CURRENT AFFAIRS WEEKLY

WEEK: 1 APRIL 2024

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DISCLAIMER

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

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

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SECTION A

MAINS ARTICLES

1. EXTREME EVENTS AND DISASTER PREPAREDNESS

Context: The IMD has issued an orange alert in West Bengal and the **northeastern regions** anticipating heavy rainfall. There is formation of a **cyclonic circulation** over **northeastern Assam**. Additionally, the influx of humid winds from the **Bay of Bengal** is saturating the northern and northeastern regions of the country with moisture.

1: Dimension-Reason behind the changing rainfall pattern

◈ **Global warming:** Global warming leads to a near-term collapse of the **ocean's thermohaline circulation** (global ocean circulation pattern).

◈ Due to this collapse of thermohaline circulation, warm surface waters move from the tropics to the **North Atlantic** and extra-warm water surfaces in the **Pacific Ocean** surrounding the equator.

◈ Thus, Western Europe, some parts of Asia, and many parts of the Americas get warmer than normal, and some parts of Europe get cooler rapidly.

➤ **El Niño and La Niña** are examples of this.

◈ This latest deviant trend generates dramatic weather impacts, such as:

➤ rapid cooling in some parts of the world

➤ greatly diminished rainfall in agricultural and urban areas

◈ **Shift in global wind pattern:** UNESCO and other studies found that changes in rainfall pattern could be attributed to the shifts in global wind pattern. These shifts are due to the changes in the ocean surface temperature.

◈ **Human activity:** Effect of human activity on the surface vegetation is also causing rainfall pattern variation.

◈ **Deforestation:** Widespread deforestation in parts of Africa and Asia is causing scarce rainfall and subsequent drought.

◈ **Triggered cyclogenesis process**: The **cyclone hotspot districts** - Puri, Chennai, Nellore, North 24 Parganas, Ganjam, Cuttack, East Godavari, and Srikakulum – were concentrated along the eastern coastline. The east coast's warming regional microclimate, land-use change, and degrading forest have triggered the region's cyclogenesis process.

2: Dimension- Government mechanism for preparedness to reduce the risk during such events

◈ The government employs **early warning systems, disaster management plans, resilient infrastructure, public awareness campaigns, coordination between agencies, specialized response teams, and community engagement** to prepare for and mitigate risks during heavy rain and sudden storms.

◈ More specifically, the plans range from national disaster plans to the state and district disaster plans from a DRR purview.

◈ Similarly, for climate actions, there is

➤ **NAPCC (National Action Plan on Climate Change)** at the national level

➤ **SAPCC (State Action Plan on Climate Change)** at the state level

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FACT BOX: IMD'S COLOUR ALERTS

• When it comes to rainfall alerts, IMD issues four colour codes:

➤ **Green code** denotes less than 64 mm of rain in 24 hours.

➤ **Yellow alert** is issued if the expected rainfall ranges between 64.5 mm and 115. 5 mm.

➤ **Orange alert** is issued when rainfall totals between 115.6 and 204.4 mm in a single day

➤ **Red alert** is issued when rainfall totals exceed 204.5 mm in a 24-hour period.

UPSC PYQ

Q. **Geography**: Discuss the meaning of colour-coded weather warnings for cyclone-prone areas given by the India Meteorological Department. (UPSC 2022)

Q. **Environment:** The frequency of urban floods due to high-intensity rainfall is increasing over the years. Discussing the reason for urban floods, highlight the mechanism for preparedness to reduce the risk during such events. (UPSC 2016)

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2. INDIA'S PUSH FOR TRANSNATIONAL TRANSPORT CORRIDOR

Context: From East to West, India is spearheading major transnational transport corridors that will eventually link the Atlantic to the Pacific via Asia.

1: Dimension- India's push for transnational transport corridor

India is making big push mainly for the following corridor:

◈ **India-Middle East-Europe Economic Corridor (IMEC):** IMEC aims to connect India to Europe via the Arabian Peninsula through rail and sea links

◈ **International North-South Transport Corridor (INSTC): INSTC** spans 7,200 kilometres, encompassing ship, rail, and road routes connecting India through Iran and Central Asia to Russia.

◈ **India-Myanmar-Thailand Trilateral Highway:** It will connect the Indian city of Moreh in Manipur to Thailand's Mae Sot via Myanmar.

◈ **Chennai-Vladivostok route to the East:** The corridor holds promise for India's connectivity with the Russian Far East.

2: Dimension- Need at global level:

◈ **Filling up infrastructure gap:** The G7 recognised this infrastructure gap in 2021 when it announced the **Build Back Better World (B3W).** The B3W aimed to bridge the USD 40 trillion infrastructure gap in the developing world and offer an alternative to the BRI.

◈ **Alternate routes:** Whether Houthi attacks in the **Red Sea or the 2021 Suez Canal blockage** that halted global shipping for six days, countries have been exploring safe and alternate routes for goods transit.

◈ **Need of investment**: The world is at a place now where investments are more critical than ever.

3: Dimension- Significance of these transport corridors for India

◈ **Strategic alliance:** These transport corridors as necessary to meet its fast-paced economic growth and as a tool to nurture strategic alliances.

◈ **Land-based connectivity**: There is a need for lateral "land-based" connectivity in the Indian Ocean, thus need of India-Myanmar-Thailand (IMT) trilateral highway arises.

UPSC PYQ

Q. What is the significance of Industrial Corridors in India? Identifying industrial corridors, explain their main characteristics. (UPSC 2018)

3. INDIA'S BID TO OVERTAKE VIETNAM

Context: India wants to be the top manufacturer in Asia as companies shift away from China, but first it needs to lower taxes and improve supply chain efficiency if it wants to dethrone Vietnam.

1: Dimension-Economies shifting away from China

◈ **Side-lining China:** The U.S. has pursued a

"friendshoring" agenda as competition with China increases.

➤ The US administration has encouraged American companies to move electronics and technology manufacturing operations out of China and into friendlier countries, particularly Vietnam and India in Asia-Pacific.

◈ **Interesting alternative**: India and Vietnam are attractive manufacturing alternatives for foreign investors and companies, due in part to **low labor costs**.

2: Dimension-Why Vietnam has an upper hand?

◈ Vietnam is still way ahead with 2023 exports totalling USD 96.99 billion, compared with India's USD 75.65 billion.

◈ Vietnam has been known for their ability to manufacture electronics. India is just getting into that game.

◈ While India's relationship with the U.S. has warmed recently, Vietnam has had a trade and investment deal with Washington since 2007.

◈ Vietnam has a more **simple proposition** compared with India, which has "29 states and every state has a policy which may be different."

3: Dimension-What factors will move the needle" for India"?

◈ India needs to solve the following problems to be on par or even overtake Vietnam's manufacturing strength:

➤ **Lowering import taxes**: India's import taxes were intended to protect domestic manufacturers, but lowering those duties will be part of the government's efforts to attract foreign firms to manufacture goods within the country.

➤ **Improving supply chain efficiency:** India's infrastructure is still lacking, leading to lengthy shipment and road delivery times. Improving efficiency is the key.

4. REVISION IN MGNREGA WAGES & ISSUE OF WAGE DISPARITY

Context: The central government has announced a three to 10 percent increase in wage rate for unskilled workers under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) for the financial year 2024-25.

1: Dimension- Issue of disparity in wages under MGNERAGA

◈ Last year, the **Parliamentary panel** had stressed on the need to address the issue of disparity in wages under MGNREGA. It had asked the ministry to explore the possibility of making **wages uniform** across the country.

◈ It said, "Disparity of wages and non-increase in wages commensurately with inflation is perhaps the most discouraging aspect for labourers to undertake MGNREGA works."

◈ The issue of divergence between wage rates under MGNREGA is on account of the fact that the states **do not follow a uniform policy of wage revision** for **minimum agricultural wage**. In 2023-24, the lowest wages were in Chhattisgarh and Madhya Pradesh at Rs 221, while the highest was in Haryana at Rs 357.

◈ Drawing on inflation data, together with the rural monthly wage index published by the **Indian Labour Bureau, the Ministry of Finance** has observed negative trends in the purchasing power of rural Indian wages in recent years.

  ➤ Thus, in its Economic Survey 2022-23, the Ministry highlighted a n**egative growth in real rural wages** (that is, rural wages adjusted for inflation) due to elevated inflation between April and November 2022.

2: Dimension- The 'actual' outcome of wage disparity

◈ **Inadequate labour protection:** Although people in rural areas are more likely to be in employment than those in urban ones, they also tend to have jobs that can put them at risk of experiencing inadequate labour protection as well as low pay.

◈ **Insufficient wage to cover inflation**: The increase in wage rate may be insufficient to meet the increase in cost of basic goods, which have risen due to spike in inflation in the last few years.

◈ **Decline in the number of MGNREGA household employment demands:** The household employment demand has decreased from 8.05 crore in 2021-22 to 6.20 crore in 2023-24.

Way Forward

The fluctuation in wage rates among States is unjustified. Hence, a uniform wage rate is recommended to end the disparity. Bridging the wage disparity will end the uncertainty among beneficiaries and also serve the larger purpose of welfare of MGNREGA workers. The government should devise a mechanism for notifying a unified wage rate across the country.

FACT BOX

Mahatma Gandhi National Rural Employment Guarantee Act

● The Mahatma Gandhi National Rural Employment Guarantee Act was passed in 2005, and the demand-driven scheme guarantees 100 days of unskilled work per year for every rural household that wants it.

● The wage rates are notified annually as mandated in the Act. It is the amount to be paid to unskilled workers per day for the work done under the scheme.

● Currently, there are close to **14.34 crore active workers under MGNREGS** and the average per day rate for unskilled work is around Rs 235 per day, as per the rural development ministry.

Social Protection

● Social protection is broadly understood as measures to reduce poverty and vulnerability by reducing people's exposure to risks and enhance their capacity to manage those risks, including those associated **with unemployment, exclusion, sickness, disability, and old age.**

UPSC PYQ

Q. 'Poverty Alleviation Programmes in India remain mere show pieces until and unless they are backed by political will'. Discuss with reference to the performance of the major poverty alleviation programmes in India. (UPSC 2017)

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5. DIGITAL DIVIDE AND INDIA

Context: During his interaction with Gates, PM Modi covered a spectrum of critical topics ranging from AI to India's impressive advancements in digital technology. Pointing to technology's role in sectors like agriculture, education, and healthcare, Modi ruled out a digital divide in India.

1: Dimension-Trends of Digital Divide

◈ **Gap:** There exists a grave digital divide in India wherein gaps exist in the usage of the internet and access to digital infrastructure based on gender, area of residence whether rural-urban, caste, or age.

◈ **Gender inequality:** Men have greater access to the internet and greater ownership of mobile phones. However, it is important to note that there have been some improvements in women's access to cell phones between 2015–16 and 2019–21 which demonstrates that the efforts to reduce the digital divide are steadily coming into fruition.

◈ **Rural-Urban divide**: While there might be small variances, urban men are much better off than others

both in terms of access to the internet and ownership of phones when compared to urban women, rural men, and rural women.

2: Dimension-Implications of digital divide

◈ **Further increasing inequality**: The inability to access technology has the potential to increase existing social exclusions and deprive individuals of essential resources.

◈ **Impact on employment:** Digital literacy is no longer a luxury but a prerequisite for active participation in today's job market.

◈ **Impact on every aspect of life:** With the increasing dependence on digital technologies and the internet, the digital divide has ramifications on education, health, mobility, safety, financial inclusion, and every other imaginable aspect of life.

Way forward

Whilst several government initiatives like the **National Digital Literacy Mission and the Pradhan Mantri Gramin Digital Saksharta Abhiyan** have been introduced to increase digital literacy, there is a need to ramp up such efforts.

It is also important to improve the existing digital infrastructure to ensure physical access to ICT to different sections of society. At the same time, underprivileged groups need to be motivated to incorporate technology into their daily lives and digital skills need to be imparted to allow such a change.

FACT BOX: STATISTICS OF DIGITAL INDIA

- According to **ICRIER's State of India Digital Economy 2024 report**, while "India as a nation is highly digitalised, the average Indian is not".

- **Nearly 48 % of Indians do not access the internet** and the quality of fixed line internet services does not match up to other G20 countries.

- According to IAMAI's internet in India report 2023, at 759 million, **52% Indians have access to the internet.**

- **India's gender gap** in internet connectivity is, at 10%, higher than the world average of 9%, and the rural-urban divide is at 58%, higher than the world average of 49%.

- While the digital divide along gender is large, it is declining.

UPSC PYQ

Q. Implementation of Information and Communication Technology (ICT) based projects/ programmes usually suffers in terms of certain vital factors. Identify these factors and suggest measures for their effective implementation. (UPSC 2019)

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6. REBOOT OF THE GEM

Context: The Government e Marketplace (GeM) plans to seek the Centre's approval to enable work contracts for construction and building projects to also be bid out through the platform with a transparent monitoring mechanism to assess the progress in such contracts.

1: Dimension-Role of GeM in public procurement in India

◈ **Transparent process:** GeM endeavours to make public procurement process transparent, efficient and inclusive.

◈ **Inclusiveness:** It drives inclusiveness and ease of doing business (EoDB) with the government.

◈ **Standardization:** It provides for standardization of processes backed by the regulatory framework

◈ **Automated system:** It is a fully automated system enabled through advances technologies.

◈ **Efficiency:** As an end-to-end online and integrated portal, GeM increases efficiency in public procurement by eliminating manual interventions at various stages of the procurement process.

◈ **Minimum Government, Maximum Governance**: The platform has been effectively contributing to the government's commitment of "**Minimum Government, Maximum Governance".**

2: Dimension-Need of GeM in public procurement

◈ The public procurement process involves several steps, starting with the government publishing a tender. Interested sellers participate, and once the participation deadline passes, the government (buyer) evaluates the bids to determine eligibility. The contract is then awarded to the bidder offering the lowest rate.

◈ However, this process wasn't always as **straightforward and transparent** as it needed to be, which led to the **introduction of the Government e-Marketplace (GeM)**.

FACT BOX: ABOUT GEM

- **Launched in:** 2016

- GeM is an online platform for public procurement of goods and services.

- The platform is now used for everything from critical defence procurements to services like aircraft chartering and printing of election-related material, envisaged for the coming year.

- **GeM Statistics:** It offers over 12,000 product and 320 service categories generally sought by central and State government departments, and has even onboarded 90,000 Gram Panchayats as buyers.

7. SWEEPING POWERS OF DIRECTORATE OF ENFORCEMENT (ED)

Context: The Supreme Court endorsed the **sweeping powers of the Directorate of Enforcement (ED),** saying the Central agency could call **"anybody for any information"** even as it castigated Tamil Nadu District Collectors for **failing to appear in person** in response to a summons issued to them by the anti-money laundering body.

1: Dimension- Power and Function of ED:

◈ **Search and Seizure-** ED carries out search (property) and seizure (money/documents) under Section 16 and Section 17 of the PMLA.

◈ **In case of Arrest-** If the person is arrested, the ED gets **60 days** to file the prosecution complaint (charge sheet) as the punishment under PMLA doesn't go beyond **seven years.**

◈ **In property attachment-** If no one is arrested and only the property is attached, then the prosecution complaint along with attachment order is to be submitted before the **adjudicating authority** within 60 days.

2: Dimension- Power of ED for 'interrogation' and 'Custody':

◈ **Under Prevention of Money Laundering Act, 2002 (PMLA):** Following the recommendations of the Financial Action Task Force (FATF) India enacted PMLA.

◈ The ED has been entrusted with the responsibility of executing the provisions of PMLA by conducting investigation to **trace the assets derived from proceeds of crime**, to provisionally attach the property and to ensure prosecution of the offenders and confiscation of the property by **the Special court**.

◈ The ED carries out **search (property) and seizure (money/documents)** after it has decided that the money has been laundered, under **Section 16 (power of survey) and Section 17 (search and seizure)** of the PMLA.

◈ On the basis of that, the authorities decide if arrest is needed as per Section 19 (power of arrest).

◈ Under Section 50 of the PMLA, the ED can also directly carry out search and seizure without calling the person for questioning.

◈ It is not necessary to summon the person first and then start with the search and seizure.

◈ If the person is arrested, the ED gets 60 days to file the prosecution complaint (chargesheet) as the punishment under PMLA doesn't go beyond seven years.

◈ If no one is arrested and only the property is attached, then the prosecution complaint along with attachment order is to be submitted before the adjudicating authority within 60 days.

3: Dimension- Effectiveness of ED

◈ As of March 31, 2022, the ED's conviction rate was less than 0.5 per cent, with only 23 convictions in 5,422 PMLA cases. In comparison, the national conviction rate in India for offences of the Indian Penal Code was 57 per cent in 2021.

◈ Petitions challenging PMLA provisions, particularly related to arrests and property attachments, have been presented in the Supreme Court.

FACT BOX

Important Judgments:

● **Supreme Court's view**: In its "*Vijay Madanlal Choudhary v. Union of India*", the Supreme Court upheld various provisions of the PMLA which relate to the **powers of arrest, attachment, search, and seizure conferred upon the ED.**

  ➤ The court was of the opinion that all the provisions under PMLA have a reasonable nexus with the objects sought to be achieved by the **Act to prevent money-laundering** effectively.

● In **P. Chidambaram v. Directorate of Enforcement (2019),** the Supreme Court rejected a prayer for anticipatory bail with respect to an offence of money laundering and proceeded to grant custody to the ED.

  ➤ The court reasoned that in a case of money laundering which involves many stages of placement and layering of funds, a '**systematic and analysed'** investigation is required which would be frustrated if pre-arrest bail is granted.

Enforcement Directorate (ED):

● Directorate of Enforcement is **a Multi-Disciplinary Organization** mandated with the task of enforcing the provisions of **two special fiscal laws – Foreign Exchange Management Act, 1999 (FEMA) and Prevention of Money Laundering Act, 2002 (PMLA).**

● Whenever any offence is registered by a local police station, which has generated proceeds of crime **over and above Rs 1 crore**, the ED steps in.

● As per the Prevention of Money Laundering Act, the ED got its power to investigate under **Sections 48** (authorities under act) and **49** (appointment and powers of authorities and other officers).

● If money has been laundered abroad, **the PMLA court** (constituted as per the Act) has the right to send a letter of rogatory **under Section 105** (reciprocal arrangements regarding processes) of the Code of Criminal Procedure.

8. GLOBAL FOREST EXPANSION AND IMPACT ON TRIBALS

Context: A symposium at the University of Arizona discussed the **rights of indigenous people**. It highlighted concerns about how the **Kunming-Montreal Global Biodiversity Framework**, combined with **India's Forest (Conservation) Amendment Act of 2023**, will particularly impact the country's tribes, already affected by the establishment of national parks.

1: Dimension-Implication for indigenous community

◈ **Resource at the cost of indigenous community:** The goals of GBF seems to tilt the scale in favour of corporate houses eyeing **forest resources** at the **expense of the indigenous communities living with nature.**

◈ **PAs as hunting grounds for elites:** PAs were initially created "as recreational opportunities, hunting grounds for western colonial elites".

➤ The concept has not changed much with **ecotourism or sustainable ecotourism projects** reducing the indigenous peoples to animals in a zoo, made to sit in "model replicas" of traditional houses wearing traditional dresses and ornaments, and playing traditional musical instruments.

2: Dimension- GBF and India's Case

◈ **Threatened indigenous people**: About **84% of India's national parks** (89 out of a total of 106) were established in areas **inhabited by the indigenous peoples** and meeting the GBF targets will threaten their existence.

➤ For instance, the initiative to upgrade the **Kumbhalgarh Wildlife Sanctuary** in Rajasthan to a tiger reserve will affect 162 tribal villages located inside and outside the sanctuary

➤ The expansion of the **Nauradehi Sanctuary** in Madhya Pradesh is set to affect 62 villages of mostly tribal people.

3: Dimension- Required measures to protect the tribal lands

◈ **Consent:** First, it has to recognise the **right to free, prior, and informed consent** as guaranteed under the **Panchayats (Extension to Scheduled Areas) Act** and make further amendments to the laws to make the tribals custodians of the PAs as nature has largely been protected because of their special relations with the forests and their denizens.

◈ **Creating PAs in non-tribal areas:** If tiger reserves can be created in areas where there are no tigers such as **Sahyadri (Maharashtra), Satkosia (Odisha), Kamlang (Arunachal Pradesh), Kawal (Telangana), and Dampa (Mizoram**, PAs can be created in non-tribal areas.

◈ **Addressing human right issues**: There is need to address human rights violations in the PAs seriously **such as access to education, healthcare, and housing**.

◈ **Respect and recognition for preservation**: Thousands of indigenous people living within the PAs must be respected and recognised for preserving the biodiversity and the ecosystem and not punished.

Case Study: Indigenous People and Forest

◈ **Indonesia:** Indigenous peoples have been denied the **right to housing, health, education, electricity, and security** in **Indonesia's Ujungkulon National Park** while **Heng Saphen** living, an indigenous leader living inside the **Beng Per Wildlife Sanctuary** of Cambodia was convicted by a kangaroo court for cultivating on her own land.

◈ **Cambodia:** About **18% of Cambodia's Botum Sakor National Park** stand protected after much of its land was sold off to private firms.

◈ **India:** Involving the private sector in forest conservation is a bad idea and India has taken a step in that direction with the **Forest (Conservation) Amendment Act to 2023** to include **zoos, safaris, ecotourism facilities, etc., as forest activeties.**

FACT BOX

About Kunming-Montreal GBF

- The **15th Conference of Parties (COP15)** to the **UN Convention on Biological Diversity (CBD)** adopted the **Kunming-Montreal Global Biodiversity Framework (GBF).**

- The framework has 23 targets that the world needs to achieve by 2030.

- **Objectives:** The new frameworks have four goals to achieve by 2050:
  - ➤ To halt the extinction and decline of biodiversity.
  - ➤ To enhance and retain nature's services to humans by conserving.
  - ➤ To ensure fair and equitable benefits to all from the use of genetic resources.
  - ➤ To close the gap between available financial and other means of implementation and those necessary to achieve the 2050 Vision.
- In adopting the GBF, **all parties committee** to setting national targets to implement it.
- **Target 3 of the Kunming-Montreal GBF** aims to "increase terrestrial, inland water, and of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem functions and services" to at least 30% of the world's terrestrial area. At present, **protected areas (PAs)** cover about 16%.

India's Forest Cover

- '**Forest cover**', in India, refers to land **greater than one hectare in size** where the **tree canopy density is greater than 10%.**
- India's total forest cover rose to **38,251 sq. km from 2001 to 2021.**

UPSC PYQ

Q. Rehabilitation of human settlements is one of the important environmental impacts which always attracts controversy while planning major projects. Discuss the measures suggested for mitigation of this impact while proposing major developmental projects. (UPSC 2016)

9. DISASTER RELIEF FUNDS & DELAY

Context: The Tamil Nadu government has moved the **Supreme Court** against the Centre for allegedly not releasing relief funds for damages caused by the recent floods and **cyclone Maichung.** The inaction on the part of the Centre is *ex-facie illegal*, arbitrary and violative of **fundamental rights** guaranteed to its citizens under **Article 14 and Article 21** of the Indian Constitution.

1: Dimension-Centre's Constitutional Responsibilities in Disaster Times

- ◈ The constitutional framework governing **Centre-State relations in disaster management** is not explicitly outlined in the **Seventh Schedule of the Constitution**.
- ◈ Disaster management **does not fall under any of the three lists – Union, State, or Concurrent.**
- ◈ Since disaster management is not mentioned in any of

the lists, it falls under the residuary powers of the Union government as per **Article 248 of the Constitution.**

- ◈ The **Disaster Management Act, 2005** was enacted by the Union government by tracing its legislative competence to the Concurrent List entry on "**Social security and social insurance; employment and unemployment.**"
  - ➤ The primary responsibility for disaster management rests with the states.
  - ➤ The Centre plays a supportive role by providing financial assistance, technical expertise, and coordination between multiple states during disasters, as mandated by the Act
- ◈ **NDMA:** The Act established the National Disaster Management Authority (NDMA) as the apex body for disaster management in India, with the **Prime Minister as its chairperson.**
- ◈ **SDMA:** At the state level, the Act mandated the creation of State Disaster Management Authorities (SDMAs), **headed by the Chief Ministers.**

2: Dimension- Issues arising out of debate

- ◈ **Central vs. State Responsibilities in DM**: The case highlights the debate regarding the division of responsibilities between the Central and State governments in managing natural disasters.
- ◈ **Financial Assistance and Relief Funds**: It raises questions about the adequacy and timeliness of financial assistance provided to states affected by natural calamities. This issue reflects on the effectiveness of disaster management policies and procedures in the country.
- ◈ **Principles of distributive justice:** The allegation of differential treatment and class discrimination in the release of funds underscores the importance of equity and fairness in resource allocation during times of crisis.
- ◈ **Constitutional and Legal Remedies:** Tamil Nadu's decision to approach SC highlights the role of constitutional and legal mechanisms in resolving disputes between the Centre and the states.
- ◈ **Impact on development and public welfare:** Delayed relief efforts hamper state's development and affect public welfare.

Fact Box: Constitutional Articles involved in the dispute

- Article 131 of the Indian Constitution grants the **Supreme Court original jurisdiction** in disputes between the Government of India and one or more states, or between states.
- Tamil Nadu's plea against the Central Government falls under the purview of Article 131, as it involves a dispute between the state and the Union regarding the release of relief funds.

10. INDIA'S TUBERCULOSIS (TB) CRISIS

Context: Despite the government's commitment to **"eliminate high-burden infectious"** TB by 2025, 'India is still far from reaching its goal'. There are six key challenges identified: TB diagnosis and access; lack of access to free, quality treatment and drugs; adequate nutrition and mental health support; stigma-free and gender responsive care; economic support; and high quality care.

1: Dimension- Barriers in India's progress in combating TB

◈ Insufficient diagnosis and treatment access, stigma, and socioeconomic barriers continue to impede India's progress in combating this disease.

◈ **Poverty:** Socioeconomic conditions create vulnerabilities to the disease.

◈ **Undernutrition**: It is a major risk factor for both the occurrence of new cases and the occurrence of severe TB that can result in TB deaths.

◈ **Delayed diagnosis**, and a lack of access to quality care.

◈ **Multi-drug resistance** worsens matters.

2: Dimension- The right healthcare intervention

◈ **Comprehensive care for children**: Children constitute 6–7% of all patients treated under the national TB elimination programme

◈ **Focus on nutrition**: The state should immediately focus on increasing the duration and quality of inpatient care, particularly for very severe undernutrition.

◈ **Effective diagnosis**: There is a need to expand diagnostic facilities, include mobile testing units, improve access to molecular testing at affordable prices, and provide quick and accurate results.

◈ **Addressing social factors**: There is a need to address the social factors that aggravate the infection (poverty, stigma, etc).

2: Dimension- Tamil Nadu Case Study (state-wide differentiated TB care model)

◈ The first published report of a state-wide differentiated TB care model in Tamil Nadu (TN-KET), in 2023, showed that to reduce TB deaths in **resource-limited settings, triaging** — quickly examining patients to decide who is most seriously ill and must be treated first — can identify those with the immediate need for comprehensive assessment and inpatient care.

◈ Considering 70% of TB deaths happen within the first two months, it is important to triage patients at TB diagnosis.

FACT BOX:

World TB Report 2023

● According to the World TB Report 2023, India recorded an average of 199 new infections in every 100,000 people in 2022.

● An estimated 13% of treated patients and 2.5% of new cases were multi-drug resistant or resistant to the first-line drug rifampicin.

● Nearly 400,000 people die of TB each year in the country.

Treatment

● **Current biomedical strategies** to reduce new infections include the

  ➤ **BCG vaccine**, which protects against severe forms of childhood TB

  ➤ **Tuberculosis preventive treatment (TPT)** which aims to cover other household contacts, clinical-risk groups apart from children younger than five years and household contacts with HIV

  ➤ **Effective rifamycin-based regimes**

11. GLOBAL TRAGEDY OF FOOD WASTAGE

Context: Households around the world binned one billion meals a day in 2022, as per a report by the United Nations.

1: Dimension- Impact of food waste

◈ **GHG Emissions:** Food waste necessitates the conversion of vast areas of land for the production of crops that are never eaten and it emits five times as many greenhouse gases into the atmosphere as the aviation industry.

◈ Big contributor to the climate and biodiversity crises: Not only is this waste squandering natural resources, it is also a big contributor to the climate and biodiversity crises, displacing wildlife from intensive farming, as more than a quarter of the world's agricultural land is given over to the production of food that is subsequently wasted.

◈ **Economic loss**: Food loss and waste causes about USD 940 billion per year in economic losses. Reductions can save money for farmers, companies, and households.

2: Dimension- Main causes of Food Waste

◈ Climate change **also contributes to food losses and lack of food security.**

◈ **Hot weather:** More food appears to be thrown away in hot countries, perhaps reflecting the shorter time

it takes for food to spoil in **higher temperatures, a lack of access to refrigeration** and higher consumption of fresh food with more inedible parts.

◈ **Personal preferences:** Apart from natural causes, personal preferences also contribute to wasted food.

◈ **Poverty:** Poorer households also tend to throw away food. This may reflect many factors, including **a lack of access to adequate refrigeration and storage, reliance on lower quality food and a lack of time** to make nutritious meals.

Case Study: Required Approach

◈ **Food Waste Collection**: In the UK, the government has announced £295m of funding for local councils to organise **weekly collections of food waste**, aimed at composting and preventing food waste from going to landfill, where its rotting generates methane, a powerful greenhouse gas.

◈ Collecting food waste separately can encourage people to reform their habits, as they see clearly how much of what they buy is going into the bin.

◈ **Food rescue scheme**: In Johannesburg, South Africa, a food rescue scheme is channelling waste foods to those who need it most during the pandemic.

◈ **Food banking** is also an important and unique model in reducing food loss and waste, because food banks not only work with farms, manufacturers, retailers and food services to rescue wholesome food, but they also make sure that food ends up on the tables of people facing food insecurity.

FACT BOX: KEY-HIGHLIGHTS OF THE REPORT

● **Report Title:** Food Waste Index Report. It tracks the progress of countries attempting to halve food waste by 2030.

● **Over USD 1 trillion worth of food** (which is nearly one-fifth of the produce available on the global market) was thrown away by businesses and households when about 800 million people were going hungry.

● **Food loss in supply chain**: These figures exclude an additional 13% of food that is lost in the food supply chain, between harvest and market, often from rejection or spoilage of edible food.

● Few countries have plans in place to reduce food waste and most fail to include it in their proposals for reducing carbon emissions.

● Around the world, about 79kg of food is wasted per person annually. But in some countries, including the UK, Australia, Indonesia, Mexico and South Africa, food waste has been cut substantially since 2007. Japan has cut its food waste by nearly a third, and the UK by about 18%.

Indian household wastage

● 78.2 - million tonnes every year

● 233.9 million - of world's 783 million population (Global Hunger Index 2023)

● Ranked 111 - In 125 countries, indicating a hunger severity level

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12. INDIA RISKS 'SQUANDERING' DEMOGRAPHIC DIVIDEND: WORLD BANK

Context: The **World Bank's** South Asia regional update, **"Jobs for Resilience,"** highlights concerns regarding the region's utilization of its demographic dividend, particularly focusing on India's employment growth.

1: Dimension- Observations on Employment Trends

◈ **Slow Job Creation:** The South Asia region, including India, is not effectively leveraging its demographic dividend, as job creation lags behind the growth in the **working-age population.**

◈ **Unemployment Rate:** India, in particular, has witnessed employment growth significantly below the **average growth** in its working-age population from 2000 to 2023, leading to a **decline in the employment ratio.**

◈ The youth unemployment rate was 45.4 per cent in 2023, according to the Centre for Monitoring Indian Economy, a think-tank.

◈ **Female employment ratios** in many south Asian countries, including India, are among the lowest in the world, at less than 40 per cent.

2: Dimension- Untapped benefits from the demographic dividend

◈ **Economic growth:** Better economic growth is brought about by increased economic activities due to a higher working-age population and lower dependent population thereby increasing labor force along with rising in women workforce.

◈ **Policy Framing:** Effective policy making by strictly implementing schemes and programs for the benefit of the people.

◈ **Rise in employment:** A higher employment-seeking population will lead to the rapid increase of industrialization and urbanization.

◈ **Increased workforce:** The working-age population rising to 65% will increase the workforce.

◈ **Swelling labour force:** India's labour force is swelling as its baby boomers reach working age. It would boost India's growth.

◈ **Effective diversion of resources: I**ndia's population has the potential to divert resources from spending on irrelevant things to investing in physical and human infrastructure.

◈ **Rise in women's workforce:** There is a rise in women's workforce activity that naturally accompanies a decline in fertility.

◈ **Easy accumulation:** The fourth is that working ages also happen to be the prime years for savings, which is key to the accumulation of capital and technological innovation.

3: Dimension- Economic Growth and Employment

◈ Despite challenges in employment, India's economy is expected to exhibit robust growth of 7.5% in FY23/24, contributing to the overall strong performance of the South Asian region.

◈ However, the region could achieve even higher output growth if the employment rate matched that of other **Emerging Market and Developing Economies (EMDEs).**

4: Dimension- Approach to seize Demographic Advantage:

◈ **Upgrading Education Standards:** Irrespective of rural or urban settings, the public school system must incorporate skilling, training, and vocational education in line with market demand.

◈ **Fulfilling Health-Related Requirements**: Increasing government spending on health, education, and other social sectors will be crucial to realizing the potential dividend from India's young demography.

◈ **Inter-Sectoral Collaborations:** Moving forward towards safeguarding the futures of adolescents, it is imperative to put in place mechanisms for better inter-sectoral collaboration.

◈ **Bridging Gender Gaps in Workforce**: New skills and opportunities for women and girls befitting their participation in a 3 trillion-dollar economy are urgently needed. This can be done by:

➤ Legally compulsory gender budgeting to analyze gender-disaggregated data and its impact on policies

➤ Increasing childcare benefits

➤ Boosting tax incentives for part-time work

◈ **Federal Approach for Diverse States**: Inter-ministerial coordination for strategic planning, investment, monitoring, and course correction should be an important feature of this governance arrangement.

FACT BOX: INDIA'S DEMOGRAPHIC DIVIDEND

● India is home to more than 600 million people aged between 18 and 35, with 65% under the age of 35.

● India's demographic dividend is expected to persist at least until 2055–56 and will peak around 2041, when the share of the working-age population — 20–59 years — is expected to hit 59%.

UPSC PYQ

Q. The nature of economic growth in India is described as jobless growth. Do you agree with this view? Give arguments in favour of your answer. (UPSC 2015)

Q. While we flaunt India's demographic dividend, we ignore dropping rates of employability. What are we missing doing so? Where will the jobs that India desperately needs come from? Explain. (UPSC 2014)

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13. RURAL INDIA'S DEMAND DEPRESSION

Context: India's economic growth, though robust overall, is marked by significant disparities, particularly evident in the lagging performance of rural areas amid the pandemic and adverse weather conditions.

1: Dimension- Economic Growth Disparity:

◈ **Fast Economic Growth:** India's economy is experiencing rapid growth, outpacing many other large economies globally, showcasing its resilience and potential for development.

◈ **Rural Lag:** Despite overall growth, rural India has not experienced commensurate progress, highlighting a disparity between urban and rural economic trajectories.

◈ **Impact of Pandemic**: The COVID-19 pandemic exacerbated **rural-urban economic disparities**, with rural demand severely affected by lockdowns and economic disruptions.

2: Dimension- Rural Challenges and Setbacks:

◈ **Pandemic Fallout:** Rural areas faced significant setbacks during the pandemic, with disruptions to livelihoods and economic activities exacerbating existing economic disparities.

◈ **Weather Conditions:** Poor weather conditions further compounded the challenges faced by rural India, contributing to a decline in rural demand and exacerbating economic disparities.

◈ **Need for Addressing Disparities:** The widening gap between urban and rural economic growth underscores the importance of targeted policies and initiatives to uplift rural communities and ensure inclusive economic development.

3: Dimension- Policy Implications and Future Prospects:

◈ **Policy Focus on Inclusive Growth:** There is a growing recognition of the need to address rural disparities through targeted policies and initiatives aimed at fostering inclusive economic growth.

◈ **Recovery Strategies:** Efforts to revitalize rural economies and promote rural development are essential for India's overall economic recovery and long-term sustainable growth.

◈ **Building Resilience**: Enhancing the resilience of rural communities to economic shocks and adverse weather conditions is crucial for achieving broad-based economic growth and ensuring socio-economic stability.

14. RBI @ 90

Context: The Reserve Bank of India (RBI) celebrates its 90th anniversary, prompting reflections on its evolution and challenges ahead.

1: Dimension- Historical Evolution and Challenges:

◈ *Significant Legacy:* Established in 1935, the RBI is among the oldest central banks in developing countries, witnessing India's transition from **pre- to post-independence eras** and navigating various economic shifts.

◈ *Management of Transitions*: Over its existence, the RBI has adeptly managed transitions from planned economies to market-oriented structures and now towards an increasingly digital economy, learning from past experiences and adapting to new challenges.

◈ *Tackling Economic Disruptions*: Throughout its history, the RBI has confronted significant economic disruptions, including the global financial crisis, demonetization, and the COVID-19 pandemic, while also addressing issues like the banking sector's **bad loan crisis.**

2: Dimension- Recent Achievements and Future Challenges:

◈ *Resolution of Bad Loans:* With proactive measures like the **Insolvency and Bankruptcy Code (IBC) framework** and capital infusion, the RBI has successfully tackled the problem of bad loans, reducing

the **non-performing asset (NPA) ratio** significantly and fostering healthy credit growth.

◈ *Adoption of Inflation Targeting:* The formal adoption of inflation targeting by the RBI has helped in keeping inflation in check and anchoring inflation expectations, despite occasional disruptions due to external factors like the pandemic.

◈ *Technological Innovations*: Embracing technological advancements, the RBI has revolutionized the payments ecosystem through initiatives like the **Unified Payments Interface (UPI),** laying the groundwork for further digital transformation and innovation.

Mains Question:

Q. Discuss the evolution and challenges faced by the Reserve Bank of India (RBI) over its 90-year history. Analyze its role in navigating economic transitions, addressing disruptions, and adopting technological innovations, while outlining future challenges and prospects for India's central banking system.

15. INDIA'S INFRASTRUCTURE BOOST ALONG CHINA BORDER

Context: India is ramping up efforts to enhance infrastructure and connectivity along the LAC with China, extending beyond the Kameng region. While **Kameng and Tawang** have witnessed development over the past decade, other areas are now catching up to match China's infrastructure standards along the LAC.

1: Dimension- Need for infrastructure development in India's North-East

◈ The need for infrastructure development in India's North-East is paramount to enhance **connectivity, promote economic growth, and address regional disparities.**

◈ Improved infrastructure can facilitate smoother **movement of goods and people, boost tourism, and unlock the region's vast potential for development.**

2: Dimension- The rate of development

◈ **Highway:** Work on the 2,400-km trans-Arunachal highway is expected to be completed this year.

➤ The new, almost 1,800-km-long frontier highway, on which work has commenced, will fill a critical void facilitating inter-valley movement. It will start from Bomdila in Arunachal's west and end in Vijaynagar, near the Indo-Myanmar border.

➤ Another 3,000 km of road infrastructure is also under planning and construction in the State.

◈ **Operational tracks**: A number of operational tracks are being built by the Army to ensure last-mile connectivity in the forward areas, and in addition, a large number of projects have been sanctioned under the **Prime Minister Gati Shakti project** for infrastructure development.

◈ **Bridges:** A total of 34 new bridges have been constructed between 2020 and 2023.

◈ **Connectivity across river:** Another infrastructure development is the connectivity across the Lohit river, which, for India, starts from Kibithoo and flows to Tezu, and then joins the Brahmaputra in Assam, a distance of almost 350 km, dividing the stretch into east and west banks.

◈ **From 2G to 4G:** The Universal Service Obligation Fund (USOF) was established to provide access to "basic telegraph services" to people in remote and rural areas at aordable and reasonable prices.

3: Dimension- Vibrant village program and its significance

◈ The VVP was approved as a Centrally-sponsored scheme in 2023 (in **Kibithoo)** for the development of 2,967 villages in 46 blocks across 19 districts in the border States of **Arunachal Pradesh, Himachal Pradesh, Sikkim, Uttarakhand,** and the Union Territory of **Ladakh.**

◈ The objective is comprehensive development of these villages to improve the **quality of life of people,** thereby **reversing outmigration**.

◈ The VVP is an effort to counter **China's model villages — called Xiaokang** and located very close to the LAC opposite Uttarakhand, Sikkim, and Arunachal Pradesh — which have raised apprehensions in the security establishment.

FACT BOX

LAC's Division

- The Indian Military has divided the Line of Actual Control into 3 sectors –
    - ➤ **Western sector** across Ladakh and the Chinese-held Aksai Chin
    - ➤ **Central sector** across Himachal Pradesh and Uttarakhand
    - ➤ **Eastern sector** across Sikkim and Arunachal Pradesh

The Army's demarcation of Arunachal Pradesh

- For administrative purposes, the Army classifies Arunachal as **Kameng,** derived from the name of the river that flows through the State.

- Tawang district is part of the Kameng area, while the remaining part of the State is considered separate and was earlier referred to as the **Rest of Arunachal Pradesh (RALP).**

- Of the 3,488-km-long Line of Actual Control (LAC), 1,346 km falls in the eastern sector, comprising **Sikkim and Arunachal.**

- While the Tawang and Kameng areas are under the Army's IV Corps (Tezpur)

- RALP is under the III Corps (Dimapur).

Kibithoo

- Kibithoo is one of the easternmost villages in Anjaw district of Arunachal Pradesh.

- Inhabited by people of the **Meyor tribe**, it is located about 7-8 km from the **Line of Actual Control (LAC),** the contested line that separates India and China.

UPSC PYQ

Q. "Investment in infrastructure is essential for rapid and inclusive economic growth." Discuss in the light of India's experience. (UPSC 2021)

Q. Border management is a complex task due to difficult terrain and hostile relations with some countries. Elucidate the challenges and strategies for effective border management. (UPSC 2016)

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16. AFSPA EXTENSION

Context: The contentious **Armed Forces Special Powers Act (AFSPA)** continues to be a subject of debate and concern as the central government announces its extension in three districts and three police stations of Arunachal Pradesh for a further six months. This decision raises questions about the **balance between security imperatives and the protection of civil liberties in the northeastern state.**

1: Dimension- Need of the Act in India's north-east

◈ Arunachal Pradesh, shares its borders with **China, Bhutan, and Myanmar**, making it strategically significant from a security standpoint.

◈ Over the years, the region has witnessed sporadic incidents of insurgency and militancy, prompting the deployment of security forces and the enactment of special legal provisions such as AFSPA.

◈ The extension of AFSPA in three districts—Tirap, Changlang, and Longding—and three police stations underscores the persistent security challenges facing certain pockets of Arunachal Pradesh.

◈ These areas have been identified as being **vulnerable to insurgent activities, cross-border infiltration,** and other **threats to public order and national security.**

2: Dimension- Efficacy of such legal measures in addressing security challenges

◈ AFSPA is essential for dealing with insurgencies and protecting civilians from armed groups, critics view it as a draconian law that enables human rights abuses and undermines democratic principles.

◈ While security agencies emphasize the need for uninterrupted powers to combat insurgency and maintain stability, civil society organizations and human rights activists raise concerns about the potential for abuse of power and violations of fundamental rights.

◈ Reports of extrajudicial killings, arbitrary detention, and other human rights violations have fuelled calls for the repeal or reform of AFSPA.

◈ **SC on AFSPA:** The Supreme Court established legal principle "Accountability is a facet of the rule of law." It rules that the armed forces cannot escape investigation for excesses in the course of the discharge of their duty even in "disturbed areas".

POSITIVES OF AFSPA	NEGATIVES OF AFSPA
• It is necessary tool to tackle unconventional threats posed by insurgent groups operating in remote and inaccessible terrain. • Withdrawal of AFSPA could embolden militant outfits and compromise the safety and security of both civilians and security personnel.	• It shields security personnel from accountability for excesses committed in the course of their duties. • It leads to abuse of power and violations of fundamental rights.

Way forward

While security measures are undoubtedly important in addressing immediate threats, there is a growing recognition of the need for a holistic strategy that addresses the root causes of insurgency, including socio-economic marginalization, governance deficits, and issues of identity and belonging. While the recent decision is driven by legitimate concerns for public safety and national security, it also underscores the need for a nuanced approach that balances security imperatives with respect for human rights and the rule of law.

FACT BOX: ABOUT AFSPA

• Under the **Armed Forces (Special Powers) Act**, an area is declared as **"disturbed"** for the convenience of security forces.

• An area or district is notified as a disturbed area under the AFSPA to facilitate the operations of the armed forces.

• The AFSPA gives armed forces personnel, operating in disturbed areas, sweeping powers to search, arrest and to open fire if they deem it necessary for "the maintenance of public order".

UPSC PYQ

Q. Human right activists constantly highlight the view that the Armed Forces (Special Powers) Act, 1958 (AFSPA) is a draconian act leading to cases of human rights abuses by the security forces. What sections of AFSPA are opposed by the activists? Critically evaluate the requirement with reference to the view held by the Apex Court. (UPSC 2015)

17. INDIA'S NEW INDIAN EV POLICY

Context: India's new EV policy, announced recently, allows imports from any country, including China.

1: Dimension- The new Indian EV policy

◈ **Investment:** The updated policy mandates automakers to invest a minimum of USD 500 million in India within three years, establishing local EV manufacturing facilities with 25% domestically sourced components.

◈ **Reduced duty:** Eligible carmakers can import up to 8,000 EVs annually with a 15% reduced import duty for vehicles priced at USD 35,000 and above. This aligns with the **Indian government's "Atmanirbhar Bharat" initiative**, fostering self-reliance and technological advancement.

◈ **Domestic Value Addition (DVA):** The policy lays emphasis on **Domestic Value Addition (DVA),** aiming for a minimum of 50% DVA within five years.

➤ This reduces reliance on imports, stimulates job growth and promotes technological innovation in the Indian EV sector, supporting indigenous manufacturing.

◈ **Accountability:** Additionally, the policy ensures accountability by requiring companies to back investment pledges with bank guarantees.

◈ **Non-compliance** with DVA and investment criteria will lead to enforcement of guarantees, enhancing transparency and accountability.

2: Dimension- Implications of the strategy:

◈ **Attracting global manufacturers:** The Indian government aims to create policies that attract all EV manufacturers globally to establish operations in India, leveraging the country's expanding economy.

◈ **Ripple effect for economy:** The goal is not just to attract these big players but to leverage their presence and create a ripple effect, fostering a network of smaller, specialized domestic suppliers for a robust and self-sustaining industrial ecosystem.

◈ **Interest of domestic manufacturers:** Domestic players such as Tata Motors and Mahindra & Mahindra had expressed concerns about increased competition from globally popular EVs, especially China.

DATA BOX: INDIA'S EV MARKET

- India's light vehicle market grew by 26% in 2023 to 4.4 million units, up from 3.5 million in 2022.
- **Electric vehicles (EVs)** accounted for 2.2% of the Indian market share, with 96,000 EVs sold in 2023.
- The market grew by 92% year-on-year, aiming for 30% by 2030.

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18. HEATWAVES CONDITIONS ACROSS INDIA

Context: **Anthropogenic climate change** is turning ambient heat into an **inevitable environmental hazard**. India is poised to encounter an increased number of heat-wave days than usual from April to June and this expansion of the realm of **extreme heat** is potentially the **gravest consequence of climate change for India.**

1: Dimension: Impact of Heat Waves over different sectors

Health impact:

◈ **Heat Stress:** Exposure to severe or continuous heat leads to heat stress. Illnesses range from superficial/ mild and manageable (e.g. prickly heat, heat-related swelling, heat cramps, heat exhaustion) to a medical emergency (i.e. heat stroke).

◈ **Heat stroke** is the most severe of heat-related illnesses. It presents with impaired brain function (i.e. stroke) due to uncontrolled body heating. It is a time-critical condition that often turns fatal if there is a delay or failure in reducing body temperature by rapid, active cooling. Besides neurological impairment, high core body temperature (at least 40 degrees C), or hot, dry skin are other heat stroke symptoms. Someone in perfect health and participating in what seem to be normal activities may die from heat stroke within an hour.

◈ **Environmental impact:** Heatwaves also have compound and cascading environmental impacts like concurrent drought, glacial lake outbursts causing flash floods, urban/wildfires, and increased air pollution from ground-level ozone and dust storms.

Economic Impact:

◈ **Impact on crops:** There are concerns about the potential adverse effects on wheat, rapeseed, and chickpea production. India, being the world's second-largest wheat producer, could face significant repercussions.

◈ **Power demand**: There are possibility of surpassing power demand over supply during the summer season.

FACT BOX

Heat Wave

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

Favourable conditions of heat wave formation

- **Transportation / Prevalence of hot dry air over a region**: There should be a region of warm dry air and appropriate flow pattern for transporting hot air over the region.
- **Absence of moisture in the upper atmosphere:** As the presence of moisture restricts the temperature rise.
- **The sky should be practically cloudless**: To allow maximum insulation over the region.
- **Large amplitude anti-cyclonic flow** over the area.

Practice Question

Q. Heatwave is the gravest consequence of climate change for India. Discuss the impact of heatwave as a disaster. (250 words)

UPSC PYQ

Q. Discuss the consequences of climate change on the food security in tropical countries. (UPSC 2023)

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19. NATURAL GAS: CLEANER BUT NOT CLEAN

Context: Amidst global energy politics, the narrative of natural gas being 'cleaner' in comparison to coal requires closer scrutiny, especially considering the continuing overuse of oil and gas by developed countries despite their share of the **carbon budget.**

1: Dimension- The Race for adoption of natural gas

◈ In race towards energy transition, natural gas has emerged as a key player, often touted as a 'bridge fuel' for nations aiming to reduce reliance on coal and oil.

◈ Advocates highlight its cleaner profile compared to other fossil fuels, emitting 50% less CO2 during combustion, positioning it as a crucial element in the pathway towards renewable energy and electrification.

◈ Furthermore, the **Intergovernmental Panel on Climate Change (IPCC)** has underscored the urgency of phasing out coal over reducing gas usage for the 1.5°C pathway, particularly impacting coal-dependent **Global South countries.**

2: Dimension- Significance of Natural Gas for India

◈ **Economic benefits**: India is largely dependent on import of fossil to meet energy needs. Adoption of natural gas will reduce import costs and thus foreign exchange. It will create new employment opportunities to harness demographic dividend.

◈ **Environmental benefits**: It will help in achieving target of increasing non fossil fuel energy consumption to 40% by 2030.

◈ **Social benefits**: It will tackle health challenges due to rise in pollution by fossil fuels. AS per WHO, estimates that globally about seven million people die prematurely each year from diseases linked to air pollution

3: Dimension-The other side of natural gas

◈ Natural gas produces half as much carbon dioxide (C02) when burned than coal, but that doesn't make it harmless.

◈ **Rising production of natural gas is** emerging as one of the biggest drivers of climate change.

◈ **Methane releases** from the natural gas supply chain are a key factor in equalising overall GHG emissions between gas and coal, creating emissions parity.

20. RUSSIA'S WAR LIMITS ABILITY TO TRACK ARCTIC CLIMATE

Context: Russia's war in Ukraine and the resulting halt to western collaboration with Russia, now stifles climate research in the Arctic to such an extent that it may soon be impossible for scientists to predict future climate change in the Arctic, which would also weaken predictions of climate change in the rest of the world.

1: Dimension- Impact of the loss of data

◈ **No data for mitigation**: With this, the ability to initiate **well-informed management and conservation efforts**, which would help mitigate some of the negative consequences and risks exposed by climate change, are greatly reduced.

◈ **Increased uncertainty**: The lack of insight into this particular section of the Arctic will almost double the statistical uncertainty of central parts of Arctic climate research.

◈ **Negative impact of established research:** It affects eight key components of the so called **Earth System Models**, where years of observations of temperatures, rain and snowfall are combined with factors such as **carbon exchange** between plants and atmosphere and emissions of CO_2.

◈ **Loss of insight into emission**: It leads to the loss of insight into emissions of CO_2 and methane from the permafrost in Siberia.

➤ The thaw of the permafrost may cause CO_2 and methane to develop and escape from layers of up to 90 meters of frozen biomass consisting of decomposed dead plants and animals, much of which has been frozen since the latest ice-ages.

➤ The scientists call this biomass **yedoma**; a Russian term as Russia is the **epicenter of this phenomena.**

2: Dimension- The Ticking Bomb

◈ Russia accounts for almost half the land in the Arctic and several of the ecosystems in this part of the Arctic are unique. Arctic hold some 1700 gigaton of CO_2 or about double the amount already present in the atmosphere.

◈ **Global temperatures are rising**, but temperatures in the Arctic region are rising even faster.

◈ The **melting permafrost** and rising sea-levels can have devastating effects on local ecosystems as well as the climate.

Location of Research Station

- Nearly one third of the 60 stations they selected were located in Russia, and all were above 59 degrees north latitude, just below **Greenland's southern tip.**

- Half of the research stations in Russia are in the **boreal zone**. The boreal forest uptakes a substantial amount of carbon, carbon that is accumulated as biomass and soil organic carbon.

- The researchers excluded stations located on Greenland's ice sheet, however, because it is not a typical terrestrial ecosystem.

- India has had a **research base in the Arctic since 2008** and also has **two observatories** in the region.

- The country presently has a single station, **Himadri, in Ny-Alesund, Svalbard, a Norwegian** archipelago, where research personnel are usually present for 180 days.

- Before the war, 21 Russian research stations shared their data with the international consortium **INTERACT**.

  - INTERACT is a scientific collaboration between the eight Arctic countries.

Arctic region

- The region surrounding the North Pole consists of a large ocean surrounded by land.

- This ocean, called the Arctic Ocean, is like no other ocean on Earth; and because of its special location and climate, the lands that surround it are unique.

- The Arctic region covers parts of eight countries: **Canada, Greenland, Iceland, Norway, Sweden, Finland, Russia, and the United States.**

21. CYBER SLAVERY

Context: Cyber slavery is emerging as a form of organized crime of unprecedented severity and scale. Over 5,000 Indian nationals are reported to be held captive in Cambodia, coerced into committing cyber frauds targeting individuals in India.

1: Dimension-Factors responsible for growth of cybercrime

- ◈ **Internet:** The internet allows criminals to operate seamlessly across borders, accessing a marketplace of victims anywhere, anytime and at scale. The internet also helps criminals to conceal their own identity, location and size.

- ◈ **Cybercrime-as-a-service:** Criminals have their own 'cybercrime-as-a-service' where experienced cybercriminals sell accessible tools and knowledge to help others carry out cybercrimes.

- ◈ **Difficult to catch:** The difficulty in countering cybercrime is also a major factor.

- ◈ **Battlefield advantage:** Cross-border attacks make cybercrime difficult for law enforcement to deal with, constrained as they are by national boundaries.

2: Dimension-A global challenge

- ◈ The operation's international dimension was underscored by the **diversity of its workforce.**

- ◈ Operatives from Bangladesh, Pakistan, Nepal, India, and Cambodia were drawn into the scheme, often under the guise of legitimate employment opportunities.

- ◈ Once in Cambodia, these individuals found themselves stripped of their passports and coerced into participating in the scam. Reports of physical assault, electric shock, and solitary confinement emerged for those who resisted, highlighting the **dark underbelly of cyber slavery.**

- ◈ As the scamming activities operate virtually, those running the rackets can easily shift their operations from one country to another. This makes it extremely hard to combat the crime by physically arresting the criminals.

- ◈ This challenge needs a systemic and coordinated approach from governments and NGOs.

- Criminals take advantage of the poor job opportunities available to young graduates and professionals in many countries.

- The criminals convince people to travel abroad with promises of high-quality work and then threaten them and physically coerce them into working as online fraudsters.

- They are forced to work on online scam farms run by cybercriminals.

22. PRATUSH - INDIA'S MOON BASED TELESCOPE

Context: Astronomers are looking forward to opening a new window on the universe by posting **high-resolution telescopes** on the moon, and in orbit around it. One such proposal, **PRATUSH**, hails from India.

1: Dimension-Challenges for Earth-based Telescopes:

- ◈ **Earth-based telescopes,** optical telescopes (which collect visible light at longer wavelengths) and radio telescopes (which collect radio waves with the shortest wavelengths), face hurdles due to the **atmosphere's interference.**

◈ **Optical telescopes** struggle with pollution, while **radio telescopes** contend with **electromagnetic interference** from various sources, including **communication signals.**

◈ It also does not help that the **earth's ionosphere blocks radio waves** coming from outer space.

2: Dimension-Benefits of placing telescope on Moon

◈ Scientists are considering placing optical and radio telescopes on the far side of the moon, which always faces away from the earth.

◈ **Clear visibility**: The pristine, airless desolation of the moon provides optical telescopes crystal-clear seeing conditions throughout the long lunar night.

◈ **Protection:** Radio telescopes on the lunar far side will also be protected by the moon (its diameter is 3,476 km) — that blots out radio transmissions from the earth and electrically charged plasma winds blowing from the Sun.

◈ It promises the **most radio-quiet location** in the solar system.

FACT BOX: ABOUT PRATUSH

● **PRATUSH (Probing ReionizATion of the Universe using Signal from Hydrogen)** is being built by the Raman Research Institute (RRI) in Bengaluru with active collaboration from the **Indian Space Research Organisation (ISRO).**

● Initially, ISRO will place PRATUSH into orbit around the earth. After some fine-tuning, the space agency will launch it moonwards.

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23. US-UK PARTNERSHIP ON AI

Context: The United States and Britain announced a new partnership on the science of artificial intelligence safety, amid growing concerns about upcoming next-generation versions.

What is the partnership on AI safety, testing?

◈ **Objective:** to jointly develop advanced AI model testing.

◈ This is the first agreement of its kind anywhere in the world.

◈ Under the formal partnership, Britain and the United States plan to perform at least one joint testing exercise on a publicly accessible model and are considering exploring personnel exchanges between the institutes. Both are working to develop similar partnerships with other countries to promote AI safety.

◈ Both countries will share vital information about the

capabilities and risks associated with AI models and systems, according to the agreement, which has taken effect immediately.

◈ They will also share fundamental technical research on AI safety and security with each other, and work on aligning their approach towards safely deploying AI systems.

1: Dimension- Need of the Initiative

◈ The move comes as the world is figuring out a way to set guardrails around the fast proliferation of AI systems.

◈ Although these systems offer opportunities, they pose a significant threat to a number of societal set-ups, from misinformation to election integrity.

2: Dimension- AI Regulation around the world

◈ As the private industry innovates rapidly, lawmakers around the world are grappling with setting legislative guardrails around AI to curb some of its downsides.

◈ **India:** The IT Ministry issued an advisory to generative AI companies deploying "untested" systems in India to seek the government's permission before doing so.

  ➤ However, after the government's move was criticised by people from across the world, the government scrapped the advisory and issued a new one which had dropped the mention of seeking government approval.

◈ **EU:** Last year, the EU reached a deal with member states on its AI Act which includes safeguards on the use of AI within the EU, including clear guardrails on its adoption by law enforcement agencies.

24. THE EVOLUTION OF NEUROSCIENCE & CONCERNS

Context: Neuroscience is increasingly applied in India to solve business challenges, such as understanding consumer behaviour; ethical considerations arise particularly concerning informed consent and transparency.

1: Dimension- Significance of neuroscience

◈ **Understanding Brain Function:** The nervous system controls essential body functions and processes thoughts, emotions, and behavior through neural connections in the brain. Neuroscience aims to study these neural connections and their role in information processing, both in healthy states and when damaged.

◈ **Impact on Human Health**: Neuroscience contributes to understanding various conditions like **Down syndrome, autism, ADHD, addiction, schizophrenia, Parkinson's disease, and immune disorders.**

◈ **Technological Advancements**: Recent technologies like membrane clamp electrophysiology, PCR, and genome sequencing have enhanced our understanding of cellular and molecular processes in the brain. Future advancements are anticipated to provide even deeper insights into how neurons function collectively, the origins of diseases, and the unique aspects of the human brain.

2: Dimension- Ethical concerns

◈ **Informed Consent and Privacy:** Informed consent from research participants, especially when invasive techniques are used, and protecting their privacy regarding sensitive brain-related data.

◈ **Cognitive Enhancement and Manipulation**: The use of neuroscience for cognitive enhancement or manipulation, raises questions about fairness, autonomy, and unintended consequences on individuals and society.

FACT BOX: WHAT IS NEUROSCIENCE?

- Neuroscience is a multidisciplinary science that combines physiology, anatomy, molecular biology, developmental biology, chemistry, philosophy, computer science, mathematics, linguistics and medicine.

- It is the scientific study of the structure and function of the human brain and nervous system.

- Neuroscientists study the **cellular, functional, behavioral, evolutionary, computational, molecular, cellular, and medical aspects** of the nervous system, which contains billions of cells called neurons, or nerve cells.
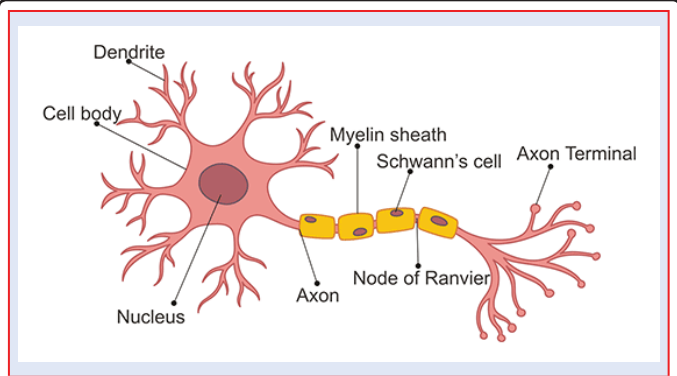
ETHICS QUESTION CASE STUDY:

A prominent pharmaceutical company has developed a groundbreaking neurotechnology that enhances cognitive abilities, memory retention, and learning capacity. The technology, when implanted in the brain, significantly boosts intellectual performance and productivity. However, the company faces ethical dilemmas regarding the widespread deployment of this technology.

Question:

Q. Discuss the ethical implications of introducing neuroenhancement technologies like the one described in the case study.

Q. How should policymakers balance the potential benefits of such advancements with concerns related to individual autonomy, societal fairness, and unintended consequences?

Q. Evaluate the ethical framework that should guide the regulation and ethical use of neurotechnologies in society.

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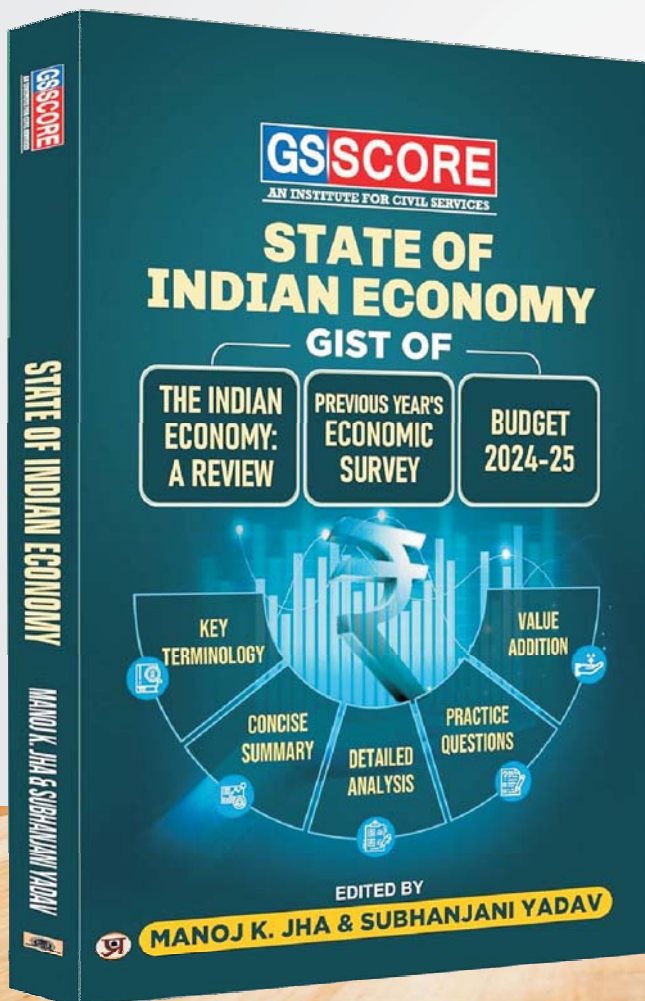
SECTION B

SPECIALS

- State's Borrowing Limits and Challenges

STATE'S BORROWING LIMITS AND CHALLENGES

Context: Kerala recently approached the Supreme Court regarding the permissible borrowing limits for State governments. It challenges the Centre's stance, which restricts the State's borrowing capacity to 3% of its income or **Gross State Domestic Product (GSDP).** Kerala argues that such limitations infringe upon its ability to meet essential financial obligations and violate the **principle of federalism.**

1: Dimension- Concerns highlighted by Kerala's plea

◈ **Federal Fiscal Relations:** The dispute between Kerala and the Union government underscores the complexities of **fiscal federalism in India**.

◈ **State Expenditure Priorities**: The significant disparity between Union and State government spending, particularly in **social sectors** like health and education, raises questions about allocation priorities and the respective roles of different tiers of government in addressing societal needs.

2: Dimension- Complex Resource Sharing System in India:

In resource sharing, there are majorly four kinds of flows:

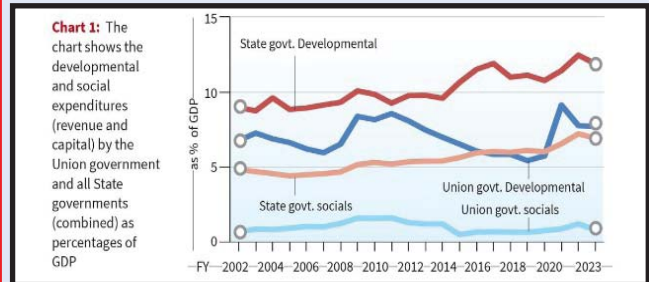◈ **Statutorily Defined Share for States:** Defined set of tax revenues garnered by the Centre is shared with States as per recommendations of Finance Commissions. Principles governing the share devolved and distributed to individual States.

◈ **Statutorily Mandated Grants:** Includes revenue deficit grant to identified States to cover revenue account gap post-devolution. Grants-in-aid to States have decreased from Rs.1,95,000 crore in 2015-16 to Rs.1,65,000 crore in 2023-24.

◈ **Discretionary Spending:** Previously mediated by the Planning Commission, now solely at the discretion of the Centre. Involves Centre's share of expenditure in Centrally sponsored schemes implemented in States, with States meeting a specified proportion of projected expenditure.

◈ **Central Sector Schemes:** Implemented by Centre in individual States' jurisdictions, with all expenditure met by Central government.

3: Dimension- Significance/Need of State's spending:

◈ Kerala's plea prompts broader discussions on the role of government spending in fostering economic growth.

◈ **Economic growth:** Spending by the states has helped to alleviate the livelihood crisis in India, caused due to the slow growth of rural incomes and employment.

◈ **Positive transformation:** State's spending positively transform a region's economy and society.

◈ **Social growth:** A sizeable chunk of the government expenditure on social services is in the revenue account, paid as salaries and for covering day-to-day expenses. In states, teachers, nurses, and other government employees are key drivers of social achievements.

FACT BOX: THE SPENDING STRUCTURE

• The power to raise taxes rests largely with the Union government while a greater part of the overall government spending is done by the State governments.

• More importantly, when it comes to spending on sectors which affect people's daily lives, the overwhelming responsibility lies on the shoulders of the State governments.

Chart 1: The chart shows the developmental and social expenditures (revenue and capital) by the Union government and all State governments (combined) as percentages of GDP

• The Reserve Bank of India (RBI) has categorised the budgetary expenditures by the Union and the State governments as:

➤ **Developmental:** expenditures on social services and economic services (such as on agriculture and industry)

➤ **Non-developmental**: interest payments, pensions, subsidies, and so on.

• **State governments receive funds from three sources:**

➤ Own revenues (tax and non-tax)

➤ Transfers from the Union government as shares of taxes and as grants

➤ Market borrowings (The normal net borrowing ceiling for states has been fixed at 3 per cent of their GSDP)

SECTION C

1. 'Kallakkadal' strikes coastal Kerala
2. Glacial Lake outburst
3. Vaikom Satyagraha
4. India grants GI Tags to over 60 items
5. ECI's C-Vigil app
6. Bharat Ratna
7. Odisha Day, or Utkala Dibasa
8. Sickle Cell Disease
9. TRAI recommends eSIM for M2M Communications
10. Vikram-1 space launch vehicle
11. Kodaikanal Solar Observatory
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20. Meghalaya's network of ancient caves
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22. Caracal
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24. Katchatheevu Island & Wadge Bank
25. Carlsberg Ridge & Afanasy-Nikitin Seamount

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1. 'KALLAKKADAL' STRIKES COASTAL KERALA

Context: High sea waves which are also known as swell waves, have flooded numerous houses in the Kerala's coastal areas. This flooding caused by the swell waves is called swell surge or Kallakkadal in Malayalam.

What is Kallakkadal?

◈ Kallakkadal is a **geographical phenomenon** which causes **flooding through high waves in the south-west coast of India,** predominantly during the pre-monsoon season which is from April to May.

◈ The term Kallakadal was officially approved by the **United Nations Educational, Scientific and Cultural Organization (UNESCO).**

◈ Kallakkadal is caused by swell waves which emerge due to ocean swell which is mostly caused by storms such as hurricanes or gale winds.

◈ During these fierce winds, a **massive energy transfer** takes place from the air into water.

◈ This then leads to formation of **extremely high waves** that can roll up to thousands of kilometres.

2. GLACIAL LAKE OUTBURST

Context: The Uttarakhand government has decided to evaluate the risk posed by five potentially hazardous glacial lakes in the region. These lakes are prone to **Glacial Lake Outburst Floods (GLOFs),** the kind of events that have resulted in several disasters in the Himalayan states in recent years.

What is Glacial Lake outburst?

◈ When the boundary around unstable glacial lake breaks, and huge amounts of water rush down the side of the mountains, which could cause flooding in the downstream areas.

◈ This is called glacial lake outburst floods or GLOF.

◈ **Factors causing GLOF**:

  ➤ GLOF can be triggered by several reasons, including **earthquakes, extremely heavy rains and ice avalanches.**

  ➤ These lakes are also often found in **steep, mountainous regions**, which means landslides or ice avalanches can sometimes fall directly into the lakes and displace the water, causing it to **over-top the natural dam and flood downstream.**

◈ **Features of GLOF:**

  ➤ They involve sudden (and sometimes cyclic) releases of water.

  ➤ They tend to be rapid events, lasting hours to days.

  ➤ They result in large downstream river discharges (which often increase by an order of magnitude).

3. VAIKOM SATYAGRAHA

Context: The centennial commemoration of the Vaikom Satyagraha (March 30, 2024), brings attention to a significant chapter in India's history that foregrounded social reform amidst the growing nationalist movement, bringing Gandhian methods of protest to the state of Travancore.

About the Satyagraha:

◈ Vaikom, a temple town in the princely state of Travancore, saw the start of a **non-violent agitation** on March 30, 1924 — the first among **temple entry movements** that would soon sweep across the country.

◈ Vaikom Satyagraha lasted for 604 days (20 months) from March 30, 1924 to November 23, 1925.

◈ It was a mass **Temple entry movement** for lower caste people.

◈ **Leaders involved:**

  ➤ **Led by:** TK Madhavan, KP Kesava Menon, K Kelapaan (Congress Leaders)

  ➤ **Supported by:** Mahatma Gandhi, Periyar, C Rajagopalachari, Chattampi Swamikal, Sree Narayana Guru

◈ The **nonviolent movement** demanded the **right of members of lower castes to walk on the roads leading to the Vaikom Temple**, now in the district of Kottayam.

◈ The authorities denied their request, stating that it would lead to social unrest and disturbance.

◈ This denial was met with widespread protests and demonstrations, which eventually led to the involvement of **Mahatma Gandhi**, who arrived in Vaikom in 1925.

◈ **Gandhi** was able to iron out a **compromise: three out of the four roads surrounding the temples were opened up** for everyone but the fourth, eastern road was kept reserved for Brahmins.

◈ **Outcome:** The protests eventually led to the historic **Temple Entry Proclamation** issued by the then **king Chithira Thirunal Balarama Varma** on November 12, 1936. It abolished the ban on **'lower castes'** from entering Hindu temples in the **Princely State of Travancore.**

4. INDIA GRANTS GI TAGS TO OVER 60 ITEMS

Context: Over 60 products from across India have been given the **Geographical Indication (GI) tag.**

The important products

◈ **Tripura:**
➤ Pachra-Rignai, which is a traditional dress worn on special occasions
➤ Matabari Peda, a sweet preparation

◈ **Uttar Pradesh (Banaras)**
➤ Banaras Thandai, a drink made by blending milk with a nutritious mix of nuts, seeds and spices
➤ The Banaras Tabla, Banaras Shehnai, Banaras Lal Bharwamirch and Banaras Lal Peda.

◈ **Assam**:
➤ Six traditional crafts from Assam — Asharikandi terracotta craft, Pani Meteka craft, Sarthebari metal craft, Jaapi (bamboo headgear of rural Assam), Mishing handloom products, and the Bihu dhol.
➤ **Others:**
  ➤ Bodo Dokhona, the traditional attire of Bodo women
  ➤ Bodo Eri silk, referred to as the fabric of peace or ahimsa (non-violence), which comes from the silkworm Samia ricini that feeds mostly on the leaves of the castor plant (Ricinus communis), and cassava
  ➤ Bodo Jwmgra (a traditional scarf)
  ➤ Bodo Gamsa (traditional dress of Bodo men)
  ➤ Bodo Thorkha (a musical instrument)
  ➤ Bodo Sifung (a long flute)

◈ **Meghalaya:**
➤ Meghalaya Garo Textile weaving (Garo dakmanda)
➤ Meghalaya Lyrnai Pottery
➤ Meghalaya Chubitchi (traditional drink)
➤ Lakadong turmeric

FACT BOX: GI TAG

● The Geographical Indication is awarded to products that have a **specific geographical origin**, and that have characteristics related to a **particular location.**
● Till date, around 635 products in India have been given the GI tag.
● The **first GI tag** in the country was given two decades ago to the famous **Darjeeling tea.**

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5. ECI'S C-VIGIL APP

Context: The **cVIGIL app** of **Election Commission of India** has become an effective tool in the hands of people to flag election code violations. Since the announcement of General Elections 2024, over 79,000 complaints have been received.

About cVigil

◈ cVigil is user-friendly and easy to operate application, which connects vigilant citizens with the **District Control Room, Returning Officer and Flying Squads Teams.**

◈ By using this app, the citizens can **immediately report on incidents of political misconduct** within minutes and without having to rush to the office of the returning officer.

◈ As soon as the complaint is sent on the cVigil app, the complainant will receive a unique ID through which the person will be able to track the complaint on their mobile.

6. BHARAT RATNA

Context: President Droupadi Murmu presented the Bharat Ratna to five recipients -- socialist icon **Chaudhary Charan Singh**, former Prime Minister **PV Narasimha Rao**, former Bihar Chief Minister **Karpoori Thakur**, agriculture scientist **MS Swaminathan** and Bharatiya Janata Party (BJP) patriarch **L.K. Advani.**

Important contributions

◈ **P.V. Narasimha Rao** was commended for his leadership in economic reforms and his involvement in the freedom struggle against the Nizam rule in Hyderabad.

◈ **Chaudhary Charan Singh's** contribution to the abolition of zamindari, his expertise in land reforms and his close ties with farmers were remembered.

◈ **M.S. Swaminathan** was praised as the "Father of India's Green Revolution" for his role in making India self-reliant in food production.

◈ **Karpoori Thakur's** commitment to helping marginalised communities was recognised, along with his role as a freedom fighter and an advocate for equality and inclusive development.

FACT BOX: BHARAT RATNA

● The Bharat Ratna is the highest civilian award of the Republic of India.
● Instituted on 2 January 1954, this prestigious award is conferred in recognition of "exceptional service/performance of the highest order", without distinction of race, occupation, position, or gender.

- Initially limited to achievements in the arts, literature, science, and public services, the criteria were expanded in December 2011 to include "any field of human endeavor".
- Recommendations for the award are made by the Prime Minister to the President.
- The Bharat Ratna recipients rank seventh in the Indian order of precedence.

7. ODISHA DAY, OR UTKALA DIBASA

Context: On April 1, **Odisha Day, or Utkala Dibasa**, is celebrated to commemorate the formation of the state of Odisha.

Utkal Divas History

- Utkal Divas, also known as Odisha Day, is celebrated annually to mark the formation of the state of Odisha on April 1, 1936.
- The new province of Odisha was formed after people's continued struggle, which finally paid off on April 1, 1936.
- This day marks the separation of Odisha from the combined Bihar and Orissa province during British rule in India.
- **Sir John Hubbak** was the first governor of the state.
- The state was originally called Orissa but the **Lok Sabha passed the Orissa Bill**, and **Constitution Bill (113rd amendment),** in March 2011 to rename it Odisha.
- Odisha Day, also known as Vishuva Milan, is observed as a restricted holiday in the state.

FACT BOX: FORMATION OF STATES

- **Article 3 of the Constitution**; explicitly lays down a procedure to alter the area, boundaries, or name of a state.
- **Four-step procedure** Article 3 provides the following procedure:
  - Presidential reference is sent to State Assembly
  - After presidential reference, a resolution is tabled and passed in Assembly
  - Assembly has to pass a Bill creating the new State/States
  - A separate Bill has to be ratified by Parliament

8. SICKLE CELL DISEASE

Context: In India, the treatment and care for **Sickle Cell Disease (SCD)** remains grossly inadequate and inaccessible.

What is Sickle Cell Disease?

- SCD is an **inherited haemoglobin disorder** in which **red blood cells (RBCs)** become crescent- or sickle-shaped due to a genetic mutation.
- These RBCs are rigid and impair circulation, often leading to **anaemia, organ damage, severe and episodic pain, and premature death.**
- India has the **third highest number of SCD births**, after Nigeria and the Democratic Republic of the Congo.
- SCD is also one of the **21 "specified" disabilities** listed in the **Schedule of the Rights of Persons with Disabilities Act 2016.**
- In 2023, the Government of India launched the **National Sickle Cell Anaemia Elimination Mission**, to eliminate SCD by 2047.
- **Treatment and challenges:**
  - **Blood transfusion** is another important therapy for SCD, but its availability is limited to district-level facilities.
  - **Bone marrow transplantation (BMT)** is the other cure for SCD. It is out of reach for most SCD patients due to high cost, long waiting time, difficulty in finding matched donors.
  - **Drug hydroxyurea** lessens the severity of pain, reduces hospitalisations, and improves survival rates by increasing the size and flexibility of RBCs and lowering their likelihood of becoming sickle-shaped. However, its availability is questionable.
- The US recently approved two gene therapies, **Casgevy and Lyfgenia**, to treat SCD in people ages 12 and older.

9. TRAI RECOMMENDS ESIM FOR M2M COMMUNICATIONS

Context: Telecom Regulatory Authority of India (TRAI) has today released recommendations on 'Usage of **Embedded SIM for Machine-to-Machine (M2M) Communications'.**

About

eSIM (embedded-SIM)

- An eSIM is a form of SIM card that is embedded directly into a device. **Traditional SIM cards** are made so that they can easily be swapped out of a phone, so that core service information can get ported from one physical device to another.
- M2M eSIM is designed for **IoT sensors, meters, trackers, and devices** that often operate with minimal onsite human interaction.

Machine-to-machine (M2M)

◈ Machine-to-machine, or M2M is a more advanced form of the Internet where **many devices connect with each other.**

◈ Artificial intelligence (AI**) and machine learning (ML)** facilitate the communication between systems, allowing them to make their own autonomous choices

Significance of the initiative

◈ **Security**: It will ensure security by way of proper Know Your Customer (KYC), which is essential for ensuring network security, mitigating fraud risks and enhancing the overall integrity of the M2M eSIM ecosystem.

◈ **Development of a homegrown M2M eSIM ecosystem**: It will stimulate the development of a homegrown M2M eSIM ecosystem in the country, thus enabling the growth of modern M2M communication.

10. VIKRAM-1 SPACE LAUNCH VEHICLE

Context: In a significant development towards its upcoming orbital space launch, **Skyroot Aerospace**, a Hyderabad based space-tech company, has successfully test-fired the Stage-2 of **Vikram-1 space launch vehicle**, called **Kalam-250**, at the **Satish Dhawan Space Centre (SDSC)** in Sriharikota.

About Vikram-1:

◈ 'Vikram-1' is a **multi-stage launch vehicle.**

◈ This launch vehicle has a capacity to place 300 kg payloads in the **Low Earth Orbit.**

◈ The rocket is an all-carbon-bodied vehicle capable of placing multiple satellites into orbit; it also features 3D-printed liquid engines.

◈ Globally, Vikram-1 is among 'elite few' rockets with the capability to deploy orbital satellites, says Skyroot.

◈ The 'Vikram' in the launch vehicles' name is a tribute to **Vikram Sarabhai, the father of India's space programme.**

◈ **Significance of Satge-2:** Stage-2 is a critical stage in the ascent of the launch vehicle, as it propels it from atmospheric phase to the deep vacuum of outer-space.

11. KODAIKANAL SOLAR OBSERVATORY

Context: The Kodaikanal Solar Observatory (KSO) turned 125 this year.

About

◈ The Kodaikanal Solar Observatory (KSO) is a **solar observatory** owned and operated by the **Indian Institute of Astrophysics**, located in Kodaikanal, Tamil Nadu.

◈ The Kodaikanal Solar Observatory is a pioneering institution for solar physics.

◈ **Evershed Effect**: Its earliest claim to fame lies, in part, with the late **John Evershed**, an English astronomer who first observed the **flow of gases** across sunspots from here in 1909. This phenomenon was christened the **Evershed Effect.**

◈ The sun has been studied over the last few centuries for various reasons, including

◈ Solar eclipses

◈ Sunspots –cooler regions on the sun's surface that emit electromagnetic radiation

◈ Solar flares, which affect the earth's atmosphere

FACT BOX

● **Sunspots** are areas that appear dark on the surface of the Sun. They appear dark because they are cooler than other parts of the Sun's surface.

● **Solar eclipse** happens when, at just the right moment, the Moon passes between the Sun and Earth.

● **Solar storms** are magnetic plasma ejected at great speed from the solar surface. They occur during the release of magnetic energy associated with sunspots ('dark' regions on the Sun that are cooler than the surrounding photosphere), and can last for a few minutes or hours.

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12. JUICE-JACKING ALERT

Context: To combat cyber scams, like juice jacking, **targeting public USB charging stations**, citizens are advised to prioritize safety measures like using personal charging cables, implementing device security.

What is juice jacking scam?

◈ Termed "juice-jacking," is a type of cyberattack where cybercriminals use public charging stations or compromised USB ports to install malware or steal data from smartphones, tablets, or other electronic devices while they are being charged.

◈ This insidious technique enables hackers to clandestinely pilfer sensitive data or implant malicious software onto the devices of unsuspecting users.

13. INDIA'S CORE SECTORS GROWTH

Context: India's eight core sectors posted a 6.7 percent growth in February against 4.1% last month. It was 7.4 percent in February 2023.

What are Core Sectors?

◈ **Eight Core Sectors:** Coal, Crude Oil, Natural Gas, Refinery Products, Fertilizer, Steel, Cement, and Electricity.

◈ These comprise **27% of the weight** of items included in the Index of Industrial Production (IIP).

◈ **The eight core sector industries in decreasing order of their weightage:**

◈ Refinery Products> Electricity> Steel> Coal> Crude Oil> Natural Gas> Cement> Fertilizers**.**

◈ **Index of Industrial Production:** IIP is an indicator that measures the **changes in the volume of production** of industrial products during a given period.

➤ It is compiled and published monthly by the **Central Statistical Organization (CSO),** Ministry of Statistics, and Programme Implementation.

➤ **The base year for IIP is 2011-2012.**

FACT BOX: GOVERNMENT INITIATIVES FOR GROWTH OF THE INDUSTRIAL SECTOR IN INDIA

● **Production-Linked Incentive (PLI)** - To scale up domestic manufacturing capability.

● **PM Gati Shakti- National Master Plan** - Multimodal connectivity infrastructure project.

● **Bharatmala Project -** To Improve connectivity in North East India

● **Start-up India** - To catalyze Startup culture in India

● **Make in India 2.0** - To transform India into a global design and manufacturing hub.

● **Atmanirbhar Bharat Campaign** - To cut down import dependence

● **Disinvestment Plans** - To support India's economic recovery

● **Special Economic Zones**- To create additional economic activity and boost the export of goods and services.

● **MSME Innovative Scheme**- To promote the complete value chain from developing ideas into innovation through incubation and design interventions

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14. GROSS NON-PERFORMING ASSETS (GNPA)

Context: The **gross non-performing assets (GNPA)** of banks are set to improve further up to 2.1 per cent by the end of the Financial Year 2025, as per a report.

What is a Non-Performing Asset?

◈ They are loans or advances that are in default or in arrears.

◈ In other words, these are those kinds of loans wherein principal or interest amounts are late or have not been paid.

◈ **Classification:** Non-Performing Assets are basically Non-Performing Loans. In India, the timeline given for classifying the asset as NPA is 180 days. As against 45 to 90 days of international norms.

Types of NPA:

◈ **Standard Assets:** It is a kind of performing asset which creates continuous income and repayments as and when they become due. These assets carry a normal risk and are not NPA in the real sense of the word. Hence, no special provisions are required for standard assets.

◈ **Sub-Standard Assets:** Loans and advances which are non-performing assets for a period of 12 months fall under the category of Sub-Standard Assets.

◈ **Doubtful Assets:** The Assets considered as non-performing for a period of more than 12 months are known as Doubtful Assets.

◈ **Loss Assets:** All those assets which cannot be recovered by the lending institutions are known as Loss Assets.

15. EXCHANGE TRADED CURRENCY DERIVATIVE

Context: A notification from the RBI on hedging of **foreign currency risk** caused a stir among market as it restricted the use of **exchange traded currency derivative**.

What is ETD?

◈ An Exchange Traded Derivative is a **standardised financial contract** that is traded on stock exchanges in a regulated manner.

◈ They are subject to the rules drafted by market regulators such as the **Securities and Exchange Board of India (SEBI).**

FACT BOX: DERIVATIVES

Derivatives are financial contracts that derive their values from the price fluctuations of their underlying assets such as stocks, currency, bonds, commodities etc. Essentially, there are two types of derivatives;

● **Exchange Traded Derivatives (ETDs):** It is subject to standardised terms and conditions, hence, traded in the stock exchanges.

● **Over the Counter (OTC) derivative**: It is traded between private counter-parties, in the absence of a formal intermediary

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16. ONION EXPORTS

Context: India has allowed onion exports to a few countries on priority in response to diplomatic requests, but it will continue to ban overseas shipments amid projections of **lower output** for two years in a row.

Onion Production in India

❖ Rabi or winter-harvested onion is critical for country's availability as it contributes **72-75% of India's annual production.**

❖ It is also crucial for ensuring year-round availability as it has a better shelf life compared to kharif or summer onion, and therefore can be stored for supplies till November-December.

❖ India is the **world's largest exporter of onion**.

❖ **Projection of lower output:** India is expected to harvest 19.3 million tonnes of rabi or winter-grown onions during 2023-24, which is about 18% lower than the production of 23.6 million tonnes in the previous season.

FACT BOX

• **Rabi crops-** wheat, barley, oats, gram, mustard, linseed.

• **Kharif crops-** rice, maize, millet, ragi, pulses, soybean, groundnut.

UPSC PYQ: (CHANGING PATTERN)

Q. Consider the following crops: (UPSC 2013)

1. Coconut
2. Groundnut
3. Rice
4. Wheat

Which of these are Kharif crops?

(a) 1 and 4

(b) 2 and 3

(c) 1,2 and 3

(d) 2, 3 and 4

Solution: (c)

Q. Consider the following statements: (UPSC 2021)

1. Moringa (drumstick tree) is a leguminous evergreen tree.
2. Tamarind tree is endemic to South Asia.
3. In India, most of the tamarind is collected as minor forest produce.

4. India exports tamarind and seeds of moringa.
5. Seeds of moringa and tamarind can be used in the production of biofuels.

Which of the statements given above are correct?

(a) 1, 2, 4 and 5

(b) 3, 4 and 5

(c) 1, 3 and 4

(d) 1, 2, 3 and 5

Solution: (c)

17. INDIA'S FIRST COMMERCIAL CRUDE OIL STRATEGIC STORAGE

Context: India, the world's third biggest oil consumer and importer, plans to build its first commercial crude oil strategic storage as part of efforts to shore up stockpiles as insurance against any supply disruption.

About

❖ India, which meets over **85 per cent of its oil needs through imports**, will use the strategic reserves in any emergency situation like supply disruption or war.

❖ This approach mirrors the models adopted by countries like Japan and South Korea, allowing private lessees, predominantly oil majors, to engage in crude oil trading.

❖ The expansion of oil storage capacity also aligns with India's aspiration to become a member of the **International Energy Agency (IEA),** necessitating members to maintain a minimum of 90 days of oil consumption.

FACT BOX: INTERNATIONAL ENERGY AGENCY (IEA)

• **Established in:** 1974

• The International Energy Agency is a **Paris-based autonomous intergovernmental organisation** that provides policy recommendations, analysis and data on the global energy sector.

• The 31 member countries and 13 association countries of the IEA represent 75% of global energy demand.

18. DEVIKA

Context: In a significant development, Mufeed VH, an Indian developer, has introduced Devika, an **open-source AI software engineer,** challenging the position of **Devin**, hailed as the **world's first fully autonomous AI software engineer.**

About Devika

◈ Devika is an **Agentic AI Software Engineer** who can understand high-level human instructions, break them down into steps, research relevant information, and write code to achieve the given objective.

◈ Devika aims to be a competitive open-source alternative to Devin by **Cognition AI.**

ABOUT DEVIN

● Devin is the world's first **fully autonomous AI software engineer**.

● Devin, which according to the start-up, is "a tireless, skilled teammate," is trained to perform a number of tasks, including building and deploying apps and finding and fixing bugs in codebases.

● Besides this, the **AI chatbot** can recall relevant context at every step, learn over time, and fix mistakes.

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19. MEGADROUGHTS

Context: A new modelling has revealed startling details about Australia as the continent heads for unprecedented drought conditions (**megadroughts)** that could last over two decades.

What are Megadroughts?

◈ Megadroughts are **persistent, multi-year drought** events that stand out as especially **extreme in terms of severity, duration, or spatial extent** when compared to other droughts of the last two thousand years

◈ Megadroughts have occurred on every continent outside of **Antarctica,** often causing major disturbances to ecosystems (e.g., **forests in the Southwest U.**S.) and societies (e.g., the **Maya in Central America, the Ming Dynasty in northern China**).

20. MEGHALAYA'S NETWORK OF ANCIENT CAVES

Context: Meghalaya's network of ancient caves is facing environmental threats.

Important Caves in Meghalaya

◈ Meghalaya is called the **Abode of the Clouds or Scotland of the East.**

◈ Meghalaya has the highest number of caves in India, there are more 1,700 registered caves including:

➤ **Krem Puri,** the world's longest sandstone cave.

➤ **Krem Um Ladaw**, which has the deepest shaft of any cave in the world.

➤ **Neolissochilus Pnar**, discovered recently, is the **world's largest cave fish.**

➤ **Liat Prah limestone cave**, the longest cave

➤ **Mawmluh Cave**, locally known as **Krem Mawmluh**, is located in the **Cherrapunji-Mawsynram area**, known as the world's wettest region.

➤ It is part of the region's extensive network of limestone and rare sandstone caves, which are vital components of the eco-sensitive **Hindu Kush Himalaya (HKH) region.**

◈ Mawmluh Cave is identified as a geological heritage site by the **International Union of Geological Sciences**, a council that works closely with **UNESCO.**

◈ **Favourable conditions:** The state has all the ideal conditions for such formations to thrive: High-grade limestone, rainfall, and elevation, complete with a hot and humid climate.

FACT BOX: MEGHALAYAN AGE

● The International Commission on Stratigraphy termed the present age in the planet's 4.54 billion-year history as the 'Meghalayan Age'.

● The Meghalayan Age is the scientific term for the current geological age, which started around 4,200 years ago.

● It is named after Meghalaya because a stalagmite found in Mawmluh Cave provided evidence of a sudden, severe drought that affected many ancient civilisations across the world.

● That drought is what geologists use to mark the beginning of the **Meghalayan Age.**

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21. ECOCIDE IN GAZA

Context: Satellite analysis shows Gaza's farms devastated and nearly half of the territory's trees razed. The war has made the area unlivable.

What is Ecocide?

◈ Ecocide is the destruction of the environment by humans.

◈ Ecocide is broadly understood to mean mass damage and destruction of ecosystems – severe harm to nature which is widespread or long-term.

◈ **Impact on Gaza:** Before the war, farms and orchards covered about 170 sq km (65 sq miles), or 47% of Gaza's total land area. By the end of February, more than 65 sq km, or 38% of that land has been destroyed.

22. CARACAL

Context: Caracal is suffering are on the path to **extinction**.

About Caracal

◈ The caracal, a medium size wild cat with long black tufted ears, which is found in some parts of Rajasthan and Gujarat.

◈ The caracal is an elusive, primarily noctural animal, and sightings are not common.

◈ The wildcat has long legs, a short face, long canine teeth, and distinctive ears — long and pointy, with tufts of black hair at their tips.

◈ The iconic ears are what give the animal its name — caracal comes from the Turkish karakulak, meaning 'black ears'.

◈ In India, it is called siya gosh, a Persian name that translates as 'black Ear'.

◈ **Habitat**

  ➤ Besides India, the caracal is found in several dozen countries across Africa, the Middle East, Central and South Asia.

  ➤ While it flourishes in parts of Africa, its numbers in Asia are declining.

23. OLIVE RIDLEY TURTLE

Context: As per a recent finding, it was revealed that their Hatchlings use a temporary "egg tooth" or carbuncle to break open the shell.

About the Species

◈ They are the smallest and most abundant of all sea turtles found in the world.

◈ It gets its name from the olive green colouration of its carapace (shell).

◈ **Scientific Name**: Lepidochelys olivacea

◈ They are best known for their unique mass nesting, called Arribada, where thousands of females come together on the same beach to lay eggs.

◈ **Distribution:**

  ➤ They are mainly found in the warm waters of the Pacific, Atlantic, and Indian oceans.

  ➤ Odisha's Gahirmatha Marine Sanctuary is known as the world's largest rookery (a colony of breeding animals) of sea turtles.

◈ **Features:**

  ➤ An adult typically measures between 62 and 70 cm in length and weighs about 35-45 kg.

  ➤ They have one to two visible claws on each of their paddle-like flippers.

  ➤ They are omnivorous, meaning they feed on both plants and animals.

  ➤ They are solitary, preferring the open ocean.

  ➤ These turtles spend their entire lives in the ocean, and migrate thousands of kilometers between feeding and mating grounds in a year.

◈ **Conservation Status:**

  ➤ **IUCN Red List:** Vulnerable

  ➤ **Wildlife Protection Act, 1972:** Schedule 1

  ➤ **CITES:** Appendix I

24. KATCHATHEEVU ISLAND & WADGE BANK

Context: Documents obtained through an RTI application has shed light on India's wavering approach to the **Katchatheevu island dispute with Sri Lanka**. Colombo later recognized the resource-rich, deep-sea fishing grounds of Wadge Bank as Indian Territory in 1976.

About Katchatheevu Island

◈ Located in the **Palk Strait**, which separates India and Sri Lanka, lies the small, deserted island of **Katchatheevu.**

◈ Fisherman from Sri Lanka and India rely heavily on the waters surrounding Katchatheevu as their fishing grounds.

◈ Originally, under the Madras Presidency of British India, Katchatheevu was a princely kingdom that was a component of the **Ramnad Kingdom.**

◈ The island was incorporated into the Indian state of Tamil Nadu following India's independence in 1947.

About Wadge Bank

◈ Wadge Bank is a 10,000 square kilometre submarine plateau, of the sea south of **Kanyakumari** that is rich in biodiversity and considered India's richest fishery resource.

◈ Wadge Bank, located near **Cape Comorin**, is home to more than 60 species of ornamental fish and other oceanic animals.

◈ Wadge Bank measures approximately 3,000 square km, and is about 189 km from **Colombo.**

◈ Wadge Bank came to India as part of the second of the two accords signed with Sri Lanka in the 1970s.

Details revealed in the document

◈ The documents show that Sri Lanka is making up for its small size by pursuing the 1.9 square kilometer of

territory around 20 km from the Indian beach with tenacity.

◈ This is based on claims that New Delhi disputed for decades before finally giving in to.

◈ Soon after independence, **Ceylon**, then known as **Sri Lanka**, asserted that the Indian Navy, then known as the **Royal Indian Navy**, could not hold exercises on the island without its consent.

◈ In 1974, India's then Prime Minister Indira Gandhi handed over the territory in **Palk Strait to Sri Lanka.**

◈ **Multifaceted issues:** The decision to cede **Katchatheevu** has been a source of contention in Tamil Nadu, particularly for fishermen who continue to face arrest by Sri Lankan authorities.

➤ Handing over Katchatheevu to Sri Lanka has impacted Indian fishermen, mostly from Tamil Nadu, who often get detained by the Sri Lankan Navy.

25. CARLSBERG RIDGE & AFANASY-NIKITIN SEAMOUNT

Context: Carlsberg Ridge & Afanasy-Nikitin Seamount in Indian Ocean are of India's interest for which it has submitted applications for exploration to **International Seabed Authority.**

Carlsberg Ridge:

◈ It is the northern part of the **Central Indian Ridge**, a **tectonic plate** boundary between the African and Indian plates, running along the ocean between **India and Africa.**

◈ It was formed nearly 30 million years ago, and has been **seismically active** with major earthquakes.

◈ Running along Seychelles and spanning 3,00,000 sq kms, the Carlsberg Ridge is rich in **polymetallic nodules** — meaning, it contains mineral deposits with commercially viable quantities of at least 3 metals. The ridge is thought to contain trace elements of copper, lead, and zinc.

The Afanasy-Nikitin Seamount (ANS) seabed

◈ The ANS is a major structural feature in the Indian Ocean, rising up above the sea bed but below the surface, and forming a seamount.

◈ It is 400 km long and 150 km wide, and is located in the **Central Indian Basin** — southeast to Sri Lanka, right below the equator, to the west of Singapore — and it was formed about 80 million years ago, while dinosaurs still roamed the Earth.

◈ The Seamount is named after **Afanasy Nikitin**, a 15th century Russian merchant who was one of the first to document his travels to India.

◈ The ANS seamount is about 3,000 km from India's coast, and is rich in **cobalt, copper, manganese, and nickel.**

➤ **Cobalt** is in high demand among other metals due to its ubiquitous use in electronics and batteries.

➤ **Nickel** is used in electric vehicles as it is resistant to corrosion and oxidation.

➤ **Manganese** is also used for lithium ion and alkaline batteries

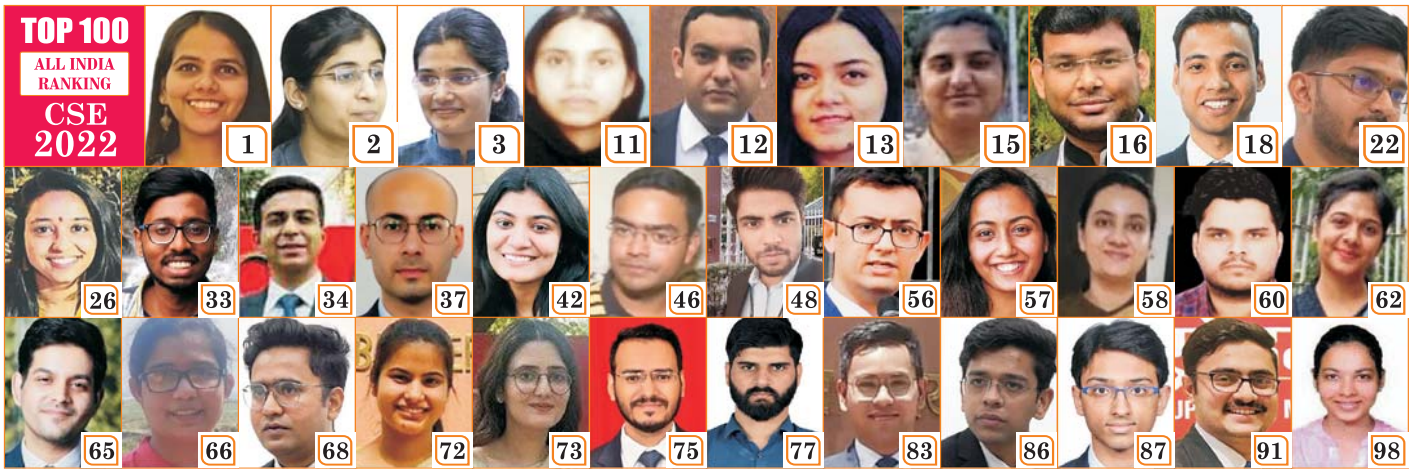➤ **Copper** is one of the most commonly used metals in electricity

TERMS OF THE WEEK

S.NO.	TERM	ABOUT
1	Antiretroviral therapy (ART)	• ART is a combination of medications used to treat HIV (human immunodeficiency virus). It works by stopping HIV from reproducing. It can reduce levels of HIV and keep immune system healthy. It's not a cure, but many people reach undetectable levels of HIV.
2	Body Temperature	• It is a measure of how well human body can make and get rid of heat. Normal human body temperature stays within a narrow range of 36.3-37.3 degrees C. It maintains thermal balance through radiation (40%), evaporation (30%), convection (27%), and conduction (3%).
3	Carbon budget	• Carbon budgets measure how much CO_2 is produced by industry, homes and all other parts of the economy to calculate by how much emissions must be cut in the future.
4	Domestic Value Added	• Domestic value added in gross exports is an estimation of value added, by an economy, in producing goods and services for export, simply defined as the difference between gross output at basic prices and intermediate consumption at purchasers' prices.
5	Digital divide	• Digital divide can be explained as the inequalities between the digital haves and the have-nots in terms of their access to the internet and the ICTs.
6	Emerging Market and Developing Economies (EMDEs)	• An emerging market economy is one in which the country is becoming a developed nation and is determined to improve many socio-economic factors.
7	Economic inequality	• Economic inequality is the unequal distribution of income and opportunity between different groups in society.
8	Electromagnetic radiation	• Electromagnetic radiation is a type of energy that is all around us and takes many forms, such as radio waves, microwaves, X-rays and gamma-rays. Sunlight is also a form of electromagnetic energy,
9	Federalism	• Federalism is a system of government in which the power is divided between a central authority and various constituent units of the country.
10	Food loss	• Food loss refers to uneaten agricultural, forestry, and fishery products. It occurs during the food production and distribution stage. It is also caused by either a reduction in the quantity or quality of food.
11	Food waste	• It refers to edible food that is intended for human consumption, but instead gets discarded or expires. It includes lost or discarded food at all stages of the food system.
12	Friendshoring	• Friendshoring is a growing trade practice where supply chain networks are focused on countries regarded as political and economic allies.
13	Gross State Domestic Product (GSDP)	• Gross State Domestic Product (GSDP) or State Income is a measure in monetary terms, the sum total volume of all finished goods and services produced during a given period of time, usually a year, within the geographical boundaries of the State, accounted without duplication.
14	Global South	• The Global South is a geographical, geopolitical, historical and developmental concept, all at the same time - with exceptions" • Geographically, the term refers to the 32 countries below the equator (in the southern hemisphere), in contrast to the 54 countries that lie entirely north of it.

15	Global wind pattern	• The global wind pattern is also known as the "general circulation" and the surface winds of each hemisphere are divided into three wind belts: • **Polar Easterlies**: From 60-90 degrees latitude. • **Prevailing Westerlies**: From 30-60 degrees latitude (aka Westerlies). • **Tropical Easterlies**: From 0-30 degrees latitude (aka Trade Winds). • The easterly trade winds of both hemispheres converge at an area near the equator called the "**Intertropical Convergence Zone (ITCZ)",** producing a narrow band of clouds and thunderstorms that encircle portions of the globe
16	Hindu Kush Himalayas (HKH)	• The Hindu Kush Himalayas (HKH) are the freshwater towers of South Asia and parts of Southeast Asia. Water originating from their snow, glaciers and rainfall feed the ten largest river systems in Asia. They stretch over 3500 kilometres and across eight countries – Afghanistan, Bangladesh, Bhutan, China, India, Nepal, Myanmar and Pakistan
17	Ionosphere	• Ionosphere is part of Earth's upper atmosphere, between 80 and about 600 km where Extreme UltraViolet (EUV) and x-ray solar radiation ionizes the atoms and molecules thus creating a layer of electrons. It is important because it reflects and modifies radio waves used for communication and navigation.
18	Low-Earth Orbit (LEO)	• A low Earth orbit (LEO) is an orbit that is relatively close to Earth's surface. It is normally at an altitude of less than 1000 km but could be as low as 160 km above Earth – which is low compared to other orbits, but still very far above Earth's surface.
19	Protected areas	• Protected areas are those in which human occupation or at least the exploitation of resources is limited.
20	Permafrost	• When the earth remains frozen for at least two consecutive years, it's called permafrost.
21	Radio waves	• Radio waves are a type of electromagnetic radiation. The best-known use of radio waves is for communication. Radio waves are used for wireless transmission of sound messages, or information, for communication, as well as for maritime and aircraft navigation.
22	Strategic petroleum reserves (SPRs)	• Strategic petroleum reserves (SPRs) are stockpiles of crude oil maintained by countries for release in the event of a supply disruption.
23	Thermohaline circulation	• Thermohaline circulation is a global ocean circulation pattern that distributes water and heat both vertically, through the water column, and horizontally across the globe.
24	Wet bulb temperature	• Wet bulb temperature is the temperature of adiabatic saturation, which is the lowest temperature that can be reached by evaporating water into air at a constant pressure.
25	Zamindari System	• The Zamindari System was a land tenure system prevalent in India during the British colonial period. Under this system, the British East India Company and later the British Raj granted large tracts of land to intermediaries known as zamindars, responsible for collecting revenue from the peasants working on the land

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GS SCORE
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CSE RESULTS

TOP 100 ALL INDIA RANKING CSE 2022

1, 2, 3, 11, 12, 13, 15, 16, 18, 22, 26, 33, 34, 37, 42, 46, 48, 56, 57, 58, 60, 62, 65, 66, 68, 72, 73, 75, 77, 83, 86, 87, 91, 98

SUCCESS IS A PRACTICE WE DO!

TOP 100 ALL INDIA RANKING CSE 2021

02, 04, 07, 12, 24, 25, 29, 31, 32, 43, 44, 45, 46, 49, 52, 53, 54, 66, 67, 68, 80, 83, 89, 92, 93, 95

TOP 100 ALL INDIA RANKING CSE 2020

8, 9, 12, 13, 14, 16, 17, 19, 20, 24, 26, 28, 30, 31, 36, 38, 41, 45, 50, 51, 52, 55, 56, 58, 59, 67, 68, 70, 71, 73, 74, 76, 78, 83, 84, 85, 86, 89, 93, 98, 100