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Prelims UPSC CSE 2026

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PREFACE

Current Affairs UPSC CSE Prelims 2026

This high-quality monthly compilation of Current Affairs for Civil Services Exam Prelims 2026 is designed to help Civil Services Exam aspirants by:

1. **Saving preparation time:** Consolidates key current affairs from multiple sources for CSE Prelims.
2. **Reinforcing static concepts:** Links static concepts with current affairs
3. **Enhancing revision:** Combines important current affairs and static concepts for effective revision.

After reading this Current affairs magazine, you can test your concepts by taking our Current Affairs Test Series in Multiple Choice Question format which helps in the following ways:

- Aligns with the CSE prelims exam pattern.
- Aids understanding and recall by offering multiple perspectives on current affairs.
- Saves time, consolidates and aids quick revision

Details of our Current Affairs Test Series are on the back cover and inside this magazine.

Our team of content developers have worked rigorously to create this high-quality compilation, and we hope that all Civil Services and other competitive exam aspirants will make the best use of it. All the Best!

R. C. Reddy IAS Study Circle
Hyderabad



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POLITY

1. Booth Level Officer

Context: Recently, concerns have been raised with several Booth Level Officers (BLOs) deaths have been reported from the states undergoing Special Intensive Revision (SIR) of electoral rolls.

About Booth Level Officer

- A BLO is a representative of the Election Commission of India (ECI) at the grass-root level who assists in updating the roll using his local knowledge.
- They are local government/semi-government officials who are familiar with the local electors and enrolled as voters in the same polling area.
- **Teachers, Anganwadi workers, Panchayat Secretary, Village Level Workers, Electricity Bill Readers, etc are mainly appointed as BLOs.**
- BLOs are not full-time electoral officials.
- Section 13B (2) of the Representation of People Act, 1950 provision paved the way for the introduction of appointing a BLO for the first time in August 2006.

Roles of Booth Level Officer

- They play a significant role in the process of roll revision and collecting actual field information with regard to the roll corresponding to the polling area assigned to them.
- They maintain accuracy and fidelity of the electoral roll at the polling booth level.
- **Distribution of Voter Slips: An important role of the BLO is the distribution of Voter Slips to the voters' households before the poll day.**
- Informing eligible voters for Postal Ballot: BLOs inform the eligible Electors (senior citizens above 85 years & PwDs with benchmark certificate) about availing Home Voting Facility and Postal Ballot Facility by filling Form 12D.
- Promote use of Election Commission's IT applications: BLOs to promote applications

launched by the ECI to facilitate voting and ensure an accurate electoral roll.

- The popular voter-oriented apps like Voter Helpline App, eVIGIL app, Know you candidate app, Saksham-ECI.

2. Digital Hub for Reference and Unique Virtual Address (DHRUVA)

Context: The Department of Posts recently released a draft amendment to the Post Office Act, 2023, aimed at introducing an interoperable, standardised, and user-centric addressing system called the Digital Hub for Reference and Unique Virtual Address, or DHRUVA.

About Digital Hub for Reference and Unique Virtual Address (DHRUVA)

- Developed by the Department of Posts, DHRUVA sets the foundation for a nationwide Digital Address Digital Public Infrastructure (DPI).
- It envisions a standardized, interoperable, and geocoded digital addressing system that supports secure, consent-based, and seamless sharing of address information.
- At its core is the concept of Address-as-a-Service (AaaS) - the array of services associated with address data management to support secure and efficient interactions between users, government entities, and private sector organizations.

The AaaS Framework Ensures:

- Interoperability across different address systems used by various sectors.
- Standardization of address formats and geolocation tagging.
- Consent-based sharing to empower user control and privacy.
- Public-private integration for seamless adoption and innovation.

- By recognizing digital addresses as core infrastructure, akin to Aadhaar and Unified Payments Interface (UPI), DHRUVA sets out to streamline everything from e-governance and online commerce to urban planning and emergency services.
- The policy also places emphasis on user-centric design, ensuring that citizens have meaningful control over how their address data is used and shared.
- Citizens will retain full control over their digital address identity, with options to manage access, update details, and share their verified address securely for various use cases.
- The DHRUVA platform will also feature multilingual support, mobile-first access, and integration with identity systems like Aadhaar, thereby improving usability and accessibility for all demographics.
- The DHRUVA policy builds upon the earlier launch of the Digital Postal Index Number (DIGIPIN)-the National Addressing Grid introduced by the Department of Posts.

Key Facts about DIGIPIN

- It is an open-source nationwide geo-coded addressing system developed by the Department of Posts in collaboration with IIT Hyderabad and NRSC, ISRO.
- It divides India into approx. 4m x 4m grids and assigns each grid a unique 10-character alphanumeric code based on latitude and longitude coordinates.
- The DIGIPIN system is publicly accessible and supports improvements in emergency response, logistics efficiency, and citizen service delivery.

3. Centralised Public Grievance Redress and Monitoring System (CPGRAMS)

Context: India's Centralised Public Grievances Redressal and Monitoring System (CPGRAMS) has seen a 74% reduction in public grievance pendency since 2021.

About Centralised Public Grievance Redress and Monitoring System (CPGRAMS)

- CPGRAMS is an online platform available to the citizens 24x7 to lodge their grievances to the public authorities on any subject related to service delivery.
- **It was developed and monitored by the Department of Administrative Reforms and Public Grievances (DARPG), Ministry of Personnel, Public Grievances, and Pensions.**
- It is a single portal connected to all the ministries/departments of the Government of India and States.
- Every ministry and state have role-based access to this system.
- CPGRAMS is also accessible to the citizens through a standalone mobile application downloadable through the Google Play store, and mobile application integrated with UMANG.
- The status of the grievance filed in CPGRAMS can be tracked with the unique registration ID provided at the time of registration of the complainant.
- **The grievances received on the CPGRAMS shall be resolved promptly as soon as they are received but within a maximum period of 21 days.**
- CPGRAMS also provides an appeal facility to the citizens if they are not satisfied with the resolution by the Grievance Officer.
- After closure of grievance, if the complainant is not satisfied with the resolution, he/she can provide feedback.
- If the rating is 'Poor' the option to file an appeal is enabled.
- The status of the appeal can also be tracked by the petitioner with the grievance registration number.

4. Provision to Establish High Court Benches in India

Context: The Supreme Court on December 18 dismissed a petition challenging the decision to establish a Circuit Bench of the Bombay High Court at

Kolhapur, observing that the administrative move was consistent with the “constitutional vision of bringing justice closer to the people”.

Provision to Establish High Court Benches in India Constitutional Basis

- The **Constitution of India does not explicitly mention “High Court benches.”**
- The power to establish benches flows from:
 - **Article 214** - There shall be a High Court for each State.
 - **Article 230** - Extension of jurisdiction of High Courts to Union Territories
 - **Article 231** - Establishment of a common High Court for two or more States
- Benches are created through **statutory and executive mechanisms**, not directly by the Constitution.

Statutory Provision

- The primary legal basis is **Section 51 of the States Reorganisation Act, 1956.**
- It empowers the **President of India** to:
 - Establish **permanent benches** of a High Court at places other than its principal seat.
 - Act **after consultation** with:
 - The **Governor of the State**, and
 - The **Chief Justice of the concerned High Court.**

Who Has the Authority?

- **President of India** → Final authority to establish a High Court bench.
- Acts on the **advice of the Union Council of Ministers**
- **Requires:**
 - Recommendation / consent of the **State Government**
 - Opinion of the **Chief Justice of the High Court**

Types of Benches

1. Permanent Benches

- Established by Presidential order
- Example:

- Nagpur Bench (Bombay High Court)
- Madurai Bench (Madras High Court)

2. Circuit Benches

- Sit at a place **temporarily** on selected days
- **Not permanently established.**
- **Example:**
 - Circuit benches of Bombay High Court in Aurangabad (earlier phase)

5. Ad-hoc Judges of High Courts

Context: Chief Justice of India Surya Kant revealed on December 18 that retired High Court judges are reluctant to return to the Bench as ad hoc judges to clear the massive pendency of criminal cases for a simple reason: they are “embarrassed” to sit as junior judges alongside younger colleagues.

Ad-hoc Judges of High Courts

Constitutional Provision

- **Article 224A of the Constitution of India** provides for the appointment of **ad-hoc judges** in High Courts.

Who is an Ad-hoc Judge?

- An **ad-hoc judge** is a **retired judge of a High Court** who is requested to sit and act as a judge of a High Court **temporarily**.

Purpose

- To address:
 - **Backlog of cases**
 - **Vacancies of judges**
 - **Temporary increase in judicial workload**

Appointment Authority

- The **Chief Justice of a High Court** may request a retired judge to act as an ad-hoc judge:
 - **With the previous consent of the President of India.**

Thus, both the **judiciary (CJI/HC CJ)** and the **executive (President)** are involved.

Eligibility

- **Must be a retired judge of a High Court.**
- Cannot be a practicing advocate at the time of appointment.

Tenure

- **Temporary and short-term**
- Continues for the **period specified** in the appointment order or until withdrawn.

Powers and Status

- An ad-hoc judge:
 - Enjoys **all powers, jurisdiction, and privileges** of a sitting High Court judge.
 - Is **not considered a permanent judge**.
 - **Does not affect seniority of existing judges.**

Remuneration

- Paid such allowances as determined by the **President**, after deducting pension.

6. SHAKTI Scholars Young Research Fellowship

Context: Recently, the National Commission for Women launched 'SHAKTI Scholars' young research fellowship on women-centric policy issues.

About SHAKTI Scholars Young Research Fellowship

- It is a six-month program aimed at supporting emerging scholars in researching women's issues in India.
- Objectives of SHAKTI Scholars Young Research Fellowship
- Encourage research on women's issues from a multidisciplinary perspective.
- Promote academic and policy-oriented studies that contribute to gender equality, safety, and empowerment.

- Provide opportunities for young scholars to engage in meaningful research that can support the Commission's mandate
- Duration: 6 months.
- Research areas: Women's safety and dignity, gender-based violence, legal rights and access to justice, cyber safety, implementation of the Prevention of Sexual Harassment (POSH) framework ETC.
- **It is an initiative of the National Commission for Women.**
- Eligibility for SHAKTI Scholars Young Research Fellowship
- Academic: Must hold at least a graduate degree; preference is given to those completed or pursuing Masters, M.Phil., or Ph.D. in relevant fields.
- Nationality & Age: The fellowship is open to Indian citizens aged between 21 and 30 years who hold at least a graduation degree from a recognised institution.
- Financial Support: Selected candidates will receive a research grant of Rs 1 lakh to undertake a six-month study.



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ECONOMY

1. Masala Bonds

Context: The Enforcement Directorate has issued a Rs 467-crore FEMA contravention show-cause notice to Kerala Chief Minister Pinarayi Vijayan, former finance minister Thomas Issac, and the CM's chief principal secretary K M Abraham in the KIIFB Masala Bond case.

- Masala Bonds are denominated in Indian Rupees (INR), even though they are issued in foreign capital markets. If the INR depreciates relative to the currency of the investor (e.g., USD), the investor receives less of their foreign currency when the bond's coupon or principal is paid. This structure is specifically designed to transfer the currency fluctuation risk from the Indian issuer to the foreign investor.
- Masala Bonds are Rupee-denominated borrowings, but they are issued by Indian entities (such as Indian corporations, banks, or state-owned enterprises like NHAI) in overseas capital markets.

2. D-SIBs

Context: RBI's 2025 list confirms that State Bank of India, HDFC Bank, and ICICI Bank continue as Domestic Systemically Important Banks (D-SIBs).

About D-SIBs

- D-SIBs are banks considered **"too big to fail."**
- Their collapse can trigger system-wide financial instability, so they are placed under special regulation and higher supervision.
- Concept introduced globally after the **2008 Global Financial Crisis**.
- **Based on Basel-III guidelines**, RBI released the D-SIB framework in 2014, it identifies banks based on: Size (Total exposures), interconnectedness, substitutability (difficulty of replacing services) & complexity.

- Banks are placed in different buckets (0 to 4) depending on systemic importance.
- Higher the bucket means higher **additional Common Equity Tier 1 (CET-1) capital requirement**.

3. RBI Integrated Ombudsman Scheme

Context: According to the RBI's Annual Report, the complaints registered under the Reserve Bank of India's Integrated Ombudsman Scheme (RB-IOS) were up by 13.55 per cent in FY25.

About RBI Integrated Ombudsman Scheme

- It was launched on November 12, 2021.
- It integrated the erstwhile three Ombudsman schemes of RBI namely: the Banking Ombudsman Scheme, 2006, the Ombudsman Scheme for Non-Banking Financial Companies, 2018 and the Ombudsman Scheme for Digital Transactions, 2019.
- **It adopted the 'One Nation One Ombudsman' approach by making the RBI Ombudsman mechanism jurisdiction neutral.**
- Objective: To provide customers of regulated entities (REs) a speedy, cost-effective and expeditious alternate grievance redress mechanism.

Features of RBI Integrated Ombudsman Scheme

- It defines 'deficiency in service' as the ground for filing a complaint, with a specified list of exclusions.
- **Covered Banks:** It covers all commercial banks, Non-Banking Financial Companies (NBFCs), RRBs, Payment System Participants, most Primary (Urban) Cooperative Banks with a deposit size of ₹50 crore and Credit Information Companies.
- A Centralised Receipt and Processing Centre has been set up at RBI, Chandigarh, for receipt and

initial processing of physical and email complaints in any language.

- Under this scheme, compensation up to Rupees 20 lakh, in addition to, up to 1 lakh for the loss of the complainant's time, expenses incurred and for harassment/mental anguish suffered by the complainant can be awarded.

4. National Forensic Infrastructure Enhancement Scheme

Context: Recently, the Minister of State in the Ministry of Home Affairs informed the Rajya Sabha about the National Forensic Infrastructure Enhancement Scheme.

About National Forensic Infrastructure Enhancement Scheme

- **It is a Central Sector Scheme launched in 2024.**
- **Aim:** The aim of the scheme is to help create a sound forensic laboratory infrastructure and prepare world class trained forensic professionals in the country.
- **Nodal Ministry:** Ministry of Home Affairs.
- **Implementation Period:** 2024-25 to 2028-29.

Components of National Forensic Infrastructure Enhancement Scheme

- **Establishment of campuses of the National Forensic Sciences University (NFSU) in the country.**
- Establishment of Central Forensic Science Laboratories (CFSLS) in the country.
- Enhancement of existing infrastructure of the Delhi Campus of the NFSU.

What is the NFIES?

- With the enactment of the New Criminal Laws, which mandates forensic investigation for offences involving punishment of 7 years or more, there is significant increase in workload.
- An increase in the workload of forensic science laboratories is expected.

- To address the significant shortage of trained forensic manpower in the Forensic Science Laboratories (FSL) in the country.
- To alleviate the case load / pendency of forensic laboratories, and align with the Government of India's goal of securing a high conviction rate of more than 90%.

5. Repo Rate Cut

Context: Recently, The RBI has cut the repo rate to 5.25%, easing borrowing costs for homebuyers and boosting real estate sentiment. The RBI has kept the reverse repo rate unchanged to 3.35%.

The cost of borrowing for commercial banks rises, and the incentive to park excess funds with the RBI falls.

- The reason being that a hike in the Repo rate increases the cost of borrowing from the RBI for banks, thereby constricting credit.
- On the other hand, a cut in Reverse Repo rate reduces the rate of interest which banks get from funds kept with RBI and discourages them from "parking" money with RBI, theoretically encouraging them to find other utilisations of liquidity, though the overall stance here would be a widening of the policy corridor.

6. Operation Twist

Context: The Reserve Bank of India (RBI) recently said it will conduct Open Market Operation (OMO) purchases of government securities worth ₹1 trillion and a three-year dollar-rupee buy/sell swap of \$5 billion to inject further durable liquidity into the financial system.

What is Operation Twist?

- Operation Twist is the monetary policy tool whereby a central bank, usually, like the RBI, manages the Yield Curve without changing the overall money supply.
- The RBI does two things at the same time:

- Buys Long-Term Government Securities-G-Secs: Normally bonds that are due to mature after a period of ten years or more.
- Sells Short-Term Government Securities: Generally, bonds of 1-year maturity or less.

Why “Flatten” the Yield Curve?

- The yield curve is normally “upward sloping” in a healthy economy-meaning you get higher interest rates for lending money for 10 years than you do for 1 year.
- The problem comes when the long-term rates start to be too high, as it discourages businesses from taking long-term loans for infrastructure, factories, or housing.
- The Effect of Purchasing Long-Term Bonds:
 - When the RBI purchases such bonds, demand for them increases.
 - In the bond market, Price - up, Yield - interest rate down.
 - By lowering these yields, the RBI makes long-term borrowing cheaper for the public and private sectors.
- The Effect of Selling Short-Term Bonds:
 - The short-term bonds increase in supply when the RBI sells them, hence driving prices down and yields up.
- The Result:
 - The “gap” between short-term and long-term rates decreases.
 - Long-term end of the curve falls. Short-term end of the curve rises. Curve flattens.

7. Peru’s copper sector

Context: Indian conglomerate Adan and miner Hindalco Industries are exploring investments in Peru’s copper sector, either through joint ventures or by taking stakes in existing mines, a senior Peruvian diplomat told Reuters.

- While there has been some historical debate, the most widely accepted source of the Amazon River is the Mantaro River (and historically, Nevado Mismi) located in the Peruvian Andes. The water

from these high-altitude glacial streams eventually flows into the Ucayali and Marañón rivers, which join to form the Amazon.

- Peru actually shares its shortest international land border with Chile (approximately 160-170 km). Peru shares its longest border with Brazil, stretching over 2,900 km.



8. Director General of Civil Aviation (DGCA)

Context: Recently, the Directorate General of Civil Aviation (DGCA) granted the Indigo airline a temporary one-time exemption from some Flight Duty Time Limitation (FDTL) norms for pilots.

About Director General of Civil Aviation (DGCA)

- It is the regulatory body in the field of civil aviation primarily dealing with safety issues.
- It is an attached office of the Ministry of Civil Aviation.
- It is responsible for regulation of air transport services to/from/within India and for enforcement of civil air regulations, air safety and airworthiness standards.
- It also coordinates all regulatory functions with the International Civil Aviation Organisation.
- **Headquarters:** New Delhi.

- Functions and Responsibilities of the Director General of Civil Aviation (DGCA)
- One of the main functions of the DGCA is to ensure the safety of passengers and crew members on all flights operating in India.
- It conducts regular safety inspections of all airlines and aircraft to meet the required safety standards.
- It also investigates any incidents or accidents that occur within the Indian airspace.
- It plays a crucial role in developing new airports and modernizing existing facilities to ensure that they can meet the growing demands of the aviation industry.
- It is responsible for the regulation of air traffic in India. It works closely with the Airports Authority of India (AAI) to ensure air traffic is managed safely and efficiently.
- The DGCA also plays a key role in developing new air traffic control systems and technologies to improve the overall efficiency of Indian airspace.
- It is also responsible for issuing licenses and certificates to pilots, aircraft maintenance engineers, and other aviation personnel.

Note: Aircraft accidents and serious incidents (within Indian airspace or involving Indian-registered aircraft abroad) are investigated by the Aircraft Accident Investigation Bureau (AAIB) under the Ministry of Civil Aviation.

9. Investor Education and Protection Fund Authority

Context: Recently, the Investor Education and Protection Fund Authority (IEPFA) collaborated with the Securities and Exchange Board of India (SEBI) organised a “Niveshak Shivir” in Jaipur

About Investor Education and Protection Fund Authority

- It was established in 2016 under the Companies Act, 2013.

- Purpose: It is dedicated to promoting investor awareness and protection through sustained outreach, education, and strategic collaborations.

Functions

- **It manages the Investor Education and Protection Fund (IEPF) and promotes investor awareness and financial protection.**
- It makes refunds of shares, unclaimed dividends, matured deposits/debentures etc. to investors and promotes awareness among investors.
- It is dedicated to safeguarding investor interests by facilitating the return of unclaimed shares and dividends and advancing financial literacy nationwide.
- **Nodal Ministry: Ministry of Corporate Affairs.**
- **Initiatives:** Through flagship initiatives such as Niveshak Didi, Niveshak Panchayat, and Niveshak Shivir, IEPFA empowers individuals to make informed financial choices and fosters a financially aware citizenry.
- The IEPF consists of amounts that remained unclaimed for 7 years, including:
 - Unpaid dividends,
 - Application money is due for refund,
 - Matured deposits and debentures,
 - Interest on investments from the fund,
 - Grants or donations received from the government or other entities.

10. Cookie Jar Approach

Context: The term “Cookie Jar Approach” is used to strategies the personal investment.

Cookie Jar Approach

- The ‘cookie jar approach’ is a personal finance term that refers to the concept of dividing money into different ‘jars’ or ‘buckets,’ with a specific purpose given to every jar.
- These ‘jars’ can be for funding things like saving for retirement or a child’s education expenses.
- This will benefit investors in the following way
- Assign investment horizon/timeline and risk levels to each goal

- In most cases,
 - Do not borrow from long-term investments for short-term requirements
 - Enhance financial discipline and clarity

11. Sin Tax

Context: The Parliament passed the Central Excise (Amendment) Bill, 2025 with the Rajya Sabha approving and returning it to the Lok Sabha.

Sin Tax:

- A Sin Tax is applied to products that cause negative externalities, meaning that these products have costs that are associated not only with the user but with society as well. For instance, excessive intake of sugar-sweetened products is associated with obesity, diabetes, and rising healthcare costs.
- By imposing excise duty, the government imposes a cost on consumers. By raising excise duty, the government increases this cost.
- This assists in balancing private marginal costs and social marginal costs by internalizing the externality.
- It has a corrective or Pigouvian purpose, not a purely revenue-raising one.

12. International Fund for Agricultural Development

Context: Recently, the Government of India highlighted the country's pioneering achievements in rural transformation and development leadership at the International Fund for Agricultural Development - India Day event held in Rome.

About International Fund for Agricultural Development

- It is an international financial institution and a specialized agency of the United Nations.
- It was established as an international financial institution in 1977 through United Nations General Assembly Resolution.

- **Objective:** It is dedicated to eradicating poverty and hunger in rural areas of developing countries.
- IFAD seeks to empower rural people to increase their food security, improve the nutrition of their families.
- Its projects and programmes are carried out in remote and environmentally fragile locations, including least-developed countries and Small Island developing States.
- It is a member of the United Nations Development Group (UNDP).
- IFAD grants support research, innovation, institutional change, and pro-poor technologies.
- IFAD extends two types of grants, depending on the nature of the innovation and the scope of intervention: global or regional grants and country-specific grants.
- **Membership:** Currently, IFAD has 180 Member States, including India. (India is a founding member of IFAD).
- **Governance:** Its Governing Council is the highest decision-making body which meets every three years.
- **Headquarter:** Rome, Italy.

13. Foreign Direct Investment (FDI)

Context: The Union Cabinet has approved a proposal to raise the FDI limit in insurance companies from 74% to 100%, to be implemented through the Insurance Laws (Amendment) Bill, 2025.

What is FDI?

- Foreign Direct Investment (FDI) is when a non-resident investor acquires an equity stake ($\geq 10\%$) in an Indian company, with a lasting interest and some degree of control/management influence.

Prohibited Sectors under FDI:

FDI is **not allowed** in, among others:

- Lottery business, online lotteries
- Gambling and betting, including casinos
- Chit funds (except some NRI/OCI non-repatriation cases)
- Nidhi companies

- Trading in Transferable Development Rights (TDRs)
- Real estate business and construction of farmhouses
- Manufacturing of **cigarettes, cigars, cigarillos** of tobacco / substitutes
- Sectors not open to private investment (e.g. **atomic energy, certain railway operations**)
- Technology collaboration (brand/franchise/management) is also prohibited in lottery and gambling/betting.

14. Banking Reforms

Context: The Union Budget 2026-27 is expected to unveil a policy direction on the next phase of public sector bank (PSB) reforms based on two parallel tracks-Consolidation 2.0 and calibrated dilution of government ownership.

Banking Reforms:

- These three initiatives represent different phases and methodologies used by the Government of India and the Reserve Bank of India (RBI) to address the "Twin Balance Sheet" challenge and modernize state-run banks.

1. Mission Indradhanush (2015)

Launched by the Ministry of Finance, this was a **7-pronged plan** (represented by the seven colors of the rainbow) to revamp the functioning of Public Sector Banks (PSBs). It was based on the recommendations of the **P.J. Nayak Committee**.

- **A - Appointments:** Professionalizing the top management.
- **B - Bank Board Bureau (BBB):** Now replaced by **FSIB**, to select top officials.
- **C - Capitalization:** Infusing capital into banks to meet Basel III norms.
- **D - De-stressing:** Resolving the issue of bad loans (NPAs).
- **E - Empowerment:** Providing autonomy in hiring and decision-making.

- **F - Framework of Accountability:** Measuring performance through specific KPIs.
- **G - Governance Reforms:** Enhancing transparency and reducing political interference.

2. The 4R Strategy

This was a logical framework adopted to clean up the banking system and restore its health during the peak of the NPA crisis.

- **Recognition:** Transparently identifying bad loans through the **Asset Quality Review (AQR)**.
- **Resolution:** Recovering value from stressed accounts using the **Insolvency and Bankruptcy Code (IBC)** and SARFAESI Act.
- **Recapitalization:** Pumping fresh taxpayer money into banks to improve their "Capital Adequacy Ratio."
- **Reforms:** Strengthening the wider financial ecosystem to prevent future crises.

3. EASE (Enhanced Access and Service Excellence)

Launched in **2018**, EASE is an ongoing common reform agenda for all PSBs. It aims to institutionalize "Smart and Clean Banking."

- **Versions:** It has evolved from **EASE 1.0** (NPA resolution) to the current **EASE 7.0 (2025)**, which focuses on **AI-driven banking**, deep digital integration, and customer-centric service.
- **Metric:** Banks are ranked on the **EASE Index**, creating healthy competition among PSBs to adopt better technology and governance.

15. Biswanath Goldar Committee

Context: The statistics ministry is in the process of revising India's GDP data, with the new series to have **2022-23** as the base year and several changes in how the data is calculated.

Biswanath Goldar Committee

- The **Biswanath Goldar Committee** refers to the Advisory Committee on National Accounts Statistics (ACNAS) chaired by **Professor**

Biswanath Goldar. This committee was formed by the **Ministry of Statistics and Programme Implementation (MoSPI)**, Government of India.

Purpose and Context

- The committee was constituted in **late 2024 / early 2025** to **revise the base year used for India's Gross Domestic Product (GDP) and national accounts from 2011-12 to 2022-23.**
- The revision aims to provide **more accurate economic data** that better reflects recent structural changes in the Indian economy, such as changes in consumption patterns, industry dynamics, and the rise of new sectors.

Key Roles and Functions

Under the Chairmanship of Prof. Biswanath Goldar, the committee's main tasks include:

- **Recommend the new GDP base year** and methodology for compiling National Accounts Statistics (NAS).
- **Identify and incorporate newer data sources**, including administrative and high-frequency data, to improve GDP and national accounts accuracy.
- **Advise on methodological improvements**, including seasonal adjustment of quarterly national accounts and aligning statistics with price and industrial indices.
- **Refine presentation and compilation techniques** for national accounts to support better economic analysis and policy-making.

Composition

- The committee is **26 members strong**, including representatives from:
 - Central and State Governments
 - **Reserve Bank of India**
 - Academia and research institutions
 - Economic and statistical experts
- It brings together diverse expertise to ensure the quality and credibility of national accounts statistics.

16. "One RRB, One Logo" Initiative

Context: The Government of India, in collaboration with NABARD, has unveiled a common logo for all Regional Rural Banks (RRBs) under the "One RRB, One Logo" initiative, marking a significant step towards unifying the identity of RRBs across the country.

What is the "One RRB, One Logo" Initiative?

- A reform measure to introduce a single, uniform visual identity for all **43 Regional Rural Banks operating in India.**
- Implemented jointly by Department of Financial Services (DFS), Ministry of Finance & National Bank for Agriculture and Rural Development (NABARD)
- Applies across all RRB branches, digital platforms, passbooks, ATMs, stationery and customer interfaces.

About RRBs

- **RRBs were created under the Regional Rural Banks Act, 1976** (on the recommendations of the **Narasimham Working Group (1975)**) to **expand institutional credit in rural areas & serve small farmers, SHGs, artisans and MSMEs.**
- **RRBs have a tripartite ownership pattern:**
 - Government of India - 50%
 - Concerned State Government - 15%
 - Sponsor Bank - 35%.

Note: The Reserve Bank of India (RBI) has kept RRBs **outside the ambit of Basel-III capital adequacy norms**, considering their **limited scale of operations and social banking mandate.**

17. Bureau of Port Security

Context: Recently, the union Home Minister convened a meeting for the constitution of a dedicated body, the **Bureau of Port Security (BoPS)**, for the security of vessels and port facilities.

About Bureau of Port Security

- It shall be constituted as a statutory body under the provisions of Section 13 of the Merchant Shipping Act, 2025.
- It is headed by a Director General, shall function under the aegis of the Ministry of Ports, Shipping and Waterways (MoPSW).
- He /she shall be responsible for regulatory and oversight functions relating to the security of ships and port facilities.
- It is being modelled on the lines of the Bureau of Civil Aviation Security (BCAS).
- The BoPS shall be headed by an IPS officer (Pay Level-15).
- During the transition period of one year, the Director General of Shipping (DGS/DGMA) shall function as the Director General, BoPS.

Functions Bureau of Port Security

- It ensures timely analysis, collection and exchange of security-related information, with a special focus on cyber security, including a dedicated division to safeguard port IT infrastructure from digital threats.
- The Central Industrial Security Force (CISF) has been designated as a Recognised Security Organisation (RSO) for port facilities with responsibility for undertaking security assessments and preparation of security plans for ports.

18. Bharat Taxi Initiative

Context: Recently, the Government of India has launched Bharat Taxi initiative.

About Bharat Taxi Initiative

- It is a first-of-its-kind cooperative-driven, citizen-first national ride-hailing initiative.
- It is a government-supported initiative developed under the Union Ministry of Cooperation and the National e-Governance Division (NeGD).
- It is India's first cooperative taxi network, allowing drivers to become shareholders and co-owners.

- **Promoted:** It is being jointly promoted by leading cooperative and financial institutions including NCDC, IFFCO, AMUL, KRIBHCO, NAFED, NABARD, NDDDB and NCEL. (they do not "own and operate").

Key Features of Bharat Taxi Initiative

- **Driver-Owned Fleet:** Drivers can purchase shares and become cooperative members, giving them transparency and decision-making power.
- **Zero Commission:** Unlike private cab aggregators that take a large cut, Bharat Taxi transfers the full fare to the driver.
- **Transparent, No-Surge Pricing:** Fares will remain predictable, with no surge charges.
- **Deep Digital Integration:** Services will connect with government platforms such as DigiLocker and UMANG.
- **Platform Integration & Technical Architecture:** Integration of the Bharat Taxi platform with national digital platforms such as DigiLocker, UMANG, and API Setu to enable seamless identity verification and service delivery.
- **Security, Compliance & Infrastructure:** Ensuring adherence to Government of India's data protection norms and cybersecurity standards and advising on robust technical infrastructure.

19. The Rapid Financing Instrument (RFI)

Context: The International Monetary Fund (IMF) has approved USD 206 million in emergency funding for Sri Lanka under the Rapid Financing Instrument (RFI) following the devastation caused by Cyclone Ditwah.

About The Rapid Financing Instrument (RFI):**What it is?**

- The Rapid Financing Instrument (RFI) is an IMF emergency lending facility that provides quick, low-access financial assistance to member countries facing urgent balance-of-payments (BoP) needs, especially during crises such as natural disasters, external shocks, or domestic instability.

Organisation: International Monetary Fund (IMF)

Aim:

- Provide immediate liquidity to countries facing sudden BoP pressures.
- Prevent severe economic disruption when full-fledged IMF programmes are unnecessary or not feasible.
- Support macroeconomic stability during short-term crises.

Key features:

1. Nature of assistance:

- Single, rapid disbursement of funds.
- Designed for urgent and temporary BoP needs.
- No requirement for a comprehensive economic reform

2. Windows under RFI

- **Regular window:**
 - For BoP stress due to domestic instability, exogenous shocks, or fragility
 - Access up to **50% of IMF quota per year** and **100% cumulatively**
- **Large Natural Disaster window:**
 - Applicable when disaster damage equals or exceeds **20% of GDP**
 - **Higher access:** up to 80% of quota per year and 133.33% cumulatively

3. Conditionality framework

- **No ex-post conditionality** or programme reviews
- Limited **prior actions** may be required
- Borrowing country expected to pursue policies addressing underlying BoP problems

4. Terms of lending

- **Repayment period:** 3¼ to 5 years
- **Interest rate:** Same as IMF's standard non-concessional facilities (FCL, PLL, SBA)
- **Access:** Generally one-off, with scope for repeated use in exceptional circumstances

5. Review and monitoring:

- No formal programme reviews

- IMF monitoring remains light and focused on macroeconomic stability
- RFI addresses urgent balance of payments needs.
- It does **not require a full-fledged reform programme**, unlike traditional IMF arrangements.
- RFI is available to **all IMF member countries**, not only PRGT-eligible countries.
- RFI support is generally **disbursed in a single, rapid tranche**.

20. The Globally Important Agricultural Heritage Systems (GIAHS)

Context: Recently, the soil tests in Kuttanad paddy fields which are part of Kuttanad Wetland Agricultural System in Kerala showed increased level of aluminium concentrations in paddy fields.

Key Facts about Globally Important Agricultural Heritage Systems

- The Globally Important Agricultural Heritage Systems (GIAHS) is a Food and Agriculture Organization's programme launched at the World Summit for Sustainable Development in 2002.
- It is aiming to strike a balance between conservation, sustainable adaptation and socioeconomic development.
- **India's GIAHS Include**
 - **Koraput region (Odisha):** It is renowned for its subsistence paddy cultivation, predominantly on highland slopes.
 - **Kuttanad system (Kerala):** It is a unique below-sea-level farming landscape.
 - **Saffron Park of Kashmir:** It represents a rich agro-pastoral system characterized by traditional saffron cultivation.

21. Financial Fraud Risk Indicator (FRI)

Context: The Department of Telecommunications (DoT) recently said that the financial fraud risk indicator (or FRI) has prevented potential losses of ₹660 crore across the banking ecosystem within six months of the rollout of this initiative.

About Financial Fraud Risk Indicator (FRI)

- It was launched in May 2025 by the Department of Telecommunications (DoT's) Digital Intelligence Unit (DIU).
- It is a risk-based metric that classifies mobile numbers into three categories: Medium, High, and Very High Risk based on their likelihood of involvement in financial fraud.
- The classification draws from a comprehensive analysis using inputs from various platforms, including the Indian Cybercrime Coordination Centre's National Cybercrime Reporting Portal (NCRP), DoT's Chakshu platform, and intelligence shared by banks and financial institutions.
- By flagging high-risk numbers early, the tool enables banks, non-banking financial companies (NBFCs), and UPI service providers to take appropriate measures for customer protection and transaction validation.

22. Open Market Operation (OMO) purchase

Context: On a review of current liquidity and financial conditions, the Reserve Bank of India (RBI) on December 23, 2025) announced to conduct Open Market Operation (OMO) purchase auctions of Government of India securities for an aggregate amount of ₹2,00,000 crore (USD 22.34 billion) and Dollar Rupee (USD/INR) Buy/Sell Swap auction of \$10 billion for a tenor of 3 years to inject liquidity into the banking system.

When RBI injects liquidity to banking system,

The most immediate effect of liquidity injection is seen in the **money market**, specifically the **Call Money Market**.

- **WACR (Weighted Average Call Rate):** This is the rate at which banks borrow from each other overnight. When the RBI injects liquidity (via OMO purchases, Repo auctions, or CRR cuts), banks find themselves with surplus cash.

- **Softening of Rates:** As supply increases, banks don't need to compete as hard for funds. This causes the Call Money Rate to "soften" (decrease).
- **Alignment with Repo:** The RBI's goal is to keep the WACR close to the **Policy Repo Rate**. If liquidity is too tight, WACR rises toward the **MSF** (upper ceiling). If liquidity is injected, WACR drops from the MSF level and aligns with the Repo rate.
- This happens during a **liquidity crunch** (deficit), not an injection. MSF acts as the "ceiling" of the interest rate corridor. When the RBI injects money, rates fall away from the MSF, not toward it.
- The Marginal Cost of funds-based Lending Rate (MCLR) is based on the bank's cost of borrowing. When the RBI injects liquidity, the cost of funds for banks **decreases**. Therefore, banks are likely to **decrease** (or at least hold steady) their lending rates, not increase them.
- A **Variable Rate Reverse Repo (VRRR)** is a tool used to **absorb** (suck out) excess liquidity, not inject it. If the RBI has just injected liquidity, it wouldn't immediately conduct a VRRR unless it overshot its target and needed to mop up a sudden excess.

23. Quality Council of India

Context: The Quality Council of India (QCI) recently announced a comprehensive set of next-generation quality reforms aimed at strengthening India's quality ecosystem across healthcare, laboratories, MSMEs, and manufacturing sectors.

About Quality Council of India

- It is a non-profit autonomous organisation registered under Societies Registration Act XXI of 1860.
- It was set up in 1997 **jointly by the Government of India** and the Indian Industry, represented by the three premier industry associations, i.e.,
- **Associated Chambers of Commerce and Industry of India (ASSOCHAM)**
- **Confederation of Indian Industry (CII)**

- **Federation of Indian Chambers of Commerce and Industry (FICCI).**
- **It is under the administrative control of the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry.**

Functions:

- It works as the national accreditation body.
- It has been established to create a mechanism for independent third-party assessment of products, services, and processes.
- It also promotes the adoption of quality standards relating to Quality Management Systems, Food Safety Management Systems, and Product Certification and Inspection Bodies through the accreditation services provided by the National Accreditation Board for Certification Bodies (NABCB).
- It plays a pivotal role at the national level in propagating, adoption, and adherence to quality standards in all important spheres of activities.
- It leads a nationwide quality movement in the country through the National Quality Campaign.

24. Kimberly Process

Context: Recently, the Kimberley Process (KP) Plenary has selected India to assume the chairmanship of the Kimberley Process from 1 January 2026.

About Kimberly Process

- **It is a tripartite initiative involving governments, the international diamond industry and civil society.**
- **Aim:** It is aimed at preventing the trade in “conflict diamonds”.
- Conflict diamonds are rough diamonds used by rebel groups or their allies to finance conflicts that undermine legitimate governments, (As defined in United Nations Security Council resolutions).
- **Governance:** Each year, the Vice-Chair becomes the Chair the next year. Chair and Vice-Chair are appointed by Plenary consensus.

- **Participants:** It currently has 60 participants representing 86 countries, with the European Union counting as a single participant.
- **This will be the third time India has been entrusted with the chair of the Kimberley Process.**

What is Kimberley Process Certification Scheme (KPCS)

- **It is the mechanism the KP uses to prevent the trade of conflict diamonds.**
- It was launched in 2003, which is enforced individually by KP Participant countries to ensure that rough diamonds in the legitimate supply chain are KP-compliant.
- Since 2003, India has been actively participating in the KPCS process.
- Department of Commerce is the nodal Department
- Gem & Jewellery Export Promotion Council (GJEPC) is designated as the KPCS Importing and Exporting Authority in India.
- GJEPC is responsible for issuing KP Certificates and is also the custodian of KP Certificates received in the country.

25. Global Capability Centres

Context: Global Capability Centres (GCCs) are now the primary engine sustaining India’s technology job market, contrasting sharply with the hiring slowdown witnessed by large IT firms in the country.

About Global Capability Centres

- Global Capability Centres (GCCs), or Captive Centres, are offshore offices or subsidiaries set up by multinational corporations (MNCs) to handle various business processes and services.
- GCCs connect organizations to a global pool of top-tier talent, equipped with the latest technology and training needed to stay ahead of industry trends, continually innovate, and create sustained growth.
- These centres are responsible for a wide range of tasks, including IT support, research and

development (R&D), data analytics, finance, human resources, and other back-office functions.

- Over time, many GCCs have evolved from being simple support centres to becoming strategic hubs that drive innovation and high-value business functions.

GCCs in India:

- Earlier, GCCs were established in India primarily to reap cost benefits.
- Customer support, data processing, and IT services that these centres mainly focused on.
- Due to its abundant skilled labour force and lower operational cost, India proved to be an ideal location for setting up GCCs.
- However, GCCs have evolved over time to expand massively and now include critical business functions such as R&D, analytics, digital transformation, and innovation.
- India now hosts 1,850 GCCs employing almost two million professionals.
- India is projected to have more than 2,400 GCCs by 2030 and employ more than three million workers to achieve a \$125 billion market size, signalling a transition into strategic 'enterprise AI brains.'
- Key GCC hubs are located in Bengaluru, Hyderabad, Pune, Chennai, Mumbai, and the National Capital Region (NCR).

Note: Modern GCCs in India have evolved from simple "cost centers" to "innovation hubs." They now handle complex tasks like R&D, AI development, and global corporate functions. This transition significantly boosts India's service exports (improving the Current Account Balance) and accelerates the country's move toward a knowledge-driven economy, rather than just a low-cost outsourcing destination.

26. National Council for Cement and Building Materials

Context: Recently, the Global Cement and Concrete Association (GCCA) India-NCB Carbon Uptake Report

was released on the occasion of the 63rd Foundation Day of the National Council for Cement and Building Materials (NCB).

About National Council for Cement and Building Materials

- **It was established in 1962 as an apex research and development organization.**
- **Objective:** To promote research and scientific work connected with cement and building materials trade and industry.
- **It functions under the administrative control of Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry, Govt. of India.**
- It has its corporate centre and main laboratories located at Ballabgarh (near New Delhi).
- It has a well-established regional centre at Hyderabad and a Centres at Ahmedabad (Gujarat) & Bhubaneswar.

Functions of National Council for Cement and Building Materials

- NCB's areas of work span over the entire spectrum of cement manufacturing and usage.
- It serves as the nodal agency for providing the Government the necessary support for formulation of its policy and planning activities related to growth and development of cement industry.
- It is devoted to protecting the interests of consumers of cement and concrete in the country.

27. PM-SETU Scheme

Context: Recently, the Ministry of Skill Development and Entrepreneurship has invited industry leaders to participate in the PM-SETU scheme.

About PM-SETU Scheme

- Pradhan Mantri Skilling and Employability Transformation through Upgraded ITIs (PM-SETU) is a Centrally Sponsored Scheme launched to strengthen India's vocational training ecosystem.

- **It aims to modernise the ITI ecosystem by upgrading 1000 government ITIs across India into modern, industry-aligned training institutions.**
- **Implementation:** It is implemented as a hub-and-spoke model, with 200 hub ITIs linked to 800 spoke ITIs.
- Each hub will be equipped with advanced infrastructure, innovation and incubation centres, production units, training of trainer facilities, and placement services, while the spokes will extend access and outreach.
- **Financial outlay:** ₹60,000 crore, over a five- year period.
- **Nodal Ministry:** Ministry of Skill Development and Entrepreneurship.

Components of PM-SETU Scheme

- Introduce new, demand-driven courses and revamp existing ones in collaboration with industry;
- **Special Purpose Vehicles:** Set up Special Purpose Vehicles (SPVs) with credible Anchor Industry Partners to manage clusters and ensure outcome-based training;

- Create pathways for long-term diplomas, short-term courses, and executive programs;
- Strengthen 5 National Skill Training Institutes in - Bhubaneswar (Odisha), Chennai (Tamil Nadu), Hyderabad (Telangana), Kanpur (Uttar Pradesh), Ludhiana (Punjab), as Centres of Excellence with global partnerships.
- The initiative is backed by global co-financing from the World Bank and Asian Development Bank.



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INTERNATIONAL RELATIONS

1. Organization for Security and Cooperation in Europe

Context: Recently, foreign minister of Ukraine said at the Organization for Security and Cooperation in Europe that Ukraine wants “real peace, not appeasement” with Russia.

About Organization for Security and Cooperation in Europe

- It is a dynamic organization that is dedicated to promoting peace, stability, and security throughout Europe and Central Asia.
- It is the world's largest regional security organization.
- **Origin:** The OSCE's origins date back to the early 1970s, to the Helsinki Final Act (1975) and the creation of the Conference on Security and Co-operation in Europe (CSCE), which during the Cold War served as an important multilateral forum for dialogue and negotiations between East and West.
- In 1994, the CSCE was renamed the Organization for Security and Cooperation in Europe (OSCE) to reflect these changes more accurately.
- **Member Countries:** It consists of 57 participating States in North America, Europe and Asia. (India is not a member country).
- **Objective:** It works for stability, peace and democracy through political dialogue about shared values and through practical work that makes a lasting difference.
- **Decision-making bodies of OSCE:** There are four decision-making bodies with delineated, distinct mandates namely;
- **Summits:** It is the highest decision-making body of the OSCE
- **Ministerial Councils:** The OSCE's central decision-making and governing body
- **Permanent Council:** It is responsible for the day-to-day business of the Organization

- **Forum for Security Co-operation:** It deals with the politico-military dimension of security.
- **Leadership:** The OSCE's leadership includes the Chairperson-in-Office, the Secretary General, and the heads of its institutions and field operations.
- **Headquarter:** Vienna.

2. Benin

Context: Benin President recently said that the West African nation's government and armed forces had thwarted a coup attempt by a group of soldiers and vowed to punish them.

About Benin

- It is a country in West Africa.
- It encompasses an area of 112,622 sq. km.
- **Four countries border Benin.** These are **Niger to the northeast, Nigeria to the east, Togo to the west, and Burkina Faso to the northeast.**
- To the south, Benin has a small stretch of coastline on the Bight of Benin, which is part of the Gulf of Guinea in the Atlantic Ocean.
- **Drainage:** Apart from the Niger River, which, with its tributaries the Mékrou, Alibori, and Sota, drains the northeastern part of the country, the three principal rivers in Benin are the Mono, the Couffo, and the Ouémé.
- The official capital is Porto-Novo, but Cotonou is Benin's largest city, its chief port, and its de facto administrative capital.
- Its population in 2016 was estimated to be approximately 10.87 million.

3. International Organization for Marine Aids to Navigation

Context: Recently, the Union Minister for Ports, Shipping and Waterways virtually inaugurated the 3rd Session of the Council of the International

Organization for Marine Aids to Navigation (IALA) held in Mumbai.

About International Organization for Marine Aids to Navigation

- It was established in 1957 as a Non-Governmental Organisation (NGO).
- It officially changed its status from a Non-governmental Organization (NGO) to an Intergovernmental Organization (IGO) based on a Convention ratified by 34 States in 2024.
- Its mandate is to harmonise global maritime navigation systems, promote maritime safety initiatives, and collaborate with member states, international organizations, and industry stakeholders to address emerging challenges in maritime safety and environmental protection.
- Motto: Successful Voyages, Sustainable Planet.
- Governance: The IALA Council is the key decision-making body of the intergovernmental organization responsible for marine aids to navigation.
- It aims to
 - Foster safe, economic and efficient movement of vessels by improving and harmonizing aids to navigation worldwide and by other appropriate means.
 - Encourage, support and communicate recent developments; develop international cooperation by promoting close working relationships and assistance among members;
 - Enhance mutual exchange of information with organizations representing users of aids to navigation.
- **Members:** It comprises 200 members, 80 of which are national authorities and 60 are commercial firms. (India has been a member of this organization since 1957).
- **Headquarters:** Saint-Germain-en-Laye, France.



4. Brunei

Context: Recently, the inaugural meeting of the India-Brunei Joint Working Group (JWG) on Defence Cooperation was held in New Delhi.



About Brunei

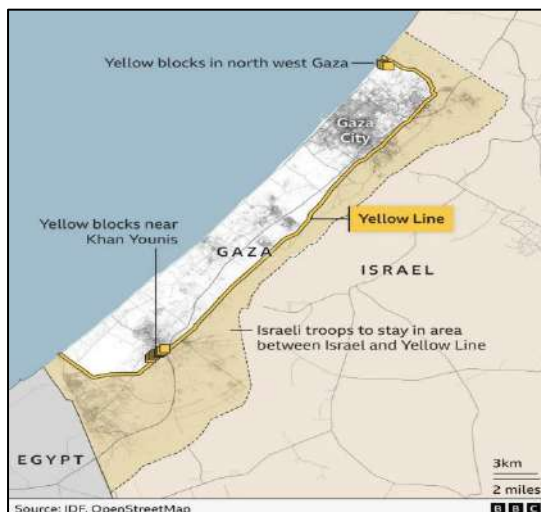
- **Location:** It is located along the northern coast of Borneo Island in Southeast Asia.
- **Bordered by:** Brunei is bordered by the South China Sea in the north and on all other sides by Malaysia. (Indonesia occupies the southern majority of Borneo (Kalimantan), but it does not share a direct land border with Brunei.)
- Brunei is divided into two non-contiguous parts by a portion of the Malaysian State of Sarawak.
- **Capital:** Bander Seri Begawan - the capital and largest city of Brunei.
- **It is a member country of the Commonwealth and ASEAN.**

5. Yellow Line

Context: The Israeli military has described the "Yellow Line", a temporary withdrawal line agreed during Phase-1 of the 2025 U.S.-brokered ceasefire, as a "new border".

About Yellow Line

- The Yellow Line is a **temporary military demarcation** line inside the Gaza Strip.
- Territory east of the line remains under direct **Israeli operational control**.
- **Territory Controlled by Israel:** More than half of Gaza (53-58%) remains under Israeli control. It includes most agricultural land and Rafah border crossing with Egypt.



6. Italy

Context: The recently held Italy-India Business Forum 2025 will strengthen bilateral trade, innovation and strategic economic partnership.

About Italy

- **Location:** It is located in South-central Europe on the Apennine Peninsula.
- **Bordering Countries:** It shares its border with Switzerland and Austria in the north, Slovenia in the northeast and France in the northwest.
- Vatican City and San Marino are the two enclaved sovereign states within Italy.
- Its southern boundary extends into the Mediterranean Sea.
- **Maritime boundaries:** Italian Peninsula is bordered by the Adriatic Sea in the east, the Sea of Sicily in the south, the Ionian Sea in the southeast, the Ligurian Sea, and the Tyrrhenian Sea in the southwest.
- **Capital City:** Rome.



7. Free Trade Agreement between India and Oman

Context: The Union Cabinet has approved the proposed Free Trade Agreement between India and Oman.



About

- The **Comprehensive Economic Partnership Agreement** approval comes ahead of the Prime Minister's **three-nation tour to Jordan, Ethiopia and Oman**.
 - It was approved by the lower house of Parliament of Oman as well.
- The PM visit to Oman will be his second visit to the country and coincides with the **70th anniversary of diplomatic relations between the two nations**.
- **FTA:** Negotiations for the agreement began officially in **2023**.
 - In FTAs two trading partners either significantly reduce or eliminate customs duties on a maximum number of goods traded between them.
- They also ease norms to promote trade in services and attract investments.
- India already has a similar agreement with another Gulf Cooperation Council (GCC) member **UAE** which came into effect in **2022**.

- The Tropic of Cancer (approximately 23.5°N) passes directly through Oman. Specifically, it cuts across the area just south of the capital city, **Muscat**. There is even a famous road sign in the Al Amrat province of Muscat marking the exact spot where the line of latitude crosses.
- **Oman and Iran** are separated by the **Strait of Hormuz**, with Oman's Musandam Peninsula facing Iran across the strait.

8. Pax Silica Initiative

Context: The Congress party recently targeted the Prime Minister over India's exclusion from the United States-led strategic initiative, Pax Silica, citing the 'sharp downturn' in his relations with US President Donald Trump.

About Pax Silica Initiative

- It is a U.S.-led strategic initiative to build a secure, prosperous, and innovation-driven silicon supply chain-from critical minerals and energy inputs to advanced manufacturing, semiconductors, artificial intelligence (AI) infrastructure, and logistics.
- The term 'Pax Silica' comes from the Latin term 'pax' which means peace, stability, and long-term prosperity.
- Silica refers to the compound that is refined into silicon, one of the chemical elements foundational to the computer chips that enable AI.
- It aims to reduce coercive dependencies, protect the materials and capabilities foundational to AI, and ensure aligned nations can develop and deploy transformative technologies at scale.

Which Countries Are Part of Pax Silica?

- Japan
- South Korea
- Singapore
- Netherlands
- United Kingdom
- Israel
- United Arab Emirates
- Australia.

9. Argentina

Context: The Indian Council of Agricultural Research (ICAR) and the National Institute of Agricultural Technology (INTA), Argentina, have signed a Work Plan 2025-2027 to strengthen bilateral cooperation in agricultural research, capacity building, and technology exchange.



Argentina:

- Argentina, located in southern South America, covers a vast expanse of 1,073,500 square miles (2,780,400 square kilometers), making it the second largest country in South America, the fourth largest in the Americas, and the eighth largest in the world.
- Its geography includes a wide range of environments and landscapes, with a rich variety of physical features, bodies of water, and unique natural phenomena.
- **The country shares borders with five countries:** Chile to the west, Bolivia and Paraguay to the north, and Brazil and Uruguay to the northeast.

- To the east, the Atlantic Ocean forms a natural border, and the southernmost point of mainland Argentina, Cape San Pío, is located in Tierra del Fuego.
- Argentina's landmass can be divided into four general topographical regions: the Andean region, the Pampas, the Patagonian plateau, and the Gran Chaco.
- The Tropic of Capricorn (approximately 23.5°S) passes through the northern part of Argentina, specifically traversing the provinces of Jujuy, Salta, and Formosa.
- The **Falkland Islands** (known in Argentina as Islas Malvinas) are a disputed territory between **Argentina and the United Kingdom**, not Chile.

10. The Blue Line

Context: A UNIFIL peacekeeper was injured by gunfire near the Blue Line in southern Lebanon, allegedly following fire from Israeli Defence Forces positions.

About The Blue Line: What it is?

- The Blue Line is a United Nations-identified withdrawal line, not an international border, used to verify Israel's withdrawal from southern Lebanon as mandated by UN Security Council resolutions.

Located in:

- Along **southern Lebanon**, adjoining **northern Israel**
- Extends for about **120 kilometres** from the Mediterranean coast to the tri-border area near the Golan Heights

Name	Primary Purpose	Location
Blue Line	UN Withdrawal Line	Lebanon & Israel
Purple Line	Ceasefire Line	Syria & Israel (Golan)
Green Line	UN Buffer Zone / Armistice	Cyprus / Israel & Neighbors
LoC	Military Control Line	India & Pakistan (Kashmir)
LAC	Effective Border	India & China

11. Somaliland

Context: Israel has become the first country to formally recognise Somaliland as an independent sovereign state, triggering sharp opposition from Somalia, the African Union, and key regional powers.



About Somaliland:

What it is?

- Somaliland is a self-declared independent state in the Horn of Africa that separated unilaterally from Somalia in 1991 after the collapse of the Somali central government.
- Though it has its own government, currency, security forces, and institutions, it lacked international recognition until Israel's announcement in 2025.

Located in:

- Horn of Africa, along the Gulf of Aden
- Corresponds largely to the territory of former British Somaliland

Bordering nations: Djibouti, Ethiopia, Somalia (including Puntland), and Gulf of Aden.

- The Jubba River (or Webi Jubba) originates in the Ethiopian Highlands and flows south through

Somalia to the Indian Ocean. It crosses the equator near the town of Kismayo in southern Somalia. Unlike the Congo River (which crosses the equator twice), the Jubba only crosses it once as it moves toward the coast.

- Somalia shares border with three countries- Djibouti, Kenya and Ethiopia.

12. RCEP

Context: India has since managed to strategically position itself to reap many of the benefits of Regional Comprehensive Economic Partnership (RCEP) without formally joining the bloc or compromising its economic sovereignty or exposing itself to the vulnerabilities associated with Chinese market dominance.

RCEP

- The RCEP includes the 10 ASEAN nations (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam) plus Australia, China, Japan, South Korea, and New Zealand.
 - It covers nearly 30% of global GDP and population.
- India, in November 2019, announced that it would not join RCEP 'in its present form', citing the agreement's failure to address India's core concerns, like:
 - Unrestricted Chinese access to its markets;
 - Lack of safeguards for domestic industries like agriculture and manufacturing;
 - Inadequate protection for services and data localization;



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After completing engineering, I worked briefly in Chennai before joining the Telangana Irrigation Department as an AEE in 2016. While working, I prepared for the Civil Service exam for 5 years. I couldn't clear Prelims in my first two attempts, wrote Mains in 2019, and missed the 2020 interview by seven marks.

In 2021, I finally received the interview call and scored 201 marks in the interview. Mock interviews and guidance at R.C. Reddy IAS Study Circle proved to be of immense help. R.C. Reddy Sir also gave me many valuable suggestions.

B. Chaitanya reddy -IPS

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Whatsapp queries to +91 95506 04335

R.C.Reddy IAS Study Circle, Opp. Telangana Tourism Development Corporation, Near Telugu Academy, Himayath Nagar, Hyderabad - 500029.

SCAN TO REGISTER

ENVIRONMENT

1. Svalbard

Context: A significant new discovery recently emerged in the Arctic, with scientists spotting an unexpected gathering of walrus on the remote shores of Svalbard, a wild stretch of land nestled between mainland Norway and the North Pole.



About Svalbard

- It is a Norwegian archipelago that is situated in the Arctic Ocean, to the north of the European mainland.
- It is located about halfway between the North Pole and the northern part of Norway.
- It is the northernmost place in the world with a permanent population.
- **Discovery:** It was discovered by the Dutch explorer Willem Barentsz in 1596.
- The 1920 Svalbard Treaty established Norwegian sovereignty over the Svalbard Islands.
- It covers a total area of about 61,022 sq.km.
- Approximately 60% of the archipelago is covered with glaciers, and the islands feature many mountains and fjords.

- It is composed of several islands such as Spitsbergen, Nordaustlandet, Edgeøya, Barentsøya, Kvitøya, Kong Karls Land, Prins Karls Forland, Bjørnøya, and Hopen.

2. Standard Material Transfer Agreement

Context: The 11th Governing Body Meeting of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) concluded in Lima, Peru without consensus on expanding the list of crops covered under the Standard Material Transfer Agreement (SMTA).

About

- India and several other countries opposed the proposal to extend the **Multilateral System (MLS)** to all crops and revise benefit-sharing rules, arguing it could dilute national sovereignty over seed diversity.
- Under the SMTA, genetic material of **64 crops** is **accessible only to treaty members** and exclusively for research, breeding and training.
- Recipients cannot claim IPR over the material in its received form and must share benefits through the treaty's four benefit-sharing mechanisms.

What is ITPGRFA?

- The ITPGRFA is a legally binding FAO treaty, adopted in 2001 and enforced since 2004, aimed at conservation, sustainable use and fair benefit-sharing of Plant Genetic Resources for Food and Agriculture (PGRFA).
- It complements the CBD and Nagoya Protocol.
- India is a member (specifically a Contracting Party) of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).
- India ratified the ITPGRFA in 2002, shortly after it was adopted in 2001. The treaty entered into force in 2004.

3. Dudhwa Tiger Reserve

Context: A Rainbow Water Snake was recently spotted for the first time in Uttar Pradesh, with photographic evidence collected from the buffer area of Dudhwa Tiger Reserve.

About Dudhwa Tiger Reserve

- It is located on the Indo-Nepal border in the district of Lakhimpur-Kheri in Uttar Pradesh.
- It was established in 1988 and covers an area of 1,284 sq.km.
- It includes the Dudhwa National Park and two nearby sanctuaries, viz. Kishanpur and Katarniaghat, besides forest areas of North Kheri, South Kheri, and Shahjahanpur forest divisions in its buffer.
- **Topography:** It is a typical Tarai-Bhabar habitat of the upper Gangetic plains biogeographic province.
- **Rivers:** The Sharda River flows by the Kishanpur WL Sanctuary, the Geruwa River flows through the Katarniaghat WL Sanctuary, and the Suheli and Mohana streams flow in the Dudhwa National Park, all of which are tributaries of the mighty Ghagra River.
- **Vegetation:** The vegetation is of the North Indian Moist Deciduous type, containing some of the finest examples of Sal forests in India.
- **Flora:** It consists of Sal Forest along with its associate tree species like *Terminalia alata* (Asna), *Lagerstroemia parviflora* (Asidha), *Adina cordifolia* (Haldu), *Mitragyna parviflora* (Faldu), *Gmelina arborea* (Gahmhar), *Holoptelea integrifolia* (Kanju), etc.
- **Fauna:**
 - The main mammals spotted here are Tiger, leopard, Swamp deer, Rhinoceros, chital, hog deer, barking deer, Sambhar, wild boar, and Ratel.
 - There are about 400 species of birds in the park, such as the Florican and black-necked storks.

4. Keoladeo National Park

Context: Migratory birds such as stork cranes, pelicans, painted storks, and bar-headed geese returned to the Keoladeo National Park after heavy rains in the monsoon.

About Keoladeo National Park

- It is situated in the Bharatpur district of Rajasthan.
- It was earlier known as Bharatpur Bird Sanctuary.
- It is recognised as one of the world's most important bird breeding and feeding grounds.
- It was founded in the late 19th century as a hunting preserve by Suraj Mal, the maharaja of the Bharatpur princely state, and became a bird sanctuary in 1956.
- Declared a national park in 1981, it was renamed Keoladeo for the ancient temple in the park dedicated to the Hindu god Shiva.
- It has an area of 29 sq.km.
- It is the only one of its kind in India which is enclosed by a 2-meters boundary wall to fend off encroachments.
- It is a Ramsar site and also a UNESCO World Heritage Site.
- **Vegetation:**
 - Woodlands, swamps, and wet grasslands cover a large part of the park.
 - The vegetation here is of a dry deciduous type, with medium-sized trees and shrubs found inside its forest.
- **Flora:** Some of the trees which can be commonly spotted inside the park are kadam, jamun, babul, kandi, ber, kair, and piloo.
- **Fauna:**
 - It is home to a range of mammals and reptiles-including pythons and other snakes, deer, sambars, blackbucks, jackals, monitor lizards, and fishing cats.
 - It is strategically located in the middle of the Central Asian migratory flyway.

- It is home to more than 360 species of permanent and migratory birds.
- During the annual period of migratory visitors (about October to March), birds from throughout the world can be found in the park.
- Among those wintering in the park are waterfowl from Afghanistan, Turkmenistan, China, and Siberia, including species such as gadwalls, shovellers, common teals, tufted ducks, pintails, white spoonbills, Asian open-billed storks, Oriental ibises, and the rare Siberian crane.

5. Barcelona Convention

Context: At COP24 of the Barcelona Convention in Cairo, EU countries and Mediterranean partners adopted strengthened commitments to protect the Mediterranean Sea.

About Barcelona Convention:

- **What it is?**
 - The Barcelona Convention is a legally binding UNEP-led regional environmental agreement for protecting the Mediterranean Sea against pollution and promoting sustainable coastal and marine management.
- **Adopted in:** 16 February 1976 (Convention for the Protection of the Mediterranean Sea Against Pollution)
- **Entered into force:** 1978
- **Amended & renamed:** 1995 as the Convention for the Protection of the Marine Environment and Coastal Region of the Mediterranean
- **Aim:**
 - Prevent, reduce, combat and eliminate pollution from land-based, marine and atmospheric sources.
 - Promote sustainable development through coordinated regional action.
 - Support Mediterranean states in implementing protocols dealing with

dumping, emergencies, land-based sources, protected areas, offshore pollution, hazardous waste, and coastal zone management.

6. Ramgarh Vishdhari Tiger Reserve

Context: Marking the state's first inter-state tiger translocation and the country's second, a tigress is set to be airlifted from the Pench Tiger Reserve in Madhya Pradesh to around 800 km away in Ramgarh Vishdhari Tiger Reserve (RVTR) in Rajasthan's Bundi in the next few weeks.

About Ramgarh Vishdhari Tiger Reserve

- It is located in Rajasthan's Bundi district.
- Spread over 1,501.89 sq.km., the reserve has a 481.90 sq.km. core area and a 1,019.98 sq.km. buffer zone.
- It is strategically positioned to serve as a crucial corridor between the Ranthambore Tiger Reserve to the northeast and the Mukundara Hills Tiger Reserve to the south.
- It was notified as a tiger reserve on May 16, 2022.
- The Mez River, a tributary of the Chambal River, meanders through the reserve.
- The reserve's topography is characterized by the rugged terrains of the Aravalli and Vindhyan mountain ranges, interspersed with valleys and plateaus.
- **Vegetation:** Dry Deciduous Forest
- **Flora:**
 - The habitat is dominated by Dhok (Anogeissus pendula) trees.
 - Other important flora includes Khair, Ronj, Amaltas, Gurjan, Saler, etc.
- **Fauna:**
 - The area is dominated by leopards and sloth bears.
 - Other important fauna include the Jungle cat, Golden jackal, Hyaena, Crested Porcupine, Indian Hedgehog, Rhesus macaque, hanuman langur, etc.

7. Sudden Stratospheric Warming (SSW) event

Context: Meteorologists have warned that another Sudden Stratospheric Warming (SSW) event may occur in December 2025, potentially disrupting the polar vortex and sending unusually cold Arctic air into parts of the United States.

- Sudden Stratospheric Warming (SSW) is indeed defined by a dramatic and rapid increase in temperatures (sometimes by as much as 50°C within a few days) in the stratosphere, specifically over the polar regions (Arctic) during winter.
- The physical mechanism behind this warming is the upward propagation of Planetary Waves (large-scale atmospheric waves) from the lower atmosphere (troposphere). These waves crash into the stratosphere, disrupting the Polar Vortex; a fast-moving current of air that keeps cold air trapped at the pole. When the waves weaken or “break” the vortex, the air sinks rapidly and undergoes adiabatic compression, which causes the sudden spike in temperature.

8. Global Environment Outlook, Seventh Edition: A Future We Choose (GEO-7)

Context: The Global Environment Outlook, Seventh Edition: A Future We Choose (GEO-7), was released during the seventh session of the United Nations Environment Assembly in Nairobi.

About

- GEO-7 is UNEP’s **flagship assessment** published for the first time in **1997**.
- It is a **major scientific report** that reviews the planet’s environmental health, policy effectiveness, and future trends, providing crucial, participatory, science-based data to guide global environmental action and policy.

9. Western Tragopan

Context: Recent studies show that suitable habitats of western tragopan exist in Jammu & Kashmir but

human disturbance and fragmentation still threaten the bird’s survival.

Western Tragopan

- It is one of India’s rarest pheasants and Himachal Pradesh’s state bird.
- It now survives only in small fragmented pockets across the western Himalayas.
- The IUCN estimates only 3,000-9,500 mature individuals remain, all in a single subpopulation, with about a quarter found in the western Himalayas and northern Pakistan.
- **Threats:** It faces threats due to habitat loss, hunting, and other anthropogenic factors.
- **Protection status:** IUCN Red List of Threatened species classified it as **Vulnerable**.
- **Other steps:** The Sarahan pheasantry in Shimla has over the years seen successful captive breeding of western tragopan.

10. Udhwa Lake Bird Sanctuary

Context: The rare migratory Pallas's Gull was recently spotted in Jharkhand's Udhwa Bird Sanctuary, marking its return after almost a decade.

Key Facts about Udhwa Lake Bird Sanctuary

- It is located in the Sahebganj district of Jharkhand.
- It is the state’s only bird sanctuary.
- It comprises two interconnected wetlands, Pataura Lake and Berhale Lake, which are part of the Ganga River floodplain and surrounded by the Rajmahal Hills.
- It was declared a Ramsar Site in 2025.
- It supports a diverse ecosystem with over 146 species of birds, including endangered ones like the band-tailed fish eagle, lesser adjutant stork, and common pochard.
- It also hosts a variety of aquatic plants, fish, reptiles, and mammals, such as fishing cats and otters.
- The sanctuary is an important habitat within the Central Asian flyway, attracting migratory birds during the winter.

11. Champions of the Earth Award

Context: Supriya Sahu, a Tamil Nadu IAS officer honoured with the UN Environment Programme's 2025 Champions of the Earth Award.

About the award

- **Launched in 2005, Champions of the Earth is the UN's highest environmental honor.**
- It recognizes outstanding figures from the public and private sectors as well as civil society, whose actions have brought about a positive impact and a transformation on the environment.
- It is awarded across **five categories**: Policy Leadership, Entrepreneurial Vision, Science and Innovation, Lifetime Achievement, and **Inspiration and Action** (Supriya Sahu has been honored in this category).
- **Past Indian recipients include: Madhav Gadgil (2024), Narendra Modi (2018), Cochin International Airport (2018) and Afroz Shah (2016).**

12. Hard Corals

Context: A major new assessment by the Global Coral Reef Monitoring Network (GCRMN) has reported a dramatic decline in hard coral populations across the Caribbean.

About Hard Corals

- Hard corals, also known as stony corals, are marine animals that build the limestone frameworks upon which reefs form.
- They grow in colonies and are often referred to as "reef-building corals."

Key Features of Hard Corals

- They are composed of thousands of tiny polyps that secrete calcium carbonate.
- Hard corals create skeletons out of calcium carbonate, a hard substance that eventually becomes rock.

- Over time, this rock builds up to form the foundation of a coral reef and provides a structure upon which baby corals can settle.
- These corals depend upon tiny algae called zooxanthellae that live inside them.
- They share a symbiotic relationship (the corals provide the zooxanthellae with shelter, and in return, the zooxanthellae provide the corals with food)
- Branching hard corals (like Staghorn coral) are structurally rigid and brittle. In high-energy environments with strong waves or storm surges, they are prone to snapping. Soft corals, being flexible, can bend and "sway" with the water movement, which allows them to survive physical turbulence that would shatter a rigid structure.
- Instead of a solid limestone (calcium carbonate) base, soft corals have a fleshy body supported by **sclerites** (tiny, microscopic bone-like spikes). This composition provides the "bends-but-doesn't-break" quality.

13. Ramsar Sites

Context: Recently, Siliserh Lake, in Alwar, Rajasthan and Kopra Jalashay near Bilaspur, Chhattisgarh have been designated as Ramsar Sites.

	Ramsar Sites	States/UTs
1	Siliserh Lake	Rajasthan
2	Udaipur Jheel	Bihar
3	Udhwa Lake	Jharkhand
4	Khecheopalri Wetland	Sikkim

14. Tapanuli Orangutan

Context: Scientists fear that Cyclone Senyar may have swept away a significant number of Tapanuli orangutans.

About Tapanuli Orangutan

- **The Tapanuli orangutan (*Pongo tapanuliensis*) is a species of orangutan found in the island of Sumatra in Indonesia.**

- It is one of three known species of orangutan, alongside the Sumatran orangutan, found farther northwest on the island, and the Bornean orangutan.
- It was described as a distinct species in 2017 and currently, it is on the critically endangered species list.
- **Appearance:** These species resemble Sumatran orangutans more than Bornean orangutans in body build and fur color.
- **Distribution:** It lives in tropical and subtropical moist broadleaf forests that are located south of Lake Toba in Sumatra.
- **Habitat:** These are exclusively arboreal and spend most of their time high up in the trees.
- **Conservation Status:** IUCN: **Critically endangered.**

Characteristics of Tapanuli Orangutan

- They lead a solitary life and can be seen in pairs only when a mother is raising her young.
- Orangutans communicate with various sounds.
- Both sexes will try to intimidate conspecifics with a series of low guttural noises known collectively as the “rolling call”.
- **Diet:** They are omnivores. While their diet is primarily frugivorous (60-90% fruits), they also consume leaves, bark, and insects. Uniquely, they are the only orangutan species known to eat certain types of caterpillars and conifer cones.
- **Reproduction:** Tapanuli orangutans are one of the most slowly-maturing animals in the world.

15. Demow Model

Context: The Demow Model from eastern Assam’s Siva sagar has been chosen as one of the successful systems of snakebite prevention and management under a project sanctioned by the Indian Council of Medical Research (ICMR).

More on the news:

- The project, called the Zero Snakebite Death Initiative: Community Empowerment and

Engagement for Mitigation of Snakebite Envenoming.

Snake Bites in India:

- In India, around **90% of snake bites** are caused by the ‘**big four**’ among the crawlers - **common krait, Indian cobra, Russell’s viper and saw scaled viper.**
 - In India, around **58,000 deaths** occur of an estimated 3-4 million snake bites annually.
 - Snakebite deaths are more common (**48%**) **during the southwest monsoon (June-September).**
 - **Close to 70% of snakebite deaths occur in nine states**, including Uttar Pradesh, Bihar and Madhya Pradesh.

16. Chakrashila Wildlife Sanctuary

Context: Community-led conservation efforts at the Chakrashila Wildlife Sanctuary have successfully restored wild honey bee colonies and revitalized associated wildlife.

About Chakrashila Wildlife Sanctuary

- It is located in the Kokrajhar and Dhubri districts of Assam.
- The sanctuary is well-known as the second protected habitat for the endangered golden langur, hosting over 600 individuals.
- It spans over 45.5 sq.km. of hilly terrain and dense forests.
- There are two lakes (Dheer Beel and Diplai Beel) on either side, which are integral to the ecosystem of the sanctuary.

Flora:

- The vegetation of the sanctuary is predominantly tropical moist deciduous forests, mixed deciduous forests, and semi-evergreen forests.
- Sal tree is a dominant tree in this forest.

Fauna:

- It is home to various species, including elephants, tigers, leopards, clouded leopards, sambar deer, barking deer, and gaur.

- The sanctuary is also home to several species of birds, including the endangered Bengal Florican, Great Hornbill, and White-winged Wood Duck.

17. Narpuh Wildlife Sanctuary

Context: Recently, scientists warned that Narpuh Wildlife Sanctuary is undergoing conservation challenges particularly from limestone mining and cement factories.

About Narpuh Wildlife Sanctuary

- **Location:** It is situated in East Jaintia Hills in Jowai, Meghalaya.
- It was declared a wildlife sanctuary in 2014 and is the only protected area in the Jaintia Hills.
- The Sanctuary is bounded by Reserve Forests on all sides except a part in South West which shares a boundary with the State of Assam.
- **Rivers:** The northern part of the sanctuary is bounded by Lukha River forming a physical barrier.
- It is prone to extremely heavy rainfall, averaging more than 6,000 mm, from the southwest monsoon.
- Its climate is favorable for the propagation and sustenance of a rich and wide variety of wild, endangered Flora and Fauna.
- **Vegetation:** Some of the tallest evergreen and semi-evergreen forests remaining in Meghalaya are found in this region.
- **Fauna:** Hoolock Gibbon, Serow, Slow Loris, Sloth Bear, Large Indian Civet, Leopard Cat, Clouded Leopard, Barking Deer etc are found here.
- **Flora:** Castanopsis indica, C. tribuloides, Dysoxylum Sp., Elaeocarpus Sp., Engelhardtia spicata, Syzygium Sp. Etc.

18. Pamir-Karakoram Anomaly

Context: Ice cores from the Pamir Mountains are being studied to understand why its glaciers have resisted melting despite global warming.

What is the Pamir-Karakoram Anomaly?

- It refers to the **unusual behaviour of glaciers** in parts of the **Pamir and Karakoram ranges**.
- Unlike most glaciers worldwide, these glaciers have:
 - Shown resistance to melting, and
 - Experienced slight mass gain in recent decades.
- This makes the region scientifically significant for understanding glacier-climate interactions.
- While most glaciers worldwide (including those in the Central and Eastern Himalayas) are shrinking due to climate change, glaciers in the Karakoram, Pamir, and Western Kunlun ranges have remained stable or even expanded slightly over the last few decades.
- Unlike the rest of the Himalayas which depend on the Indian Summer Monsoon, the Pamir-Karakoram region receives heavy moisture from **Western Disturbances** (mid-latitude westerlies) during the winter. The region has experienced a localized trend of **lower summer temperatures** and increased cloud cover, which reduces the “ablation” (melting) of the snow that accumulated during the winter.

19. Doppler Weather Radar

Context: The Government of India informed Parliament that 47 Doppler Weather Radars (DWRs) are currently operational across the country, covering about 87% of India’s geographical area.

What is a Doppler Weather Radar (DWR)?

- Named after the Doppler Effect, discovered by Christian Doppler.
- Similar to how a train whistle sounds higher when approaching and lower when moving away.
- In DWRs, the frequency/phase change of radio waves helps determine motion of weather systems.
- A Doppler Weather Radar is an advanced meteorological instrument used to:
 - Detect precipitation (rain, snow, hail)

- Track movement of clouds and storms
- Estimate rainfall intensity
- Provide short-term forecasts (nowcasting) for extreme weather events

Application	Physical Principle	Use of Doppler effect?
Wind Speed (Meteorology)	Frequency shift from moving raindrops	Yes
Exoplanet Detection	Spectral line shift (Radial Velocity)	Yes
Heart Valve Diagnosis	Sound frequency shift from moving blood	Yes
Ocean Depth (SONAR)	Pulse-echo time delay (Reflection)	No
Atmospheric Temp (IR)	Thermal emission intensity	No

20. Tundra Biome

Context: A recent scientific study from Arctic Alaska reveals that wildfires in the tundra biome have become more frequent in the last century than at any time in the past 3,000 years.

About Tundra Biome

- **Overview:**
 - The tundra is a cold, treeless biome found in high-latitude (Arctic) and high-altitude (Alpine) regions. The word tundra comes from a Finnish term meaning “treeless plain.”
- **Types of Tundra:**
 - **Arctic Tundra:** Found in northern Alaska, Canada, Greenland, Siberia
 - **Alpine Tundra:** Found at high altitudes on mountains (Himalayas, Andes, Rockies). No permafrost, but very cold conditions

• Climatic Characteristics:

- **Temperature:** Extremely low; winters can reach -30°C to -50°C
- **Precipitation:** Very low (150-250 mm/year).

Adaptations of Tundra flora and fauna:

- Thick fur and layers of fat for insulation: Animals like polar bears, arctic foxes, and seals possess thick fur and blubber to reduce heat loss and survive sub-zero temperatures.
- Shallow root systems in plants: Due to the presence of permafrost, plant roots cannot penetrate deep into the soil. Hence, tundra plants have shallow and spreading roots.
- Compact, low-growing plant forms: Low-growing vegetation reduces exposure to cold winds and helps retain heat near the ground surface.
- Dark-colored skin or fur: Dark coloration helps absorb maximum solar radiation, which is beneficial in cold environments with limited sunlight.

While,

- Broad leaves with large surface area increase water loss and heat loss, making them unsuitable for cold and dry tundra conditions.
- Nocturnal behaviour is an adaptation commonly seen in hot deserts to avoid daytime heat, not in cold tundra regions.

21. Udanti Sitanadi Tiger Reserve

Context: Forest authorities recently arrested 53 persons for attempting to encroach upon protected land within the Udanti Sitanadi Tiger Reserve, Chhattisgarh.

About Udanti Sitanadi Tiger Reserve

- It is located in the state of Chhattisgarh.
- It was established by joining the regions represented by Sitanadi and Udanti wildlife sanctuaries.
- The drainage system of the reserve consists of the Mahanadi as the main river, along with the

Udanti, Sitanadi, Indravan, and Pairi Rivers as tributaries.

- The location of the reserve is strategic since it also connects with the Kanker and North Kondagaon forest divisions, forming a contiguous forest corridor to Indravati Tiger Reserve in the Bastar region.
- It covers an area of about 1,842 sq.km.
- There are 19 named mountains in the reserve. Deo Dongri is the highest point. The most prominent mountain is Atānga Dongar.
- **Flora:**
 - The forest type here is predominantly tropical dry and moist deciduous.
 - The forest is dominated by Sal (*Shorea robusta*), which forms dense patches across the landscape.
 - Alongside, species such as Teak (*Tectona grandis*), Bamboo, Tendu, Mahua, Bija, and Harra contribute to the green diversity of the region.
- **Fauna:**
 - Along with the Indravati Tiger Reserve, the Udanti Sitanadi Tiger Reserve is an important refuge for the last few herds of the highly endangered Wild Buffalo.
 - Apart from the tiger, other endangered and rare species are the Indian Wolf, Leopard, Sloth Bear, and Mouse Deer.

22. Southern Ocean Carbon Anomaly

Context: New research published in Nature Climate Change shows that the Southern Ocean has absorbed more carbon dioxide since the early 2000s, contrary to long-standing climate model predictions.

About Southern Ocean Carbon Anomaly:

What it is?

- The Southern Ocean carbon anomaly refers to the observed strengthening of the Southern Ocean as a carbon sink, even though climate

models predicted it would weaken and start releasing carbon dioxide under global warming.

- Instead of emitting more CO₂ due to stronger winds and upwelling, the ocean has continued to absorb an increasing share of human-emitted carbon.

How it occurs?

- **Strengthened westerly winds drive upwelling:** Climate warming intensifies Southern Hemisphere westerlies, pulling carbon-rich deep waters upward toward the Southern Ocean surface.
- **Freshwater input lightens surface layers:** Increased Antarctic ice melt and rainfall add freshwater at the surface, making it less salty and more buoyant.
- **Stratification forms a surface "lid":** The buoyant freshwater layer strengthens vertical stratification, separating surface waters from deeper, carbon-rich layers.
- **Blocked air-sea gas exchange:** Although deep waters rise, stratification prevents them from reaching the surface, stopping CO₂ from escaping to the atmosphere.
- **Carbon gets trapped below the surface:** Upwelled circumpolar deep waters remain ~100-200 m below the surface, allowing continued net carbon absorption.
- **Small-scale processes amplify the effect:** Ocean eddies and ice-shelf cavity dynamics reinforce stratification but are poorly resolved in coarse climate models.

23. IUCN Species Survival Commission (SSC)

Context: Indian wildlife conservationist Vivek Menon has been elected as the Chair of the IUCN Species Survival Commission (SSC) for 2025-2029.

About IUCN Species Survival Commission (SSC):

What it is?

- The Species Survival Commission (SSC) is the largest and most influential scientific network

of the International Union for Conservation of Nature (IUCN), dedicated to conserving species and halting biodiversity loss worldwide.

- **Established in:** 1949, alongside the formation of IUCN

Organisation:

- Functions as one of the **six expert Commissions of IUCN**
- **Works closely with the IUCN Secretariat and national governments, NGOs, and research institutions.**

Aim:

- Prevent species extinctions and support recovery of threatened species.
- Ensure that use of biodiversity is equitable and sustainable.
- Integrate science, policy, and on-ground action for global conservation.

Functions:

- **IUCN Red List of Threatened Species:** Provides scientific assessments categorising species as Critically Endangered, Endangered, Vulnerable, etc.
- **Knowledge generation:** Tracks **status and trends of species** across taxa and regions
- **Policy and guidelines:** Develops global conservation standards and best-practice frameworks
- **Conservation planning:** Supports species recovery plans, reintroductions, and habitat management
- **Action-oriented partnerships:** Catalyses **on-ground conservation** through collaboration with governments, NGOs, and local communities
- **Species Conservation Cycle:** Assessment → Planning → Action, supported by communication and monitoring

24. Mukundra Hills Tiger Reserve (MHTR)

Context: To promote tourism and wildlife conservation, the Mukundra Hills Tiger Reserve

(MHTR) administration in Kota launched a poster and trailer of a documentary entitled “Enchanting Mukundra” recently.

About Mukundra Hills Tiger Reserve (MHTR)

- The Mukundara Hills Tiger Reserve, also known as the Darrah Wildlife Sanctuary, is spread across 4 districts - Bundi, Kota, Jhalawar & Chittorgarh in Rajasthan.
- It is situated in a valley formed by two parallel mountains, viz. Mukundra and Gargola.
- It encompasses the area of Mukundra National Park, Darrah Sanctuary, Jawahar Sagar Sanctuary, and part of Chambal Sanctuary (from Garadia Mahadev to Jawahar Sagar Dam), forming its core/critical tiger habitat.
- It is strategically located between Ranthambore and Madhya Pradesh’s Kuno National Park, making it a vital corridor for tiger movement.
- This tiger reserve was once a hunting preserve belonging to the Maharaja of Kota.
- **River:** It is located on the eastern bank of the Chambal River and is drained by its tributaries.
- **Vegetation:** Dry Deciduous Forest
- **Flora:** Kala Dhok, or Kaladhi, is the predominant species, along with Khair, Ber, Kakan, Raunj, etc.
- **Fauna:**
 - The important fauna includes Leopard, Sloth bear, Nilgai, Chinkara, Spotted Deer, Small Indian Civet, Toddy Cat, Jackal, Hyena, Jungle Cat, Common Langur, etc.
 - The common reptiles and amphibians are Pythons, Rat Snake, Buff-striped keelbacks, Green keelback, crocodiles, Gharial, Otter, and Turtles.

25. Kanger Valley National Park

Context: Kanger Valley National Park has come into focus as the Chhattisgarh government, with support from the Wildlife Institute of India (WII), has initiated biodiversity surveys to seek its recognition as a UNESCO World Heritage Site.

About Kanger Valley National Park:**What it is?**

- Kanger Valley National Park is a biodiversity-rich protected area known for its dense forests, limestone caves, waterfalls, and diverse ecosystems, making it one of the most ecologically significant national parks in Central India.

Located in:

- **Bastar district, Chhattisgarh**
- About **24 km southeast of Jagdalpur** on the Jagdalpur-Darbha Road
- Lies within the **Deccan biogeographical zone**
- Named after the **Kanger River**, which flows through the park

Key characteristics:

- **Area:** ~200 sq km
- **Terrain:** Highly heterogeneous, ranging from flat plains to steep slopes, plateaus, valleys, and stream courses
- **Hydrology:** Network of seasonal and perennial streams joining the Kanger River
- **Geomorphology:** Famous for **subterranean limestone caves** such as Kotumsar and Kailash caves, among the most biologically diverse cave systems in India and South Asia

- **Flora & fauna:** Dense sal and mixed forests; habitat of the **Bastar Hill Myna** (state bird of Chhattisgarh), along with rich mammalian, avian, reptilian, and insect diversity
- **Scenic features:** Tirathgarh waterfalls, valleys, and undulating forest landscapes

Current status:

- Declared a **National Park in 1982** (then Madhya Pradesh Gazette).
- Managed under **Jagdalpur Wildlife Circle**, comprising Kotumsar and Koleng ranges.
- Included in UNESCO's Tentative List of World Heritage Sites.



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4	CA July 2025	07.09.2025
5	CA August 2025	21.09.2025
6	CA September 2025	12.10.2025
7	CA October 2025	16.11.2025
8	CA November 2025	14.12.2025
9	CA December 2025	12.01.2026
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SCIENCE AND TECHNOLOGY

1. Biological Weapons Convention

Context: The External Affairs Minister recently called for urgent reforms to strengthen global biosecurity and modernise the Biological Weapons Convention (BWC), warning that biological threats are becoming harder to manage in a rapidly evolving scientific landscape.

About Biological Weapons Convention

- It is a legally binding international treaty that bans the use of biological and toxin weapons and prohibits all development, production, acquisition, stockpiling, or transfer of such weapons.
- The treaty also bans any equipment or means of delivery that is designed to use biological agents or toxins for hostile purposes or armed conflict.
- It requires signatories to destroy biological weapons, agents, and production facilities within nine months of the treaty's entry into force.
- It opened for signature on 10 April 1972 and entered into force on 26 March 1975.
- It was the first multilateral treaty categorically banning a class of weapon.

Membership:

- It currently has 187 states-parties, including Palestine, and four signatories (Egypt, Haiti, Somalia, and Syria).
- **Ten states have neither signed nor ratified the BWC (Chad, Comoros, Djibouti, Eritrea, Israel, Kiribati, Micronesia, Namibia, South Sudan, and Tuvalu).**
- India signed and ratified the BWC in 1974.
- The convention stipulates that states shall cooperate bilaterally or multilaterally to solve compliance issues.

- States may also submit complaints to the United Nations Security Council (UNSC) should they believe another state is violating the treaty.
- However, there is no implementation body of the BWC, allowing for blatant violations.
- **There is a review conference every five years to review the convention's implementation, and establish confidence-building measures.**

2. GLP-1 therapies

Context: The World Health Organization (WHO) has released its first guideline on the use of Glucagon-Like Peptide-1 (GLP-1) therapies for treating obesity. The WHO added GLP-1 therapies to its Essential Medicines List for managing type 2 diabetes in high-risk groups.

GLP-1 therapies

- GLP-1 therapies (glucagon-like peptide-1 receptor agonists) are a class of medications that mimic the natural GLP-1 hormone, which helps regulate blood sugar and appetite.
- They were originally used for managing type 2 diabetes, but are now also approved for treating obesity and weight loss.
- Some GLP-1 drugs (liraglutide, semaglutide and tirzepatide) lower the risk of heart attack, stroke, and heart failure, and reduce the incidence of type 2 diabetes, kidney and liver disease among other outcomes.
- However, the global demand for GLP-1 therapies has fuelled the spread of falsified and substandard products, threatening patient safety and trust.

3. Tensor Processing Unit

Context: According to reports, Meta is in advanced talks with Google to use its Tensor Processing Units (TPUs).

About Tensor Processing Unit

- A TPU is a specialized chip designed to accelerate AI and machine learning (ML) tasks.
- Unlike traditional computer processors (CPUs) or graphics processing units (GPUs), TPUs are specifically built to handle the complex calculations required for deep learning models.
- TPUs were developed by Google in 2016 to improve the performance of their AI applications, such as Google Search, Google Translate, and Google Photos.
- Since then, TPUs have become a key component in AI infrastructure and are widely used in data centers and cloud computing.
- TPUs are custom accelerators designed specifically for large-scale matrix multiplications (common in deep learning). Because of this specialization, they often achieve higher throughput and better energy efficiency than general-purpose GPUs for such workloads.
- GPUs are not limited to 32-bit floating-point precision, they support multiple precisions such as FP16, BF16, FP32, and (on many models) FP64. Likewise, TPUs do not only support 64-bit precision; they primarily use bfloat16 and int8, with FP32 used for accumulation. In fact, TPUs generally do not emphasize FP64.

4. Centre for Chronic Disease Control

Context: A new study by the Centre for Chronic Disease Control (CCDC) for the first time concurrently estimated the daily salt and iodine consumption levels of the adult population in India and examined the effect of the World Health Organization (WHO) recommended salt intake levels on iodine levels.

About Centre for Chronic Disease Control

- Established in 2000, CCDC is an independent, not-for-profit, biomedical research organization based in New Delhi.
- It aims to reduce the burden of chronic diseases in India and low- and middle-income countries through surveillance, capacity building, and

translational research in cardio-metabolic diseases.

- It is a **Scientific & Industrial Research Organization** recognized by the **Department of Scientific & Industrial Research, Ministry of Science and Technology, Government of India.**
- It has been designated as a **WHO Collaborating Centre for Surveillance, Capacity Building, and Translational Research in Cardio-Metabolic Diseases.**
- Recently, CCDC received the recognition of a collaborating Centre of Excellence (CoE) by the Indian Council of Medical Research.
- It also holds registration under the Foreign Contribution (Regulation) Act, 1976.
- CCDC undertakes clinical research with special emphasis on chronic non-communicable diseases (NCD).
- Within the spectrum of chronic diseases, CCDC's main focus areas are: cardiology, diabetes and metabolic disease, vascular diseases, cancers, and mental health.
- In addition, basic science research in diet/nutrition and cardiac biochemistry are also carried out.

5. Cosmic Filament

Context: Recently, the University of Oxford researchers reported a roughly 50-million-lightyear-long cosmic Filament traced by at least 14 galaxies.

About Cosmic Filament

- Cosmic or galaxy filaments are the largest 'threads' in the universe's cosmic web.
- Size: A single cosmic filament is a structure spanning hundreds of millions of lightyears.
- These filaments are the largest known structures in the Universe which are vast, thread-like formations of galaxies and dark matter that form a cosmic scaffolding.
- These cosmic web filaments serve as the nurseries where galaxies grow by accreting pristine gas that fuels their star formation.

Formation

- It is formed as a result of gravity pulling in gas, dark matter, and galaxies into long, thin strands that link giant clusters of galaxies.
- These filaments also surround large, empty regions of space called voids.
- A filament forms where sheets of matter intersect and collapse; they're also highways along which gas and smaller galaxies 'flow' towards big clusters.
- **Significance:** These filaments help decide where galaxies form, how fast they grow, and how much fresh gas they receive over billions of years.

6. Solar Storm

Context: India's first solar observatory Aditya-L1 played a key role in helping scientists decode why the strongest solar storm in more than two decades that struck Earth in May 2024 behaved so unusually, ISRO said recently.

About Solar Storm

- A solar storm is a sudden explosion of particles, energy, magnetic fields, and material blasted into the solar system by the Sun.

What Causes a Solar Storm?

- The Sun creates a tangled mess of magnetic fields.
- These magnetic fields get twisted up as the Sun rotates - with its equator rotating faster than its poles.
- Solar storms typically begin when these twisted magnetic fields on the Sun get contorted and stretched so much that they snap and reconnect (in a process called magnetic reconnection), releasing large amounts of energy.
- These powerful eruptions can generate any or all of the following:
 - a bright flash of light called a solar flare.
 - a radiation storm, or flurry of solar particles propelled into space at high speeds.

- an enormous cloud of solar material, called a coronal mass ejection, that billows away from the Sun.

How Does a Solar Storm Affect Us?

- **GPS and navigation systems:** Solar storms disturb the ionosphere, causing signal delays and errors in GPS.
- **Worldwide power grids and electrical transformers:** Geomagnetically induced currents (GICs) can damage transformers and cause blackouts.
- **Satellite orbits & communications:** Increased atmospheric drag alters orbits; radiation damages satellite electronics and disrupts communications.
- **Shortwave radio communications:** Strongly affected due to ionospheric disturbances, leading to signal fading or blackout.

While,

- **Optical fibre above the ground:** Optical fibre cables themselves are largely immune to electromagnetic interference (though associated electronics may be affected, the fibre is not directly impacted).

7. GlowCas9 Protein

Context: Recently, scientists from Kolkata based Bose institute have created GlowCas9 protein which can track gene editing.

About GlowCas9 Protein

- It is a CRISPR protein that lights up while performing gene editing.
- It is a bioluminescent version of Cas9 that glows inside cells.
- **Structure:** GlowCas9 is created by fusing Cas9 with a split nano-luciferase enzyme derived from deep-sea shrimp proteins.

Properties of GlowCas9 Protein

- The GlowCas9 is very stable and maintains its structure and activity at higher temperatures compared to the conventional enzyme.

- It glows inside cells, allowing for real-time monitoring of CRISPR operations
- Working of GlowCas9 Protein
- The split nano-luciferase enzyme pieces reconnect when Cas9 folds correctly, producing light
- This glowing activity allows scientists to monitor CRISPR operations in living cells, tissues, and even plant leaves-without harming them.

Benefits of GlowCas9 Protein

- It can also increase the precision of homology-directed repair (HDR).
- Homology-Directed Repair (HDR) is a DNA repair process crucial for fixing hereditary mutations that are linked to genetic diseases like sickle cell anaemia, muscular dystrophy and so on.
- GlowCas9 pioneers the emerging field of theratracking or visualizing molecular gene therapy in motion.

8. Geminid Meteor

Context: The Geminid meteor shower - one of the most spectacular in the celestial calendar - is set to peak this weekend.

About Geminid Meteor

- The Geminid meteor shower is named after the constellation from which the meteors appear to radiate, Gemini.
- It peaks during mid-December each year and is considered to be one of the best and most reliable annual meteor showers.
- Origin: Unlike most meteor showers that originate from comets, the Geminid stream appears to originate from an asteroid known as 3200 Phaethon
- The Geminids are best viewed during the night and predawn hours.
- The Geminid meteor shower is an annual event that peaks around mid-December. It is widely regarded by astronomers as one of the most reliable and intense meteor showers, often

producing over 100-120 meteors per hour under ideal conditions.

- Most meteor showers are caused by the icy debris of comets. However, the Geminids are unique because their parent body is **3200 Phaethon**, which is classified as an asteroid (specifically a “rock comet” because it lacks ice but still sheds dust).
- The strength or intensity of a meteor shower is determined by the density of the debris cloud and the speed at which the particles hit Earth’s atmosphere.

9. Lunarcrete

Context: Researchers are developing Lunarcrete, concrete produced using lunar materials for sustainable long-term habitats on the Moon.

What is Lunarcrete?

- **Lunarcrete** is an **umbrella** term for ‘**concrete made on the moon**’.
 - It is a proposed construction material made using **lunar regolith (Moon soil)** as the primary aggregate instead of Earth-based sand and gravel.
- **Purpose:** It supports in-situ resource utilisation (ISRU) by enabling construction of habitats, landing pads, and roads on the Moon without transporting materials from Earth.
- **Significance:**
 - It can provide radiation shielding, protection from micrometeorites, and thermal insulation for long-duration human presence.
 - It is seen to be crucial for future lunar missions and permanent bases under programmes like Artemis and aligns with emerging space infrastructure technologies.

10. DHRUV64 microprocessor

Context: India has launched the DHRUV64 microprocessor.

About

- **Type:** General-purpose microprocessor
- **Developed By:** Centre for Development of Advanced Computing (C-DAC) under the Microprocessor Development Programme (MDP) of the Government of India.
- **Architecture:** 64-bit, dual-core
- **Clock Speed:** 1.0 GHz
- **Status:** Fully indigenous (design and development in India)
- **Function:** Acts as the “brain” of electronic devices such as computers, mobiles, embedded systems and control units.

11. Per- and Polyfluoroalkyl Substances (PFAS)

Context: A recent field-based study demonstrates that a specially engineered carbon material can be injected underground to trap and remove PFAS (Per- and Polyfluoroalkyl Substances) from contaminated groundwater, offering a cost-effective, long-term remediation solution for polluted sites.

What are Per- and Polyfluoroalkyl Substances (PFAS)?

- Per- and Polyfluoroalkyl Substances (PFAS) are a large family of over 4,700 synthetic chemicals, widely known as “Forever Chemicals” due to their extreme environmental persistence.
- PFAS have been mass-produced since the 1950s and are extensively used in non-stick cookware, water-resistant clothing, food packaging, cosmetics, firefighting foams, metal coatings, and industrial lubricants.
- The carbon-fluorine (C-F) bond, one of the strongest covalent bonds in chemistry, makes PFAS highly resistant to degradation, leading to widespread groundwater contamination, especially near military, industrial, and municipal sites.
- PFAS (Per- and polyfluoroalkyl substances) are a large group of man-made chemicals used in industry and consumer products since the 1940s (like non-stick cookware, water-repellent clothing, and firefighting foam). They are called

“forever chemicals” because they do not break down in the environment and can accumulate in the bodies of humans and animals over time.

- The defining characteristic of PFAS is the chain of carbon atoms bonded to fluorine atoms. The **carbon-fluorine (C-F) bond** is widely recognized in chemistry as one of the strongest and most stable bonds in nature. Because the C-F bond is so strong, it requires immense energy to break. Natural processes like thermal exposure, biodegradation by microbes, or chemical oxidation are generally unable to sever this bond, leading to the “forever” persistence of these chemicals in the soil and water.

12. Jumping Genes

Context: Polar bears in Southern Greenland show rapid genetic changes linked to jumping genes that may help them survive warming Arctic conditions.

About Jumping Genes

- Jumping genes, scientifically called Transposable Elements (TEs), are DNA sequences that can move (transpose) from one location to another within the genome.
- They were discovered by **Barbara McClintock in maize (corn)**, for which she received the Nobel Prize (1983).
- In humans, they constitute 45% of the genome.
- Once considered “junk DNA,” now known to have regulatory and evolutionary roles.

13. LightGen Chip

Context: Researchers have reported a chip called **LightGen** that uses light instead of electricity to generate images.

LightGen Chip:

- **The Breakthrough** Scientists from Shanghai Jiao Tong and Tsinghua Universities have developed “**LightGen**,” an optical (photonic) computing chip that outperforms industry-standard hardware (like the Nvidia A100) by over **100**

times in both processing speed and energy efficiency.

Key Technical Features

- **Photonic Architecture:** Unlike traditional chips that use electrons, LightGen uses laser pulses (light) to process data, allowing for operations at much higher speeds with minimal power consumption.
- **High Integration:** The team packed over **2 million photonic neurons** onto a compact 136.5 sq mm chip.
- **Optical Latent Space:** A new architecture that acts as a "highway hub" for light, enabling efficient data compression and information reconstruction.
- **Unsupervised Learning:** The researchers developed a novel training algorithm that allows the chip to learn from statistical patterns rather than requiring massive, labeled datasets.
- **Primary Applications** While previous photonic chips struggled with complex tasks, LightGen is specifically designed for **Generative AI**, including:
 - High-resolution image synthesis (512×512 pixels).
 - Video production and 3D scene generation.
 - Image denoising and style transfer.

14. Superkilonova

Context: Researchers observed a bright cosmic event 1.3 billion light-years away that may be a superkilonova.

Superkilonova

- It is a rare kind of **cosmic explosion** and it is a more energetic version of a **kilonova**.
 - **Kilonovae occur when two neutron stars merge**, ejecting heavy elements like gold and platinum, whose radioactive decay produces light.
- A **superkilonova** can be brighter and bluer than a regular kilonova because some ejected matter falls back onto the merged object, heats up, and

warms the surrounding material, possibly extending the event's brightness.

15. GhostPairing

Context: Recently, the Indian Computer Emergency Response Team (CERT-In) has issued an advisory about an active threat campaign which targets WhatsApp users by using a new technique called GhostPairing.

About GhostPairing

- GhostPairing is a type of WhatsApp attack where hackers secretly link their own device to a victim's WhatsApp account.
- It gives hackers almost full access without the victim noticing.
- GhostPairing' allows cybercriminals to take complete control of WhatsApp accounts without requiring passwords or SIM swaps.
- The threat actors can take over WhatsApp accounts without authorisation by tricking potential victims into entering the pairing codes.

Modus Operandi of GhostPairing

- GhostPairing begins with victims receiving a message from a trusted contact that reads: "Hi, check this photo".
- The message contains a link with a Facebook-style preview.
- The link leads to a fake Facebook viewer that prompts users to "verify" to see the content.
- Then, the attackers attempt to trick potential victims into entering their phone number and code.
- By following a sequence of steps, victims unknowingly grant attackers full access to their WhatsApp accounts.

16. NATGRID

Context: The National Intelligence Grid (NATGRID), has been linked to the National Population Register (NPR), aimed at strengthening intelligence gathering and expediting criminal investigations.

What is the National Intelligence Grid (NATGRID)?

- NATGRID is a **real-time intelligence and data-access platform** developed after the **26/11 Mumbai attacks (2008)** to enable seamless information-sharing across agencies.
- It **functions under the Ministry of Home Affairs (MHA) and consolidates over 20 categories of civil and commercial data, such as bank transactions, telecom usage, passport/immigration records, tax IDs, police FIRs (CCTNS), and other e-governance sources.**
- **Data accessibility:** Initially restricted to;
 - Intelligence Bureau (IB), the Research and Analysis Wing (R&AW), and the National Investigation Agency (NIA),
 - The Enforcement Directorate (ED), the Financial Intelligence Unit (FIU), the Narcotics Control Bureau (NCB) and the Directorate of Revenue Intelligence (DRI) etc.
- **Access to NATGRID is now available to Superintendent of Police (SP) rank officers.**

Gandiva: The Analytical Backbone of NATGRID

- Gandiva' is an **upgraded analytical tool** deployed on the NATGRID platform.
- It supports multi-source data collection, **facial recognition, and entity resolution.**
 - If an image of a suspect is available, Gandiva can match it with Telecom KYC databases, Driving licences, Vehicle registration records and Other photo identity documents.

17. T Chamaeleontis

Context: Recently, astronomers used archival spectroscopic data from NASA's James Webb Space Telescope Mid Infrared Instrument (MIRI) to study

polycyclic aromatic hydrocarbons (PAHs) in the spectrum of the young star T Chamaeleontis.

About T Chamaeleontis

- It is a young but sun-like star in the small southern constellation of Chamaeleon.
- It is located about 350 light-years from Earth.
- It can be found in the southern celestial hemisphere.
- It is approximately 70 % of the size of the Sun and temperature on its surface is around 5111 K (4838 °C).
- It is surrounded by a planet-forming disk called circumstellar disk that contains a wide gap-likely carved out by an emerging protoplanet.
- Normally, the dense inner regions of such disks act like a protective wall or veil blocking much of the star's ultraviolet light from reaching the colder, outer regions.
- Significance: This gap makes the system a key target for studying how young planets interact with their natal disks and shape their surrounding environments during the early stages of planet formation.



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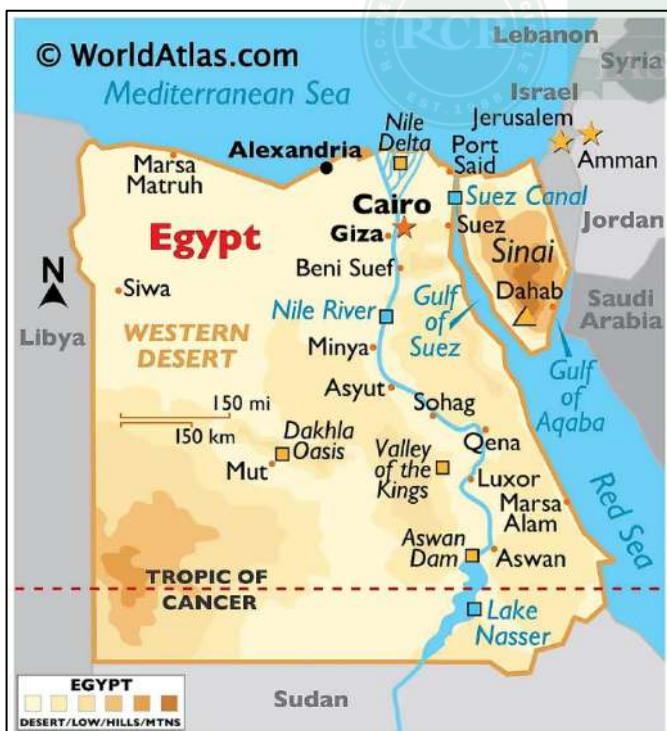
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GEOGRAPHY AND MAPPING

1. Egypt

Context: Egypt is training hundreds of Palestinian police officers with an eye towards integrating them into a post-war security force in Gaza, a Palestinian official said.

- Alexandria is Egypt's second-largest city and its main port. It is located on the Mediterranean Sea coast. Port Said and Port Tawfiq lies on the Northern and Southern Mouth of Suez Canal and not Port Alexandria.
- The Tropic of Cancer passes directly through the southern half of Egypt. A significant section of Lake Nasser, particularly its northern portion near Aswan, is located very close to, and the Tropic of Cancer definitely crosses, the body of water.



2. Guinea-Bissau

Context: Recently, the African country of Guinea-Bissau fell under military rule.

About Guinea-Bissau

- It is one of the smallest countries in the African continent.
- **Bordering Countries:** It borders Senegal to the north and Guinea to its eastern and southern boundaries.
- **Maritime Boundary:** To the west, the country has a coastline on the Atlantic Ocean.
- It includes the Bijagós (Bissagos) archipelago and other islands that lie off the coast.
- **Capital City:** Bissau.



3. Danube River

Context: Ultranationalist views are rapidly becoming mainstream in Croatia, observers are warning, as an emboldened far-right seeks to rewrite the country's dark World War II-era history.

- The Danube River defines a significant portion of the border between Croatia and Serbia, specifically along a course of about 137-188 kilometers.

- The Dalmatian Coast (or Dalmatia) is the name given to the central coastal strip of Croatia along the Adriatic Sea, extending from the Kvarner Gulf in the north to the Bay of Kotor (partially in Montenegro) in the south. This region is famous for its dramatic, rugged coastline, numerous islands, and historic cities like Split and Dubrovnik.



4. Bitra Island

Context: The Chief of Staff of the Southern Naval Command recently said the Navy is setting up a detachment in Bitra Island, which “is more or less completed”.

About Bitra Island

- It is located in the northern region of Lakshadweep in the Arabian Sea.
- It is the smallest inhabited island in the territory.
- It has a land area of 0.105 sq.km.
- It has a length of 0.57 km and a width of 0.28 km at the broadest point.
- Though the land area is small, its lagoon area is 45.61 sq.km.

- There is a small shrine of Malik Mulla, an old Arab saint who is said to have been buried here. The shrine is a place of pilgrimage for the people of other islands.
- As per the 2011 census, the population of Bitra Island is 271.

5. Honduras

Context: Nasry Asfura, a conservative candidate backed by U.S. President Donald Trump narrowly leads a right-wing rival in Honduras's Presidential election, according to partial results released on December 1. Mr. Asfura had 40% of the votes and led Salvador Nasralla by just 0.2 percentage points, with 56% of votes counted.

- While Honduras does have coastlines on both the Caribbean Sea (Gulf of Honduras/Atlantic Ocean) to the north and a short strip on the Pacific Ocean (Gulf of Fonseca) to the south, it is not the only country in Central America with this feature (Guatemala, Honduras, Nicaragua etc.).
- Honduras is bordered by: El Salvador (to the southwest), Nicaragua (to the southeast), Guatemala (to the west).



6. Thailand

Context: Thailand has formally expressed its ambition to join BRICS and is seeking India's backing ahead of New Delhi's chairmanship of the grouping in 2026.

- The Isthmus of Kra is the narrowest part of the Malay Peninsula. The northern part of the Isthmus belongs entirely to Thailand. The western coastal section of the Isthmus is shared with Myanmar (Burma), particularly in the area of the Pakchan River estuary.
- The Khorat Plateau is a large, saucer-shaped tableland that makes up the bulk of the Isan region of northeastern Thailand. It is predominantly located within Thailand. Its northern and eastern boundaries are largely defined by the Mekong River, which forms the border between Thailand and Laos.



7. Zambezi River

Context: A new study suggests the Zambezi River actually starts off in Angola's southern highlands, at the source of a river called the Lungwebungu, giving the Zambezi a new total length of 3,421 km, or 342 km longer than previously thought.

About Zambezi River

- The Zambezi River, sometimes spelled as Zambesi or Zambeze, is Africa's 4th longest river and the continent's longest east-flowing stream.

Course:

- It starts off in Angola's southern highlands, at the source of a river called the Lungwebungu.
- It flows for about 3,421 kilometers through **Angola, Zambia, Namibia, Botswana, Zimbabwe, and Mozambique** before emptying into the Indian Ocean.
- The river is known for several notable waterfalls, including Victoria Falls, one of the world's largest waterfalls, and the Chavuma Falls on the Zambia-Angola border.
- The Cohara Bassa and Kariba Dams, two of Africa's major hydroelectric power sources, are located along the Zambezi's course.
- Zambia accounts for the largest drainage area (41.6%) of the river.
- **Tributaries:** The main tributaries of the Zambezi River include the Shire, Kafue, Luangwa, Kabompo, and Cuando (Kwando) rivers.



8. Latitudes of Capitals

Context: Recently, Thailand launched airstrikes on Cambodian military targets.

Approximate latitudes:

- Hanoi (Vietnam) $\approx 21^\circ \text{ N}$
- Naypyidaw (Myanmar) $\approx 19.7^\circ \text{ N}$

- **Bangkok (Thailand)** $\approx 13.7^\circ \text{ N}$
- **Phnom Penh (Cambodia)** $\approx 11.6^\circ \text{ N}$



9. Sea of Japan

Context: Recently, a major earthquake rocked Japan's northern coast and also the country's meteorological agency recorded several tsunami waves.

Sea of Japan

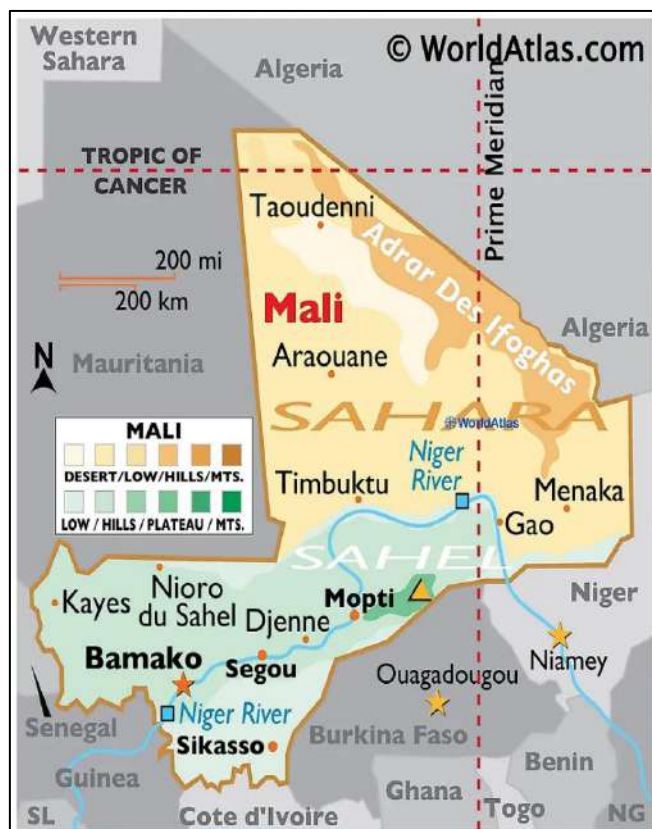
- The **Sea of Japan** is a marginal sea of the western Pacific Ocean.
- It is bordered by **four countries**:
 - **Russia** (north)
 - **North Korea** (west)
 - **South Korea** (south-west)
 - **Japan** (east and south)



10. Mali

Context: A new Russian military unit that replaced the Wagner mercenary group is carrying out abuses including rapes and beheadings as it teams up with Mali's military to hunt down extremists, dozens of civilians who fled the fighting have said.

- Mali and Ghana do not share a border. Mali is a landlocked country bordered by Algeria, Niger, Burkina Faso, Ivory Coast, Guinea, Senegal, and Mauritania. Ghana is located further south, separated from Mali by Burkina Faso and Ivory Coast. The Niger River flows from Guinea through Mali, Niger, and Nigeria, but it does not enter or border Ghana.
- The Prime Meridian (0° longitude) does pass through Mali (along with Algeria, Burkina Faso, Togo, and Ghana), but it is located in the western and central parts of the country. The border between Mali and Niger is located much further to the east (between roughly 3° E and 5° E longitude). Therefore, the Prime Meridian does not coincide with the Mali-Niger boundary.



11. Carpathian Mountains

Context: With war raging in neighboring Ukraine and deep division at home, Poland's pro-European government has become deadlocked as the country's nationalist president blocks reforms at an unprecedented scale.

Carpathian Mountains:

- The Carpathian Mountains form a dramatic 1,500 km (930 mile) arc across Central and Eastern Europe. Often called the **"Green Backbone of Europe,"** they are the continent's second-longest mountain range and represent one of the last truly wild places in Europe.



12. Geography and Layout

The range stretches through seven countries: **Romania (which holds 50% of the range)**, Slovakia, Poland, Ukraine, the Czech Republic, Hungary, and Serbia. It is traditionally divided into three major sections:

- Western Carpathians:** Includes the **Tatra Mountains** (on the border of Poland and Slovakia). This is the highest part of the entire range, featuring the highest peak, **Gerlachovský štít**.

- Eastern Carpathians:** Running through Poland, Ukraine, and Romania, these are lower and more heavily forested, known for their rugged wilderness.
- Southern Carpathians:** Located entirely in Romania, these are also known as the **Transylvanian Alps**. They are steep and alpine, with the **Moldoveanu Peak** as the highest point.

13. Neighbours of Czech Republic

Context: Populist billionaire Andrej Babis was sworn in as the Czech Republic's new Prime Minister on Tuesday (December 9, 2025), following October's parliamentary election, in a return to power for the businessman.

Neighbours of Czech Republic:

- Germany
- Poland
- Slovakia
- Austria



14. Mexico

Context: Recently, the Mexico's Senate approved tariffs of up to 50% on imports from Asian countries, including India.

About Mexico

- Location:** It is located in the southern part of North America.

- **Bordering Countries:** It shares its land border with the United States of America to the north and with Guatemala and Belize to the southeast.
- **Maritime boundaries:** It is surrounded by the Pacific Ocean to the south and west; by the Gulf of Mexico and the Caribbean Sea to the east.
- **Capital City:** Mexico City.
- The Tropic of Cancer (approximately 23.5°N) cuts right through the middle of Mexico. It passes through several states, including Sinaloa, Durango, Zacatecas, San Luis Potosí, and Tamaulipas. This positioning is why the southern half of the country experiences a tropical climate, while the northern half is more temperate and arid.
- The two peninsulas are on opposite sides of the country and are separated by the **entire landmass of mainland Mexico**, not just a single body of water.



15. Jordan

Context: Recently, the Prime Minister of India has embarked on a three-nation visit to Jordan, Ethiopia and Oman.

About Jordan

- **Location:** It is an almost landlocked country located in the rocky desert of the northern Arabian Peninsula. It has a small but vital coastline of about 26 kilometers along the Gulf of Aqaba in the south, providing it with direct access to the Red Sea.
- **Bordering Countries:** It is bordered by 5 Nations: Syria in the north, Iraq in the east, Saudi Arabia in the south and southeast and Israel and Palestine in the west.
- **Water bodies:** Dead Sea, the Gulf of Aqaba and the Sea of Galilee.
- The Dead Sea is located along the western borders of the country.
- **Ports:** Al-Aqabah, the only port of Jordan is located in the south-western part of the country along the coasts of the Gulf of Aqaba.
- **Capital City:** Amman.
- **Jordan River:** It forms the border between Jordan (to the east) and Israel and the West Bank (to the west). It flows from the Sea of Galilee in the north down to the Dead Sea, which is the lowest point on Earth.



16. Project Mausam

Context: The Archaeological Survey of India (ASI) recently organised a National Workshop on the Project Mausam titled as - "Islands at the Crossroads of Maritime Networks within Indian Ocean Region".

About Project Mausam

- It is an Indian government-led cultural-diplomacy and maritime heritage initiative launched in 2014 by the Ministry of Culture.
- It aims to explore the multi-faceted Indian Ocean 'world' - collating archaeological and historical research in order to document the diversity of cultural, commercial, and religious interactions in the Indian Ocean.
- A total of 39 Indian Ocean countries have been identified under Project Mausam.
- The main objective of the project is to inscribe places and sites identified under Project Mausam as trans-national nominations for inscription on UNESCO's World Heritage List.
- It also aims to promote research on themes related to the study of maritime routes through international scientific seminars and meetings and by adopting a multidisciplinary approach.

What is Mission Mausam?

- It was launched by the Ministry of Earth Sciences in 2024.
- It is implemented by the India Meteorological Department (IMD), the National Centre for Medium-Range Weather Forecasting (NCMRWF), and the Indian Institute of Tropical Meteorology (IITM).
- It aims to improve weather and climate services, ensuring timely and precise observation, modeling, and forecasting information for multiple sectors, including agriculture, disaster management, and rural development.
- A key focus of the mission is cloud physics research, crucial for effective weather modification.
- To support this effort, India is setting up its first cloud chamber at the Indian Institute of Tropical

Meteorology (IITM), Pune, to advance research in this field.

17. United Nations Alliance of Civilization

Context: Recently, India reaffirmed its commitment to the ideals of Vasudhaiva Kutumbakam and religious harmony at the 11th United Nations Alliance of Civilizations, UNAOC, forum in Riyadh.

About United Nations Alliance of Civilization

- It was established in 2005, as the political initiative of Mr. Kofi Annan, former UN Secretary-General.
- It was co-sponsored by the Governments of Spain and Türkiye.
- It was created to serve as a soft-power political tool of the United Nations Secretary-General for conflict prevention and conflict resolution.
- **Function:** It maintains a global network of partners including states, international and regional organizations, civil society groups, foundations, and the private sector to improve cross-cultural relations between diverse nations and communities.
- The Global Forum is the highest-profile event of the UNAOC which brings together prominent personalities, current and potential partners, and others from different sectors.
- **Funds:** The Secretary-General has established a voluntary Trust Fund for UNAOC.
- This fund supports the UNAOC projects, activities and outreach, undertaken by the High Representative for the United Nations Alliance of Civilizations in his official capacity, and core operational and human resources needs.
- The Trust Fund for UNAOC is administered by the United Nations Secretariat in accordance with the United Nations Financial Regulations and Rules.
- UNAOC receives voluntary contributions from member states, international organizations, private sector and foundations.
- **Secretariat:** It is based in New York, USA.

18. Ethiopia

Context: Prime Minister of India visit to Ethiopia has highlighted India's growing strategic engagement with Africa, especially the Horn of Africa region.



About Ethiopia:

- **What it is?**
 - Ethiopia is a sovereign African nation and one of the oldest continuously existing states in the world, with a long civilisational history linked to Aksumite civilisation and Pan-African movements.
- **Located in:** It is a landlocked country in the Horn of Africa, lying entirely within tropical latitudes and occupying a central position in East Africa.
- **Capital:** Addis Ababa, which also hosts the headquarters of the African Union (AU) and the UN Economic Commission for Africa (UNECA).
- **Neighbouring nations:** Eritrea, Djibouti, Somalia, Kenya, South Sudan and Sudan.
- The **Great African Rift Valley** in Ethiopia actually acts as a center for an **Inland (Endorheic) or Centripetal Drainage System**, not a radial one. Because the valley is a massive tectonic depression (graben) flanked by high escarpments, rivers from the surrounding

highlands flow **inward** toward the valley floor, where they feed into a series of lakes (like Lake Ziway, Abaya, and Chamo) or end in swamps (like the Awash River in the Danakil Depression).

- The **Ogaden Desert** (also known as the Ogaden region) is located in the **southeastern** part of Ethiopia and shares a border with **Somalia**, not South Sudan.

19. Morocco

Context: Flash floods triggered by torrential rain have killed at least 37 people in the Moroccan coastal city of Safi, the Interior Ministry said on December 15.

- Morocco is uniquely positioned as the **only African nation** with coastlines on both the **Atlantic Ocean** (to the west) and the **Mediterranean Sea** (to the north). These two major bodies of water are connected by the **Strait of Gibraltar**, which also separates Morocco from Spain by just 13 kilometers.
- The **Atlas Mountains** extend across central Morocco and act as a barrier between the coastal plains and the **Sahara Desert**.



23. Neighbours of Sudan

Context: Sudan paramilitaries launched a large-scale drone attack in the east on December 18, a military source said, with strikes hitting a key power station, causing outages and killing three.

Neighbours of Sudan

Sudan shares land borders with **7 countries**:

- **Egypt** - to the north
- **Libya** - to the northwest
- **Chad** - to the west
- **Central African Republic** - to the southwest
- **South Sudan** - to the south
- **Ethiopia** - to the southeast
- **Eritrea** - to the east



24. Hainan Island

Context: China recently split off Hainan Island, with an economy comparable to a mid-ranked country, from the mainland for customs processing, part of a bid to join a major trans-Pacific trade deal and establish a new Hong Kong-style commercial hub.

About Hainan Island

- It is a tropical island at the southernmost of China.
- It is situated in the northeastern part of the Beibu Gulf, across the Qiongzhou Strait from mainland China.
- It's known as the "Hawaii of China,".
- It has a land area of 35,400 sq.km. It is the largest island administered by the People's Republic of China.
- It has a population of about 10 million.
- Its provincial capital is Haikou, known as the "Coconut City".
- It was geologically connected with the southern Chinese mainland until a rift through the Hainan Strait opened sometime during the Miocene and Pliocene epochs (about 23 to 2.6 million years ago).
- The island is approximately oval in shape and measures about 260 km from east to west and 210 km from north to south at its widest point.
- Hainan is a regional center connecting Northeast Asia and Southeast Asia and is a maritime gateway between the Indian Ocean and the Pacific Ocean.
- It's also China's largest free-trade port and host of the Boao Forum, an annual meeting of political and business leaders dubbed "Asia's Davos."



25. Neighbours of Nigeria

Context: A scramble for gold reserves dug up in illegal mines is fuelling violence by criminal gangs in parts of Nigeria, officials, expert reports and local residents say, with much of it smuggled to Dubai.

Neighbours of Nigeria:

- Nigeria shares its land borders with **four countries**:
 - Benin**: to the west
 - Niger**: to the north
 - Chad**: to the northeast (via a short border near Lake Chad)
 - Cameroon**: to the east



26. Kavachi Volcano

Context: Scientists recently reported a rare footage showing sharks living inside Kavachi volcano near the Solomon Islands, challenging assumptions about marine survival in extreme volcanic environments.

About Kavachi Volcano

- It is a shallow submarine volcano located in the South Pacific Ocean, south of the remote Vangunu Island in the Solomon Islands.
- It sits on the Pacific Ring of Fire, a tectonically active region.
- It is one of the world's few active and visible undersea volcanoes.
- It has been erupting on a regular (though thoroughly unpredictable) basis for many years, including several temporary island-building events.
- Eruptions typically produce steam plumes, ash, lava, and water discoloration due to volcanic gas release.
- The new islands formed are not large enough and coated with solid lava flows to be able to resist wave erosion.
- Notable eruptive activity has been recorded repeatedly since it was first documented in 1939.

	Volcanoes	Countries
1	Kavachi	Solomon Islands
2	Axial Seamount	USA
3	Marsili	Italy
4	Brothers Volcano	New Zealand

27. Neighbours of Rwanda

Context: The UN Security Council on December 19 urged Rwanda to withdraw its forces from eastern Congo and extended the UN peacekeeping mission in Congo for a year, as fighting in the region escalated despite a peace deal. It also renewed the peacekeepers' mandate, keeping about 11,500 military personnel in the country.

Neighbours of Rwanda:

Rwanda shares its land borders with **four countries**:

- Uganda**: to the north
- Tanzania**: to the east
- Burundi**: to the south

- **Democratic Republic of the Congo (DRC):** to the west



28. Geographical Features of Syria

Context: The US forces commenced 'Operation Hawkeye Strike' in Syria to eliminate Islamic State of Iraq and Syria (ISIS) fighters, infrastructure, and weapons sites.

Geographical Features of Syria

- Syria's geography offers two major regions, a western and an eastern part.
- The western region features narrow, fertile coastal plains along the eastern Mediterranean Sea.
- The eastern part of the country is the realm of the Syrian Desert which is a mixture of dry steppe and true desert landscape.
- Rivers: Euphrates River flows across Syria before entering Iraq.
- Lakes: Lake al-Assad (a man-made reservoir,) created by a dam on the Euphrates River.
- Desert: Southern and eastern Syria are part of the northern Syrian Desert.
- Highest Point: Mt Hermon (2,814 m).

- The Anti-Lebanon Mountains (Jabal ash-Sharqi) form the natural and political boundary between Syria and Lebanon. The Bishri Mountains (Jebel Bishri) are located in central Syria, extending between the city of Palmyra and the Euphrates River. They do not touch the Lebanese border.
- While the Tigris River does form a small section of the Syrian border, it is the boundary between Syria and Turkey (not a major portion).



29. New Zealand

Context: India and New Zealand have concluded a comprehensive Free Trade Agreement (FTA).

New Zealand:

- New Zealand, an island country in the southwestern Pacific Ocean, has no bordering countries.
- It lies over 1,500 km east of Australia across the Tasman Sea, with the Pacific Ocean stretching indefinitely to the north, east, and south.
- The total land area of the country encompasses approximately 268,021 km² (103,483 mi²).

- The geography of New Zealand is primarily divided into two main islands, the North Island and the South Island, separated by the Cook Strait.
- A third, much smaller, Stewart Island lies to the south of the South Island.



30. Jutland peninsula

Context: The leaders of Denmark and Greenland insisted Monday that the U.S. won't take over Greenland and demanded respect for their territorial integrity after President Donald Trump announced the appointment of a special envoy to Greenland.

Jutland peninsula:

- The **Jutland Peninsula** (also known as the Cimbric Peninsula) is the landmass that projects northward toward Scandinavia. It contains the mainland part of **Denmark** and the German state of **Schleswig-Holstein**. It separates the North Sea to the west from the Baltic Sea to the east.



31. Neighbours of Bolivia

Context: Bolivian miners marched in downtown La Paz, the country's capital, and union-organised protesters took to the streets elsewhere on December 23, the first day of a strike over the government's scrapping of fuel subsidies that have been blamed for contributing to dollar shortages and economic turmoil.

Neighbours of Bolivia

- **Bolivia** is a **landlocked country** in South America and shares borders with **six countries**:
 - **Brazil** (North & East)
 - **Peru** (Northwest)
 - **Chile** (West)
 - **Argentina** (South)
 - **Paraguay** (Southeast)



32. Bezmyianny Volcano

Context: The Bezmyianny volcano that once blew itself apart in a massive explosion is now rising from the ashes-faster than scientists expected.

About Bezmyianny Volcano

- It is a cone-shaped stratovolcano on the Kamchatka Peninsula in the Russian Far East.
- It is located on the southeast slope of the extinct volcano Kamen. These two volcanoes are separated by a high, narrow saddle.
- The east and west slopes of Bezmyianny are cut by two wide and sloping valleys.

Key Facts about Stratovolcano

- It is a tall, steep, and cone-shaped type of volcano.
- Unlike flat shield volcanoes, they have higher peaks.
- They are typically found above subduction zones, and they are often part of large volcanically active regions, such as the Ring of Fire that frames much of the Pacific Ocean.
- Stratovolcanoes comprise the largest percentage (~60%) of the Earth's individual

volcanoes, and most are characterized by eruptions of andesite and dacite, lavas that are cooler and more viscous than basalt.

- These more viscous lavas allow gas pressures to build up to high levels. Therefore, these volcanoes often suffer explosive eruptions.
- They are usually about half-half lava and pyroclastic material, and the layering of these products gives them their other common name of composite volcanoes.
- At the peak, stratovolcanoes usually have a small crater.

33. Taiwan

Context: A magnitude 6.1 earthquake struck Taiwan shaking buildings in Taipei and other cities, though no major damage was reported.

About Taiwan:

What it is?

- Taiwan is an island in the western Pacific Ocean, officially governed as the Republic of China (ROC), with its own elected government, economy, and armed forces.
- It functions as a self-administered polity, though its sovereignty status remains contested internationally.

Location:

- Situated about **160 km off the southeastern coast of China**, separated by the **Taiwan (Formosa) Strait**.
- Lies between the **East China Sea (north)** and the **South China Sea (south)**, facing the **Pacific Ocean** to the east.

Capital: Taipei.

- The **Tropic of Cancer (23.5°N)** passes directly through the central part of Taiwan. There is even a famous monument marking this line in **Chiayi County** and another in **Hualien County**.
- The **Luzon Strait** is the body of water that lies between Taiwan (to the north) and the Luzon island of the **Philippines** (to the south). It is a

critical gateway between the South China Sea and the Philippine Sea.



34. Ardennes

Context: Belgium on December 23 joined a case brought by South Africa before the International Court of Justice (ICJ), which accuses Israel of committing genocide in the Gaza Strip. The UN's highest court, based in The Hague, said in a statement that Brussels had filed a declaration of intervention.

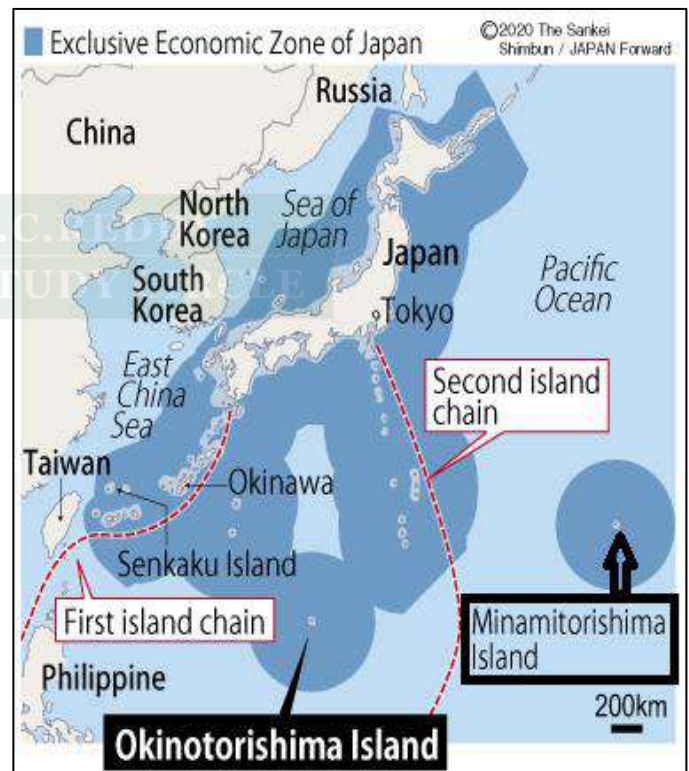


Ardennes:

- The **Ardennes** is an ancient mountain range that has eroded into a rugged, forested upland.
- It is primarily located in southeast Belgium but extends into neighboring countries.
- Historically, its dense woods and difficult terrain led military planners to believe it was impassable for tanks, a belief exploited by German forces during both the **1940 invasion of France** and the **Battle of the Bulge** in 1944.

35. Minamitori Island

Context: Japan will conduct test mining of rare-earth-rich mud from the deep seabed off Minamitori Island.



About Minamitori Island

- It is also known as Marcus Island, is an isolated Japanese coral atoll in the northwestern Pacific Ocean (It is nowhere near the Sea of Japan or the Korean Peninsula.).
- It is at the easternmost edge of Japan, the island is the first in Japan to see the sun rise.
- It lies 1,950 km southeast of central Tokyo.

Right Bank Tributaries of Yamuna:

Tributary	Description
Chambal	The longest tributary of the Yamuna. Known for its deep ravines and clean water, it originates in the Vindhya Range (MP) and joins the Yamuna near Etawah, UP.
Betwa	Originates in the Vindhya Range near Bhopal. It is a vital lifeline for the Bundelkhand region and merges with the Yamuna at Hamirpur, UP.
Ken	Originates from the Kaimur Hills (MP) and flows through the Panna Tiger Reserve. It joins the Yamuna near Chilla village, UP.
Sindh	Originates on the Malwa Plateau in Madhya Pradesh and joins the Yamuna in the Jalaun district, UP.
Giri	A major perennial tributary in Himachal Pradesh that provides water to the Shimla and Sirmour districts.
Sahibi (Sabi)	An ephemeral, rain-fed river originating in the Aravalli Range (Rajasthan) that flows through Haryana and Delhi.

While,

Tons, and Hindon are the left bank Tributaries of Yamuna.

38. Switzerland

Context: Switzerland cannot defend itself against a full-scale attack and must boost military spending given rising risks from Russia, the head of its armed forces, Thomas Suessli, said.

Switzerland:

- Switzerland, a small landlocked country, covers an area of 41,285 sq. km in Europe.
- The country is famous across the world for its picturesque landscapes.

- As observed on the physical map above, it is a highly mountainous nation covering nearly 60% of the country's area.
- The Alpine ranges lie to the south and the Jura Mountains to the north.
- Switzerland's highest point is Dufourspitze (Monte Rosa), in the Pennine Alps, which rises to 15,206 ft (4,634 m).
- Also located within the Pennine Alps is the infamous Matterhorn whose summit is 4,690 ft. (4,478 m) high.
- Mont Blanc is the highest mountain in the Alps and Western Europe, but it is located on the border between France and Italy.
- Lake Geneva (Lac Léman) is located on the border between Switzerland and France.

**39. Tajikistan**

Context: Afghanistan's Taliban authorities said on December 27 they were working with neighbouring Tajikistan to investigate a border clash earlier this week that killed five people, including two Tajik guards.

**Tajikistan:**

- Tajikistan, a landlocked Central Asian country occupies an area of 143,100 sq. km.
- It is the region's smallest nation.

- Tajikistan's highest point is Qullai Ismoili Somoni, and peaks at 24,589 ft. (7,495 m).
- This highly mountainous country is located in the Northern and Eastern Hemispheres of the Earth.
- Four countries border Tajikistan.
- These are **Kyrgyzstan, Uzbekistan, China, and Afghanistan** to the north, west, east, and south respectively.



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ART AND CULTURE

1. UNESCO Creative Cities Network

Context: Recently, Lucknow has officially joined the UNESCO Creative Cities Network (UCCN) under the Gastronomy category during the 43rd Session of the UNESCO General Conference.

About UNESCO Creative Cities Network

- It was created in 2004 to promote cooperation among cities that have identified creativity as a strategic factor for sustainable urban development.
- It was launched to promote UNESCO's goals of cultural diversity and strengthen resilience to threats such as climate change, rising inequality, and rapid urbanisation.
- The network covers seven creative fields: crafts and folk arts, media arts, film, design, gastronomy, literature and music.
- Aim of UCCN:** The network is aimed at leveraging the creative, social, and economic potential of cultural industries.
- Indian Cities in the UCCN:** Kozhikode (Literature) and Gwalior (Music) Jaipur (Crafts and Folk Arts), Varanasi (Music), Chennai (Music), Mumbai (Film), Hyderabad (Gastronomy), Lucknow (Gastronomy), and Srinagar (Crafts and Folk Arts).

	Cities	Field
1	Kozhikode	Literature
2	Lucknow	Gastronomy
3	Chennai	Music
4	Mumbai	Film

2. GI Tags

Context: Five products from Tamil Nadu - Woraiyur cotton sari, Kavindapadi jaggery powder, Namakkal soapstone cookware, Thooyamalli rice, and Ambasamudram wooden toys - receive GI tags, taking the State's tally to 74.

	Products	States/UTs
1	Kalpi Handmade Paper	Uttar Pradesh
2	Suf Embroidery	Gujarat
3	Chettikulam Small Onion	Tamil Nadu
4	Maibra Jou Bidwi	Assam

3. Dr Rajendra Prasad

Context: The President of India, paid tributes to Dr Rajendra Prasad, the first President of India, on his birth anniversary.

Early Life and Education of Dr Rajendra Prasad:

- Birth:** He was born in **1884** in the Siwan district of Bihar.
- Education:** He joined Presidency College, Calcutta, where he pursued his undergraduate studies. In **1915**, he completed his **Master of Law (LLM)** with Honours.

Literary Contributions of Dr Rajendra Prasad:

- He documented his experiences and political insights in several influential works:
 - Satyagraha at Champaran (1922)
 - India Divided (1946)
 - Atmakatha (1946)
 - Mahatma Gandhi and Bihar, Some Reminiscences (1949)
 - Bapu Ke Kadmon Mein (1954)

4. Karahan Tepe

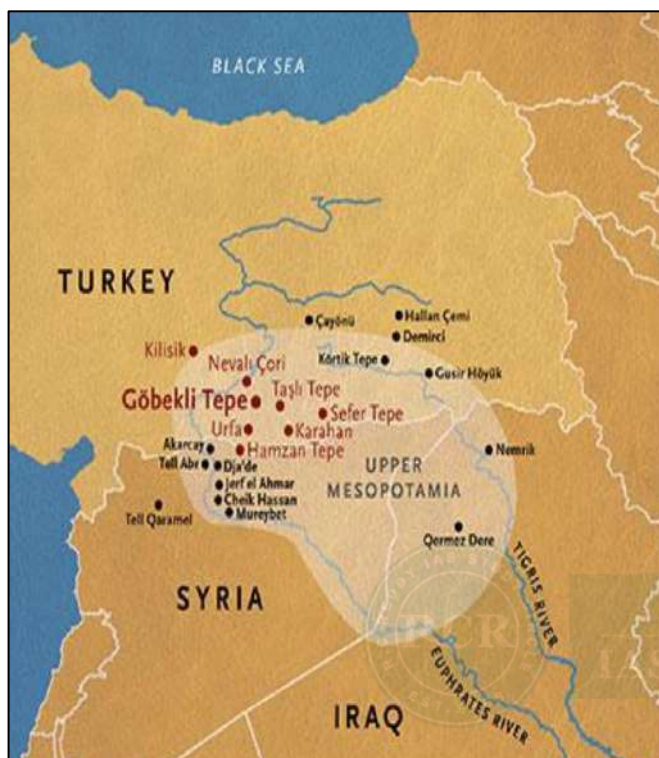
Context: Archaeologists in Türkiye have unearthed new carved human faces, including the first-ever human-faced T-shaped pillar, at the Neolithic site of Karahan Tepe, dating back 11,000 years.

About Karahan Tepe:

- What it is?**
 - Karahan Tepe is a major **Pre-Pottery Neolithic** archaeological site and one of the

12 settlements in Türkiye's **Taş Tepeler (Stone Hills)** project, believed to be among the world's earliest ritual-residential complexes.

- **Located in:** Sanliurfa Province, southeastern Türkiye, near the Syrian border-close to the globally renowned Göbekli Tepe.



5. UNESCO Global Network of Learning Cities (GNLC)

Context: UNESCO has added three more Saudi cities - Riyadh, AlUla, and Riyadh Al-Khabra - to the Global Network of Learning Cities (GNLC) in its 2025 update.

UNESCO Global Network of Learning Cities (GNLC):

What is GNLC?

- The GNLC is a UNESCO-led international network that recognises cities promoting lifelong learning across all age groups through inclusive, accessible, and sustainable learning ecosystems.

History:

- Established in **2013**, GNLC has grown rapidly and today includes **425 cities from 91 countries**,

supporting lifelong learning opportunities for nearly **500 million people**.

- It forms part of UNESCO's Education 2030 agenda and the SDG-4 mandate.
- The Global Network of Learning Cities (GNLC) is specifically designed to promote lifelong learning. It aims to revitalize learning in families and communities, facilitate learning for and in the workplace, and extend the use of modern learning technologies to support social cohesion and economic development.
- Membership in the network is based on a commitment to promote lifelong learning and the exchange of best practices. It is a policy-oriented network, not a regulatory body; cities are **not** legally bound to a uniform curriculum prescribed by UNESCO.
- As of September 2022, three Indian cities joined the network: **Warangal** (Telangana), **Thrissur** (Kerala), and **Nilambur** (Kerala). In late 2025, the network expanded further globally, but India already had established representation.

6. C. Rajagopalachari

Context: Prime Minister Narendra Modi paid tribute to C. Rajagopalachari popularly known as Rajaji on his birth anniversary (10th December).

C. Rajagopalachari

- **Early Life and Education:**
 - He was a close associate of **Mahatma Gandhi**.
 - Completed Bachelor of Law (1899) and began practicing law in Salem.
 - Early political consciousness was shaped by **Curzon's Partition of Bengal (1905)** and **Tilak's call for Swaraj**.
- **Contributions to Freedom's Struggle:**
 - He left his legal career in **1919** and went on to play a leading role in several major movements, including the protests against the Rowlatt Act, the Non-Cooperation Movement, the Vaikom Satyagraha, and the Civil Disobedience Movement.

- Led the **Vedaranyam Salt Satyagraha (1930)** in the Madras region, parallel to Gandhi's Dandi March.
- He was imprisoned five times between 1912 and 1941 for his role in the freedom struggle.
- After Quit India Movement, **published "The Way Out"**, proposing the C. R. Formula to resolve the constitutional deadlock with the Muslim League over Pakistan.
- **Post-Independence Contributions:**
 - Appointed Governor of West Bengal and later became the first Indian Governor-General of India (1947-1950) after independence.
 - Worked to protect India's secular fabric and integrate Muslims into the national mainstream.
 - Served as Union Home Minister after Sardar Patel's death; contributed to national integration & early planning processes, including the First Five-Year Plan.
- **Legacy:**
 - He was awarded the Bharat Ratna in 1954 for his contributions to politics, literature and public service.

7. UNESCO's List of the Intangible Cultural Heritage of Humanity

Context: Recently, Deepavali has been inscribed on UNESCO's List of the Intangible Cultural Heritage of Humanity.

Year	Intangible Cultural Heritage Element	Description
2025	Deepavali	The pan-Indian festival of lights symbolizing the victory of light over darkness.
2023	Garba of Gujarat	A ritualistic and devotional dance performed during the festival of Navratri.
2021	Durga Puja in Kolkata	A massive religious and cultural festival involving

		public art and community worship.
2017	Kumbh Mela	The world's largest peaceful religious gathering for a sacred bath in holy rivers.
2016	Yoga	An ancient Indian physical, mental, and spiritual practice.
2016	Nowruz	The Parsi New Year (inscribed as a multinational heritage).
2014	Traditional Brass and Copper Craft	The craft of making utensils by the Thatheras of Jandiala Guru, Punjab.
2013	Sankirtana	Ritual singing, drumming, and dancing of Manipur.
2012	Buddhist Chanting of Ladakh	Recitation of sacred texts in the monasteries of the trans-Himalayan region.
2010	Chhau Dance	A tradition of mask-wearing and martial dance from West Bengal, Jharkhand, and Odisha.
2010	Kalbelia Folk Songs and Dances	The traditional dance and music of the nomadic community in Rajasthan.
2010	Mudiyettu	A ritual theatre and dance drama from Kerala depicting the battle between Kali and Darika.
2009	Ramman	A religious festival and ritual theatre from the Garhwal Himalayas, Uttarakhand.
2008	Kutiyattam	One of India's oldest living Sanskrit theatrical traditions from Kerala.
2008	Ramlila	The traditional performance of the epic Ramayana, common across Northern India.
2008	Tradition of Vedic Chanting	The oral transmission of the ancient Sanskrit Vedas through specific rhythmic styles.

8. Boreendo

Context: Boreendo, an ancient musical instrument from Pakistan, was recently inscribed on the UNESCO's List of Intangible Cultural Heritage in Need of Urgent Safeguarding.

About Boreendo

- The boreendo, or bhorindo, is a traditional musical instrument from Pakistan's Sindh region.
- It is a 5,000-year-old musical instrument with a rich history that originates in Mohenjo Daro, part of the Indus Valley Civilisation.
- It has a hollow, spherical shape with sound holes and is made of clay that is sun-dried and kiln-fired.
- It is played by men, while women are involved in decorating the instrument with clay paint.
- The boreendo produces sound when air is blown into it, and its tone can be adjusted by tilting the mouthpiece.
- Its size affects its sound, and recent changes include extra holes to widen its musical range.
- The boreendo is mainly played at winter bonfires, weddings, and festivals.

	Music instruments	Countries
1	Koto	Japan
2	Duduk	Armenia
3	Balalaika	Russia
4	Boreendo	Pakistan

9. Ponduru Khadi

Context: Recently, Ponduru khadi has been granted the geographical indication (GI) tag by the Geographical Indications Registry under the Union ministry of commerce and industry.

About Ponduru Khadi

- Ponduru Khadi, is a famous handspun and handwoven cotton fabric from Andhra Pradesh.
- It is locally known as Patnulu and is produced in Ponduru village in Srikakulam district.

- It has been nominated for the One District One Product (ODOP) scheme from the Srikakulam district.
- During the pre - independence era Mahatma Gandhi mentioned its virtues in his Young India (the national weekly that Gandhiji edited).

	GI tagged textiles	States/UTs
1	Ilkal Sarees	Karnataka
2	Venkatagiri Sarees	Andhra Pradesh
3	Gadwal Sarees	Telangana
4	Balaramapuram Sarees	Kerala

10. Natyashastra

Context: The Indira Gandhi National Centre for the Arts (IGNCA) recently organised the academic programme titled 'Natyashastra - Synthesis of Theory and Praxis' during the 20th Session of UNESCO's Intergovernmental Committee for the Safeguarding of Intangible Cultural Heritage at the iconic Red Fort, Delhi.

About Natyashastra

- It is an ancient Sanskrit treatise on performing arts.
- The title is a combination of two Sanskrit words - Natya and Shastra.
- **Natya refers to the technique of dance and drama, and shastra refers to science.**
- **It was composed by the sage Bharata Muni.**
- It has been dated to between the second century BCE and the second century CE.
- It is the earliest known treatise on performative arts in South Asia.
- Its primary importance lies in its justification of Indian drama as a vehicle of religious enlightenment.
- It comprises around 36,000 verses detailing drama (natya), performance (abhinaya), music (sangita), emotions (bhava), and aesthetic experience (rasa).
- One of the text's most profound contributions is the articulation of the concept of Rasa, the

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6	CA September 2025	12.10.2025
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8	CA November 2025	14.12.2025
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MISCELLANEOUS

1. Khamniungan Tribe

Context: Recently, the Prime Minister of India mentioned about the Khamniungan tribe in his 'Mann Ki Baat' episode.

About Khamniungan Tribe

- The Khamniungan tribe is one of the major tribes among the Nagas, with habitation both in India and Myanmar.
- Geographically, the land of Khamniungans is located in the Eastern part of Nagaland and in the North-Western part of Myanmar.
- The meaning of the term Khamniungan is 'source of great water or river'.
- Social Structure: The traditional social structure was based on the clan system.
- Language: They speak Khamniungan, one of the Naga languages which belongs to the Sino-Tibetan language.

Festivals

- They celebrate Tsokum Sumai in the month of September or in the first part of October to invoke blessing for a rich harvest.
- They also celebrate Khaotzao Sey Hok-ah sumai which marks the end of all agricultural activities for the year.
- Economy: Farming is one of the primary occupations of the people of this region. They traditionally practised jhum cultivation.
- They have been practicing cliff-honey hunting for centuries.

2. "Rage bait"

Context: The Oxford Dictionary has chosen "rage bait" as its Word of the Year 2025, reflecting the growing influence of digital culture.

"Rage bait"

- It is defined as online content deliberately designed to **provoke anger or outrage to boost traffic and engagement**
- It differs from "brain rot" (2024's word) by being intentional and targeted.
- It resembles clickbait but relies on negative provocations, often amplified by social media algorithms that **reward provocative posts, leading to practices like "rage farming."**
- It now spans fabricated stories, polarising political posts, and conspiracy theories, feeding an engagement-driven ecosystem that is hard for users-especially younger generations-to resist.

3. Famous Accidents and Location

Context: A protective shield at the Chernobyl nuclear plant in war-torn Ukraine, built to contain radioactive material from the 1986 disaster, can no longer perform its main safety function due to drone damage, the UN nuclear watchdog, IAEA, said on December 5, a strike Ukraine has attributed to Russia.

	Accidents/Mishaps	Locations
1	Chalk River Incident	Canada
2	Saint-Laurent Incident	France
3	Windscale Fire Incident	United Kingdom
4	Three Mile Island Incident	USA

4. Pradhan Mantri Rashtriya Bal Puraskar

Context: President of India to confer the Pradhan Mantri Rashtriya Bal Puraskar (PMRBP) to children who have demonstrated outstanding achievements in diverse fields on 'Veer Bal Diwas'.

About Pradhan Mantri Rashtriya Bal Puraskar

- It is a prestigious national honour conferred annually by the Government of India.
- It is awarded to children for exceptional excellence in Bravery, Art & Culture, Environment, Social Service, Science & Technology, and Sports.
- **The Pradhan Mantri Rashtriya Bal Puraskar organized by the Ministry of Women and Child Development Government of India.**

Eligibility for Pradhan Mantri Rashtriya Bal Puraskar

- **A child should be an Indian Citizen.**
- Age: A child above the age of 5 years and not exceeding 18 years (as of 31st July of respective year).
- The act/incident/achievement should have been within 2 years of the last date of receipt of application/nomination for the year of consideration.

- The number of Awards will be 25, however, any relaxation to this maximum number may be permitted at the discretion of the National Selection Committee.
- Each awardee will receive a medal, certificate and citation booklet.



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