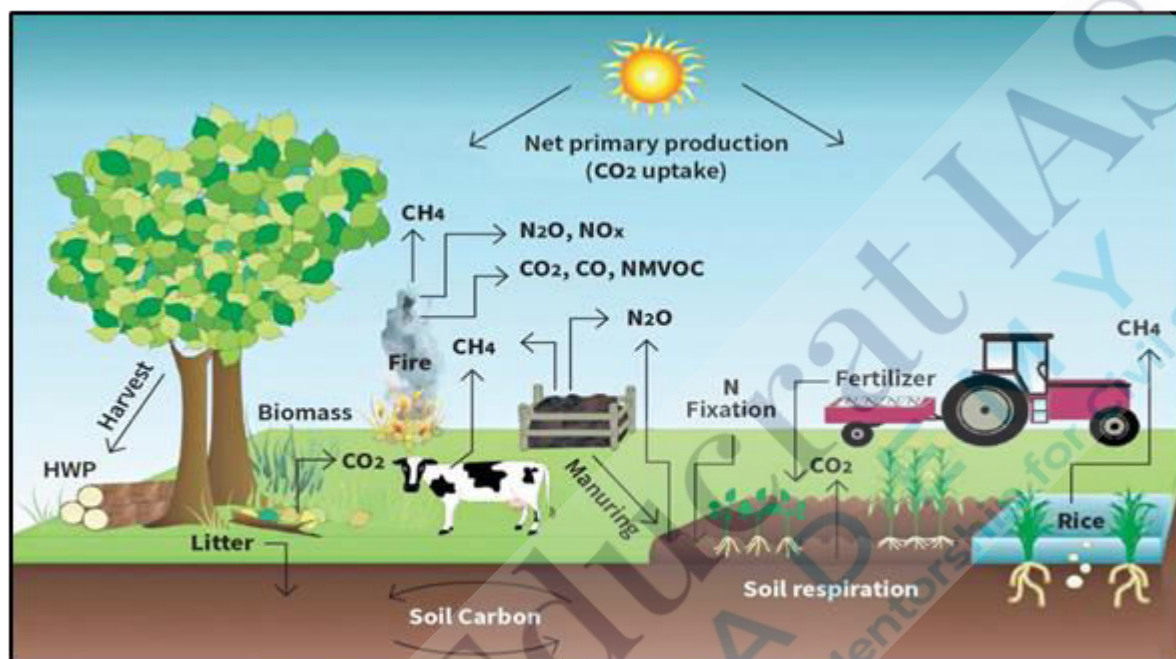
**Carbon farming combines these two concepts.** It does so by **implementing regenerative agricultural practices that restore ecosystem health while improving agricultural productivity and soil health, and mitigating climate change** by enhancing carbon storage in agricultural landscapes and reducing greenhouse gas emissions.

### Carbon farming

- **About**
  - Carbon farming is a **set of agricultural practices that aim to store carbon in the soil, plant material, wood, and leaves.**
  - The goal of carbon farming is to reduce the amount of carbon dioxide (CO<sub>2</sub>) and other greenhouse gases in the atmosphere, which can help mitigate climate change.
- **Implementation of carbon farming**
  - **A simple implementation of carbon farming is rotational grazing.**

- Others include **agroforestry, conservation agriculture, integrated nutrient management, agro-ecology, livestock management, and land restoration.**
  - Agroforestry practices can further diversify farm income by sequestering carbon in trees and shrubs.
  - Conservation agriculture techniques such as **zero tillage, crop rotation, cover cropping, and crop residue management can help minimise soil disturbance and enhance organic content.**
  - Integrated nutrient management practices promote soil fertility and reduce emissions by using organic fertilizers and compost.
  - Agro-ecological approaches such as **crop diversification and intercropping have benefits for ecosystem resilience.**
  - Livestock management strategies including rotational grazing, optimising feed quality, and managing animal waste can reduce methane emissions and increase the amount of carbon stored away in pasture lands.

- **Process**



- **Carbon farming schemes worldwide**
  - In the U.S., Australia, New Zealand, and Canada voluntary carbon markets have emerged.
  - Initiatives like the **Chicago Climate Exchange** and the **Carbon Farming Initiative in Australia** demonstrate efforts to incentivise carbon mitigation activities in agriculture.
  - The launch of the '**4 per 1000**' initiative during the COP21 climate talks in 2015 in Paris highlights the particular role of sinks in mitigating greenhouse-gas emissions.
    - The oceans and the atmosphere are filled with carbon, and they approach their saturation points.
    - Hence, we must manage the remaining carbon budget of 390 billion tonnes or so wisely.

### What are the challenges to carbon farming?

- **Effectiveness and usefulness depend on multiple factors**
  - The effectiveness of carbon farming varies depending on multiple factors — geographical location, soil type, crop selection, water availability, biodiversity, and farm size and scale.
  - Its usefulness also depends on land management practices, sufficient policy support, and community engagement.
- **Carbon farming can be challenging in hot and dry areas**
  - In regions with adequate rainfall and fertile soil, the potential for carbon sequestration through practices like agroforestry and conservation agriculture may be particularly high.
  - On the other hand, **carbon farming can be challenging in hot and dry areas where the availability of water is limited.**
  - Limited water availability can hinder the growth of plants, thus restricting the potential for sequestration through photosynthesis.



- E.g., practices like cover cropping, which require additional vegetation between main crop cycles, may not be viable due to the added water demand.
- **Selecting which plants to grow**
  - Selecting which plants to grow also becomes crucial because not all species trap and store carbon in the same amounts or in an equally effectively manner.
- **Financial resources**
  - The adoption of carbon farming practices may require financial assistance for farmers to overcome the costs of implementing them.
  - Small-scale farmers may lack the resources to invest in sustainable land management practices and environmental services.

### What are the opportunities for carbon farming in India?

- **Financial benefits**
  - Agro-ecological practices in India could yield significant economic benefits, with the potential to generate \$63 billion in value from approximately 170 million hectares of arable land.
  - This estimate includes an annual payment of around ₹5,000-6,000 per acre for farmers to provide climate services by adopting sustainable agricultural practices.
- **Extensive agricultural land**
  - Regions with extensive agricultural land, such as the **Indo-Gangetic plains and the Deccan Plateau, are well suited to adopt carbon farming.**
  - Coastal areas are prone to salinisation and have limited access to resources, thus limited the adoption of traditional farming practices.
- **Carbon credit system**
  - **Carbon credit systems can incentivise farmers** by providing additional income through environmental services.
- **India's journey towards achieving carbon neutrality while maintaining food security**
  - Studies have shown agricultural soils can absorb 3-8 billion tonnes of CO<sub>2</sub>-equivalent every year over 20-30 years.
  - This capacity can bridge the gap between feasible emissions reductions and the indispensable stabilisation of the climate.
  - So, carbon farming could also be a sustainable strategy to mitigate climate change and enhance food security in India.

## 16. Issues Faced by MSMEs in India

### Why in News?

The Union Budget 2023-24 introduced a new provision in the Income-Tax (IT) Act that aims to secure payments to micro, small and medium enterprises (MSMEs) within 45 days of supply of goods or services.

However, this provision has resulted in a peculiar problem - large companies cancelling orders to registered MSMEs and placing these with unregistered MSMEs.

### MSMEs in India:

Revised Definition of Micro, Small and Medium Enterprises			
Parameters	Micro	Small	Medium
Investment in Plant and Machinery	< 1 Crore INR	< 10 Crore INR	< 50 Crore INR
Annual Turnover	< 5 Crore INR	< 50 Crore INR	< 250 Crore INR
No. of MSMEs (Based on NSS data)	6.3 Crore	3.3 Lakh	5 thousand
No. of MSMEs (Based on Udyam data as on 31st March 2023)	1.5 Crore	4.6 Lakh	41 thousand

- MSMEs are often called the **powerhouse of the Indian economy** as they contribute significantly to employment generation, exports, and overall economic growth.
- They reportedly account for **more than 11 crore jobs and contribute around 27.0% of India's GDP**.
- The sector consists of **around 6.4 crore MSMEs**, with 1.5 crore of them registered on the Udyam portal and employs around 23.0% of the Indian labour force, making it the **2nd-largest employer in India after agriculture**.
- They account for 38.4% of the total manufacturing output and **contribute 45.03% of the country's total exports**.

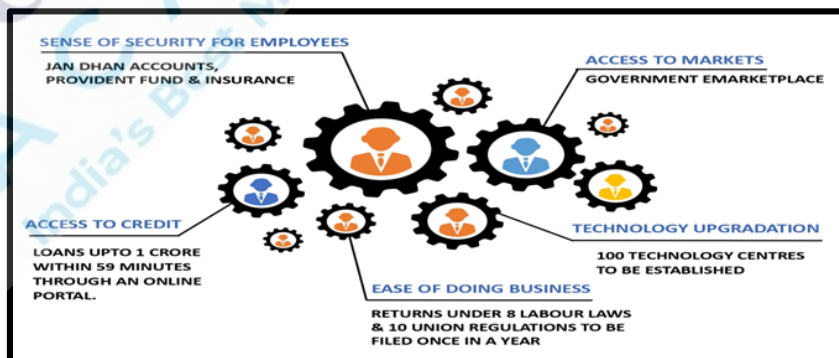
#### Significance of MSMEs and Problems Faced by Them:

- **Significance of MSMEs for Indian economy:** Labour intensive sector, promotes inclusive growth, leads to financial inclusion and promotes innovation.
- **Problems faced by MSMEs:**
  - **Problem of dwarfism:** While dwarfs (firms that continued to remain small despite ageing) consume vital resources (could possibly be given to infant firms), they contribute less to job creation and economic growth as compared to infant firms.
  - **Lack of funding:** Most (90%) of the MSME funding comes from informal sources.
  - **Poor integration of digital technologies:** Integration of technologies such as big data, AI and virtual reality (Industry 4.0) into manufacturing operations in the sector is still in its infancy.
  - **Environmental impact:** The sector lacks cleantech innovation and entrepreneurship, which produce environment friendly products, promotes energy efficiency and has the potential to accelerate the transition to a circular and low carbon economy.



#### Government's Initiatives to Boost MSME Sector:

- The Government of India has correctly identified MSME ecosystem development as a top priority for achieving **Atma Nirbhar Bharat** (self-reliant India).
- The ambitious **'Make in India'** campaign in India aims to propel the country up the manufacturing value chain and position it as a global manufacturing hub.
- **Production linked incentives (PLI) schemes** and the recently launched **zero effect zero defect (ZED) certification** are assisting in the promotion and growth of the sector.
- The **Prime Minister's Employment Generation Programme (PMEGP)** is also creating opportunities for self-employment and microenterprises, with over 7 lakh microenterprises being helped to become economically viable.
- **Digital Saksham initiatives**, as well as the interlinking of the Udyam, e-Shram, National Career Service (NCS) and Aatmanirbhar Skilled Employee-Employer Mapping (ASEEM) portals, demonstrate the promise of targeted digitalisation schemes.



#### Understanding the Latest Tax Compliance Guidelines for the MSMEs:

- In India, businesses usually record expenses when they happen (accrual basis), even if they haven't paid for them yet.

- However, **Section 15** of the MSMED Act 2006, and newly enacted **Section 43B(h) of the IT Act** says that businesses must pay these MSME Registered Enterprises **within 15 days/ up to 45 days if they have an agreement.**
- If a business doesn't comply with this regulation, they won't be able to deduct these payments as expenses in the same year they incur them. **This means their taxable income and business taxes could go up.**
- Also, in case of late payment to an MSME registered unit, **the payer will be responsible to pay interest on the amount due.**

#### **What are the Concerns Raised by Big Companies and the MSMEs?**

- **Bigger companies started flagging concerns about ballooning tax liability** and many **MSME** owners reported **cancellation of orders** due to the new tax clause.
- MSMEs also pointed out that **big companies are shifting business to unregistered MSMEs**, as it lends them the flexibility to not meet the mandatory provision and continue with a longer payment cycle of 90-120 days.
- **While some MSME associations have approached the Supreme Court** against the new norm, the Union MSME Ministry is learnt to have reached out to industry players for solutions.
- The Ministry has **asked stakeholders to suggest ways** to resolve the issues arising from the I-T Act and to recommend possible alternate mechanisms for timely clearance of MSME bills.



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# PRELIMS BOOSTER-THE HINDU & INDIAN EXPRESS

1 MAY

## 1. Ethylene:

- **Colourless, flammable gas** having a sweet taste and odour.
- Gaseous plant growth promoter.
- **Highly effective in fruit ripening**; Enhances respiration rate during ripening of fruits.
- Breaks seed and bud dormancy, initiates germination in peanut seeds, sprouting of potato tubers.
- Promotes root growth and root hair formation.
- **Ethephon is most widely used compound** as source of ethylene.
- Ethephon in an aqueous solution readily absorbed and transported within plant and releases ethylene slowly.

### FSSAI directions to use Ethylene:

- Permits Ethylene for artificial ripening provided concentration **does not exceed 100 ppm (parts per million)**.
- Any source of ethylene gas coming in direct contact with fruits is not permitted.

**2. Kalvari Class Submarine:** Pakistan launched its first Hangor class submarine which is considered a direct counterpart of India's Kalvari class of submarines.

### About Kalvari class submarines:

- Built by **Mazagon Dock Shipbuilders Limited under Project-75**, these are adaptation of French Scorpeneclass submarines.
- These have diesel-electric propulsion systems and are primarily attack submarines.
- India operates six Kalvari class submarines, namely **Kalvari, Khanderi, Karanj, Vela, Vagir, Vagshir**.
- Indian Navy is in process of installing an indigenously developed Air Independent Propulsion (AIP) system to these submarines.
- AIP system allows non-nuclear submarines to remain submerged for longer period.

## 3. NABARD:

- It is **India's apex development bank**, established in 1982 under an Act of Parliament.
- **Headquartered in Mumbai**, it is wholly owned by Government of India.
- **Mandate:** to promote sustainable and equitable agriculture and rural development.
- Recommended by **B. Sivaraman committee**.
- **Functions:** Promotional and developmental initiatives, finance and refinance support, capacity building of cooperatives and regional rural banks etc.

**4. K2-18B: Data from James Webb Telescope suggests a high probability of Dimethyl Sulphide (DMS) gas.** On Earth, living beings are the primary producers of DMS.

### About K2-18B:

- Discovered in 2015, **K2-18b is a super Earth exoplanet** (planet located outside our solar system) that orbits an M-type star.
- **M stars (also called M dwarfs or Red dwarfs) are relatively cool**, and smaller in size than the sun.
- It orbits **K2-18 in the Goldilock zone (habitable zone)** —Range of distance with right temperatures for water to remain liquid.

## 2 MAY

**1. TacticAI:** Google's Deepmind has developed TacticAI that can provide experts with tactical insights in Football.

### About TacticAI:

- The AI predicts the outcome of Corner kicks, using **"Geometric deep learning approach" to create more generalisable models on the field**.
- It helps in Identifying key patterns of tactics implemented by teams, and developing effective responses with tactical insights.

### About Geometric Deep Learning:

- A specialised area of machine learning.
- **Focuses on developing algorithms and models** to process and analyse data with a geometric structure like graphs, point clouds, and meshes etc.

## 2. Front Running:

- **Front Running in the stock market occurs when a broker or trader acts on advance information about client orders to execute their own trades first.**
- This anticipatory trading, based on **non-public knowledge of upcoming transactions, aims to profit from the resulting price movement.**
- It is an unethical activity which disrupts market fairness and can be illegal.
- It **undermines confidence in the financial markets and creates an uneven playing field** for other investors.

**3. Blood Minerals:** Apple faces allegations of using 'blood minerals' from war-torn Democratic Republic of the Congo (DRC).

- Blood minerals, also **known as conflict minerals**, are minerals that are mined in areas where **violence, human rights violations, and conflict are intertwined with their extraction.**
- The extraction and trade of these minerals have been **linked to funding armed groups and fueling conflicts in several countries in Central Africa.**
- **Tantalum, tin, tungsten, and gold (3TG)** are major examples of blood minerals.

**4. Eggshell skull Principle:** Supreme Court has rejected the application of 'eggshell skull' rule in a case.

### About Eggshell skull principle:

- It is a **common law principle applied in civil litigation.**
- **Principle:** The defendant would be held responsible for injuries caused to a person when he hit him on the head, even if the victim had a particularly delicate skull or an 'eggshell' for a skull.
- **The rule is applied for claiming an enhanced compensation**

## 3 MAY

**1. Antarctic Treaty:** India is set to **host the prestigious 46th Antarctic Treaty Consultative Meeting.** Meeting will be organised by the National Centre for Polar and Ocean Research (NCPOR), Ministry of Earth Sciences (MoES).

### About Antarctic Treaty:

- Signed in 1959 and entered into force in 1961. **Total Parties to the Treaty is 56.**
- India signed the treaty and received the consultative party status in 1983.
- Enacted Indian Antarctic Act, 2022, reaffirming its commitment to the Antarctic Treaty.
- **Key provisions:** Antarctica shall be used for peaceful purposes, Freedom of scientific investigation, etc.
- **Key Protocol and Conventions:** Protocol on Environment Protection (Madrid Protocol) to the Antarctic Treaty, 1991 Convention on the Conservation of Antarctic Marine Living Resources, 1980

**2. Quarks:** Scientists have reported that the inside of most massive neutron stars is most likely made of quark matter. **Neutron stars are formed when a massive star runs out of fuel and collapses.**

### About Quarks:

- These are **elementary particles.**
- Like the electron, they are not made up of any other particles.
- These can't exist in isolation.
- They can only be found in clumps (groups) of two or three and such clumps of quarks are called hadrons.
- **A quark's antiquark clump is called a meson.** These are the ultimate building blocks of visible matter in the universe.
- **There are six types of quarks:** up, down, top, bottom, strange, and charm.

**3. Blue Hole:** Researchers found evidence that **Taam Ja' Blue Hole is the deepest in the world.** It is located in Mexico's Chetumal Bay, on the eastern side of the Yucatán Peninsula.

### About Blue hole:

- These are **water-filled caverns that form below the seafloor.**
- These are often found in coastal areas where the bedrock is prone to erosion.
- They **develop as ocean water seeps through cracks**, dissolving minerals as they go, leading to sinkholes.
- Over time, they can grow quite large.
- **Other Prominent Blue Holes:** Dragon Hole in the South China Sea, Great Blue Hole near Belize and the Dahab Blue Hole (Egypt).

#### 4. Passive funds:

- **Securities and Exchange Board of India has raised the investment limit for passive funds like Index Funds and Exchange-traded funds (ETFs)** in companies belonging to the sponsor group from 25% to 35% of their total assets.
- Passive Funds are the funds which invest in a particular Index in a similar proportion to generate returns similar to the Index.
- **Benefits:** Help in accurate reflection of the index's performance in the fund, can provide wider investment options, etc.

### 7 MAY

#### 1. Interpol (International Criminal Police Organization):

- **Genesis:** An inter-governmental organization established in 1923.
- **Purpose:** To facilitate information-exchange between national police forces.
- **Members:** 196 member countries (including India)
- **Organizational structure:** General assembly, General secretariat, Executive committee and National central bureaus (NCB).
- **NCB is a country's focal point for all Interpol activities and Central Bureau of India (CBI) is India's designated NCB.**

#### 2. Arecanut:

- Tropical horticultural and commercial crop
- **Ideal temperature:** 14-36 degree Celsius
- **Rainfall:** 750-4500 mm
- **Ideal altitude:** 1000 M above mean sea level
- **Ideal soil type:** Laterite, loamy, clayey, alluvial.
- Karnataka produces around 80% of the country's produce followed by Kerala and Assam.
- **India imports arecanut from Sri Lanka, Myanmar and Indonesia.**
- The Centre has levied a Minimum Import price on it to curb illegal imports.

#### 3. Section 498A of the IPC:

- Citing the misuse of Section 498A of the Indian Penal Code (IPC) the Supreme Court requested the Parliament to bring necessary changes in corresponding sections in the **Bhartiya Nyay Sanhita (BNS), 2023.**
- Court also observed that the **Sections 85 and 86**

**of the BNS is a verbatim reproduction of the Section 498A.**

- BNS 2023 is to come into force w.e.f. July 01, 2024.

#### About Section 498A:

- Introduced in **1983 to address domestic violence and harassment** faced by married women in India by their husband or his relatives.
- Punishment includes a jail term of up to 3 years or fine.

#### 4. Eta Aquarid meteor shower:

- **Eta Aquarid meteor shower peaks during early May each year.**
- Meteors are space rocks that enter Earth's atmosphere burning and causing streak of light.
- Meteors come from leftover comet particles and bits from broken asteroids.

#### About ETA Aquarid meteor shower:

- It occurs when the Earth passes through orbital plane of **Halley's Comet**, which takes about 76 years to orbit the Sun.
- **Eta Aquarid meteors are known for their speed.** Southern Hemisphere is preferable for viewing Eta Aquarids as its radiant – **Aquarius Constellation** – is higher up in sky in Southern Hemisphere.

### 8 MAY

#### 1. Capital Gains Tax:

- Under the **Income Tax law, any profits or gains arising from the transfer of a 'capital asset', is chargeable to tax under the heading of 'Capital Gains'.**
- **Types:**
  - **Short-Term Capital Gain:** For assets generally held for less than 36 months.
  - **Long-Term Capital Gain:** For assets held for 36 months or more. However, tenure varies in the case of different assets. For e.g. Long term capital gain is levied on listed shares if period of holding is more than 1 year

#### 2. Indian Leopard (*Panthera pardus fusca*):

- **Characteristics:** Can be diurnal and nocturnal; Good climbers and rely on trees for cover.
- **Habitat Distribution:** India, Nepal, Bhutan, and parts of Pakistan, excluding mangrove forests and deserts.
  - In India, they are found in **Tropical rainforests,**

**temperate deciduous, alpine coniferous forests.**

- **Importance of Leopard:** Maintaining ecological balance, regulate populations of their prey species, etc.
- **Threats:** Habitat Loss, Poaching etc.
- **Protection Status:** ♦ IUCN- Vulnerable ♦ CITES- Appendix I
- ♦ **Wildlife Protection Act 1972:** Schedule 1

### 3. MQ-9B:

- It has two variants- **SkyGuardian and SeaGuardian**
- SeaGuardian is used by **Indian Navy since 2020.**
- SkyGuardian is the **next generation of remotely piloted aircraft systems (RPAS).**
- It can fly for up to 40+ hours in all types of weather.
- It is equipped with Multi-mode Radar, an advanced electrooptical/infrared (EO/IR) sensor etc.
- It is capable of a variety of roles including **surveillance, over-the-horizon targeting, airborne early warning, electronic warfare etc**

### 4. Catatumbo lightning:

- It is a **natural phenomenon that occurs at the mouth of the Catatumbo River**, where it meets Lake Maracaibo.
- The **lightning strikes almost continuously up to 160 nights in a year. The area is called the lightning capital of the world.**
- **Factor responsible for high frequency of lightning:** The convergence of cool air from the Andes and moist air from the Caribbean generates a constant cycle of convection.
- As the warm air rises, it cools and condenses, leading to the formation of Cumulonimbus clouds which in turn, create an environment for electrical activity.
- **Lake Maracaibo in Venezuela is the largest lake in Latin America.**

## 9 MAY

1. **Sahyadri Tiger Reserve (STR):** Maharashtra plans to relocate tigers to the Sahyadri Tiger Reserve from Tadoba-Andhari Tiger Reserve in Chandrapur district.

### About STR:

- Located in the **Sahyadri Ranges of Western Ghats in Maharashtra.**
- Spread over Kolhapur, Satara, Sangli and Ratnagiri districts in western Maharashtra.

- Reserve was notified in 2010 amalgamating Koyana Sanctuary and Chandoli National Park.
- **Habitat:** Composed of woodlands, grasslands, and plateaus (Sadaa).
- **Flora:** Subtropical Hill Forests, Semi-evergreen Forests, Deciduous Forests.
- **Fauna:** Tiger, Atlas Moth, Moon Moth, and other endangered Butterflies, Blue finned Mahasheer fish, also supports Hornbills.

2. **West Nile Virus (WNV):** Cases of West Nile fever, caused by WNV, were reported in Kerala

### About WNV:

- **Isolation:** First isolated in 1937 in the West Nile district of Uganda, hence named so.
- **Virus Family:** a member of the **flavivirus genus.**
- **Vectors:** Transmitted through the bites of infected mosquitoes, specifically from the genus Culex.
- **Natural Hosts:** Bird
- **Health Risks:** Can cause severe neurological diseases and death.
- However, approximately 80% of infected individuals do not exhibit any symptoms.
- **Vaccination:** Vaccines are available for horses but not for humans.

### 3. Foreign Exchange Management Act, 1999 (FEMA):

RBI has eased FEMA norms to facilitate foreign investment in derivatives. Derivative is a financial instrument which derives its value/ price from the underlying assets.

### About FEMA:

- FEMA was **enacted as a successor to Foreign Exchange Regulation Act (FERA) of 1973.**
- **Aim:** Facilitating external trade and payments and for promoting the orderly development and maintenance of foreign exchange markets in India.
- Two categories of foreign exchange transactions in: **capital account and current account transactions.**
- **Liberalized Remittances Scheme allows residents to remit for any permissible current or capital account transactions.**

## 14 MAY

1. **Sea Anemone:** Scientists have found mass sea anemone bleaching off Agatti island, Lakshadweep.

#### About Sea anemone:

- They are **ocean-dwelling members of the phylum Cnidaria**.
- Sea anemones are **predatory animals** and most species are found in coastal tropical waters.
- Like corals, **sea anemones establish symbiotic relationships with green algae**.
- Sea surface temperature rise disrupts this relationship, resulting in bleaching.
- They also have a **symbiotic relation with clownfish**.
- Clownfish are protected by the stinging tentacles of anemone and anemone gets food from Clownfish's meals.
- They **play key biogeochemical roles in benthic ecosystems**.

#### 2. Measles:

- Measles is an **acute viral respiratory illness**.
- **Symptoms:** High fever, cough, coryza, and conjunctivitis (the three "C" s) and rash.
- **Pathogen:** Measles virus (a single-stranded, enveloped RNA virus).
- **Hosts:** Humans are the only natural hosts. Vaccines:
- **Measles Rubella (MR) vaccine is part of India's Universal Immunization Programme since 2017.**
- Rubella virus infection usually causes a mild fever and rash.

**3. Small Ribonucleic acid (sRNA):** Researchers found altered food habits in *C. elegans* worms after they ate a disease-causing bacteria (*P. vranovensis*) that produces sRNA.

#### About Srna:

- sRNA is a **group of primarily non-coding RNA (ncRNA) and generally contains 20 to 200 nucleotides**.
- ncRNA **refers to RNA that does not encode a protein**.
- **Ribonucleic acid (RNA) is made up of 4 types of nucleotides adenine (A), uracil (U), cytosine (C) or guanine (G).**
- They bind to other proteins and RNAs, and either enhance or reduce the expression of other genes.

#### 4. About DigiLocker Platform:

- Launched in 2015, it is a **flagship initiative of Ministry of Electronics and Information Technology under Digital India program**.
- It is a secure cloud-based platform for issuance and verification of documents & certificates in digital

way.

- These **digital documents are legally valid documents under Indian Information Technology (IT) Act 2000**.
- According to IT Rules, 2016, these are treated at par with original physical documents.
- **Benefits:** Reduced Administrative cost, Paperless Governance, Real Time Verification etc.

#### 15 MAY

**1. High Energy Photon Source (HEPS):** China is planning to construct a High Energy Photon Source (HEPS).

- This **will put China among the few countries that have fourth generation synchrotron light sources**. Currently around 70 synchrotrons are scattered across the world.
- But only a few countries have fourth-generation synchrotrons such as **Sweden, Brazil, France etc.**

#### About HEPS:

- **First Brightest Synchrotron X-Rays in Asia.**
- Synchrotrons use electricity to produce intense beams of light more than a million times brighter than the sun.
- **Rely on an array of magnets called a multi-bend achromat lattice** to generate X-ray beams that are narrower and therefore brighter.
- **Benefits:** Will help researchers' to understand matter in the dimensions of space, time, and energy, as well as at the level of molecules, atoms, electrons, and spin.
- **Indus-1 was India's synchrotron.**
- India is also an **associate member of the European Synchrotron Radiation Facility (ESRF)** based in Grenoble, France.

**2. India International Bullion Exchange (IIBX):** State Bank of India has become the first trading-cum-clearing member at IIBX.

#### About IIBX:

- **Established at GIFT International Financial Services Centre (IFSC), Gandhinagar, Gujarat in 2022.**
- **Regulated by IFSC Authority (IFSCA).**
- Promoted by India's leading market infrastructure institutions like **National Stock Exchange, Multi**



### Commodity Exchange of India etc.

- Benefits Gateway to import bullion into India.
- **Provide world class bullion exchange ecosystem to promote bullion trading**, investment in bullion financial products and vaulting facilities in IFSCs.
- **Bullion refers to physical gold and silver of high purity that is often kept in form of bars, ingots, or coins.**

### 3. Keeling Curve:

- It is the **record of atmospheric CO<sub>2</sub> from Mauna Loa Observatory (MLO), since 1958.**
- MLO is a station that measures the elements in atmosphere that contribute to climate change.
- It is **located in Hawaii on the side of Mauna Loa**, the world's largest active volcano.
- It is **named after Dr. Charles David Keeling.**

**4. Aurora:** The night sky over Hanle village in Ladakh was illuminated by northern lights as an intense solar storm hit the Earth.

#### About Aurora:

- **Multi-coloured lights appear in upper atmosphere (ionosphere) over the Polar Regions** and are visible from locations in the middle and high latitudes.
- Colours can be **blue, red, yellow, green, and orange.**
- **Aurora in Northern Hemisphere is called aurora borealis and aurora australis in Southern Hemisphere.**
- Caused by the **interaction of solar wind with oxygen and nitrogen gas in atmosphere.**

### 16 MAY

**1. Tea Board of India (TBI):** According to data released by TBI, **tea production across the tea estates of Assam and West Bengal may drop by 50%.**

#### About TBI:

- It is a **statutory body set up in 1954 under the Tea Act, 1953.**
- **Ministry:** Ministry of Commerce.
- **Headquarter:** Kolkata.
- Overseas offices are in **London, Dubai, and Moscow.**
- **Member:** 31 members (including Chairman)
- It is reconstituted every three years.

- Major Tea Growing Regions **Assam, West Bengal, Tamil Nadu, Kerala and Karnataka, Andhra Pradesh, Tripura, Himachal Pradesh, etc.**

**2. Red Panda (Ailurus fulgens):** A Red panda was recently sighted in **Eaglenest Wildlife Sanctuary (Arunachal Pradesh).**

#### About Red Panda:

- Small arboreal mammal found in high-altitude forests of **Nepal, India, Bhutan, Myanmar, and China.**
- **Habitat:** Temperate forest of Himalayas (Sikkim, West Bengal, Meghalaya, and Arunachal Pradesh).
- It **thrives best at 2,200-4,800m in mixed deciduous and conifer forests with dense understories of bamboo.**
- **Protection status:** IUCN status: Endangered Wildlife Protection Act: **Schedule I CITES: Appendix I**
- **Conservation Issues:** Habitat fragmentation and degradation, Predation by feral dogs, Occasional hunting and poaching.

**3. India Volatility Index (VIX):** Recently, India VIX surged above the critical threshold of 21, indicating heightened volatility in India's stock market.

#### About India VIX:

- It is a **measure of the amount by which an underlying Index is expected to fluctuate, in the nearterm (30 calendar days).**
- Higher the India VIX values, higher the expected volatility and vice-versa.
- It is **based on index option prices of NIFTY.**
- Uses computation methodology of Chicago Board of Options Exchange (CBOE).
- **CBOE was first to introduce a volatility index for US markets in 1993.**

### 4. CAATSA:

- It is a **US federal law, enacted in 2017, which aims to punish countries having deep engagements with Russia, North Korea, and Iran using economic sanction.**
- It entails economic & financial penalties for any nation that have significant transactions with Russian intelligence and military agents.
- In 2018, **US House of Representatives passed an amendment to exempt India from economic sanctions under CAATSA for purchasing S-400**

missile defence system from Russia.

17 MAY

### 1. Minamata Convention on Mercury:

- Adopted in 2013 at Kumamoto (Japan) and came into force in 2017.
- **1st global legally binding treaty to protect human health** and environment from adverse effects of mercury.
- **Purpose:** Ban on new mercury mines, phase-out of existing ones, phase-out and phase-down of mercury use in products and processes.
- **Named after the city in Japan that became the epicentre of Minamata disease**, caused by severe mercury poisoning.
- India ratified it in 2018.

2. **Lead:** Scientists have developed an affordable sensor for detecting and measuring lead concentrations in water.

#### About Lead:

- It is a **naturally occurring toxic metal found in Earth's crust**.
- Lead in the body is distributed to the **brain, liver, kidney and bones**.
- It is **stored in the teeth and bones**, where it can accumulate over time.
- It is poor conductor of heat and do not react with water.
- **Sources of lead exposure:** Mining and smelting, recycling of electronic waste and lead-acid batteries, plumbing, toys, lead paint etc.
- Lead exposure causes damage to **child's brain and nervous system, anaemia, hypertension, toxicity to reproductive organs etc.**

3. **Sangam: Digital Twin Initiative:** Ministry of Communications has unveiled Stage-I Participants for "Sangam Initiative: A Leap Towards AI-Driven Infrastructure Transformation".

#### About Sangam:

- **Digital Twin Initiative** It is a **Proof of Concept focused on revolutionizing the planning & design of infrastructure** by leveraging digital twin technology to create precise, dynamic models of physical environments.
- It combines the ability of 5G, IoT, AI, Digital Twin

and next generation computational technologies.

- Digital twin is a **virtual representation of an object or system designed to reflect a physical object accurately**.
- It enhances the efficiency and accuracy of infrastructure projects.

4. **Indian National Space Promotion and Authorization Centre (IN-SPACE):** IN-SPACE has been honoured with the Leadership Award for "Public Policy: Enabling Industry Development" by the Geospatial World Forum (GWF). **GWF is an interactive platform of the global geospatial community.**

#### IN SPACE:

- **Headquarters:** Ahmedabad (Gujarat)
- **Genesis:** Establishment in 2020 as a part of space sector reform.
- **Nodal department:** An autonomous agency in the Department of Space (DOS).
- **Aim:** To facilitate the participation of private players in India's space sector.
- **Key roles:** Enable and nurture non-government entities (NGEs) to accomplish their ventures in space sector and supervise their activities.
- Authorize space operations and services in the country through well-defined framework.

21 MAY

1. **Giant Viruses:** Scientists have discovered 1.5 Billion-Year-Old "Giant" Viruses in Yellowstone National Park.

#### About giant Viruses:

- **Refers to their exceptionally large genomes compared to more common viruses.**
- They do not pose any risk to humans.
- They provide valuable insights into a period when single-cell organisms were starting to emerge on Earth.
- Yellowstone National Park Oldest and one of the largest national park in the US.
- Designated a **UNESCO biosphere reserve in 1976 and a World Heritage site in 1978.**
- **Hot springs are the most common hydrothermal features in Yellowstone.**

2. **Calcium Carbide:** FSSAI alerts fruit traders to ensure compliance with prohibition of Calcium Carbide in fruit ripening.

#### About Calcium Carbide:

- Prepared by heating **quick lime with coke** and releases **acetylene gas** which contains harmful traces of arsenic and phosphorus.
- Use of calcium carbide for ripening fruits has been **banned under Food Safety and Standards (Prohibition and Restrictions on Sales) Regulations, 2011.**
- Safer alternative for fruit ripening **Ethylene gas can be used at concentrations up to 100 ppm** (100 µ/L), depending upon the crop, variety, and maturity

**3. Pig Butchering Scam:** A new type of financial frauds called Pig Butchering Scams are increasing worldwide, including in India.

#### About Pig Butchering Scam:

- Also known as a “**sha zhu pan**” scam, it is used to describe a scam perpetrated over a long period of time to steal victim's money repeatedly via online apps.
- Criminals lure victims into digital relationships to build trust before convincing them to invest into fraudulent schemes or platforms.
- The term “**pig butchering**” comes from the scammers’ practice of “**fattening up**” their victims by building trust before “**slaughtering**” them.

**4. Greater Adjutant Stork:** Purnima Devi Barman received the 2024 Whitley Gold Award dubbed ‘Green Oscar’ for conserving Greater Adjutant Stork (*Leptoptilos dubius*).

#### About Greater Adjutant Stork:

- **Distribution:** Also known as ‘Hargila’, they reside only in Assam (80%) and Bihar of India and Cambodia.
- **Habitat:** Inhabits wetlands, nesting in tall trees with closed canopies and bamboo clumps around nesting trees, etc.
- **Threats:** Hunting, habitat destruction including felling of nest trees; degradation of wetlands, etc.
- **Conservation Status:** IUCN List: Nearly Threatened (NT)

#### 22 MAY

**1. Koundinya Wildlife Sanctuary:** Sri Lankan golden backed frog has been rediscovered after 200 years in India at Koundinya Wildlife Sanctuary.

#### About Koundinya Wildlife Sanctuary:

- It lies in **Kuppam and Palmaner Ranges of Chittoor district, Andhra Pradesh.**
- It is **the only sanctuary in Andhra Pradesh known for harboring Asian elephants.**
- Kaundinya and Kaigal tributaries of Palar River flow through it.
- **Fauna:** Birds (Partidges, Quails etc.), Mammals (Indian Elephant, Panther, Sloth bear, Wild boar, Nilgai, Hyena, Jackal) etc.
- **Forest:** Dry Deciduous forests with thorny scrub.

**2. Doppler effect:** The **Consumer Affairs Ministry seeks public feedback on draft regulations for Doppler radar equipment used for measuring vehicle speeds.** Doppler radar uses the Doppler effect to gather velocity data.

#### About Doppler effect:

- It refers to the **change in wave frequency during the relative motion between a wave source and its observer.**
- **First proposed by Johann Christian Doppler in 1842.**
- The phenomenon is observed in sound waves and electromagnetic waves.
- **Application:** Astrophysics, by police to check over speeding of vehicles, etc.

**3. Meitei Sagol:** The Manipur Government has collaborated with different organizations to protect the Manipuri Pony, also known as Meitei Sagol.

#### About Meitei Sagol:

- They are **one of seven recognised horse and pony breeds of India.**
- **Others:** Marwari Horse, Kathiawari Horse, Zanskari Pony, Spiti Pony, Bhutia Pony and Kachhi-Sindhi Horse.
- They are of short height, however, known for their unique stamina, agility, intelligence, speed, etc.
- **Regarded as the original polo pony as modern polo is derived from the traditional Sagol Kangjei of Manipur.**
- **Threat:** Shrinkage of wetlands, lack of polo grounds, etc.

#### 4. Baobab tree:

- **Long-lived deciduous**, small to large trees from 20 to 100 ft tall with broad trunks and compact tops.

- Massive root systems slow down soil erosion and enable nutrient recycling.
- **Also known as upside-down tree**, because in dry season they are devoid of leaves, and their bare grey and gnarled branches resemble roots.
- Fiber from the bark is used to make rope, baskets, cloth, musical instrument strings, and waterproof hats.

## 24 MAY

**1. Himalayan Ibex:** Wildlife authorities in Himachal Pradesh have started a survey to estimate the population of the Himalayan ibex along with blue sheep.

### About Himalayan ibex:

- It is a **goat with sweeping horns**.
- **Habitat:** Above the tree line in the Himalayas up to 5500 m, grazes on alpine pastures but always close to rocky precipitous terrain.
- Occasionally enters forests.
- **Distribution:** Mountains of Pakistan, China, India (Ladakh, Himachal Pradesh and Jammu and Kashmir), Afghanistan, etc.
- **Conservation status:** Schedule I of Wild Life Protection Act (WPA), 1972.

### About Blue Sheep (Bharal):

- **Habitat:** Open grassy slopes in high mountains from 2,500-5,500 m.
- **Distribution:** Bhutan, China, India, Myanmar, Nepal and Pakistan
- **Conservation status:** Least Concern (IUCN) and Schedule I of WPA, 1972

**2. Inverted Duty Structure (IDS):** Ministry of Commerce and Industry shared certain items to Ministry of Finance to address Inverted Duty Structure (IDS).

### About Inverted Duty Structure:

- Refers to situation **where import duties on input goods are higher than on finished goods**.
- In other words, the **GST rate paid on purchases is more than the GST rate payable on sales**.
- **Impact of IDS:** Affects domestic industry, manufacturers' have to pay high price for raw material than on finished products.
- Expensive inputs make their products costly and cannot compete in the export market.
- Taxpayers who face an inverted duty structure will

always have Input Tax Credit (ITC) in their GST electronic credit ledger. Creates working capital issues for the taxpayers as their resources remain blocked in the form of Input Tax Credit (ITC) due to high input tax.

- Also, IDS leads to refund-related issues under the GST regime.

## 3. Geopolitical Recession:

- **Political scientist Ian Bremmer defines a geopolitical recession as a situation where established global power frameworks are crumbling.**
- According to him, like **economic recession, Geopolitics have boom and bust cycles, too.**
- During geopolitical recession, responding to a crisis becomes significantly more challenging due to the decreased resilience of political institutions.

### Reasons for current geopolitical recession:

- Long-term rise of China and the Global South, combined with a decline of European and Japanese economic power.
- Tensions over trade between the US and China.

**4. Wind Shear:** Recently, a plane of Singapore Airlines experienced severe mid-air turbulence (irregular motion of the air). **One of the primary kinds of turbulence is called the Clear-air turbulence and it is caused by wind shear.**

### About Wind shear:

- Defined as the **change in wind speed, wind direction, or both, over some distance.**
- Occurs either **horizontally or vertically.**
- Also, it can occur at **both high and low altitude.**
- Usually associated with the weather phenomenon such as **jet streams, mountain waves or temperature inversion layers, thunderstorms etc.**

## 28 MAY

### 1. Silence Period:

- Silence Period was observed in the **states where Lok Sabha elections were held.**
- The silence period is a ban on political campaigning before voting.
- It begins 48 hours before the voting day and ends after polling ends.

**Some prohibitions under the Representation of People Act 1951 during this period (however the Act does not use the term silence period):**

- **Section 126 (1)** prohibits displaying any election matter using television or similar apparatus, or propagation of election matters through any entertainment (like musical concert).
- **Section 126A** prohibits conducting Exit polls and displaying their result (using print or electronic media).
- **Section 126(1)(b)** prohibits displaying the results of any Opinion Poll (in any electronic media).

**2. Project 28:** INS Kiltan, one of Project 28 (P28) Anti-Submarine Warfare (ASW) Corvettes, visited Brunei as part of operational deployment.

**About P28:**

It was aimed at building 4 indigenous ASW corvettes or Kamorta class ships.

**Features of ASW corvettes:**

- Equipped with anti-aircraft guns, torpedo launcher and early warning, fire control radars etc.
- Can be deployed in **nuclear, biological and chemical warfare conditions.**
- Utilized indigenously developed special high strength warship grade steel type DMR 249A.
- **Designed by:** Indian Navy's Directorate of Naval Design.
- **Built by:** Garden Reach Shipbuilders & Engineers (GRSE) in Kolkata.
- **Ships:** INS Kamorta, INS Kadmat, INS Kiltan and INS Kavaratti.

**3. Nephrotic Syndrome:** Recently scientists discovered that **anti-nephrin autoantibodies serve as biomarker for monitoring advancement of Nephrotic syndrome.** Biomarkers are measures used to perform a clinical assessment such as blood pressure.

**About Nephrotic Syndrome:**

- Kidney disorder that causes too much protein to be lost from blood into urine.
- **Nephrotic syndrome causes scarring or damage to filtering part of kidneys (glomeruli).**
- These tiny blood vessels filter waste and excess water from blood, directing them to bladder as urine.
- **Causes:** Many disorders can cause nephrotic syndrome including diseases that affect parts of body, such as diabetes and lupus.

**4. Ghughwa National Fossils Park:** Prehistoric artefacts made from fossil wood found in **Ghughwa National Fossils Park, indicating use of fossilised tree trunks as raw materials for tools by early men.**

**Ghughwa National Fossil Park:**

- **Location:** Dindori district, Madhya Pradesh.
- **Landscape:** Tropical dry deciduous.
- It was **recognised as a National Park in 1983.**

**Key Features:**

- It has **plants in fossil form** that existed in India between 40 million and 150 million years ago.
- Notable discoveries include **preserved fossils of woody plants (eucalyptus, date palm, neem, etc.), climbers, leaves, flowers, fruits, etc. and dinosaur egg fossil.**

**29 MAY**

**1. Committee on Import Licensing (CIL):** Statement released by WTO's CIL showed Japan and China have formally raised concern over India's laptop import licensing measure announced in August last year but was soon reversed.

**About CIL:**

- It was **established under Article 4 of the Agreement on Import Licensing Procedures (ILP Agreement).**
- ILP seeks to reduce scope for discrimination or administrative discretion in the application of import licensing procedures.
- It **supervises the implementation of the ILP Agreement.**
- Its work revolves around **two main areas of reviewing specific trade concerns and ensuring transparency in import licensing.**

**2. Carbon Fiber:** The Vice President inaugurates Centre for Carbon Fiber and Prepregs at National Aerospace Laboratories in Bengaluru.

**About Carbon Fiber:**

- A **polymer which is a form of graphite** (an allotrope of carbon) consisting of thin, strong crystalline filaments of carbon.
- **Properties:** Extremely stiff, strong, and light, high in chemical resistance; temperature tolerant to excessive heat; and have low thermal expansion.
- Also, they can be recycled.

- **Applications:** Manufacturing of components for automobiles, aircrafts, etc.
- **Prepregs:** It is the common term for a reinforcing fabric which has been pre-impregnated with a resin system (thermoset or thermoplastic).

**3. Gold Backed Currency:** Recently, Zimbabwe launched the gold-backed currency called ZiG.

**About Gold backed currency:**

- **Gold backed currency has fixed value directly linked to gold, and is convertible into gold.**
- Money supply is limited by available gold reserves.
- It has its inherent value and has potential for stability in long run.

**About Fiat Currency:**

- Fiat currency **lacks intrinsic value** and is established as legal tender by government.
- **Its value is determined by supply & demand** and is not supported by any physical commodity.
- It gives central banks more control to print required money.

**4. Bond Yield:**

Bond yield is the **return on the capital invested on a particular bond**

**Bond Price - Yield relation:**

- Price and yield are inversely related.
- As the price of a bond goes up, its yield goes down. Conversely, as the yield goes up, the price of the bond goes down.
- **A fall in government bond yields lowers borrowing costs across the economy as sovereign debt yields are the benchmarks for determining the price of corporate borrowing.**

**30 MAY**

**1. Certificates of Deposit (CD):** Banks fundraising through CDs rises amid liquidity deficit

**About CDs:**

- **A negotiable money market instrument.**
- Issued in dematerialised form or Promissory Note against funds deposited.
- Issued by **Scheduled Commercial banks including Regional Rural banks and Small finance banks.**
- Also, by certain All India Financial Institutions (FIs).

- Can be issued to **individuals, corporations, companies, etc.**
- Issued in minimum denomination of ₹5 lakh Issued for a duration of not less than 7 days and up to 1 year.
- FIs can issue CD for not less than 1 year and not more than 3 years.

**2. Nidoviruses:** Researchers discovered unknown nidoviruses in various vertebrates.

**About Nidoviruses:**

- **Positive-sense Ribonucleic acid (RNA) viruses that infect a broad range of animals including terrestrial and marine mammals, fish, etc.**
- Share a similar genome organization and expression strategy but vary in the size of genomic RNA.
- Belongs to **order Nidovirales.**
- Out of the large group of nidoviruses, **only coronaviruses have been so far associated with disease in humans.**
- The researchers also found that when **host animals are infected with different viruses at the same time, a new virus may emerge altogether as a result of a recombination of viral genes.**

**3. Magellan Mission:** A fresh look at 30-year-old radar images captured by the Magellan spacecraft suggests the planet Venus may currently be volcanically active.

**About Magellan Mission:**

- Launched by **NASA in 1989.**
- It was the first spacecraft to image the entire surface of Venus.
- It was designed to use a **Synthetic Aperture Radar (SAR) to map the Venusian surface.**
- SAR is a **technique for producing fine-resolution images from a resolution-limited radar system.**
- The Venusian terrain images reveal signs of volcanism, tectonic activity, and turbulent surface winds among other features.

**4. Oedocladium sahyadricum:** This new algal species was discovered in Western Ghats of Kerala.

**About Oedocladium sahyadricum:**

- It is **algal species which is dioecious** (having the male and female organs in separate and distinct individuals) and terrestrial in nature.
- The alga was found like filmy mat of elongated strands on wet soil.

- It exists in **habitat of loamy, acidic in nature.**
- **Applications:** in medicine, agriculture and in the production of a natural pigment.

### 31 MAY

**1. Lignosat:** Japan researchers have built the world's first wooden satellite named Lignosat. **NASA and JAXA are collaborating in this Initiative.**

#### About Lignosat:

- Tiny cuboid craft and it will be sent into space by SpaceX rocket.
- **Initiative aims to combat space clutter and promote more environmentally friendly space activity.**
- **Material:** Magnolia wood, due to its strength and resilience.
- **Benefits:** Unlike traditional satellites (built with aluminium) which release harmful particles during re-entry whereas Lignosat will burn harmlessly.
- **Electromagnetic waves can easily pass through wood,** allowing for the containment of instruments within the satellite's structure.
- **Eliminates the risk of instruments detaching and becoming debris.**

**2. RudraM-II:** RudraM-II missile was successfully flight-tested from Su-30 MK-I.

#### About RudraM-II:

- Indigenously developed solid-propelled air-launched missile, designed for air-to-surface operations.
- Developed by the **Defence Research and Development Organisation (DRDO).**
- In 2020, **RudraM, a new-generation anti-radiation missiles (NGARMs) was successfully tested.**
- It is **first indigenous ARM of Indian Air Force.**
- It is **equipped with the Inertial Navigation System (INS)- Global Positioning System (GPS) navigation system and Passive Homing Head (PHH).**
- PHH can detect, classify and engage targets over a wide band of frequencies as programmed.

**3. Colombo Process:** India assumed the Chair of Colombo Process for 2024-26, for the first time since its inception in 2003.

#### About Colombo Process:

- Regional Consultative Process that provides

platform for consultations on the management of overseas employment and contractual labour.

- **Comprises of 12 Member States of Asia such as Bangladesh, Sri Lanka etc.**
- **India is one of the founding members.**
- **Thematic priority areas are:** Skills and Qualification Recognition Processes; Fostering Ethical Recruitment Practices, etc.
- **UN's International Organization for Migration provides technical and administrative support to the Colombo Process.**

#### 4. Microcephaly:

- As per recent studies, **SASS6 (SAS-6 Centriolar Assembly Protein) gene's** may be responsible for causing microcephaly.
- SASS6 is a Protein Coding gene.
- It is a **central component of centrioles (paired barrel-shaped organelles located in the cytoplasm of animal cell).**

#### About Microcephaly:

- Condition in which a **baby's head is much smaller than normal.**
- Occurs when there is a **problem with brain development in the womb or when the brain stops growing after birth.**
- **Causes:** Variety of genetic factors, viral infection such as Zika etc.

## PRESS INFORMATION BUREAU (PIB)

1 MAY

**1. Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014:** It was enacted in order to legalise the vending rights of street vendors (SVs). It aimed to protect and regulate street vending in cities, with State-level rules and schemes, and execution by Urban Local Bodies (ULBs) through by-laws, planning, and regulation. The Act clearly delineates the roles and responsibilities of both vendors and various levels of government. It commits to accommodating all 'existing' vendors in vending zones and issuing vending certificates (VCs). It establishes a participatory governance structure through Town Vending Committees (TVCs). **It mandates that street vendor representatives must constitute 40% of TVC members, with a sub-representation of 33% of women SVs.** These committees are tasked with ensuring the inclusion of all existing vendors in vending zones. Additionally, the Act outlines mechanisms for addressing grievances and disputes, proposing **the establishment of a Grievance Redressal Committee chaired by a civil judge or judicial magistrate.** It provides that the States/ULBs conduct a survey to identify SVs at least once every five years.

**2. Inflation Expectations Survey of Households' and 'Consumer Confidence Survey':** They are launched by the Reserve Bank of India (RBI). They will provide useful inputs for the bi-monthly monetary policy.

**Inflation Expectations Survey of Households:** It aims at capturing subjective assessments on price movements and inflation, based on their individual consumption baskets. **This survey spans 19 cities, including Guwahati, Hyderabad, Jaipur, Kolkata, Lucknow, and Thiruvananthapuram.** It seeks qualitative responses from households on price changes (general prices as well as prices of specific product groups) in the three months ahead as well as in the one-year ahead period. Additionally, it will collect quantitative data on current, three-month ahead, and one-year ahead inflation rates.

**Consumer Confidence Survey:** It aims to gather qualitative responses from households regarding their views on the general economic situation, employment scenario, price levels, household income, and spending.

**3. IMF's Stand-By Arrangement:** It provides short-term financial assistance to countries facing balance of payments problems. Historically, it has been the IMF lending instrument most used by advanced and emerging market countries. **All member countries facing actual or potential external financing needs. Most often used by advanced and emerging market countries, but low-income countries sometimes use the SBA together with the Standby Credit Facility (SCF).** Countries' economic policies must address the problems that led the country to seek funding. Disbursements conditional on the observance of quantitative performance criteria. Progress in implementing structural measures that are critical to achieving the objectives of the program is assessed in a holistic way, including via benchmarks.

**Duration of the assistance:** Typically covers a period of 12–24 months, but not more than 36 months.

2 MAY

**1. International Labour Day: International Labour Day, also known as Workers Day or May Day, is a global event that takes place annually on May 1st.** Over 80 countries, including India, Cuba, and China, mark International Labour day. **The origins of International Labour Day can be traced back to the late 19th-century labour movement in the United States.** In 1886, a large demonstration happened in America where the labours demanded eight hours of work on a daily basis. However, soon the demonstration went out of hand, and in Chicago, a lot of people got hurt. **This incident came to be known as the Haymarket Affair.** The Haymarket Affair incident marked the start of International Labour Day. In 1889, a lot of socialist parties in Europe came together and decided to celebrate May 1 as International Labour Day. Since then, the special day has been observed every year on the same day. **In India, the first May Day was**



celebrated in Chennai (then Madras) in 1923 by the Labour Kisan Party of Hindustan.

**2. Hindu Marriage Act, 1955 (HMA Act):** The Supreme Court recently said mere registration of marriage in absence of a proper ceremony would not be valid under the Hindu Marriage Act. It codifies the law relating to marriage among Hindus. It not only provides for the ceremonies and registration for Hindu marriage but also lays down rules regarding divorce.

**Salient Features:**

- A Hindu by birth or by conversion is the subject of HMA Act. **The definition of Hindu under the HMA Act includes Buddhist, Jain, and Sikh as well.**
- The bridegroom must be at least 21 years old, and the bride must be at least 18 years old when they get married.
- Marriage among minors is punishable with imprisonment upto 3 years and/or fine upto Rs 1 lakh.
- It also brought an end to the customary practice of **bigamy, polygamy, or polyandry, i.e, multiple marriages.**
- Section 5 of the Act specifies that it is illegal to have two living wives at once, which is known as bigamy.
- If one spouse is alive and the person remarries, such marriage is not only void, but the person is also punishable under **Sections 494 and 495 of the Indian Penal Code, 1860.**
- A marriage is considered null and void if anyone one or both the people get married being mentally unfit. In such cases, the couple must get legal consent before getting married.
- **Registration of a Hindu marriage is subject to laws applicable in particular states.** However, a marriage is not invalid or illegal due to lack of an official certificate. The Act also allows divorce through mutual consent.
- It provides for the various grounds on the basis of which, divorce can be granted to one of the spouses if another does not agree to separate. There are special grounds which specifically allow the wife to seek divorce from her husband.
- Unlike any other matrimonial laws in India, the HMA Act also contains provisions for restitution of

conjugal rights.

**3. Supersonic Missile-Assisted Release of Torpedo (SMART) System:** It has been designed and developed by the Defence Research and Development Organisation. This missile-based mechanism to launch lightweight torpedoes can target submarines hundreds of kilometres away — far beyond the conventional range of lightweight torpedoes. It will be particularly employed in the absence of other assets for immediate action when an enemy submarine is detected. It is the **canister-based missile system comprises several advanced subsystems including two-stage solid propulsion and precision inertial navigation.** It carries an advanced lightweight torpedo missile as a payload along with a parachute-based release mechanism. Several state-of-the-art mechanisms, such as symmetric separation, ejection and velocity control, have been validated with this test.

**6 MAY**

**1. Drip Pricing:** It is a pricing technique in which firms advertise only part of a product's price and reveal other charges later as the customer goes through the buying process. It may initially withhold unavoidable fees, such as booking, service, resort, or credit card fees, local hotel taxes, or any other add-ons like internet access or certain facilities and amenities that are required to use a product or service. **These additional and often mandatory costs are then disclosed by the seller one by one or "dripped" to the buyer at the point of purchase. It is commonly used in the hospitality and travel markets, as well as for other online payments.** Companies may utilise a price-dipping approach to entice a customer into starting the purchase process, at which point the customer may not want to restart his or her search, once they find out the added costs. It can be frustrating for consumers, who typically want to know upfront how much a product or service will cost and may feel duped by later add-ons. It can make comparison shopping more difficult and penalise sellers who are more transparent with their pricing. **An example of price dipping is the cost of an airplane ticket that doesn't include baggage fees.**

**2. Catatumbo lightning:** It is a mesmerising natural phenomenon that occurs over the Catatumbo River in Venezuela, where lightning strikes almost continuously. It primarily happens at the mouth of the Catatumbo River, where it meets Lake Maracaibo, the largest lake in Venezuela. **Warm, moist air from the Caribbean Sea is pushed towards the Andes mountains, where it collides with cooler air descending from the peaks.** This collision creates a perfect storm of sorts, as the warmer air is forced to rise rapidly by the shape of the local landscape. And as it does, it cools and condenses, forming towering cumulonimbus clouds. Meanwhile, the combination of strong winds and temperature differentials generates electrical charges within these clouds. When the electrical potential within the clouds becomes too great, it discharges in the form of lightning.

**Catatumbo lightning is distinguished by its frequency and duration:** the strikes occur for up to 160 nights in a year, with an average of 28 lightning strikes per minute at its peak. **Thanks to this constant flow of current, the area has earned the title of “the lightning capital of the world”**

**3. Goldene:** It is the first free-standing 2D metal and is only one atom thick. Researchers first sandwiched an atomic monolayer of silicon between layers of titanium carbide. **When they deposited gold on top of this sandwich structure, the gold atoms diffused into the material and replaced the silicon atoms, forming a trapped monolayer of gold atoms.** Subsequently, scientists etched away the titanium carbide layers to create a free-standing, one atom thick layer of gold. **This was done with the help of an age-old Japanese technique used to forge katanas and high-quality knives, using a chemical popularly known as Murakami’s reagent.** These sheets of goldene are roughly 100 nanometres thick (a nanometre is a billionth of a metre), approximately 400 times thinner than the thinnest commercially available gold leaf.

#### **Applications:**

It can be used in electronics industry. It could also be used in carbon dioxide conversion, hydrogen-generating catalysis, selective production of value-

added chemicals, hydrogen production, water purification, etc.

**Significance:** It holds promise as a great catalyst because it’s much more economically viable than thicker, three-dimensional gold.

#### **7 MAY**

**1. India VIX:** It is an index that serves as a measure of market expectation of volatility in the near term. It is also known as fear index. Volatility signifies the rate and magnitude of change in the stock price or index value. **The movement in the VIX index reflects the overall market volatility expectations over the next 30 days.** So, a spike in the VIX value means the market is expecting higher volatility in the near future. **The VIX index was first created by the Chicago Board Options Exchange (CBOE) and introduced in 1993 based on the prices of S&P 500 index.** Since then, it has become a globally-recognised gauge of volatility in the U.S equity markets. The India VIX was launched with a similar intent in 2010 and is based on the computation methodology of CBOE though amended to align with the Indian markets.

**India VIX** It is calculated by the National Stock Exchange. India VIX has a strong negative correlation with Nifty. When the India VIX falls, the Nifty is seen to rise and vice versa.

**2. Carbon Farming:** It is a whole farm approach to optimizing carbon capture on working landscapes by implementing practices that are known to improve the rate at which CO<sub>2</sub> is removed from the atmosphere and stored in plant material and/or soil organic matter. A simple implementation of carbon farming is rotational grazing. Others include agroforestry, conservation agriculture, integrated nutrient management, agro-ecology, livestock management and land restoration.

**Agroforestry practices:** It includes silvopasture and alley cropping which can further diversify farm income by sequestering carbon in trees and shrubs.

**Conservation agriculture techniques:** It includes zero tillage, crop rotation, cover cropping and crop residue management (stubble retention and composting) can help minimise soil disturbance and enhance organic

content, particularly in places with other intense agricultural activities.

**Livestock management strategies including rotational grazing, optimising feed quality, and managing animal waste can reduce methane emissions and increase the amount of carbon stored away in pasturelands.**

#### **Carbon Farming Schemes Worldwide:**

- **'4 per 1000' initiative:** It was launched during the COP21 climate talks in 2015 in Paris highlights the particular role of sinks in mitigating greenhouse-gas emissions.
- **Agricultural Carbon Project:** It is Kenya's initiative which is supported by the World Bank and highlights the potential for carbon farming.

**3. Chloropicrin:** It is a chemical compound which is also known as nitrochloroform. It is used both as a warfare agent and pesticide. It is a colourless to yellow oily liquid. It is used broadly as a fungicide, herbicide, insecticide, nematocide and antimicrobial. It is an irritant with characteristics of a tear gas. It has an intensely irritating odour and can be absorbed through inhalation, ingestion and the skin. It was first made for use as a poison gas in the First World War, by both the Allied and the Central Powers. It's manufactured in a chemical reaction involving sodium hypochlorite (which in dilute form is called bleach) and nitromethane (a common industrial solvent). It can also be made by combining chloroform with nitric acid, which yields chloropicrin and water.

#### **8 MAY**

**1. LockBit Ransomware:** Recently, the USA has indicted Russian national Dimitry Yuryevich Khoroshev and announced a \$10 million reward for his alleged involvement with LockBit ransomware. It is malicious software designed to block user access to computer systems in exchange for a ransom payment. It was formerly known as "ABCD" ransomware, but it has since grown into a unique threat within the scope of extortion tools. It is a subclass of ransomware known as a 'crypto virus' due to forming its ransom requests around financial payment in exchange for

**decryption.** It focuses mostly on enterprises and government organizations rather than individuals. It functions as ransomware-as-a-service (RaaS). It is now working to create encryptors targeting Macs for the first time. It works as a self-spreading malware, not requiring additional instructions once it has successfully infiltrated a single device with access to an organisational intranet.

**2. Shinkun La Tunnel:** It is an upcoming motorable tunnel under the 16,580 feet high Shinku-La pass between Himachal's Lahaul valley and Ladakh's Zaskar valley. It is located on the Nimu-Padam-Darcha Road link. After completion, the Shinku-la tunnel will be the longest high altitude highway tunnel in the world. It will provide all-weather road connectivity to Ladakh, and this will be the shortest route to the border areas of Ladakh. The Border Roads Organization (BRO) will construct the tunnel. It is expected to streamline the transportation of heavy machinery to strategic locations such as Kargil, Siachen, and the Line of Control (LOC), reducing travel distances by approximately 100 km. The traffic movement in the tunnel will not be vulnerable to long-range artillery shelling or missile firings, either by China or Pakistan.

**3. Spektr-RG(SRG):** Spektr-Rentgen-Gamma (Spektr-RG, SRG) is a German-Russian high-energy astrophysics space observatory to study the universe in the X-ray range of electromagnetic radiation. It moves along a so-called halo orbit around the outer Lagrange point (L2) of the Sun-Earth system at a distance of 1.5 million km from the Earth with a period of about 6 months. A Lagrange point is a position in space where the gravitational pull of two large masses precisely equals the centripetal force required for a small object to move with them.

**4. Central Drugs Standard Control Organisation (CDSCO):** It is the National Regulatory Authority (NRA) of India for the medical devices industry under the provisions of the Drugs and Cosmetics Act. It is responsible for overseeing the import, manufacture, sale, and distribution of medical device in the country. The CDSCO ensures that medical devices comply with safety, quality, and efficacy standards. It works under

the Directorate General of Health Services, Ministry of Health & Family Welfare, Government of India. The Drugs Controller General of India (DCGI) is the head of the CDSCO. Headquarters: New Delhi.

Under the Drugs and Cosmetics Act, CDSCO is responsible for, Approval of new drugs; Conduct of clinical trials; Laying down the standards for drugs; Control over the quality of imported drugs in the country; Coordination of the activities of State Drug Control Organizations; CDSCO, along with state regulators, is jointly responsible for the grant of licenses for certain specialized categories of critical Drugs such as blood and blood products, I. V. Fluids, Vaccine, and Sera.

## 10 MAY

**1. Indian Agricultural Research Institute (IARI):** It is India's largest and foremost Institute in the field of research and higher education, and training in agricultural science. It is situated in Delhi and is administered by the Indian Council of Agricultural Research (ICAR).

**History:** IARI, popularly known as Pusa Institute, began in 1905 at Pusa (Bihar) with the generous grant of 30,000 pounds from an American philanthropist, Henry Phipps. The institute was then known as the Agricultural Research Institute (ARI), which functioned with five departments, namely Agriculture, Cattle Breeding, Chemistry, Economic Botany and Mycology. Bacteriology unit was added in 1907. The name of ARI was changed to Imperial Institute of Agricultural Research in 1911, and in 1919 it was renamed Imperial Agricultural Research Institute. Following a devastating earthquake on 15th January, 1934, the institute was shifted to Delhi on 29th July 1936. Post independence, the institute has been renamed IARI.

**2. Hindon River:** It is a tributary of the Yamuna River and is primarily a rain-fed river. It originates from the lower Shivalik ranges in Saharanpur District of Uttar Pradesh. It flows across the industrial belt of Western Uttar Pradesh for 400 kilometres before discharging into the Yamuna River in Noida.

**Tributaries:** The Kali (West) River and Krishni River are the main tributaries of River Hindon.

Due to urban, agricultural, and industrial waste which is being released without sufficient treatment into its waters, the Hindon is now one of the most polluted stretches in the Ganga basin. In 2015, the Central Pollution Control Board (CPCB) found the Hindon's pollution levels were so severe that it was declared a 'dead river' and 'unfit' even for bathing in several sections of the river.

**3. Batagay Crater:** It is also called as "gateway to the underworld," by some locals in Russia's Sakha Republic. It is located in Russia's Far East that forms the world's biggest permafrost crater. It is a crater or megaslump, features a rounded cliff face that was first spotted on satellite images in 1991 after a section of hillside collapsed in the Yana Uplands of northern Yakutia in Russia. Scientists believe that the crater is the result of a melting permafrost land, which was frozen during the Quaternary Ice Age 2.58 million years ago.

**4. United Nations Counter-Terrorism Trust Fund:** It was established in 2009 and transferred to UN Office of Counter-Terrorism (UNOCT) in 2017. The Fund accepts contributions from Governments, inter-governmental and non-governmental organizations, private institutions and individuals. Contributions may be unearmarked or earmarked for one of UNOCT's global programmes or specific initiatives. India's contribution would support UNOCT's global programmes — mainly Countering Financing of Terrorism (CFT) and Countering Terrorist Travel Programme (CTTP). They are aimed at building capacities of the member states of eastern and southern Africa to combat the critical issues of financing of terrorism and prevent the movement and travel of terrorists.

## 11 MAY

**1. Kamikaze drone:** In the ongoing conflict in Ukraine, Russia's utilization of the Lancet Kamikaze drone, which incorporates American AI technology, highlights complex global supply chain issues. These are small unmanned aircraft packed with explosives that can be flown directly at a tank or a group of troops that are

destroyed when it hits the target and explodes. **These are also called as Switchblade drones.** The modern drone versions have the capability of surpassing traditional defences to strike their targets and are also cheaper than their larger counterparts. The small lethal drones are difficult to detect on radar, and through the use of facial recognition, can be programmed to hit targets without human intervention. **Although the US Kamikaze might be the most advanced in this class of drones, Russia, China, Israel, Iran and Turkey all have some versions of it.**

**2. Sea Anemone: Scientists at the ICAR-National Bureau of Fish Genetic Resources (NBFGR) working on sea anemones of the Lakshadweep group of islands have found mass anemone bleaching off the Agatti island. It is an invertebrate aquatic animal marked by soft bodies and has an ability to sting.** They are close associates of corals and live rocks. It is an **ocean-dwelling members of the phylum Cnidaria.** It has a sticky foot or disc that allows them to anchor to rocks on the sea bottom or on coral reefs. They **have stinging cells which are equipped with organelles known as nematocysts** that contain small threads which are forcefully everted when stimulated mechanically or chemically. They are known to **form symbiotic relationships with other animals;** their most well-known alliance is with clownfish. They make their homes within the anemone's tentacles, protected from predators; in return, the anemone eats the clownfish's leftover meals. They can have anywhere from a dozen to a few hundred tentacles. These cnidarians come in a variety of colors, decorating a tide pool or reef like a garden of wildflowers. **Some species of sea anemones also have a relationship with Hermit crabs.** The anemone will attach itself to the crab's shell and be carried around to find more food, while the crab uses the anemone as protection from its predators.

**3. United Nations Forum on Forests:** It was established in 2000 by the UN Economic and Social Council of the United Nations (ECOSOC). It promotes the management, conservation, and sustainable development of all types of forests. The **Forum meets annually at the UN Headquarters in New York, bringing together representatives of all member states and forest-related agencies for high-level**

**dialogue on technical matters** in odd years and policy matters in even years. The forum has universal membership, and is composed of all Member States of the United Nations and specialized agencies. **India is a founding member of UNFF.** The **declaration of the 19th session aims to achieve agreement on a high-level political commitment to forest protection, with specific actions for effective implementation of the UN Strategic Plan for Forests (UNSPF) by UNFF and its stakeholders.**

**4. Deadbots:** These are also known as griefbots, are **AI-enabled digital representations of departed loved ones.** These chatbots simulate their language patterns and personality traits using their digital footprint, like emails, social media posts and even voice recordings, to create a conversational AI that reflects their personality. Researchers have warned that these chatbots, while potentially comforting, could lead to psychological distress if not designed with safety in mind. Solutions that might be enthusiastically adopted in one cultural context could be completely dismissed in another.

**5. Neural Processing Units (NPU):** Neural Processing Units are gaining importance in the semiconductor industry. It is a **dedicated processor designed specifically for accelerating neural network processes.** A neural network is essentially a type of machine learning algorithm that mimics the human brain for processing data. Therefore, the NPU is highly capable for handling machine learning operations that form the basis for AI-related tasks, such as speech recognition, natural language processing, photo or video editing processes like object detection, and more. **In most consumer-facing gadgets, such as smartphones, laptops, and tablets, the NPU is integrated within the main processor, adopting a System-on-Chip (SoC) configuration.** However, for data centres, the NPU might be an entirely discrete processor, separate from any other processing unit such as the central processing unit (CPU) or the Graphics processing unit (GPU).

**How is NPU vs CPU and GPU:** CPUs employ a sequential computing method, issuing one instruction at a time, with subsequent instructions awaiting the completion of their predecessors. In

contrast, the NPU harnesses parallel computing to simultaneously execute numerous calculations. This parallel computing approach results in swifter and more efficient processing.

## 13 MAY

**1. Zero-Day Vulnerability:** Google Chrome has been hit with another zero-day vulnerability. It is a system or software vulnerability unknown to the vendor and for which no patch or means of mitigation are available at the time it is discovered. **The term ZDV refers to the flaw itself, while zero-day attack refers to an attack that has zero days between the time the vulnerability is discovered and the first attack.** Zero-day exploit refers to the method or technique hackers use to take advantage of a ZDV, often via malware, and execute the attack.

Thus, a **zero-day attack occurs when threat actors develop and release malware that targets the ZDV.** Because they were discovered before security researchers and software developers became aware of them—and before they can issue a patch—ZDVs pose a higher risk to users for the following reasons:

- Cybercriminals race to exploit these vulnerabilities to cash in on their schemes.
- **Vulnerable systems are exposed until a patch is issued by the vendor.**
- Once a ZDV has been made public, it is known as an n-day or one-day vulnerability.

**2. Vibrant Village Programme:** It is a Centrally Sponsored Scheme implemented over the financial years 2022-23 to 2025-26. **The aim is Comprehensive development of villages and blocks on the northern border, thus improving the quality of life of people living in identified border villages.** It will provide funds for the development of essential infrastructure and the creation of livelihood opportunities in 2967 villages in 19 Districts and 46 Border blocks of 4 states and 1 UT along the northern land border of the country: **Arunachal Pradesh, Sikkim, Uttarakhand, Himachal Pradesh, and the UT of Ladakh.** It envisages focused areas of intervention in the select villages for the **creation of opportunities for livelihood generation through promotion of tourism and cultural heritage,**

**skill development and entrepreneurship, and development of cooperative societies, including agriculture/horticulture, cultivation of medicinal plants/herbs etc.** Interventions also include providing road connectivity to unconnected villages, housing and village infrastructures, energy including renewable energy, television and telecom connectivity. **Vibrant Village Action Plans will be created by the district administration with the help of Gram Panchayats, and 100 % saturation of Central and state schemes will be ensured.** There will be no overlap with the Border Area Development Programme.

**3. ASEAN-India Trade in Goods Agreement:** The **4th Joint Committee meeting for the review of AITIGA (ASEAN-India Trade in Goods Agreement) was held in Putrajaya, Malaysia.** It is a trade deal between the ten member states of ASEAN and India. It was **signed at the 7th ASEAN Economic Ministers- India Consultations in Bangkok, Thailand in 2009.** **The agreement, which came into effect in 2010,** is sometimes referred to as the ASEAN-India Free Trade Agreement. It covers trade in physical goods and products; it does not apply to trade in services. ASEAN and India signed a separate ASEAN-India Trade in Services Agreement in 2014.

**4. Indian Ocean basin-wide (IOBW) Index:** It represents the average sea-surface temperature variations across the tropical Indian Ocean. **It has emerged as a key indicator for predicting the magnitude and timing of dengue epidemics in each country.** Its association with the Southern Hemisphere is stronger than that with the Northern Hemisphere. **It has a more pronounced impact on temperatures in tropical regions. Brazil, for example, bears a higher burden of dengue in the Southern Hemisphere.** The Northern Hemisphere witnesses a peak dengue epidemic period between July and October and the Southern Hemisphere in February and April, both in the summers. **Further, the amplitude of dengue incidence was high when the index was positive and low when it was negative.**

**The link between the Indian Ocean's temperature and dengue incidence is likely due to its influence on regional temperatures through teleconnections, large-scale atmospheric patterns that can transfer heat and moisture across vast distances.**

**5. Mammoth carbon capture Plant:** Recently, the world's largest facility designed to remove carbon dioxide from the atmosphere started operations in Iceland. It is the largest carbon dioxide capture and storage facility of its kind situated on a dormant volcano in Iceland. It is dubbed as "Mammoth," this plant is Climeworks' second commercial direct air capture (DAC) facility in the nation and is significantly larger than its predecessor, Orca, which began in 2021. This cutting-edge technology draws in air and chemically extracts carbon dioxide, which can then be stored underground, converted into stone, or reused. The Swiss company Climeworks, in partnership with Icelandic company Carbfix, plans to sequester the captured carbon by turning it into stone beneath the earth's surface, utilizing Iceland's abundant geothermal energy to power the process.

**Direct air capture:** It extracts CO<sub>2</sub> directly from the atmosphere at any location, unlike carbon capture which is generally carried out at the point of emissions, such as a steel plant. The CO<sub>2</sub> can be permanently stored in deep geological formations or used for a variety of applications

**14 MAY**

**1. Exercise Shakti:** It is a biennial training event conducted alternatively in India and France.

**Aim:** To enhance the joint military capability of both sides to undertake multi-domain operations in a Sub-Conventional scenario under Chapter VII of the United Nations Mandate. The joint exercise will focus on operations in the semi-urban and mountainous terrain. Objectives to be achieved from the joint training are a high degree of physical fitness, rehearsing and refining drills for operations at the tactical level, and sharing of best practices.

**2. Soil Nailing:** The project, known as 'slope stabilisation using soil nailing and Hydroseeding method,' is being undertaken in few areas in Tamil Nadu around the Nilgiris' major roads. It is a geotechnical engineering technique that involves the insertion of reinforcing elements into the soil in a specified area to strengthen it. This soil reinforcement process uses steel tendons which are drilled and grouted into the

soil to create a composite mass similar to a gravity wall.

#### Soil nailing methods

- **Drilled and grouted soil nailing methods:** The nails are inserted in the pre-drilled holes and filled with grouting materials.
- **Driven Soil Nailing Method:** It is used for temporary stabilization, it is fast. However, it does not provide corrosion protection to the steel or nails.
- **Drilling Soil Nailing Method:** In this method the hollow bars are used in this method, bars are drilled and grout is injected. This method is typically faster than driven nails.
- **Jet Grouted Soil Nailing Method:** This method is used for eroding soil for creating holes in the soil surface, steel bars are installed in this hole and grout with concrete.
- **Launched Soil Nailing Method:** This method involves nailing steel bars forced to the soil with a single shot using compression by an air mechanism.

**3. Silk cotton tree:** It is locally known as semal tree. It is a lofty deciduous tree with buttressed base when old and whole trunk is covered with large conical prickles. It is mainly found in moist deciduous and semi-evergreen forests, also in the plains. **Members of the Garasia tribe in Rajasthan believe they are descended from semal trees.** In India it is seen in Andaman & Nicobar Island, Assam, Bihar, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Uttar Pradesh. It is a fire-resistant tree. It is also known for its cooling properties. It is considered a pioneer tree that generates a rich biomass every season, and has been used to reclaim wastelands. It fixes carbon and helps carbon sequestration by shedding all leaves before flowering. Many researchers believe the semal to be a bio indicator—a late flowering could mean a hot summer or a delayed monsoon. The rock bees nestle on its branches because the tree's spikes keep its predator, the sloth bears, away. Members of tribal communities consume the tree's reddish root for food during the monsoons.

**4. Xenotransplantation:** It is any procedure that involves the transplantation, implantation or infusion into a human recipient of either live cells, tissues, or organs from a nonhuman animal source or human body fluids, cells, tissues or organs that have had ex vivo contact with live nonhuman animal cells, tissues or organs. Xenotransplantation involving the heart was first tried in humans in the 1980s. The animal organ selected has to undergo genetic modifications, so that the human body does not reject it. Even after the operation, constant monitoring needs to be done to check the body's response to the organ.

## 15 MAY

**1. Wholesale Price Index (WPI):** It measures the changes in the prices of goods sold and traded in bulk by wholesale businesses to other businesses. It is calculated and published by the Office of Economic Advisor, Department of Industrial Policy and Promotion in the Ministry of Commerce and Industry. WPI data is published monthly, with the index value representing an estimate of the price level for the month as a whole, rather than a specific date. Analysts use the numbers to track the supply and demand dynamics in industry, manufacturing, and construction. An upward surge in the WPI indicates inflationary pressure in the economy, and vice versa. The quantum of rise in the WPI month-after-month is used to measure the level of wholesale inflation in the economy.

**New series of WPI:** With an aim to align the index with the base year of other important economic indicators such as GDP and IIP, the base year was updated to 2011-12 from 2004-05 for the new series of WPI, effective from April 2017.

It is calculated by taking a weighted average of the prices of a basket of goods, with each item's weight determined by its share of total wholesale sales.

**The basket of goods comprises three major groups:**

- Primary Articles (Weight 22.62%)
- Fuel and Power (Weight 13.15%)
- Manufactured Products (Weight 64.23%)

The prices of a total of 697 items are tracked under the 2011-12 series of the WPI, which includes 117 primary

items, 16 items of fuel and power, and 564 manufactured products.

**2. Exercise Tarkash:** The India-U.S joint exercise in conducting coordinated operations in urban counter terrorism contingencies will conclude in Kolkata. It is the seventh edition of the Indo-U.S. joint counter terrorism exercise. It is held between the elite National Security Guard (NSG) and the U.S. Special Operations Forces (SOF) commenced on April 22, 2024. The primary objective of the bilateral exercise is to build functional relation and enhance interoperability between the two special forces in conducting coordinated counter terror operations in urban counter terrorism contingencies. It also involved sharing of best practices, tactics, techniques and procedures, over a wide spectrum of counter terror operations, in urban environment including close quarter battle, building intervention drills and hostage rescue operations etc.

**3. Memory of the World Programme:** The Ramcharitmanas, Panchatantra and Sahridayaloka-Locana have been included in 'UNESCO's Memory of the World Asia-Pacific Regional Register'. It is part of an international initiative launched by UNESCO in 1992 to safeguard the documentary heritage of humanity. It aims to recognise significant documentary heritage in a similar fashion to the way UNESCO's World Heritage Convention and World Heritage List recognises significant natural and cultural sites.

**The Memory of the World Programme (MoW) aims to:**

- Facilitate preservation of the world's documentary heritage, particularly in areas affected by conflict and/or natural disaster
- Enable universal access to documentary heritage worldwide
- Enhance public awareness about the significance of documentary heritage among the wider public.

The International Advisory Committee (IAC) is the main body responsible for advising UNESCO on the planning and implementation of this MoW Programme as a whole. It comprises 14 members serving in a personal capacity, appointed by the



Director-General of UNESCO, and chosen for their authority in the field of documentary heritage.

**Nomination for MoW:** The call for nominations and inscriptions on the Asia Pacific Register is made every two years unless unexpected circumstances make this impractical. Nominations will normally be called for in the even-number years (to alternate with the International Register).

**India's 3 items included in MoW are:**

- **Ramcharitmanas:** It was written by Tulasidas in the 16th century in the Awadhi dialect, which is primarily spoken in the districts of Lucknow, Prayagraj, and Ayodhya.
- **Panchatantra:** The Panchatantra of ancient India is a collection of fables originally written in Sanskrit. It has five distinct sections, each of which is focused on a specific principle and is believed to have been written by Vishnu Sharma.
- **Sahṛdayāloka-Locana:** It is a Sanskrit commentary on the Dhvanyaloka.

## 16 MAY

**1. International Cryosphere Climate Initiative:** The International Cryosphere Climate Initiative (ICCI) said that Venezuela's only remaining glacier — the Humboldt, or La Corona, in the Andes — had become "too small to be classed as a glacier. It was formed in 2009 following COP-15 in Copenhagen meeting. It is a network of senior policy experts and researchers working with governments and organizations to create, shape and implement initiatives designed to preserve as much of the Earth's cryosphere as possible. Its programs target the unique climate dynamics at work in the cryosphere, while at the same time lending increased urgency to global climate efforts aimed at CO2 and other greenhouse gases by communicating the unexpected rapidity and global implications of cryosphere warming. Its work focuses on three major areas of the cryosphere: the Arctic, the Antarctic and high mountain regions.

**2. Extra-pulmonary TB:** It refers to Tuberculosis infections affecting organs other than the lung (namely lymph nodes, brain, gut, eyes, or other organs). It is often stain negative, which means it is

not detectable on regular TB stain tests. It **can affect any organ and is more prevalent in people living with HIV**. The infection may surface in any part of the body and present itself like other non-TB conditions. Many cases of EPTB may not have a corresponding lung infection. A troubling aspect of EPTB infection is the prolonged presence of disease markers even after the infection is resolved with treatment. Diagnosis and treatment protocols for all organs affected by EPTB do not exist. **The twin challenges in tackling EPTB are lack of awareness, even among physicians, and lack of accurate diagnostic and treatment criteria.** Some EPTB patients who complete anti-TB therapy may still find themselves affected by the disease. **INDEX-TB guidelines were formulated over a decade ago and need to be updated with the latest data and experience.**

**3. Global Report on Internal Displacement 2024:** It is an annual report published by the Geneva-based Internal Displacement Monitoring Centre (IDMC). It records internal displacements due to conflict and violence and disasters.

**Highlights of GRID-2024:**

- In 2023, the number of internally displaced people (IDP) increased to 75.9 million, from 71.1 million in the preceding year.
- Report says 7.7 million displaced by disasters (one-fourth of it was caused by earthquakes) and 68.3 million by conflict and violence.
- **Sudan, Syria, the Democratic Republic of the Congo (DRC), Colombia, and Yemen** host nearly half of the world's IDPs.
- At 1 million, Sudan has the highest number of IDPs recorded for a single country.
- Conflict and violence triggered 69,000 displacements in South Asia in 2023, with Manipur violence alone accounting for 67,000.
- It is the highest number of displacements triggered by conflict and violence in India since 2018.

There is a **sharp decline in IDP in 2023 from 2.5 million internal displacements due to natural disasters in India in 2022.**

## 18 MAY

**1. Eurasian Economic Union (EAEU):** It is an international economic union and free trade zone comprising countries located in central and northern Asia and Eastern Europe. It **was established by the Treaty on the Eurasian Economic Union signed on May 29, 2014, in Astana.** Member countries include Russia, Armenia, Belarus, Kazakhstan, and Kyrgyzstan. **The EAEU is being created to comprehensively upgrade, raise the competitiveness of and cooperation between the national economies, and promote stable development** in order to raise the living standards of the nations of the Member-States.

The Supreme Eurasian Economic Council is the highest body of the EAEU, which consists of the heads of the Union's member states. **The Eurasian Economic Commission, based in Moscow, is the permanent supranational regulatory body of the union. The main purpose of the Commission is to ensure the functioning and development of the EAEU and developing proposals for the further development of integration.** The Court of the EAEU, based in Minsk, serves as the judicial body. Unlike the European Commission, the Eurasian Economic Commission's power is limited. Member states disagreeing with its judgements can appeal to other bodies, and the Commission has no power to bring a member state before the Court in a case of non-compliance. **Disputes are often resolved bilaterally rather than via EEU institutions. Unlike the European Union (EU), the EAEU does not share a common currency.**

**2. India-Middle East-Europe Economic Corridor (IMEEC):** It was **announced on the sidelines of the G20 meeting in New Delhi when a memorandum of understanding was signed between the European Union and seven countries, namely India, the US, Saudi Arabia, the United Arab Emirates (UAE), France, Germany, and Italy.** The corridor will provide a reliable and cost-effective cross-border ship-to-rail transit network to supplement existing maritime routes. **It intends to increase efficiency, reduce costs, secure regional supply chains, increase trade accessibility, enhance economic cooperation, generate jobs, and lower greenhouse gas emissions.** The IMEEC will comprise two separate corridors, the east corridor

connecting India to the Gulf and the northern corridor connecting the Gulf to Europe. **The corridor will include a shipping route connecting Mumbai and Mundra (Gujarat) with the UAE, and a rail network connecting the UAE, Saudi Arabia, and Jordan with the Israeli port of Haifa to reach the shores of the Mediterranean Sea. Haifa will then be connected by sea to the port of Piraeus in Greece to eventually be connected to Europe.** Beyond the transport infrastructure, undersea cables would facilitate the exchange of data, while long-distance hydrogen pipelines would boost the participants' climate and decarbonisation goals.

**3. National Endangered Species Day:** It is observed to create awareness about the consequences of human activities and what we can do to save endangered species. **Every year, National Endangered Species Day is observed on the third Friday of the month of May.** In the year 2006, David Robinson and the Endangered Species Coalition established National Endangered Species Day to be celebrated every year to urge people to contribute to the safety and protection of endangered species. **According to the International Union for Conservation of Nature, forty percent of animals, insects and plants on this planet are at risk of extinction. The theme for the year 2024: Celebrate Saving Species.** The day promotes conservation efforts and encourages individuals and organisations to participate in activities that help protect endangered species. This includes habitat restoration, supporting conservation laws, and advocating for stronger environmental policies.

**4. Vishing:** It is **short form of voice+phishing**, is carried out through a call on a mobile phone or landline. **It's a technique wherein a threat actor calls the victim over the phone and tries to trick him/her into clicking on malicious files or emails, which can then take one to a legitimate-looking website asking to share personal information.** In other cases, the attacker can solicit sensitive information from the victim. It can be so tricky that the caller might appear as the manager or colleague of the victim, enticing her to share sensitive information, at times using urgency as the tactic.

### A vishing scam:

- **A pre-recorded message:** On many occasions, a vishing call starts with an automated call claiming there's an urgency related to financial or other matters, making you click a few numbers or take certain actions.
- **Pretending to be a government official:** There's a very slim chance that a government official would directly call you or even email or text. And if you get a call from somebody claiming to be a government official, chances are high that it's not legitimate.
- **Using fear and urgency tactics:** In case of a vishing attack, chances are that the scammer would stoke a sense of urgency using threat or fear.
- **Poor audio quality:** If in doubt, also pay attention to the call's audio quality and any background noises. **At times, there could be robotic-sounding voices, which could mean that it's a robocall.**

### 20 MAY

**1. Bacterial Pathogens Priority List:** It is an important tool in the global fight against antimicrobial resistance.

#### Background

In 2017, WHO developed the first BPPL to guide investment into the R&D of new antibacterials and it listed 13 bacterial pathogens (phenotypes). It was developed with the multi-criteria decision analysis (MCDA) method (15). MCDA is a decision-making scientific method that mounts and evaluates alternatives based on multiple criteria, facilitating systematic and transparent decision-making in complex options. The 2024 WHO BPPL covers 24 pathogens, spanning 15 families of antibiotic-resistant bacterial pathogens. **The 2024 list categorizes these pathogens into critical, high, and medium priority groups to inform research and development (R&D) and public health interventions.**

**Significance** The WHO BPPL acts as a guide for prioritizing R&D and investments in AMR, emphasizing the need for regionally tailored strategies to effectively combat resistance. It targets

developers of antibacterial medicines, academic and public research institutions, research funders, and public-private partnerships investing in AMR R&D, as well as policy-makers responsible for developing and implementing AMR policies and programs.

**2. Red Panda:** It is primarily an herbivore species. They use their long, bushy tails for balance and to cover themselves in winter, presumably for warmth. It is a shy, solitary and arboreal animal and considered an indicator species for ecological change. **It is of the size of a house cat, the red panda is famous for its cute face and adorable defense stance. It lives in the mountainous forests of Bhutan, China, India, Myanmar, and Nepal.** Almost 50% of their habitat is in the Eastern Himalayas. Red panda habitat is in decline. **The loss of nesting trees and bamboo in the Eastern Himalayas—the location of almost 50% of the red panda's habitat—is causing a decline in red panda populations across much of their range.**

IUCN Red list: Endangered

CITES: Appendix I

**The Wildlife Protection Act 1972: Schedule I.**

**3. Project Astra:** It is a new multimodal AI agent developed by Google. It is capable of answering real-time questions fed to it through text, video, images and speech by pulling up the relevant information. It can see the world, remember where one has left a thing and even answer if a computer code is correct by looking at it through the phone's camera. **It is more straight-forward, there is no range of emotional diversity in its voice.** It is not limited to smartphones. Google also showed it being used with a pair of smart glasses. **Project Astra can learn about the world, making it as close as possible to a human-assistant-like experience.**

**4. Godavari River:** It is India's second-longest river after the Ganga and the third-largest in India drains about 10% of India's total geographical area. It is also called 'Dakshina Ganga', which translates into the South Ganges River. The origin of the Godavari River is in Brahmagiri Mountain at Trimbakeshwar in Nashik district of Maharashtra. It runs for a length of about 1,465 kilometers. **It finally empties itself into the Bay**

of Bengal at Narasapuram in West Godavari district, Andhra Pradesh.

The river mainstem, travels through three states: Maharashtra, Telangana, and Andhra Pradesh, while its basin includes Madhya Pradesh, Karnataka, parts of Chattisgarh, and Odisha. The basin is bounded by the Satmala hills, the Ajanta range, and the Mahadeo hills on the north, by the Eastern Ghats on the south and the east and by the Western Ghats on the west. The Godavari basin receives its maximum rainfall during the Southwest monsoon.

**Tributaries:** The principal tributaries of the river are the Pravara, the Purna, the Manjra, the Penganga, the Wardha, the Wainganga, the Pranhita (combined flow of Wainganga, Penganga, Wardha), the Indravati, the Maner, and the Sabri.

## 21 MAY

**1. Scarborough Shoal:** The Scarborough Shoal is a series of small rocks and islands which are formed into a triangle shape in the South China Sea, located some 220 kilometers from the Philippines. The largest island features a lagoon and is around sixty square miles in area, while many of the rocks are so small they protrude only a metre or so from the sea at low tide and are completely submerged when the tide is high. The deep waters around the shoal make it a productive fishing area, rich in marine life and the lagoon also contains many commercially valuable shellfish and sea cucumbers. The shoal is the source of an ongoing and, so far, unresolved dispute between the People's Republic of China and the Philippines, with both countries claiming that the shoal lies within their territory and saying they have exclusive rights to access its waters. There are no structures built on Scarborough Shoal, but the feature is effectively controlled by China, which has maintained a constant coast guard presence at the feature since 2012. China, which now refers to the shoal as Huangyan Island, makes a historical claim to the area, stating that they can trace their ownership of the area back to the Yuan Dynasty of the 1200s. The Philippines claim the area on the basis of geography, as it is much closer to the

Philippines' main island of Luzon, which contains the capital, Manila.

**2. Small Industries Development Bank of India (SIDBI):** Airbus Helicopters and the Small Industries Development Bank of India (SIDBI) recently signed a Memorandum of Understanding (MoU) for financing the purchase of Airbus' helicopters in India. It was set up on 2nd April 1990, under an Act of the Indian Parliament.

**Purpose:** To act as the principal financial institution for promotion, financing and development of the Micro, Small and Medium Enterprise (MSME) sector, as well as for the co-ordination of functions of institutions engaged in similar activities. It is under the jurisdiction of the Ministry of Finance.

It was incorporated initially as a wholly owned subsidiary of the Industrial Development Bank of India (IDBI). Currently the shares of SIDBI are held by the Government of India (GoI) and 22 other institutions/PSBs/insurance companies owned or controlled by the Central Government. Headquarters: Lucknow, Uttar Pradesh

**Financial support to MSMEs is provided by way of**

- Indirect/refinance to banks/Financial Institutions for onward lending to MSMEs
- Direct finance in niche areas like risk capital, sustainable finance, receivable financing, service sector financing, etc.

**SIDBI was made responsible for administering the Small Industries Development Fund and the National Equity Fund that were administered by IDBI before.** In order to promote and develop the MSME sector, SIDBI adopts a 'Credit Plus' approach, under which, besides credit, SIDBI supports enterprise development, skill upgradation, marketing support, cluster development, technology modernization, etc.

**3. Genetic Drift:** It is one of the basic mechanisms of evolution. It takes place when the occurrence of variant forms of a gene, called alleles, increases and decreases by chance over time in a population. This occurs due to random sampling and the random events that influence the survival and reproduction of those individuals. These variations in the presence of alleles are measured as changes in allele frequencies. Small populations are more susceptible to genetic drift

than large populations, whose larger numbers can buffer the population against chance events. Once it begins, genetic drift will continue until the involved allele is either lost by a population or until it is the only allele present in a population at a particular locus. Both possibilities decrease the genetic diversity of a population. It could also cause initially rare alleles to become much more frequent and even fixed. **Genetic drift is common after population bottlenecks, which are events that drastically decrease the size of a population. In these cases, genetic drift can result in the loss of rare alleles and decrease the gene pool. Genetic drift can cause a new population to be genetically distinct from its original population, which has led to the hypothesis that genetic drift plays a role in the evolution of new species.**

## 22 MAY

**1. eVTOL Aircraft: An electric Vertical Take-Off and Landing (eVTOL) aircraft is one that uses electric power to hover, take off and land vertically.** It is one of the newer technologies and developments in the aerospace industry. It is a low-altitude urban air mobility aircraft capable of carrying only a few passengers- six-seaters and eight-seaters. Most eVTOLs use distributed electric propulsion technology which means integrating a complex propulsion system with the airframe. **There are multiple motors for various functions; to increase efficiency; and to also ensure safety.** This is a technology that has grown on account of successes in electric propulsion based on progress in motor, battery, fuel cell and electronic controller technologies and also fuelled by the need for new vehicle technology that ensures Urban Air Mobility (UAM).

**Applications:** Air Taxi, Delivery, Medical assistance (EMS), Cargo Transport, Recreation.

**Significance:** In the near future, these eVTOLs will enhance “on-demand” mobility for intra- and intercity transportation, improving connectivity between metropolitan city centers and airports.

**2. PM-WANI Scheme:** It was launched by the Department of Telecommunication (DoT) in December 2020 to provide affordable and high-speed internet connectivity to the public in rural and remote areas of

**the country.** The scheme aims to establish a public Wi-Fi network across the country through the creation of Wi-Fi Access Points (WAPs) set up by public data offices (PDOs). **The WAPs will operate on an open-architecture system, allowing multiple service providers to offer their services to the public through a single platform.**

**PM-WANI ecosystem: It consists of four parts:** Public Data Office (PDO), Public Data Office Aggregator (PDOA), App Provider, and Central Registry.

- **PDO establishes the Wi-Fi hotspots and provides internet access to users.** There shall be no license required by PDOs from the DoT for providing broadband internet through these public Wi-Fi networks.
- **PDOA provides authorisation and accounting services to PDOs.** PDOA provides user interface for the user to buy a plan and keep track of their data consumption. PDOA need not pay any license fees. The small shopkeepers can become PDOs as last-mile access service providers and take services from PDOAs for Internet and backend services.
- **Provider, who will develop an application to register users, and ‘discover’ and display PM-WANI Wi-Fi hotspots in proximity for accessing the internet service,** and also authenticate the potential broadband users. Startups and wallet providers can become App Providers.
- The central registry overseen by **the Centre for Development of Telematics maintains details of App Providers, PDOs and PDOAs.**

**3. International Booker Prize:** It is awarded annually for the finest single work of fiction from around the world which has been translated into English. **This prize began life in 2005 as the Man Booker International Prize.** It was initially a biennial prize for a body of work and there was no stipulation that the work should be written in a language other than English. **This prize aims to encourage more reading of quality fiction from all over the world and has already had an impact on those statistics in the UK.** Eligible work of long-form fiction, written originally in English by an author of any nationality and published in the UK and/or Ireland. The prize celebrates the vital work of translators, with the £50,000 prize money divided

equally between the author and the translator. In addition, the shortlisted authors and translators each receive £2,500.

## 23 MAY

**1. BIMSTEC:** It is a **multilateral regional organization comprising seven member states lying in the littoral and adjacent areas of the Bay of Bengal**, constituting a contiguous regional unity.

**Aim:** Accelerating shared growth and cooperation between littoral and adjacent countries in the Bay of Bengal region. It was **founded as BIST-EC in June 1997, with the adoption of the Bangkok Declaration, with Bangladesh, India, Sri Lanka and Thailand as members.**

It became **BIMST-EC (Bangladesh, India, Myanmar, Sri Lanka and Thailand Economic Cooperation) with the entry of Myanmar in late 1997**, and eventually, it was named in its current form when Nepal and Bhutan became members in 2004.

**Current Member States:** Five deriving from South Asia, including Bangladesh, Bhutan, India, Nepal and Sri Lanka and two from Southeast Asia, including Myanmar and Thailand. **Permanent Secretariat: Dhaka, Bangladesh** It is a sector-driven cooperative organisation in which, initially, six sectors had been included: **Trade, Technology, Energy, Transport, Tourism, and Fisheries** As of now, **BIMSTEC has 14 priority areas of cooperation.** Climate change was added as the 14th priority area of cooperation in 2008. Among these priority areas, a member country chooses which of the 14 priority areas it is willing to take the lead. **India is lead country for Transport & Communication, Tourism, Environment & Disaster Management, Counter-Terrorism & Transnational Crime.**

**2. Ujani Dam:** It is **located on the Bhima River near Ujjani village in the Solapur district of the state of Maharashtra.** It is an earth-fill cum masonry gravity dam. It was **constructed between 1977 and 1980 with the primary objective of providing irrigation water and hydroelectric power to the region.** The Ujani Dam is founded on massive basaltic rock formations and comprises a central portion, which is the spillway dam of 602m in length.

**Power Generation Capacity:** 12MW The water quality of the Ujani Dam is very bad as it contains hazardous pollutants from Pune and many other small cities located on the banks of the Bhima River or its tributaries.

**3. Travel & Tourism Development Index:** It is the second edition of an index that evolved from the **Travel & Tourism Competitiveness Index (TTCI) series, a flagship index of the World Economic Forum** that has been in production since 2007. It is created in collaboration with the University of Surrey and with input from leading Travel & Tourism (T&T) stakeholder organizations, thought leaders and data partners. It measures the set of factors and policies that enable the sustainable and resilient development of T&T. **India is ranked 39th, the highest in South Asia and among other lower-middle-income economies. India's new ranking is a notable improvement from its 54th position in the 2021 index.**

On an overall index score of 7, where 1 is the worst, and 7 is the best, **India scored 4.25.** India's significant leap in the rankings underscores its growing competitiveness in the global tourism landscape. **The biennial index analyzed the travel and tourism sectors of 119 countries, evaluating them on a range of factors and policies that foster tourism development.**

## 24 MAY

**1. ASMPA Missile:** The Air-Sol Medium Range (ASMP/ASMP-A) is an air-launched land-attack supersonic cruise missile that carries a nuclear payload. It is a **central component of France's nuclear deterrent. ASMP-A, an upgraded version of the ASMP, arrived into French service in 2009.** This version had an extended range of up to 500 km, and supported a new 300 kt thermonuclear warhead. The ASMPA-R project is a renovated version of the ASMPA intended to add additional range and support another advance in its warhead. It is **an inertial-guided, air-to-surface missile most likely directed by terrain-mapping and a pre-programmed onboard computer.** The motor assembly is comprised of a solid-propellant engine which fires after the missile has been released from the aircraft. Then, the liquid (kerosene)-powered

ramjetmotor takes over and accelerates to a maximum speed of Mach 3.0, depending on the altitude.

**2. Arab League:** The Arab League, also called the League of Arab States (LAS), is a regional organization of Arab states in the Middle East and parts of Africa. It was formed in Cairo on March 22, 1945. It was chartered in response to concerns about postwar colonial divisions of territory as well as strong opposition to the emergence of a Jewish state on Palestinian territory. In 1950, the members also agreed to provide military support to help defend each other.

**Headquarters:** Cairo, Egypt.

**Official language:** Arab.

**Currently, it has 22 members.** The founding member states of the league are Egypt, Syria, Lebanon, Iraq, Jordan, Saudi Arabia, and Yemen. Members who joined later are Libya, Sudan, Tunisia, Morocco, Kuwait, Algeria, Bahrain, Oman, Qatar, the United Arab Emirates, Mauritania, Somalia, the Palestine Liberation Organization, Djibouti, and Comoros. **The League regards Palestine as an independent state.**

**Observer status:: Brazil, Eritrea, India, and Venezuela.**

**The highest body of the league is the Council,** composed of representatives of member states, usually foreign ministers, their representatives, or permanent delegates. **The League makes decisions on a majority basis, but there is no mechanism to compel members to comply with resolutions.** Each member has one vote on the Council, with decisions binding only on those states that have voted for them.

**3. Mount Ibu:** The Ibu volcano is an active stratovolcano located along the NW coast of Halmahera Island in Indonesia.

Ibu's activities follow a series of eruptions of different volcanoes in Indonesia, which sits on **the Pacific "Ring of Fire" and has 127 active volcanoes.**

**Stratovolcano:** Stratovolcano is also called a composite volcano.

- This volcanic landform is **characterized by a conical shape formed by layers of volcanic material** deposited during successive volcanic

eruptions.

- These volcanoes tend to slope gently at the base but rise quickly near the summit to form tall mountain peaks.
- They are typically found above subduction zones, and they are often part of large volcanically active regions, such as the Ring of Fire that frames much of the Pacific Ocean.
- These are built up on height by layering lava, ash and tephra. By definition, they have alternating layers of pyroclastic and lava.
- Examples for Stratovolcano are **Nevalo del Ruiz Volcano and Ubinas Volcano (Andes Mountains of Colombia).**

## 25 MAY

**1. Fatty Acids:** They are the **building blocks of the fat in our bodies and in the food we eat.** During digestion, the body breaks down fats into fatty acids, which can then be absorbed into the blood. **Fatty acid molecules are usually joined together in groups of three, forming a molecule called a triglyceride.** Triglycerides are also made in our bodies from the carbohydrates that we eat. **The two main types of fatty acids are saturated fat and unsaturated fat. Saturated fats are sometimes known as "bad" or "unhealthy" fats because they increase your risk of certain diseases like heart disease and stroke.** Unsaturated fats (polyunsaturated and monounsaturated) are considered "good" or "healthy" fats because they support your heart health when used in moderation.

**2. Omega-3 Fatty Acids:** They are **polyunsaturated fats that perform important functions in your body.** Your body can't produce the amount of omega-3s you need to survive. **So, omega-3 fatty acids are essential nutrients, meaning you need to get them from the foods you eat. They are found in foods, such as fish and flaxseed, and in dietary supplements, such as fish oil. The three main omega-3 fatty acids are alpha-linolenic acid (ALA), eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA).** ALA is found mainly in plant oils such as flaxseed, soybean, and canola oils. DHA and EPA are found in fish and other seafood.

Omega-3s are important components of the membranes that surround each cell in your body. DHA levels are especially high in retina (eye), brain, and sperm cells. Omega-3s also provide calories to give your body energy and have many functions in your heart, blood vessels, lungs, immune system, and endocrine system (the network of hormone-producing glands). **Omega-3s in fish and fish oil supplements may help with symptoms of several autoimmune diseases like rheumatoid arthritis, lupus, and Crohn's disease.**

**3. Gulf Cooperation Council (GCC):** It is a political and economic alliance of six countries in the Arabian Peninsula: **Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. The GCC was established in Riyadh, Saudi Arabia, in May 1981. The objective is to promote economic, security, cultural, and social cooperation between the six states and hold a summit every year to discuss cooperation and regional affairs.** Together, the GCC countries possess almost half of the world's oil reserves.

**Organizational structure:**

**The Supreme Council:** It is the highest authority of the organization, which meets on an annual basis and consists of GCC heads of state. **Decisions of the Supreme Council are adopted by unanimous approval. Its presidency rotates periodically among the member states in alphabetical order.**

**The Ministerial Council:** It is composed of the foreign ministers of all the Member States or other ministers deputizing for them. It meets every three months to implement the decisions of the Supreme Council and to propose new policy.

**The Secretariat General:** It is the administrative arm of the alliance, which monitors policy implementation and arranges meetings.

**Its headquarters is in Riyadh, Saudi Arabia.**

**4. India and GCC:** GCC is India's largest regional-bloc trading partner. **Trade with the GCC comprised 8% of India's total trade in FY2022–23. The UAE has consistently been India's principal trading partner within the Gulf and is India's third-largest**

**trading partner overall.** According to the latest figures, there are approximately 9 million Indian expats residing in GCC countries, which is approximately 66% of non-resident Indians.

**5. Graphite:** It is an opaque, non-metallic carbon polymorph that is blackish silver in colour and metallic to dull in sheen. Since it resembles metal lead, it is also known colloquially as black lead or plumbago. It is **formed by the metamorphosis of sediments containing carbonaceous material.** It consists of a ring of six carbon atoms closely bonded together hexagonally in widely spaced layers. The bonds within the layers are strong, but the bonds between the layers are less in number and therefore weaker. It is a **naturally occurring form of crystalline carbon and is a stable form of carbon. It is extremely soft, cleaves with very light pressure, and has a very low specific gravity.** In contrast, it is extremely resistant to heat and nearly inert in contact with almost any other material. These extreme properties give it a wide range of uses in metallurgy and manufacturing.

**Applications:** It is used in pencils, lubricants, crucibles, foundry facings, polishes, arc lamps, batteries, brushes for electric motors, and cores of nuclear reactors.

Globally it is mined extensively in China, India, Brazil, North Korea, and Canada. **Sri Lankan graphite is considered among the purest in the world with more than 98% carbon content.**

**27 MAY**

**1. Mundra Port:** It is the **largest private port and the largest container port in India.** It is located on the north shores of the Gulf of Kutch, near Mundra, Kutch district, Gujarat. **It is a deep-draft, all-weather port. It is also a special economic zone (SEZ).** As much as **33 per cent of India's container traffic flows through the port.** It is run by **Adani Ports and Special Economic Zone Limited (APSEZ)**, which is India's largest commercial port operator and accounts for nearly one-fourth of the country's cargo movement. The port handles a wide variety of cargo, including containers, dry bulk, break bulk, liquid cargo and automobiles. **It also has the country's largest coal import terminal,** which facilitates faster cargo evacuation with minimal



turnaround time. Mundra Port's rail is connected to the national rail network and cargo can be handled for any location in India.

**MSC Anna:** It is the largest container ship ever to call at an Indian port. **The docked vessel, MSC Anna, has a length of roughly the four football fields - and is among the largest container ship.** Its arrival draft is 16.3 metres, which can be accommodated only at Adani Ports, Mundra, as no other port in India is capable of berthing a deep-draft vessel.

**2. Zero Debris Charter:** It is an initiative of the European Space Agency (ESA) unveiled at the ESA Space Summit in Seville meeting in November 2023. **The Charter comes after ESA Member States encouraged the agency to implement "a Zero Debris approach for its missions and to encourage partners and other actors to pursue similar paths".** It is the first initiative of its kind to bring together the largest array and variety of space actors around the world with the joint goal of creating no more debris by 2030 and making possible the long-term sustainability of space activities. The charter is a non-legally binding agreement. The charter sets out a number of targets, including that a mission's probability of generating space debris should remain below 1 in 1,000 per object. **It also sets a target of 99% success for post-mission disposal, including through external means when necessary.** It encourages transparent information sharing and space traffic coordination. To implement the Charter, the **ESA will focus on developing ground-breaking technologies for satellite end-of-life disposal, in-orbit servicing and active debris removal.** In addition, ESA will work hand-in-hand with institutions in charge of regulatory aspects.

**3. India's Top Trading Partners:** India has recorded a trade deficit, the difference between imports and exports, with nine of its top 10 trading partners in 2023-24, according to official data. **China has emerged as India's largest trading partner with \$118.4 billion of two-way commerce in 2023-24, surpassing the US.** The bilateral trade between India and the US stood at \$118.28 billion in 2023-24. **Washington was the top trading partner of New Delhi during 2021-22 and 2022-23.** In 2023-24, the United

Arab Emirates (UAE), with USD 83.6 billion, was the third largest trading partner of India. It was **followed by Russia, Saudi Arabia and Singapore.** **India's total trade deficit in the last fiscal narrowed to \$238.3 billion as against \$ 264.9 billion in the previous fiscal.** The trade deficit with China rose to \$85 billion **America is one of the few countries with which India has a trade surplus.** **After the US, the Netherlands offers a surplus on the back of being a hub of India's petroleum trade with Europe.** Other countries with which there is a trade surplus are the UK, Italy, France and Belgium. **India has a free trade agreement with four of its top trading partners - Singapore, the UAE, Korea, and Indonesia (as part of the Asian bloc).**

## 28 MAY

**1. Article 329(b):** Enshrined in **Part XV of the Constitution, articles 324-329 specifically discuss elections.** While Article 324 gives the poll panel powers to direct and control elections, Article 329, which has two clauses, concerns itself with the role of the judiciary in electoral matters.

**Article 329(a)** says the "judiciary is not allowed to challenge the constitutionality of laws relating to the boundaries of electoral districts or the allocation of seats.

**Article 329(b) as amended by the Constitution (19th Amendment) Act, 1966, provides that notwithstanding anything in the Constitution, no election to either House of Parliament or the Legislature of a State shall be called into question except by an election petition presented to such authority and in such manner as may be provided for by or under any law made by the appropriate Legislature.** It stipulates that election-related inquiries are exclusively addressed through election petitions presented to the authority designated by that law. The **Representation of the People Act, 1951,** furthers this clause as it empowers the high courts to hear and decide election petitions. A decision in such petitions can be challenged in the Supreme Court (SC).

**2. Virupaksha Temple:** It is a **Hindu temple dedicated to Lord Virupaksha, a form of Lord Shiva.** It is located in Hampi, in the Vijayanagara district of Karnataka. It is **part of the Group of Monuments at Hampi, designated as a UNESCO World Heritage Site.** It is

situated on the southern bank of the Tungabhadra River. **According to history, this temple has been functioning uninterruptedly ever since its inception in the 7th century AD and is one of India's oldest functioning temples.** Originally a small, humble shrine, it was expanded to its present magnificence during the reign of the Vijayanagara kings, though additions to its temple were also made by the Chalukyan and Hoysala eras. **It is built in South Indian architectural style. Hampi's only continuously functioning temple, it includes a sanctum sanctorum, pillared halls—the most elaborate one consisting of 100 pillars—antechambers, grand gopurams,** and a number of smaller shrines, along with a temple kitchen and administrative offices.

**It has three gopurams; the eastern gopuram is the largest the other two are the smaller gopurams.** Beautiful sculptures of many Hindu Gods adorn the outer faces of the gopurams. Apart from these, builders utilized physics principles such as Rectilinear Light Theory and the pinhole camera effect, along with mathematical concepts like fractals, geometry, complex mathematics and the Fibonacci number sequence, to construct the temple. **The most interesting part of the structure is the inverted pinhole image of its tower present on the inner wall.**

**3. Eucalyptus:** It is a large genus of more than 660 species of shrubs and tall trees of the myrtle family. **Some of the tallest trees in the world are eucalypti. It is native to Australia, Tasmania, and nearby islands.** In Australia, the eucalypti are commonly known as gum trees or stringybark trees. It has a gum-infused bark, long stems and circular leaves that are hard to digest if eaten whole. Small flowers grow on eucalyptus trees. They come in many colors, including white, yellow and shades of red. Eucalypti also have small woody capsules. Inside the capsules are seeds. **It is widely used for its medicinal properties. Some eucalyptus leaves contain an oil that has a strong smell.** It is useful to treat a variety of common diseases and also works amazingly when applied topically in diluted form. **The main compound of eucalyptus oil is cineole, also known as eucalyptol. The oil also contains flavonoids and tannins, which acts as anti-inflammatory and antioxidants.** It is known for its

ability to relieve congestion and ease breathing in colds. It is also used as a pain reliever for sore and overextended muscles. It is an excellent topical remedy for aching joints and rheumatism. It helps improve blood circulation. **Eucalyptus wood is tough and durable. It is used to build things such as furniture and fences. Eucalyptus tereticornis and Eucalyptus hybrid are the two most widely planted eucalypts in India.** It is widely grown in **Tamil Nadu, Andhra Pradesh, Gujrat, Haryana, Mysore, Kerala and in the Nilgiri Hill.** It grows well in deep, fertile, well-drained loamy soil with adequate moisture.

## 29 MAY

**1. Vivekananda Rock Memorial:** It is located on a small island off Kanyakumari, Tamil Nadu. The memorial stands on one of the two rocks located about 500 meters off the mainland of Vavathurai. **The rock is surrounded by the Laccadive Sea, where the Bay of Bengal, the Indian Ocean, and the Arabian Sea form a confluence.** It was built in 1970 in honour of Swami Vivekananda, who is said to have attained enlightenment on the rock. **It comprises of the 'Shripada Mandapam' and the 'Vivekananda Mandapam'.** There is also a life-sized bronze statue of Swami Vivekananda on the premises. It is also a memorial for which all State Governments and the Central Government contributed.

**2. Sharavathi River:** It is a river in western Karnataka state. It is one of the few westward-flowing rivers in India and a major part of the river basin lies in the Western Ghats. Rising in the Western Ghats, **it flows in a northwesterly direction to the Arabian Sea at Honavar in Uttara Kannada District.** On its way, the Sharavathi forms the Jog Falls, one of the highest waterfalls in India.

**Major Tributaries: Nandihole, Haridravathi, Mavinahole, Hilkunji, Yennehole, Hurlihole, and Nagodihole.** It is a vital source of hydroelectric power in Karnataka.

**3. Pravaah Portal:** Pravaah (Platform for Regulatory Application, Validation, and AuthOrisation) is a secure and centralised web-based portal for any individual or entity to seek authorisation, license, or regulatory approval on any reference made by it to the RBI.

**The following are some of the key features available in the portal:**

- Submit the application online on the portal.
- Track and monitor the status of the application/reference.
- Respond to any clarification/query sought by the RBI in connection with the application/reference; and
- Receive a decision from the RBI in a time-bound manner

**This portal will also enhance the efficiency of various processes related to the granting of regulatory approvals and clearances by the RBI.** At present, 60 application forms covering different regulatory and supervisory departments of RBI have been made available on the portal. This also includes a general-purpose form for applicants to submit their requests, which are not included in any other application form.

**4. FinTech Repository by RBI:** It aims to capture essential information about FinTech entities, their activities, technology uses, etc. FinTechs, both regulated and unregulated. It will contain information on rich repository of data on Indian FinTech firms for a better understanding of the sector that would be useful for both policymakers and participating industry members. Simultaneously, a related repository for only RBI-regulated entities (banks and NBFCs) on their adoption of emerging technologies (like AI, ML, Cloud Computing, DLT, Quantum, etc.), called EmTech Repository is also being launched. **The FinTech and EmTech Repositories are secure web-based applications and are managed by the Reserve Bank Innovation Hub (RBIH), a wholly owned subsidiary of RBI.**

### 30 MAY

**1. KAZA Region:** The Kavango-Zambezi Trans-Frontier Conservation Area (KAZA-TFCA) is a 520,000- square kilometre wildlife sanctuary straddling five southern

African nations that share common borders along the Okavango and Zambezi river basins. **These nations — Angola, Botswana, Namibia, Zambia and Zimbabwe— together with South Africa, are home to more than two-thirds of the African elephant population.** It is home to a high concentration of wildlife species, including the largest elephant population. **Within it are also three World Heritage sites namely the Victoria Falls on the Zambezi river which makes the border between Zambia and Zimbabwe and the Okavango Delta and the Tsodilo Hills both in Botswana.** The KAZA states signed a Memorandum of Understanding in 2006 resulting in the KAZA Treaty of 2011 followed by its immediate implementation. The KAZA-FTCA area is a partnership centred around “a common vision to conserve biodiversity at scale through promoting integrated transboundary management and to market the landscape biodiversity using nature-based tourism as the engine for rural economic growth and development.”

**2. Global food policy report 2024:** Food systems for healthy diets and nutrition was released by International Food Policy Research Institute (IFPRI).

**International Food Policy Research Institute (IFPRI):** It was established in 1975 and provides research-based policy solutions to sustainably reduce poverty and end hunger and malnutrition in developing countries. It is a research centre of CGIAR, which is the world’s largest agricultural innovation network.

**Its research focuses on five strategic research areas:**

- **Fostering Climate-Resilient and Sustainable Food Supply**
- Promoting Healthy Diets and Nutrition for AI
- **Building Inclusive and Efficient Markets, Trade Systems and Food Industry**
- Transforming Agricultural and Rural Economies
- Strengthening Institutions and Governance
- **Headquarters: Washington, D.C.**

**3. eMigrate project: Memorandum of Understanding (MoU) is entered into between Ministry External Affairs (MEA), Ministry of Electronics and Information Technology (MeitY) and Common Service Centre eGovernance Services India Limited to create a synergy between Common Service Centre (CSC) SPV & MEA to**

provide the eMigrate services through CSCs in the country. It is **undertaken to assist mainly the blue-collar workers going to Emigration Check Required (ECR) countries**. The project was conceptualized to address issues faced by the migrant workers by making emigration process online seamless and also to bring foreign employers and registered recruitment agents and insurance companies on one common platform aimed at promoting safe and legal migration. Under this MoU, eMigrate Portal of MEA would be integrated with CSC's portal, to provide following eMigrate services to the citizens through CSCs.

### 31 MAY

**1. Red Flag 24:** It is a **two-week advanced aerial combat training exercise aimed at integrating aircrew in a multinational environment**. It is designed to replicate a realistic and challenging environment, bringing together aircrew and equipment from different nations and services. **Approximately 3100 service members are expected to fly, maintain, and support more than 100 aircraft during the exercise**. The IAF deployed Rafale fighter jets for the Red Flag 24 exercise.

**2. Cryonics:** Cryonics, the practice of freezing an individual who has died, with the object of reviving the individual sometime in the future. The word cryonics is derived from the Greek *krýos*, meaning "icy cold." **It is an effort to save lives by using temperatures so cold that a person beyond help by today's medicine can be preserved for decades or centuries until a future medical technology can restore that person to full health**. A person that is held in such a state is called a "cryopreserved patient", because Cryonicists (the advocates of cryonics) do not regard the cryopreserved person as really dead. **Cryonic preservation can be performed only after an individual has been declared legally dead**. There, the blood is drained from the body and replaced with antifreeze and organ-preserving compounds known as cryoprotective agents. In this vitrified state, the body is placed in a chamber filled with liquid nitrogen, where it will theoretically stay preserved at -196 °C until scientists are able to find a way to resuscitate the body in the future. **Currently,**

**there are a few hundred bodies that have been frozen through cryonics.**

**3. LignoSat:** It is developed by collaborative research and development by a team comprising members from Kyoto University and Sumitomo Forestry Co. Their objective is to leverage the eco-friendliness and cost-effectiveness of wood in space exploration. It is **constructed from magnolia wood, chosen for its durability and adaptability**. Wooden satellites are viewed as more environmentally friendly upon reentering the Earth's atmosphere at the conclusion of their mission. Unlike metal satellites, which pose air pollution risks due to the generation of metal particles during reentry, wooden satellites mitigate these concerns. **It will first be sent to the International Space Station (ISS) aboard a SpaceX rocket from the Kennedy Space Center**. Once it reaches the ISS, it will be released from the Japanese experiment module to test its durability and strength. Researchers will receive data from the satellite to monitor its performance, including signs of strain and its ability to withstand extreme temperature changes.

**4. Recombinant Proteins:** These are proteins encoded by recombinant DNA that have been cloned in an expression vector that supports the expression of the gene and translation of messenger RNA. Modification of the gene by recombinant DNA technology can lead to the expression of a mutant protein. It is a manipulated form of native protein, which is generated in various ways in order to increase the production of proteins, modify gene sequences and manufacture useful commercial products. It is created by fusing sequences that may not be normally present in an organism. **Recombinant proteins, such as vaccine antigens, insulin and monoclonal antibodies, are mass-produced by growing modified bacterial, viral or mammalian cells in large bioreactors**. The most widely used organism is the yeast *Pichia pastoris* (now called *Komagataella phaffii*). It is used in biomedical research to understand health and disease. It is used in Biotherapeutics. **It is used to produce protein-based polymers for drug delivery, antibodies and enzymes for disease treatment, protein scaffolds for tissue engineering etc.**

## PERSONALITY IN NEWS

**1. Raja Ravi Varma (29th April 1848- 2nd October 1906):** First true copy of the painting Indulekha by Raja Ravi Varma was unveiled at Kilimanoor Palace (Kerala) on his birth anniversary.

- **Contribution:** Best known for uniting Hindu mythological subject matter with European realist historicist painting style.
- **First Indian artist to use oil paints** (brought to India by the Britishers).
- A pioneer in using art as a means of social reform.
- **Famous paintings:** 'Lady in the Moonlight', 'Stolen Interview', 'Shakuntala'
- **Awards:** His painting 'Hansa Damayanti', which depicts the story of King Nala and Damayanti from Mahabharata won the first prize at Vienna Exhibition in 1873. British government awarded him with Kaiser-i-Hind Gold Medal in 1904.

**2. Vallabhacharya (1479 -1531):** Recently, 545th birth anniversary of renowned scholar and saint Vallabhacharya was celebrated.

### About:

- Vallabhacharya was a **Uttaradhi Tailang Brahmin** born in Champaranya in Raipur Central Province.
- He was one of pioneers of **Bhakti movement and contemporary of Sri Chaitanya Mahaprabhu.**

### Key Contributions:

- **Established Pushti Marg** (the path towards the grace) tradition with Brahasutra, Srimad Bhagwat, and Geeta as its literature.
- **Established Shhuddhadvaita (pure non-dualism) school of thought based on Vedanta.**
- **Important literary works:** Anubhashya on Brahma Sutra, Subhodhini Vyakhya of Bhagavat, SiddhantaRahasya, Bhagavat Leela Rahasya, Ekanta-Rahasya, Vishnupada, etc.

**3. Fakir Lalon Shah (1774-1890):** An Indo-Bangla Baul music festival is organized in Dhaka to celebrate the 250th birth anniversary of Fakir Lalon Shah.

### About Fakir Lalon Shah:

- Born in Horishpur in Jhenaidah district of modern Bangladesh.
- He was a **contemporary of Ramakrishna Paramahansa and Swami Vivekananda.**

### Key Contributions:

- **Founded the 'Lalon Akhrah'** which had around 10,000 followers across all religions.
- He is **considered as Father of Baul Music.**
- In **2008, Baul songs are listed under UNESCO's Intangible Cultural Heritage of Humanity.**
- He also influenced personalities like Rabindranath Tagore and Nazrul Islam.

## PLACES IN NEWS

**1. Spain (Capital: Madrid):** Spain's Prime Minister refuses to resign after a court opened an initial inquiry into his wife over corruption claims.

### Political boundaries:

- Located in **southwestern Europe**.
- **Land Borders:** Portugal (West), Andora, France (Northeast) and Gibraltar (enclave of Britain).
- **Maritime Border:** Atlantic Ocean (west), Mediterranean Sea and Balearic Sea in east and Alboran Sea (south).

### Geographical features:

- **Highest peak:** Teide Peak.
- **Major Rivers:** Tagus, Ebro, Douro etc.
- **Climate:** Temperate; clear, hot summers in interior, more moderate and cloudy along coast.
- **Important Plateau:** Iberian Plateau also known as Meseta Central.

**2. Lebanon (Capital: Beirut):** According to reports, many people died in the conflict between Hezbollah group and Israel along Lebanon border.

### Physical Features:

- Located in West Asia.
- Bounded by **Syria (north and east), Israel (south), and the Mediterranean Sea (west)**.
- Shares maritime borders with Cyprus

### Geographical Features:

- **Physiography:** Al-Biqā valley lies between the Lebanon Mountains in the west and the Anti-Lebanon Mountains in the east.
- It is part of the **great East African Rift System**.
- **Highest Peak:** Qurnat al-Sawdā
- **Major rivers:** Līānī River, Orontes, etc

**3. Ghana (Capital: Accra):** India-Ghana agreed to strengthen trade ties at 4th joint trade committee meeting in Accra.

### Political features:

- West African country on Gulf of Guinea.
- **Land Border:** Burkina Faso (north), Togo (east), Côte d'Ivoire (west).
- **Maritime border:** Atlantic Ocean (south).

### Geographical features:

- **Major rivers:** Volta, Tano, Pra, etc.
- **Highest peak:** Mount Afadjato.
- **Greenwich Meridian passes through Ghana.**

### 4. Darfur:

- Darfur is a region of western Sudan, bordering **Libya, Chad, and the Central African Republic**.
- The latest surge in violence comes as the RSF encircles North Darfur's capital, El Fasher.
- It has **halted aid convoys coming from Chad's Tine border crossing – a humanitarian corridor that passes through El Fasher**.

### 5. Kaziranga National Park (KNP):

- **Location:** Golaghat and Nagaon districts (Assam) in the Eastern Himalayan biodiversity hotspots.
- Situated between the **river Brahmaputra in the North and the Karbi Anglong hills in the South**.
- **UNESCO recognition:** Declares as a UNESCO World Heritage Site in 1985.
- **Major Vegetation:** Wet alluvial grassland interspersed with deciduous to semi-evergreen woodlands.
- **Flora:** Elephant grass, Kumbhi, Indian gooseberry etc.
- **Fauna:** One-horned rhinoceroses (the world's largest population), wild Asiatic water buffaloes, swamp deer, hog deer, Ganges Dolphin, etc

**6. Croatia (Capital: Zagreb):** Incumbent Croatian Prime Minister has secured office for third consecutive time

### Political Features:

- Located in South Eastern Europe and is a part of Balkan Peninsula.

- Bounded by **Hungary and Slovenia (North), Serbia (East), Bosnia and Herzegovina (Both in South and East) and Adriatic Sea (West).**

**Geographical Features:**

- **Major Mountain Range:** Dinaric Alps, known for Karst (limestone) topography.
- **Highest Point:** Dinara
- **Major Rivers:** Sava and Drava

**7. Slovakia (Capital: Bratislava):** Slovakia Prime Minister was shot multiple times after a cabinet meeting in Handlova town.

**Political Features:**

- **Landlocked country of central Europe.**
- **Borders:** Poland (North), Ukraine (East), Hungary (South), Austria (West) and Czech Republic (Northwest).

**Geographical Features:**

- **Mountain Range:** Carpathian Mountains, including Tatra Mountains.
- **Highest Point:** Gerlachovský Peak.
- **Major Rivers:** Danube, Váh, Hron, etc.

**8. Iran (Capital: Tehrān):** Iran President Dies in Helicopter Crash.

**Political Features:**

- **Land Boundaries:** Armenia, Azerbaijan, Turkmenistan (North); Afghanistan and Pakistan (East); Iraq (West); Turkey (Northwest).
- **Maritime Borders:** Bahrain, Kuwait, Oman, Qatar, and Saudi Arabia.
- **Surrounding water bodies:** Persian Gulf and Gulf of Oman.

**Geographical Features:**

- **Highest Peak: Mount Damavand in Alburz Mountain Range.** It is also the highest volcano in Middle East.
- **Major Rivers:** Dez, Karkheh, Karun, Diyala
- **Natural resources:** Oil and natural gas, coal, chromium, copper, iron ore, lead, manganese, zinc and sulphur.

**9. Kyrgyzstan (Capital: Bishkek):** Violence has erupted in Kyrgyzstan, with mobs targeting hostels housing students from India, Bangladesh and Pakistan.

**Political Features:**

- The **country is located in Central Asia.**
- **Boundaries:** Kazakhstan (Northwest and North), China (East and South) Tajikistan (South) and Uzbekistan (West).
- It is a **landlocked country.**

**Geographical Features:**

- **Highest Peak:** Victory (Pobedy) Peak
- **Major Rivers:** Syr Darya, Naryn and Chu River
- **Lake:** Ozero Issyk-Kul, second largest saline lake after the Caspian Sea
- **Natural resources:** Gold, Coal, oil and natural gas

**10. Papua New Guinea (Capital: Port Moresby):** The country is hit by a massive landslide.

**Political Boundaries:**

- An **island country in the south-western Pacific Ocean along a Pacific Ring of Fire.**
- Encompasses eastern half of New Guinea (world's second largest island); Bismarck Archipelago; Bougainville and Buka and many small offshore islands.
- Stretches from just south of Equator to Torres Strait.

**Geographical Features:**

- **Situated along the Pacific Ring of Fire.**
- **Major rivers:** Sepik, Fly, Strickland etc
- **Highest peak:** Mount Wilhelm

**11. Narva River:** Recently, a new dispute emerged between Russia and Estonia, centered around the removal of navigation markers on the Narva River, which forms part of the border between the two countries.

**About Narva River:**

- **Narva basin is situated in Baltic Sea basin on the eastern part of Estonia and on the northwest part of Russian Federation.**
- Important transboundary water bodies in River Narva basin: **Lake Peipsi and Narva reservoir. It**

connects Lake Peipsi with Gulf of Finland (Baltic Sea)

**12. Spain (Capital: Madrid):** Spain has pledged to provide military support to Ukraine worth one billion euros this year.

**Political Boundaries:**

- Located in **South-Western part of Europe**
- **Land Boundaries:** Portugal (West), Andorra and France (North-East), Gibraltar- British Overseas territory and Morocco (South)
- **Maritime Boundaries:** Mediterranean Sea (east and southeast), Atlantic Ocean (northwest and southwest), Bay of Biscay, an inlet of the Atlantic Ocean (north)

**Geographical features:**

- **Highest Peak:** Teide Peak
- **Major Rivers:** Tagus, Ebro etc

**13. Sharavathi River:**

- West flowing river which drains into the Arabian Sea.
- **Origin:** Ambutirthha (Western Ghats) in Shimoga district of Karnataka.
- **Tributaries:** Haridravathi, Yennehole, Nagodi, etc.
- **Water Falls:** Jog falls (one of the highest plunge waterfall)
- **Sharavathi Valley Wildlife Sanctuary is located in the Sharavathi River Valley.**
- **The Mahatma Gandhi Hydroelectric Power Station is built on it.**



# EDUFACTS

## 1 MAY

### 1. As per India State of Forest Report 2021,

- **Odisha reported highest forest fires** between November 2020 and June 2021, followed by Madhya Pradesh.
- More than **36% of country's forest cover has been estimated to be prone to frequent forest fires.**

**2. India is second-largest steel-producing country,** accounting for 7% of total crude steel production

## 2 MAY

1. Between 2011 and 2020, **80% of global climate finance was focused in OECD countries and the East Asia Pacific region,** revealing a significant geographical concentration of funds.

**2. Bletchley Declaration:** To comprehensively and collaboratively address the risks and responsibilities involved in AI by concentrating more on fostering scientific cooperation.

## 3 MAY

1. **Current Status of E-commerce:** In 2022, sector was worth \$70 billion and makes about 7% of India's total retail market.
2. India is 2nd largest producer and exporter Of Tobacco.

## 7 MAY

### 1. Women In Judiciary:

- Only **11 out of 268 Judges ever appointed in SC,** since independence, are Women.
- Justice Fathima Beevi was the first women judge to serve the SC in 1989.
- There were **35% women judges in subordinate courts while just 13% in High Courts (HCs).** (India Justice Report, 2022)
- Only **15% of the practising lawyers are women**

## 8 MAY

1. Studies have shown agricultural soils can absorb **3-8 billion tonnes of CO2-equivalent every year.**
2. **India was ranked 54th out of 117 countries in Global Travel and Tourism Development Index 2021** of World Economic Forum

## 9 MAY

1. **India's MedTech sector is projected to grow 28% annually,** reaching a size of US\$50 billion by 2030. India ranks as the 4th largest market for medical devices in Asia and stands among the top 20 globally.
2. Agrifood generates almost a 1/3rd of global greenhouse gas emissions. **Top Emitters: 3/4th of agrifood emissions come from developing countries and China, Brazil, and India are the top 3 emitters.** In India, **60% of such emissions come from the farm gate,** mainly due to enteric fermentation in the livestock sector.

## 14 MAY

1. Researchers from Ministry of Health and Family Welfare and Banaras Hindu University found **that 12% of India's eligible children received no dose of measles vaccine.**
2. Ultra Processed food sector in India witnessed a compounded annual growth rate of 13.4% between 2011 and 2021 and is expected to grow further (WHO).

## 15 MAY

1. **Global average concentration of carbon dioxide (CO2) was 4.7 parts per million (ppm) in March 2024 (higher than March 2023),** signifying large spike in Keeling Curve. It is the largest ever recorded leap in CO2 concentration at 425.22 ppm.
2. Between FY19 and FY24, **India's exports to China witnessed a marginal decline in exports by 0.6%,** while imports from China surged by 44.7%.

## 16 MAY

1. Dimensions of Land Squeeze in India:

- **Land degradation and desertification:** >70% of its arable land is undergoing land degradation.
- **Land concentration:** Top 10% landowners own 45% of farmland.
- **Land Fragmentation:** Average agricultural holdings in India are 1.08 hectares (2015-16).

## 17 MAY

1. According to 'Crime in India' Report, **65,893 cases were registered under cybercrime**, showing an increase of 24.4% compared to 52,974 cases in 2021.

2. As per TRAI, **internet penetration in India as of March 2023 is over 880 million.**

## 21 MAY

1. Female LFPR rose to 37.0% (PLFS 2022-23) against 24.5% five years back.

2. 11% of fully grown trees in 2010-2011 were no longer visible when reviewed in 2018-2022. **India may have lost 5.6 million full-grown trees in agricultural lands during 2019-2022.**

## 22 MAY

1. Globally, about 450 million people live in high-poverty and low-water-access hotspots (**As per World Bank's report titled 'Water For Shared Prosperity'**).

2. **India imports 80% of crude oil** (3rd in world) and 54% of natural gas.

## 24 MAY

1. **PitchBook** (private organisation) recently released its **2024 global rankings for the best startup cities**. It ranked **Mumbai at 32nd place, Bengaluru at 34th**

**and Gurugram at 48th** among the top 50 startup cities globally.

## 28 MAY

1. According to the Central Government's reply in Parliament in 2019, there were **5,191 fewer fire stations and 5,03,365 fewer personnel than required.**

2. In 2022, In India, **7,435 people were killed in over 7,500 fire accidents (NCRB report 2022).**

## 29 MAY

1. According to official data from Union Ministry of Commerce and Industry, in the FY 2023-24, **India recorded Trade deficit with 9 out of its top 10 trading partners.**

## 30 MAY

1. The Northwest Himalayas contribute- **66.5% of landslides in India, followed by the Northeast Himalayas -18.8% and the Western Ghats - 14.7%.**

2. **Challenges in funding of WHO:** Assessed contributions cover less than 20% of the total budget, Withdrawal of funding (E.g. Temporary suspension of funding by US) etc.

## 31 MAY

1. **Analysis report of candidates of 2024 Lok Sabha (LS) election:** It was conducted by Association for Democratic Reforms (ADR) and National Election Watch.

**Key finding of the analysis:**

- **104% rise of political parties contesting LS polls from 2009 to 2024.**
- 14% candidates have declared serious criminal cases **including charges related to rape, murder, attempt to murder, kidnapping, etc.**
- 20% candidates have declared criminal cases against themselves