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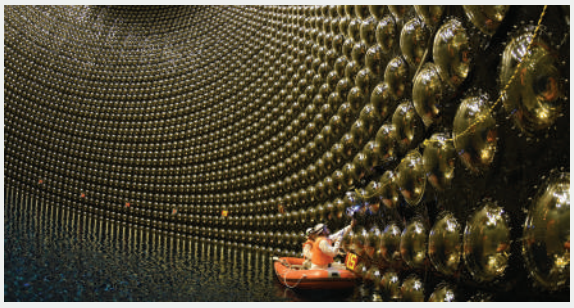
OCTOBER 2026

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Prelims UPSC CSE 2027

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PREFACE

Current Affairs UPSC CSE Prelims 2027

This high-quality monthly compilation of Current Affairs for Civil Services Exam Prelims 2027 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
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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. Inter-Parliamentary Union

Context: An Indian Parliamentary Delegation, led by the Deputy Chairman of Rajya Sabha, Harivansh, has departed for Tanzania, to participate in the 153rd Assembly of the Inter-Parliamentary Union (IPU).

About Inter-Parliamentary Union (IPU) (HQ: Geneva, Switzerland)

- The IPU is a **global organisation of national parliaments** that promotes parliamentary diplomacy, democracy, human rights and international cooperation.
- It was **established in 1889**, Paris, by William Randal Cremer (UK) and Frédéric Passy (France).
- **India joined the IPU in 1949 after gaining independence, making it an early member post-independence (not a founding member).**
- It has **183 Member Parliaments and 15 Associate Members.**
- The forum provides a platform for **lawmakers to discuss global issues**, build consensus and strengthen dialogue.
- The IPU provides India with an important platform for parliamentary diplomacy, allowing legislators to engage with counterparts globally, build trust and contribute to discussions on issues such as peace, terrorism, climate change and democratic governance.
- **The Speaker of the Lok Sabha is the ex-officio President of the Group and usually/normally leads the delegation to IPU assemblies. However, this is not an absolute rule ("always"). In circumstances where the Speaker is unable to attend, the delegation can be led by the Deputy Speaker of the Lok Sabha, the Deputy Chairman of the Rajya Sabha, or a senior Union Minister/MP nominated for the purpose.**

2. Form 6, Electoral Rolls

Context: The Chief Justice of India clarified that the Supreme Court has not approved any modified version of Form 6 used for inclusion of names in electoral rolls during the Special Intensive Revision (SIR).

Form 6

- Form 6 is issued by the **Election Commission of India (ECI).**
- It is the application for **new voter registration.**
- It's also the **same application for deleted voters who want to apply afresh.**
- The form seeks personal details, proof of age and ordinary residence, and declarations about citizenship and whether the applicant is already registered elsewhere.

New Form 6

- In the new Form 6 published in July, **applicants are asked to choose between three statements:**
  - whether their name appeared in the electoral roll during the last SIR held in the early 2000s,
  - whether a parent's or grandparent's name appeared in that roll,
  - whether neither their name nor that of their parents appeared in it.
- Although the new declaration is not marked as mandatory, applicants cannot submit the online form without filling it.
- Moreover, the guidelines warn that making a false statement in it is punishable under Section 31 of the Representation of the People Act, 1950.

3. Press Council of India

Context: The Ministry of Information and Broadcasting (I&B) officially notified the names of 13 journalists as members of Press Council of India (PCI).

About PCI:

- The PCI is a **statutory**, **quasi-judicial autonomous body** established to preserve the freedom of the press and maintain or improve the standards of newspapers and news agencies in India.
- **Established: Originally, it was set up in 1966 under the Press Council Act of 1965 based on the recommendations of the First Press Commission.**
  - Abolished during the Emergency in **1975**, it was **re-established under the Press Council Act, 1978**, which currently governs its operations.
- **Composition:** Comprises a chairman and 28 members serving a **3-year term**.
  - Chairman (traditionally a retired Supreme Court judge), nominated by a committee of the **Lok Sabha Speaker, Rajya Sabha Chairman,** and an **elected PCI member**.
  - **28 other members (representing working journalists (13), newspaper owners/managers (6), news agencies (1), parliamentarians (5), and literary/educational bodies (3)).**

Core Functions

- Acts as a watchdog against government encroachment or undue external pressures on media independence.
- Formulates and enforces code of conduct and ethics for journalists & news organizations.
- Hears grievances from the public or government against media outlets for unethical reporting, as well as complaints by journalists against state authorities for harassment.
- Reviews developments likely to restrict the flow of news or public information.

Powers

- Possesses **civil court powers** during inquiries (such as summoning witnesses and demanding public records).
- Can issue warnings, censures, or admonishments to newspapers, news agencies, editors, or journalists for violating ethics or freedom of the press.
- **Its decisions are final and cannot be appealed in a court of law.**

4. National SC-ST Hub

Context: The National SC-ST Hub (NSSH) is emerging as an important initiative to strengthen entrepreneurship among Scheduled Caste and Scheduled Tribe communities.

National SC-ST Hub

- **It was launched in 2016 by the Ministry of Micro, Small and Medium Enterprises (MSME).**
- The scheme helps address barriers faced by SC/ST-owned enterprises and supports their participation in public procurement.
- **Implemented through the National Small Industries Corporation (NSIC).**
- **Enterprise development initiatives under NSSH include** training, mentoring, business development, networking and knowledge support.
- **Uttar Pradesh, Maharashtra, Karnataka, Tamil Nadu and Assam** emerged as the five leading States under the scheme.
- **Financial Support: New and existing SC/ST-owned MSEs can receive a 25% capital subsidy, capped at ₹25 lakh, for investment in plant, machinery and equipment financed through institutional credit.**
- **Single Point Registration Scheme (SPRS):** SPRS helps MSEs access Government procurement opportunities through registration with NSIC. Registered MSEs receive free tender sets and exemption from payment of Earnest Money Deposit (EMD).
- **Marketing Assistance:** The Special Marketing Assistance Scheme (SMAS) supports SC/ST enterprises in improving product visibility and competitiveness through exhibitions, trade fairs, workshops and awareness campaigns.
- **Reducing the cost of doing business:** Under the Bank Loan Processing Reimbursement Scheme,

enterprises can receive reimbursement of 80% of loan processing fees or ₹1 lakh, whichever is lower.

- **Market Access:** Beyond financial assistance and market access, the National SC-ST Hub provides structured mentorship through its Business Accelerator Programme (BAP).

5. Deputy Election Commissioner

Context: Prakash Rajpurohit, an IAS officer of the 2010 batch, has been appointed as a Deputy Election Commissioner in the Election Commission of India (ECI).

Deputy Election Commissioner (DEC)

- **A Deputy Election Commissioner (DEC) is a senior officer who assists the Election Commission of India (ECI) in managing and supervising election-related work across the country.**
  - **Five or Six Deputy Election Commissioners and Director Generals** who are the senior officers in the Secretariat assist the Commission.
- **Appointment: They are generally senior civil servants appointed by the Central government.**
- **Administrative position:** They work under the overall supervision of the Election Commission of India and assist in implementing its decisions.
- **Difference from Election Commissioners:** The Chief Election Commissioner and Election Commissioners are constitutional authorities under Article 324, whereas Deputy Election Commissioners are supporting administrative officers.

6. Special Summary Revision

Context: The Election Commission of India (ECI) announced the schedule for the Special Summary Revision (SSR) of electoral rolls in 17 States and Union Territories, including five states scheduled to hold Assembly elections in early 2027.

What is the Special Summary Revision (SSR)?

- **Article 324** of the Constitution empowers the ECI to supervise, direct and control the preparation of electoral rolls and the conduct of elections.
- The preparation and revision of electoral rolls are governed by the Representation of the People Act, 1950, and the Registration of Electors Rules, 1960.
- Under **Section 21 of the Representation of the People Act, 1950**, electoral rolls may be revised before general elections and annually as directed by the ECI.
- SSR is a periodic exercise to update existing electoral rolls by:
  - Adding newly eligible voters.
  - Correcting errors in existing entries.
  - Removing entries of deceased, duplicate or permanently shifted electors, following the prescribed procedure.

How is SSR different from SIR?

- **Special Intensive Revision (SIR):** Requires existing electors to submit enumeration forms to be included in the draft electoral roll. Certain electors may also be required to provide documents to establish their eligibility, including citizenship.
- **Special Summary Revision (SSR):** Existing electors are generally retained on the draft roll by default, without fresh enumeration forms. The focus is on enrolling eligible new voters and updating existing entries.
- During SSR, deletions of deceased or duplicate electors must follow the prescribed statutory procedure, including notices and hearings wherever required.
- Unlike the SIR process, SSR does not envisage the same exercise of issuing centrally generated notices to electors flagged for logical discrepancies in submitted documents.

7. Section 497 of the Indian Penal Code, 1860

Context: An Armoured Corps officer was issued a show-cause notice under the Army Rules, 1954,

proposing administrative termination of service over allegations of adultery.

What is Adultery?

- **Section 497 of the Indian Penal Code, 1860 (IPC),** recognised the crime of adultery and provided the accompanying punishment.
- It defined adultery as "whoever has sexual intercourse with a person who is and whom he knows or has reason to believe to be the wife of another man, without the consent of that man, such sexual intercourse is guilty of the offence of adultery".
  - Under it, **only a man could be prosecuted** and punished for committing the crime of adultery.
  - For someone to be punished for adultery, he must have had sexual intercourse with another man's wife, **without that man's consent.**
- **Punishment:** It was punishable with up to five years imprisonment and a fine.
- While adultery has been decriminalised under the Indian Penal Code (IPC), it has not been erased from all forms of civil or disciplinary consequences: Adultery remains a valid **civil ground for divorce** under various personal laws in India and striking down of Section 497 IPC does **not** preclude disciplinary action against members of the **Armed Forces** under their respective Service Acts.
- In the landmark case **Joseph Shine v. Union of India (2018)**, a five-judge Constitution Bench of the Supreme Court unanimously struck down **Section 497 of the IPC** (and Section 198(2) of the CrPC), declaring it unconstitutional as it violated Articles 14 (Equality), 15 (Non-discrimination), and 21 (Right to Privacy and Personal Liberty) of the Constitution.

8. Special Executive Magistrate

Context: Recent judicial custody and subsequent release of Cockroach Janta Party leaders by a Special Executive Magistrate (SEM) have brought the powers of SEMs into focus.

About Special Executive Magistrate (SEM)

- **Appointment: State government can appoint a police officer of at least Superintendent of Police rank, or equivalent, as an SEM for specific areas or function under section 15 of Bharatiya Nagarik Suraksha Sanhita (BNSS).**
- **Duration:** Determined by the Government.
- **Powers:** Government determines the powers of Executive Magistrate (EM) to be conferred on the officer.
- **Powers under BNSS:**
  - **Section 163 (Section 144 of Code of Criminal Procedure):** Empowers EMs to issue **prohibitory orders** against individuals or in areas on grounds of public safety, including orders banning unlawful assemblies, processions or gatherings of five or more.
  - **Section 126:** EMs can require a person to execute a bond, with or without sureties, to keep the peace for up to one year. Breach of bond can result in forfeiture of bond amount.
  - **Section 136:** Empowers an EM to require a person to execute a bond if it is found necessary to maintain peace and good behaviour.
  - **Sections 140 and 141:** Empower EMs to reject sureties and order imprisonment.
  - **Section 170: Allows a police officer to make a preventive arrest without a warrant or a magistrate's order if the officer has knowledge of a person's design to commit a cognizable offence. The detained person can be kept in custody for up to 24 hours.**
  - **Extraordinary Powers:** Sections 163, 172, 126, 135, 140, 141 and 170 of the BNSS and Sections 28 and 36 of the Delhi Police Act, alongside Delhi Police Standing Orders give extraordinary powers to the police and EMs.

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ECONOMY

1. Bond Yield

Context: The benchmark 10-year G-Sec yield hit a two-year high of 7.21% on October 1, as global yields hardened and domestic inflation expectations strengthened. Government bond yielded a similar return in 2024, when it touched 7.22%.

What are Bonds and Bond Yield?

- **Bonds:** Loans that investors make to borrowers' entities in exchange for interest payments (zero, fixed, or floating) over a defined period serving as a way for borrowers to raise capital, and for investors to earn interest income on their investments.
  - **Government bonds or G-Sec:** Bonds issued by Government (**Central or State governments**). They generally offer **stable returns** and are **safe** as they are guaranteed by the Indian government.
- **Categories:** Bond market is divided into **primary market** and the **secondary market**.
  - **Primary Market**: **New bonds are issued** and sold to investors for the first time.
  - **Secondary Market: Existing bonds are bought and sold** among investors.
- **Bond Yield:** Return on capital an investor receives from a bond, affected by its coupon rate and market price.

Bond yield, coupon and prise relation:

Inverse Relationship: Bond prices and bond yields have an inverse relationship-when market interest rates (yields) rise, existing bond prices fall, and vice versa.

Coupon Rate vs. Yield (YTM):

- **At Par:** When the bond price equals its face value, the yield equals the coupon rate.
- **At Discount:** When a bond is bought below its face value (discount), the investor gets the fixed coupon payments plus a capital gain upon maturity, pushing the overall **yield higher than the coupon rate**.
- **At Premium:** When a bond is bought above its face value (premium), the overall **yield is lower than the coupon rate**.

2. PM-DHARA Scheme

Context: Recently, the Union Cabinet approved the ₹1.86 lakh crore PM-DHARA scheme.

About PM-DHARA Scheme

- The PM-DHARA stands for PM-Developing Harmonized and Accelerated Renewable-energy Access.
- **It will strengthen India's Intra-State Transmission System (InSTS) to enable evacuation of up to 135 Gigawatt (GW) of renewable energy across States/ Union Territories.**
- It has provided for the deployment of 50 GWh of Battery Energy Storage Systems (BESS) at generator ends or other locations that are crucial for grid flexibility.
- **The scheme is targeted for implementation by FY 2032-33.**
- Financial Outlay: Project outlay of Rs 1,86,405 crore, comprising Rs 1,36,378 crore for the development of Intra-State Transmission Systems (InSTS) under Green Energy Corridor Phase-III (GEC-III) and Rs 50,000 crore for 50 GWh of Battery Energy Storage Systems (BESS).
- The Scheme involves a total Central Financial Support of Rs 54,082 crore.

Implementation

- All Greenfield projects under the InSTS component will be implemented through Tariff Based Competitive Bidding (TBCB) mode,
- Brownfield upgradation and network strengthening works will be executed under Cost Plus Basis (CPB).

- Implementing Agency: The State Transmission Utilities will be the overall implementing agency, and Transmission Service Providers (TSPs) will participate under TBCB on a Build-Own-Operate-Maintain (BOOM) model.

3. Essential Commodities Act, 1955

Context: The Supreme Court heard petitions on medicine, medical equipment and generic pharmaceutical pricing.

Legislation governing drug prices in India

- **The Essential Commodities Act, 1955**: It gives the Centre power over essential goods, including medicines.
  - Section 3(1) allows it to regulate production, supply, and distribution "for maintaining or increasing supplies of any essential commodity or for securing their equitable distribution and availability at fair price".
  - Section 3(2)(c) allows for issuing orders controlling commodity prices.
- **Drugs (Prices Control) Order 2013 (DPCO, 2013): Prices of drugs are regulated as per the provisions of the Drugs (Prices Control) Order 2013 (DPCO, 2013).**
  - DPCO separates pharmaceuticals into scheduled and non-scheduled preparations.
    - Scheduled drugs are those found in Schedule I of the National List of Essential Medicines (NLEM), which are under government price limits, while non-scheduled drugs are not under the usual price ceiling system.
  - **As per extant provisions of DPCO, 2013, the National Pharmaceutical Pricing Authority (NPPA) fixes the ceiling prices of the drugs included in Schedule I of DPCO, 2013, which is based on the National List of Essential Medicines (NLEM) published by the Ministry of Health & Family Welfare (MoHFW).**
    - The current Schedule I includes 384 drugs, which make up about 20% of the total turnover of the drug market

The NPPA and price ceiling?

- The **National Pharmaceutical Pricing Authority (NPPA**) computes the ceiling price of a scheduled drug for all brands/generic versions containing the same active ingredient and excludes those with less than 1% market share, based on moving annual turnover (MAT).
- It computes the average Price to Retailer (PTR) of the qualified products and adds a 16% retailer margin to arrive at the ceiling price. Average PTRs of Rs 8, Rs 10 and Rs 12 come to Rs 10, while the ceiling price is Rs 11.60. (excluding relevant taxes) shall not be more than this amount.
  - **The ceiling prices are amended every year on 1st April in accordance with the Wholesale Price Index (WPI).**
  - The manufacturers are allowed to increase the prices by the allowable WPI rate and, in case of negative WPI, the prices have to be reduced accordingly within the stipulated period.

4. Household Travel Survey

Context: The National Statistics Office (NSO) of the Ministry of Statistics and Programme Implementation has conducted the first-ever all-India survey on household travel between July 2025 and June 2026.

About

- The survey captures key aspects of domestic travel, including:
  - **Purpose of travel:** Employment, education, social engagements, cultural and leisure activities, tourism, domestic work, caregiving and other purposes.
  - **Mode of transport:** Modes of transportation used by different demographic groups for undertaking trips.
  - **Travel duration and distance:** Average time taken and distances travelled during trips.

Findings of the Survey

- **Two-wheelers** are the predominant mode of transport for commuting to fixed workplaces, accounting for **42.6 per cent** of workers.

- **Buses and railways** facilitate **73.5 percent** of overnight travel followed by cars at **15.1 percent** and two wheelers at **8.8 percent.**
- **Gender Gap in Workforce Travel:** 61.9% of male workers undertake daily work trips (>1 km) compared to 41.9% of female workers nationwide.
- The average monthly expenditure on commuting to a fixed workplace is **₹785 per worker**.
  - **Urban workers** spend substantially more, at **₹1,044 a month**, compared with **₹612 for rural workers.**
  - Male workers spend an average of **₹835** on their commute each month, against **₹533 for female workers.**

5. Account Aggregators

Context: The Reserve Bank of India (RBI) will enable interoperability among Non-Banking Finance Company Account Aggregators (NBFC-AAs), allowing individuals to access information on their financial assets through a single platform.

About

- The move will **allow customers to link bank accounts with demat accounts** and access consolidated financial information through their account aggregator.
- It will also enable Sebi-regulated depositories to include bank deposit information in their consolidated account statements (CAS).

About Account Aggregators

- An Account Aggregator (AA) is a type of **Non-Banking Financial Company (NBFC-AA)** regulated by the **Reserve Bank of India (RBI).**
- It is a **consent-based financial data-sharing platform** that enables individuals to securely access and share their financial information between participating financial institutions.
- **The AA does not store the customer's financial data; it facilitates its secure transfer between the relevant entities.**
- **Examples of licensed Account Aggregators (AAs):**
  - **CAMS FinServ, A subsidiary of Computer Age Management Services (CAMS).**
  - **OneMoney, operated by FinSec AA Solutions.**

- **Key Stakeholders:**
  - **Financial Information Providers (FIPs):** Banks, mutual fund companies, insurance companies, etc.
  - **Financial Information Users (FIUs):** Lenders, wealth managers, insurers, etc.
  - **Account Aggregators (AAs):** Licensed entities that facilitate data flow between FIPs and FIUs.

6. Khadi and Village Industries Commission

Context: Khadi and Village Industries (KVI) have continued to play a significant role in promoting rural livelihoods, generating employment and strengthening the vision of an Atmanirbhar Bharat.

Khadi and Village Industries Commission (KVIC)

- **The Khadi and Village Industries Commission (KVIC) is a statutory body established in 1957 under the Khadi and Village Industries Commission Act, 1956.**
- **It functions under the Ministry of Micro, Small and Medium Enterprises (MSME) and promotes khadi and village industries to generate rural employment, encourage self-employment and strengthen local production.**
- **Its major functions** include providing financial assistance, training artisans, supporting marketing and developing village-based enterprises.

7. Digital Hub

Context: The Central Asian Conservation Network (CACN) has launched a new Central Asian Flyway Digital Hub.

About Digital Hub

- It aims to **strengthen the sharing of knowledge and information** for the conservation of migratory birds across one of the world's major migration routes.
- It will bring together information on migratory bird species, important flyway sites, conservation projects and opportunities for participation.
- It will also provide dedicated portals for recording bird collisions and sightings of marked birds.

Central Asian Conservation Network (CACN)

- CACN is a regional platform for **transboundary conservation** across the **CAF**, comprising **non-governmental organisations (NGOs), researchers,** and **experts.**
- **Origin:** The **Youth Group for Protection of the Environment** (Tajikistan) and the **Nature Foundation (Kyrgyzstan)** established CACN in **2024** and host the network.
- **Members:** Independent environmental NGOs registered in CAF countries.
- **10 Working Groups:** Cover flyway sites, a regional database, energy infrastructure, ringing and tagging, volunteering, and five bird groups (cranes, geese, small landbirds, waders, and vultures).
- **Partners:** World Wide Fund for Nature (WWF), Ornithological Society of the Middle East (OSME), IUCN Asia, and Regional Ramsar Initiative for Central Asia.

8. Plan Bee System

Context: The Northeast Frontier Railway (NFR) has used AI-based alerts, speed restrictions, enhanced patrolling and its 'Plan Bee' system to prevent train-elephant collisions.

About Plan Bee System

- It is an innovative acoustic deterrent system developed by the Northeast Frontier Railway (NFR).
- It is developed to prevent wild elephants from straying onto railway tracks and being hit by trains.
- Working: The system uses amplified honeybee sounds to discourage elephants from approaching railway tracks.
- It has been installed at 56 locations under the NFR jurisdiction, where the train lines cut through forests or elephant habitats.
- Through this device, the buzzing sound of bees will be audible from a distance of 400 metres.

9. RBI tightens forex derivatives regulations

Context: Recently, RBI has tightened forex derivatives regulations to curb speculation and stabilize the currency market with the rupee approaching ₹97 per US dollar (Rupee Depreciation) and crude oil prices exceeding $100 per barrel.

Major Regulatory Changes by RBI

- **Reduction in Exposure Threshold:** The threshold for undertaking qualifying forex derivative transactions without establishing underlying exposure has been **reduced from $100 million to $5 million, a 95% reduction.**
  - The corresponding threshold for **exchange-traded rupee derivatives** has been **reduced to $5 million** across recognised stock exchanges.
- **Restrictions on Rebooking:** Cancelled rupee-involving derivative contracts cannot be rebooked with authorised dealers after the directions take effect.
  - However, rolling over contracts at maturity remains permissible, subject to existing regulations.
- **Prevention of Double Hedging:** Banks need to obtain and retain undertakings confirming that the same underlying exposure has not been hedged through another authorised dealer.
- **Foreign Exchange Risk Reserve (FERR):** Authorised dealers need to maintain a cash reserve with the RBI equal to 20% of the rupee

equivalent of the notional amount of specified covered derivatives exceeding $2 million.
    - It is a reserve requirement on banks, not a direct 20% fee on customers.
- Exchange-traded Currency Futures carry virtually negligible counterparty risk because every trade is novated and cleared through a centralized Clearing House / Central Counterparty (CCP), which guarantees trade settlement backed by daily mark-to-market margins.
- "Customized bilateral agreements entered into directly between commercial banks and clients" - applies to **Forward contracts (Over-The-Counter)**, not Currency Futures. Currency futures are strictly standardized and traded on recognized exchanges. Furthermore, bilateral bank forwards carry higher counterparty risk compared to exchange-traded futures.

10. Fair and Remunerative Price

Context: Union Government has constituted a committee chaired by Professor Ramesh Chand, former Member of NITI Aayog, to examine issues faced by sugarcane farmers and recommend appropriate measures.

About:

- It will examine the demand for an increase in Fair and Remunerative Price (FRP) to sugarcane farmers, the demand for revision of the ex-mill Minimum Selling Price (MSP) of sugar, and suggest measures to ensure transparent verification of recovery, and prevailing sugarcane weighment practices at sugar mills.

Fair and Remunerative Price (FRP)

- FRP is the minimum price that sugar mills are **legally required to pay sugarcane farmers** for the cane they purchase.
- **Determination:** It is fixed by the **Central Government** based on recommendations of the **Commission for Agricultural Costs and Prices** (CACP), after consultations with State governments and other stakeholders.
- **Legal Framework:** FRP is notified under the **Sugarcane (Control) Order, 1966,** issued under the **Essential Commodities Act, 1955**.

11. Foreign Exchange Management Act (FEMA), 1999

Context: The Foreign Exchange Dealers' Association of India (FEDAI) has directed banks not to convert foreign currency remittances into rupees without specific instructions from the sender or beneficiary.

More:

- The move follows concerns that intermediary banks were converting dollars at unfavourable exchange rates, leaving small exporters and individuals receiving overseas payments with less money.
- Banks have also been asked to ensure transparent forex service charges and disclose currency conversion rates on their websites.
- Foreign exchange operations in India are governed and regulated under the **Foreign Exchange Management Act (FEMA), 1999**, which replaced the earlier Foreign Exchange Regulation Act (FERA).
- The RBI forbids/disallows banks from acting as pure forex intermediaries connecting third-party buyers and sellers for a commission fee. AD banks can only transact directly with clients or through registered foreign exchange brokers operating under fixed inter-bank market rules.

12. Financial Services Institutions Bureau

Context: Recently, the government reconstituted the Financial Services Institutions Bureau.

About Financial Services Institutions Bureau

- **It is an autonomous body of the Government of India set up under the Department of Financial Services (DFS), Ministry of Finance.**
- **It replaced the erstwhile Banks Board Bureau (BBB) in July 2022.**

Structure:

- FSIB is headed by a chairman, a central government nominee.
- The board comprises the Secretaries of the DFS, the chairman of IRDAI, and a deputy governor of the RBI.
- Additionally, it will have three part-time members who are experts in banking and three more from the insurance sector.

Functions of Financial Services Institutions Bureau

- To recommend persons for appointment as whole-time directors (WTDs) and non-executive chairpersons (NECs) on the Boards of Directors in Public Sector Banks, financial institutions and Public Sector Insurers
- **To advise the Government on matters relating to appointments, transfer or extension of term of office and termination of services of the said directors;**
- To advise the Government on the desired management structure at the Board level for PSBs, FIs and PSIs;
- To advise the Government on a suitable performance appraisal system for WTDs and NECs in PSBs, FIs and PSIs;
- To advise the Government on formulation and enforcement of a code of conduct and ethics for whole-time directors in PSBs, FIs and PSIs;
- To advise the Government on evolving suitable training and development programmes for management personnel in PSBs, FIs and PSIs;
- To help PSBs, FIs and PSIs in terms of developing business strategies and capital raising plan etc.

13. International Organization of Legal Metrology

Context: India will host the 61st Meeting of the International Committee of Legal Metrology (CIML) which is being organised by the Department of Consumer Affairs in association with the International Organization of Legal Metrology (OIML).

About International Organization of Legal Metrology

- **It is an intergovernmental organisation established in 1955 to promote the global harmonisation of legal metrology procedures.**
- It is an international standard-setting body.
- Meeting: A meeting of the OIML Conference is held every four years to establish general policy, vote on the budget and confirm the decisions of the CIML.
- **Headquarter**: **Paris**.

Functions

- It develops international recommendations, standards and related documents for measuring instruments used in trade, industry, healthcare, safety and environmental protection.
- It plays a crucial role in harmonising national laws and regulations on performance of measuring instruments like clinical thermometers, alcohol breath analysers, radar speed measuring instruments, ship tanks found at ports, and petrol dispensing units.
- It develops model regulations, standards and related documents for use by legal metrology authorities and industry.
- **Members**: **There are 63 Member States (voting) and 66 Corresponding Members (nonvoting).**
- India became a member of the OIML in 1956. In the same year, India signed the metric convention.
- India can issue Internationally Accepted OIML (International Organization of Legal Metrology) Certificates for selling weights & measures anywhere in the world. (There are 13 countries who can issues these certificates).
- To sell a weight or measure in the International market an OIML Pattern Approval certificate is mandatory,
- Administrative Structure: The International Committee of Legal Metrology (CIML) is the principal decision-making body responsible for guiding the technical and administrative activities of the OIML.

14. Melanterite Mineral

Context: Researchers identified two key minerals in parts of Tamil Nadu and Atacama Desert in Chile, reflecting geological, chemical and physical similarities with Mars, to help establish Martian analogue sites.

Minerals Identified

- **Melanterite:** Identified from Neyveli, Tamil Nadu, it indicates **short-lived wet, acidic and oxidising conditions**.
- **Gypsum:** From Atacama Desert and Tiruchirappalli Badlands (a semi-arid geological and paleoclimatic terrain in Tamil Nadu) is significant as gypsum preserves evidence of **past aqueous environments**.
- **Significance:** Useful for understanding **past water activity** and potentially **habitable environments** on Mars, and support planetary exploration.
- Terrestrial environments rich in **Melanterite** ($FeSO_4 \cdot 7H_2O$) are actively studied by planetary geologists as **Martian analogue sites** (e.g., acidic crater lakes, mine drainage systems, and extreme evaporite basins).
- Rover and orbiter observations (such as NASA's Opportunity, Curiosity, and Perseverance) have detected extensive **hydrated sulfate mineral deposits** across Martian terrains (such as Meridiani Planum and Gale Crater).
- Melanterite forms when iron sulfide minerals (like pyrite) undergo oxidation in extremely acidic, iron-rich, and aqueous/evaporative environments. Because these precise chemical conditions mirror ancient Martian paleoclimate and hydrothermal activity, terrestrial sites bearing Melanterite serve as ideal natural laboratories for calibrating instruments and understanding biosignature preservation on Mars.

15. Index of Core Industries

Context: India's core sector output growth accelerated to 7.9% in September, the fastest pace in the new series, from a revised 5.9% in August, supported by strong growth in iron ore, electricity, coal and refinery products.

What is the Index of Core Industries (ICI)?

- The Index of Core Industries (ICI) measures the **monthly production performance of India's major industrial sectors.**
- The provisional index is generally released on the **20th of the following month or the next working day.**
- These industries form the **backbone of industrial activity.**
- Under the new **2022-23 base year series**, the eight core industries' combined weight in the **Index of Industrial Production (IIP) is 32.88%, compared with 40.27% under the earlier 2011-12 series.**



S. No.	Industry	ICI Weights (Base Year 2011-12)	ICI Weights (Base Year 2022-23)
1	Electricity	19.853	30.932
2	Refinery Products	28.037	22.572
3	Steel	17.917	17.584
4	Crude Oil	8.983	7.430
5	Coal	10.334	5.596
6	Iron Ore	-	4.905
7	Cement	5.372	4.410
8	Natural Gas	6.877	3.841
9	Fertilizers	2.628	2.731
Total		100.000	100.000

16. Advanced Emergency Braking System

Context: The Ministry of Road Transport and Highways (MoRTH) recently proposed making Advanced Emergency Braking Systems (AEBS) mandatory for all new car models from October 1, 2030, to help reduce road accidents.

About Advanced Emergency Braking System

- AEBS is an active vehicle safety technology designed to prevent collisions or reduce their severity.
- **Unlike ABS (which is a reactive system that modulates brake pressure only after the driver presses the pedal), AEBS is an active, autonomous safety technology that monitors the road ahead and automatically applies the brakes if an impending collision is detected, even without any driver input.**
- It is a combination of braking and sensor technology integrated into automobiles to recognise and prevent crashes.
- The system continuously monitors the road ahead, warns the driver when it detects a potential collision with another vehicle, pedestrian, or cyclist, and automatically applies the brakes if the driver fails to respond in time.
- AEBS is a key feature of Advanced Driver Assistance Systems (ADAS), a collection of more than 100 electronic technologies designed to improve road safety.

How does AEBS work?

- AEBS operates continuously while a vehicle is moving.
- **It uses a combination of radar sensors, cameras, or Light Detection and Ranging (LiDAR) technology, typically mounted near the front bumper or windscreen, to assess the distance from obstacles, their relative speed, and the time remaining before a potential collision.**

- The system generally works in three stages:
- Warning stage: When the system detects an obstacle approaching rapidly and calculates that a collision is imminent, it issues an audio-visual alert, such as a dashboard warning light and a beeping sound, prompting the driver to brake.
- Partial or pre-braking stage: If the driver does not respond, the system may apply a brief, sharp brake pulse as a warning and pre-charge the braking system to maximise stopping power.
- **Full emergency braking stage: If the driver still fails to take action and a collision is imminent, AEBS automatically applies maximum braking force.**
- AEBS can reduce the impact of various crashes, including head-on, rear-end, right-turn, and pedestrian collisions.

17. RELIEF Scheme

Context: Recently, the government has extended the operational timelines of a key component of its RELIEF scheme to provide greater insurance protection to Indian exporters facing elevated freight, insurance and war-related risks.

About RELIEF Scheme:

- **The RELIEF (Resilience & Logistics Intervention for Export Facilitation) scheme was launched by the Ministry of Commerce & Industry.**
- It is a time-bound and targeted measure aimed at mitigating the impact of rising logistics costs, higher insurance premiums, and war-related risks affecting export consignments moving to or through the Gulf region.
- **It was launched under the Export Promotion Mission (EPM).**

- The scheme comprises three key components
  - **Enhanced insurance coverage**: Exporters with existing ECGC insurance will receive up to 100% risk coverage for eligible consignments shipped between February 14 and March 15, 2026, without additional cost.
  - **Support for upcoming shipments**: Exporters planning shipments between March 16 and June 15, 2026, can avail up to 95% risk coverage with government support, helping sustain trade flows.
  - **Relief for MSMEs**: Small exporters without ECGC cover during the disruption period will be eligible for partial reimbursement of up to 50% of increased freight and insurance costs, subject to a ceiling of ₹50 lakh per exporter.

- **Geographical Coverage: The scheme will cover shipments destined for countries including the United Arab Emirates, Saudi Arabia, Qatar, Oman, Kuwait, Bahrain, Iraq, Iran, Israel and Yemen.**
- Implementing Agency: The Export Credit Guarantee Corporation of India has been designated as the nodal implementing agency responsible for verification, claim processing, disbursement, and monitoring.

18. India's infrastructure investment trusts

Context: India's infrastructure investment trusts (InvITs) are attracting more investors, creating a potential avenue to channel domestic savings into roads, power transmission networks and other infrastructure assets.

About India's infrastructure investment trusts (InvITs)

- Infrastructure investment trusts are **investment instruments that work like mutual funds**.
- **It enables direct investment of money** from individual and institutional investors in infrastructure projects to earn a small portion of the income as return.
    - **The InvIT is designed as a tiered structure** with Sponsor setting up the InvIT which in turn invests into the e**ligible infrastructure projects** either directly or via special purpose vehicles (SPVs).

- **Regulatory framework: InvITs in India are regulated by the Securities and Exchange Board of India (SEBI) under the SEBI (Infrastructure Investment Trusts) Regulations, 2014.**
- **Income distribution:** They distribute a substantial portion of their net distributable cash flows to investors, subject to SEBI regulations.
- **Tradability: Listed InvIT units can be bought and sold on stock exchanges, providing investors with liquidity.**

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INTERNATIONAL RELATIONS

1. UN Declaration on Sea-Level Rise

Context: The United Nations General Assembly adopted the first-ever UN Declaration on Sea Level Rise, which recognises rising sea levels as an existential threat.

UN Declaration on Sea-Level Rise

- **The UN Declaration on Sea-Level Rise**, adopted by the UN General Assembly by consensus in 2026, is the **first UN-wide political framework** specifically addressing the legal, humanitarian and developmental consequences of rising sea levels.
- **Background:** The process for the UN Declaration on Sea-Level Rise began with **UN General Assembly Decision 78/558 in 2024**, which called for a high-level meeting on the issue and an action-oriented declaration negotiated by consensus.
  - **The 2026 high-level meeting** subsequently led to the adoption of the Declaration.
- **Nearly 900 million people** currently live in low-lying coastal zones, while more than one billion people could face **coastal hazards by 2050**, highlighting the scale of the challenge.

Can a Country Retain Statehood Despite Losing Its Territory?

- **Under the 1933 Montevideo Convention**, a state is defined using four main criteria: a permanent population, a defined territory, a government, and the capacity to enter into relations with other states.
  - However, these criteria do not fully address the continuity of an existing state whose territory becomes uninhabitable or submerged due to sea-level rise.
- **The International Law Commission (ILC),** in its 2025 report, recognised the legal basis for preserving statehood, drawing on territorial integrity, self-determination, sovereign equality and legal stability.
- **The 2026 UN Declaration on Sea Level Rise** affirms a presumption of continued statehood, indicating that the loss of territory due to sea-level rise does not automatically result in the loss of statehood.

2. International Energy Agency

Context: The Group of Seven (G7) nations have agreed to release 100 million barrels of oil over four months to ease soaring fuel prices, with a substantial release of diesel planned in the first 20 days.

International Energy Agency (IEA)

- The International Energy Agency (IEA) **was set up in the wake of the 1973-1974 oil crisis** to help industrialised countries respond to major oil shocks.
- **Headquarters: Paris, France.**
- **Members:** The IEA is made up of **32 Member countries** including the United States, Canada, Turkey, United Kingdom, Australia, Japan, New Zealand, South Korea etc.
  - **Association Countries:** India, China, Indonesia, Singapore, South Africa, Thailand etc.
- **Criteria for membership: A candidate country to the IEA must be a member country of the OECD. In addition, it must demonstrate several requirements. These are:**
  - Crude oil and/or product reserves equivalent to **90 days** of the previous year's net imports,
  - A demand restraint programme to reduce national oil consumption by up to **10%,**
  - Legislation and organisation to operate the **Coordinated Emergency Response Measures (CERM)** on a national basis.

3. UN Assessed Contribution

Context: PTI reported on October 20 that India had raised concerns about UN liquidity and unpaid assessed contributions at the General Assembly's Fifth Committee on October 19, 2026.

UN Assessed Contribution:

- Mandatory financial payments made by all 193 UN Member States to fund the regular budget, peacekeeping operations, and specialized international tribunals of the United Nations.
- **Legal Basis (Article 17, UN Charter):** Article 17(2) explicitly states: "The expenses of the Organization shall be borne by the Members as apportioned by the General Assembly."
- **Mandatory Nature:** Unlike voluntary contributions (which fund agencies like UNICEF, UNDP, and WFP), assessed contributions are legally binding financial obligations under international law.

Operational Budgets Funded by Assessed Contributions

Assessed contributions support three primary budgets:

- **UN Regular Budget:** Covers core administrative functions, political missions, UN headquarters, and regional commissions (e.g., ECA, ESCAP).
- **UN Peacekeeping Budget:** Apportioned using a modified scale of assessment. The 5 Permanent Members of the Security Council (P5)- China, France, Russia, UK, US - pay a **higher surcharge** because of their primary responsibility for maintaining international peace and security under the UN Charter.
- **International Criminal Tribunals:** Jointly funded through assessed contributions allocated between the Regular and Peacekeeping scales.

Penalties for Non-Payment (Article 19 of UN Charter)

- **Loss of Voting Rights:** A Member State automatically loses its vote in the UN General Assembly if the amount of its arrears equals or exceeds the total contributions due from it for the preceding **two full years**.
- **Exception Clause:** The UNGA may permit a member in arrears to vote if it is satisfied that the failure to pay is due to conditions beyond the control of the Member State (e.g., severe natural disaster, war, or catastrophic financial crisis).
- Under **Article 17** of the UN Charter, the General Assembly approves the budget and apportions expenses among Member States based primarily on their **"capacity to pay"** (calculated using Gross National Income with adjustments for per capita income and foreign debt burden).
- The UN General Assembly has set a **maximum assessment rate (ceiling)** of **22%** of the regular budget for any single country (currently paid by the United States).
- Under **Article 19 of the UN Charter**, a Member State in arrears loses its voting rights in the UN General Assembly if the amount of its arrears equals or exceeds the amount of contributions due from it for the preceding **two full years**, unless the Assembly is satisfied that failure to pay is due to conditions beyond the control of the member.
- The maximum assessment rate (cap) for **Least Developed Countries (LDCs)** is **0.01%** (not 0.1%). Additionally, the minimum assessment rate (floor) for any country is set at **0.001%**.

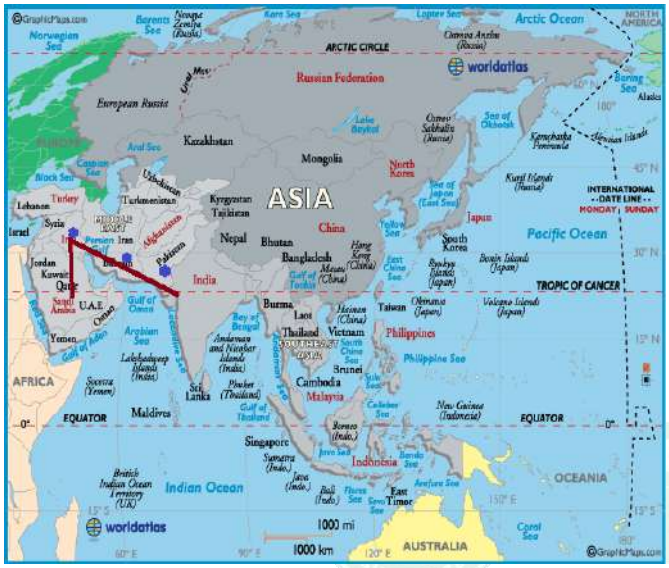
4. India & Saudi Arabia

Context: India and Saudi Arabia reviewed progress on their proposed electrical interconnection initiative and discussed opportunities to expand power-sector cooperation during a virtual bilateral meeting.

About

- The India-Saudi Arabia electrical interconnection is a proposed bilateral project to link the power grids of both nations via a long-distance undersea **high-voltage direct current (HVDC) cable.**

- **Initial Agreement:** A formal Memorandum of Understanding (MoU) was signed in **2023** in Riyadh, covering electrical interconnections, green hydrogen, and supply chains.
- It involves a planned **1,700 km undersea high-voltage power link** valued at roughly ₹47,000 crore ($5.5 billion).
    - The project aims to enable **2 GW** of power exchange, emergency support, and renewable energy integration.



Countries Transited:

- **Pakistan:** Crossing west from India over Pakistan.
- **Iran:** Entering Iran across its eastern land border with Pakistan.
- **Iraq:** Entering Iraq across its eastern land border with Iran (skipping the Persian Gulf / Gulf of Oman).
- **Saudi Arabia:** Crossing south into Saudi Arabia via its northern land border with Iraq.

5. SAMHiTA Project

Context: India and Sri Lanka are strengthening their cultural cooperation through the preservation of their shared Buddhist heritage, with the launch of the SAMHiTA Project at Colombo's Gangaramaya Temple.

About SAMHiTA Project

- The SAMHiTA (South Asian Manuscript Histories and Textual Archive) Project is an initiative to create a relational database and digital archive of Indian and broadly South Asian manuscripts housed in libraries, archives, and other repositories outside India, through collaboration with institutional partners.
- The word 'samhita' in Sanskrit means 'collection' or 'compilation'. SAMHiTA's goal is to consolidate information dispersed across institutions on an online platform accessible to all.
- The information collected will be shared on PANDiT: Prosopographical Database of Indic Texts and Records, a database on South Asian intellectual history.
- The initiative is being undertaken by the India International Centre in New Delhi, with grant assistance from the Government of India and is supported by the Ministry of External Affairs (MEA).
- It aims to digitise ancient manuscripts and preserve their historical, religious, and cultural knowledge for future generations.
- It is the first attempt to bring together repositories from outside India and South Asia on a common platform.

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ENIVORNMENT

1. CAFE norms

Context: The Union Government has notified the third phase of Corporate Average Fuel Economy (CAFE-3) norms for passenger vehicles, effective from April 1, 2027, to March 31, 2032.

What are CAFE norms?

- Corporate Average Fuel Economy (CAFE) norms **regulate the average fuel consumption and CO_2 emissions of a carmaker's passenger-vehicle fleet** rather than imposing the same efficiency requirement on every individual vehicle.
- The objective is to **encourage manufacturers to produce more fuel-efficient** and low-emission vehicles, thereby reducing petroleum consumption and transport-sector emissions.

2. Himalayan Tahr

Context: The Kedarnath Wildlife Division is preparing to restrict human activity in high-altitude meadows and clear rubbish from parts of its sanctuary after a survey found that visitors and local residents were feeding Himalayan tahrs.

About Himalayan Tahr

- It is a large, wild, goatlike mammal that lives on the mountain slopes and in the forests of the Himalayas.
- **Scientific Name**: Hemitragus jemlahicus.
- Himalayan Tahr Habitat and Distribution
- **It is found in southern Tibet, northern India, western Bhutan, and Nepal**.
- In the Himalayas, they are mostly found on slopes between 2,500 and 5,000 meters high.
- In India, they are found in the states of Jammu and Kashmir, Himachal Pradesh, Uttarakhand, and Sikkim.

Himalayan Tahr Features

- They are shorter in height than they are long.
- They have a small head, small pointed ears, and large eyes.
- **They are sexually dimorphic, with females being smaller in weight and in size and having smaller horns.**
- Male horns can grow up to 46 cm long.
- The horns curve backward, which helps prevent injuries when males fight during mating season.
- The exterior of a tahr is well adapted to the harsh climate of the Himalayas.
- They are double coated with a dense, reddish to dark brown woolly coat, and a thick undercoat.
- Their coats are thin with the end of winter and become lighter in colour.
- As a member of the ungulate group of mammals, the Himalayan tahr has an even number of toes. They can grip both smooth and rough surfaces.
- **They are gregarious animals. They live in all-male and all-female herds that usually include up to 80 members.**

Himalayan Tahr Conservation Status

- **It is classified as 'Near Threatened' under the IUCN Red List.**

3. Leachate

Context: Studies at Delhi's Ghazipur landfill detected hazardous substances, including cadmium, in groundwater at high concentrations creating a problem of leachate.

Leachate:

- Leachate is a **toxic liquid** produced when **water passes through decomposing waste**.
- It forms as organic waste decomposes and oxygen is exhausted, triggering anaerobic processes that generate methane, volatile fatty acids and dissolved organic carbon.
    - **Young leachate has high levels of biodegradable organic pollutants, reflected in elevated chemical oxygen demand (COD) and biochemical oxygen demand (BOD).**

- Mature leachate is characterised by relatively high ammoniacal nitrogen concentrations and greater proportions of humic and other recalcitrant organic substances.
- **In advanced wastewater and leachate treatment plants, the polishing stage often incorporates membrane technologies (such as ultrafiltration, nanofiltration, reverse osmosis, or membrane bioreactors) to remove residual dissolved solids, recalcitrant organics, and heavy metals to meet strict discharge standards.**

4. Jawahar Dweep

Context: The Jawahar Dweep Marine Oil Terminal has been declared plastic-free by the Mumbai Port Authority, becoming the first in India to eliminate single-use plastics.

About Jawahar Dweep

- Jawahar Dweep, or the Butcher Island, is an island off the coast of Mumbai in the Indian state of Maharashtra.
- It is located 8.25 kilometers from the Gateway of India.
- It is a restricted area, and most of the island is covered with thick vegetation.
- A hillock rises from the center of the Butcher Island.
- It is one of Mumbai Port's key marine oil terminals and handles crude oil and petroleum products. The terminal currently has five jetties.
- The terminal is also supported by automated systems for liquid bulk handling.
- The crude oil is stored in oil containers on the island. From there they are piped to Wadala, in Mumbai, where they are refined.
- It is the first oil terminal in India to eliminate single-use plastics.

5. Eco Warrior Awards

Context: Union Minister for Environment, Forest and Climate Change presided over the 4th Eco Warrior Awards and Eco Warrior Conclave.

About:

- The Eco Warrior Awards honour **grassroots conservation efforts** by Indian Forest Service (**IFS) officers**, scientists, and local communities who protect the nation's wildlife and natural heritage.
- **Key Awardees:**
  - **Lifetime Achievement:** Brij Kishore Singh, a 1976-batch Indian Forest Service (IFS) officer of Karnataka cadre, for decades of forest and wildlife protection.
  - **Best Use of Technology:** Ram Sundar M. for integrating GPS into the zoo's eco-tourism, and N. Jayaraj for deploying AI-based early-warning systems to protect elephants near railway tracks.
  - **Project Recognitions:** Project Elephant and Rajasthan's Great Indian Bustard (GIB) conservation project for species recovery and habitat management.

6. Debrigarh Wildlife Sanctuary

Context: Odisha Forest, Environment and Climate Change minister virtually inaugurated new accommodation and visitor facilities at Debrigarh Wildlife Sanctuary as part of the ongoing expansion of its community-managed ecotourism infrastructure.

About Debrigarh Wildlife Sanctuary

- It is situated in the Bargarh district of Odisha.
- It is located near Hirakud Dam (the longest dam in India and the longest earthen dam in the world) on the Mahanadi River.
- It is spread over an area of 347 sq.km.
- It finds a special mention because of the state's noted freedom fighter, Veer Surendra Sai.
- During his rebellion against the British, his base at Barapathara was located within the sanctuary.
- **Vegetation**: Most of the plant sanctuary is covered with mixed and dry deciduous forest.
- **Flora**: Major trees found here are Sal, Asana, Bija, Aanla, Dhaura, etc.

- **Fauna:**
  - Indian leopards, sloth bears, chousingha (four-horned antelope), sambar deer, gaurs (Indian bison), wild boars, and Indian wild dogs (dholes) are among the notable animal residents.
  - It is one of the most flocked wintering grounds of migratory birds like crested serpent eagle, Flower Peckers, red-vented bulbul, tree pie, drongo, and white-eye oriental.

7. Veerangana Durgavati Tiger Reserve

Context: Madhya Pradesh is planning to establish its third cheetah habitat at Veerangana Durgavati Tiger Reserve (VDTR), earlier known as Nauradehi, with the first pair of cheetahs scheduled for release into the reserve.

About Veerangana Durgavati Tiger Reserve

- It is spread across three districts i.e. Sagar, Damoh and Narsinghpur, of Madhya Pradesh.
- It encompasses areas within the Nauradehi Wildlife Sanctuary and Durgavati Wildlife Sanctuary.
- The entire Sanctuary is situated on a plateau, forming part of the upper Vindhyan range.
- The Reserve is classified under the Deccan peninsula biogeographic region.
- It covers an area of 2,339 sq.km.
- It is named for Rani Durgavati, the queen of the Gondi people.
- The reserve boasts a diverse landscape, with hills, valleys, rivers, streams, waterfalls, and grasslands.
- **Rivers**:
  - It straddles parts of the Narmada and Yamuna River basins.
  - The north flowing Kopra River, Bamner River, Bearma River, which are tributaries of the Ken River, are the major rivers of this protected area.
  - Some smaller streams flow southerly to the Narmada River in the south of the Reserve.
- The Singorgarh Fort is located within the reserve.
- Vegetation: It mainly consists of Dry deciduous type vegetation.
- **Flora**: The chief floral elements include Teak, Saja, Dhaora, Ber, Amla, etc.
- **Fauna**:
  - Tiger, leopard, wolf, jackal, Indian fox, striped hyena, Nilgai, Chinkara, Chital, Sambhar, Black Buck, Barking deer, Commom Langur, Rhesus Macaque, etc.
  - It is one of the few remaining strongholds for the White-Rumped and the Indian Vultures, critically endangered raptors of India.

8. Slaty Egret

Context: According to the United Nations Environment Programme (UNEP) officials said that the behavioural shifts of the Slaty Egret (Egretta vinaceigula) are an important instance of changes in natural ecosystems.

About Slaty Egret

- It is a small, shy water bird mainly found in Botswana's Okavango Delta.

Appearance

- It features a slender form with long legs and neck, distinctive of egrets.
- It exhibits slaty gray plumage with a subtle purple tint, giving it a unique coloration.
- **Habitat**: It is usually found in seasonal wetlands and floodplains
- Distribution: The slaty egret lives in south-central Africa. The largest populations are found in Zambia and Botswana.
- **Behavior**: It is a fishing maestro, known for its unique "foot-ruffling" technique-stirring up the water with its feet to flush out tasty fish.
- **Nesting Preference**: It typically breeds in colonially dense vegetative areas on islands or marshlands, usually away from potential predators.

- **Diet**: The Slaty Egret is known for its diverse diet primarily consisting of fish, amphibians, and aquatic invertebrates.
- **Threats**: It is highly dependent on wetlands, which makes it vulnerable to habitat loss due to agricultural expansion and changes in water management.

Conservation Status

- **IUCN Red List: Vulnerable.**

9. Conservation Assured | Tiger Standards

Context: Recently, Nameri Tiger Reserve in Assam has secured the Conservation Assured | Tiger Standards (CA|TS) Approved status.

About Conservation Assured | Tiger Standards

- It is a global framework designed to assess the effectiveness of tiger reserve management and protection.
- It was launched at the 1st Asian Parks Congress in Japan in 2013.
- CA|TS is a global certification system that ensures effective management specifically of tiger conservation areas.
- It sets benchmarks for protection, habitat management, community involvement, and wildlife monitoring.
- CA|TS helps identify strengths and improvement areas within reserves, supporting efforts to create safe, sustainable environments for tigers and preserve global biodiversity.

Assessment Structure

- CA|TS consists of seven pillars (Importance and status, Management, Community, Tourism (optional), Protection, Habitat management, Tiger populations) and 17 elements with standards and criteria for managing tiger conservation areas.
- Five of these pillars are applicable to conservation area management in general and represent the Conservation Assured (CA) aspect of the scheme; the two final pillars focus specifically on management issues related to tiger conservation - the Tiger Standards (TS).
- The Global Tiger Forum (GTF) and World Wildlife Fund India are the two implementing partners of the National Tiger Conservation Authority for CA|TS assessment in India.
- The list of 15 Tiger Reserves of India who Received CA|TS Accreditation
  - Kaziranga, Manas, Orang and Nameri Tiger Reserve, Assam
  - Sundarbans, West Bengal
  - Valmiki Tiger Reserve, Bihar
  - Dudhwa Tiger Reserve Uttar Pradesh
  - Kanha, Panna and Satpuda Tiger Reserve, Madhya Pradesh
  - Pench Tiger Reserve, Maharashtra
  - Anamalai and Mudumalai Tiger Reserve, Tamil Nadu
  - Parambikulam Tiger Reserve, Kerala
  - Bandipur Tiger Reserve, Karnataka.

10. Commission for Air Quality Management

Context: A 15-member expert committee appointed by the Commission for Air Quality Management (CAQM) has recommended a phased phase-out of older vehicles in Delhi-NCR.

Commission for Air Quality Management (CAQM)

- **CAQM was constituted under the Commission for Air Quality Management in National Capital Region and Adjoining Areas Act, 2021.**
- **Objective:** The Act provides for the constitution of a Commission for better coordination, research, identification, and resolution of problems related to air quality in the National Capital Region (NCR) and adjoining areas.
- **Powers** of the Commission include;
  - **Restricting activities** influencing air quality,
  - **Preparing codes and guidelines** to prevent and control air pollution,
  - **Issuing directions** on matters including inspections, or regulation **which will be binding** on the concerned person or authority.
  - The Commission **may impose and collect environmental compensation** from farmers

causing pollution by stubble burning prescribed by the central government.
    - **The Commission issues orders to combat air pollution in NCR under the Graded Response Action Plan (GRAP).**
- **In case of any conflict, the orders or directions of the Commission will prevail over the orders of the respective state governments, the Central Pollution Control Board (CPCB), state PCBs, and state-level statutory bodies.**

11. Living Planet Report 2026

Context: Recently, the Living Planet Report 2026 was released which found that there is a 73 per cent decline in the average size of monitored wildlife populations between 1970 and 2022.

About Living Planet Report 2026

- It is published biennially by the World-Wide Fund for Nature (WWF).
- It is a comprehensive study of trends in global biodiversity and the health of the planet.
- This year it is the 16th edition of the report.
- It utilises the Living Planet Index (LPI) to track average trends in wildlife populations.
- The LPI is a measure of the state of the world's biological diversity based on population trends of vertebrate species from terrestrial, freshwater and marine habitats.
- It measures the average rate of change in population size across the species monitored.

12. Chocolate Mahseer

Context: Recently, Sikkim Chief Minister released 'Chocolate Mahseer' fish into the Rangeet river, underlining the importance of conserving indigenous fish species and protecting the state's aquatic biodiversity.

About Chocolate Mahseer

- **Chocolate Mahseer or copper mahseer (Neolissochilus hexagonolepis) is a freshwater fish species.**
- The fish species belonging to the genus Tor and Neolissocheilus under the family Cyprinidae are popularly known as 'Mahseer'.
- It is known by the local name 'kha saw' in Meghalaya.
- **It was officially designated as the state fish of Meghalaya and Sikkim**.
- **Distribution**: **It thrives in nearly all the major rivers and hill-streams of Meghalaya, Assam, Arunachal Pradesh, Sikkim, Manipur, Nagaland, Mizoram, and Tripura.**
- **Habitat**: The species inhabits clear, fast flowing streams and rivers with stony, pebbly or rocky bottoms.

Characteristics

- It possesses exceptional strength and agility, making it a prized catch.
- It is equipped with powerful pectoral and dorsal fins; it possesses the remarkable ability to swiftly navigate against strong river currents.
- Females of this species are larger in size when compared to males in the same age group.
- It is prized by anglers and is considered an indicator of healthy river ecosystems.
- Threats: Its populations are in decline due to habitat degradation, overfishing and environmental changes
- **Conservation Status**: **IUCN Red List**: **Near Threatened**.

13. Palamu Tiger Reserve

Context: Recently, villagers from 25 villages in the Garu region of Palamu Tiger Reserve (PTR), Latehar district, voluntarily surrendered 31 country-made guns to support wildlife protection.

About Palamu Tiger Reserve

- Location: It is located on the Chhotanagpur plateau in Jharkhand.
- The reserve forms a part of the Betla National Park.
- It is one of the first 9 tiger reserves created in the country at the inception of 'Project Tiger'.

- It is the first reserve in the world in which a tiger census was carried out as a pugmark count, as early as 1932 under the supervision of J.W. Nicholson.
- Terrain: The terrain is undulating with valleys, hills, and plains. The geological formation consists of gneiss and includes granite and limestone.
- Rivers: It is drained by three rivers, namely North Koyal, Auranga, and Burha, flowing through the valleys.
- Vegetation: The vegetation comprises moist deciduous and dry deciduous forests.
- Flora: It mainly consists of Sal and bamboo as the major components.
- Fauna: Some keystone and principal species found in the reserve include Tiger, Asiatic Elephant, Leopard, Grey wolf, Wild dog, Gaur, Sloth bear and four horned antelope.

14. Namdapha Tiger Reserve

Context: Recently, employees of Namdapha National Park and Tiger Reserve in Arunachal Pradesh engaged under the Centre's Project Tiger have raised wage issues.

About Namdapha Tiger Reserve

- **Location**: It is located in the state of Arunachal Pradesh.
- It is named after the river Namdapha originating from Daphabum, the highest mountain peak in the Reserve.
- This area was originally Reserved Forests and was declared as Wildlife Sanctuary in 1972
- It was declared as a Tiger Reserve in 1983 under Project Tiger scheme.
- **Topography**: It has a dense cover of vegetation with high hills, and numerous rivers and seasonal streams.
- **Vegetation**: The vegetation of the reserve is mainly tropical evergreen rainforest, with very dense and multi-layered forest structure.
- **Flora**: The forests include thick growth of bamboo, cane, wild banana, and other undergrowth, making them almost impenetrable in some areas.
- **Fauna**: It is home to four big cats viz. tiger, leopard, clouded leopard and snow leopard
- Other animals like Hoolock Gibbon, Golden Cat, Marbled Cat, Mishmi Takin, Red Panda, Namdapha Flying Squirrels are found here.

15. PFAS

Context: Recent studies have highlighted the growing presence of PFAS in India's groundwater, surface water, and sewage, raising concerns about environmental contamination and public health.

About PFAs:

- Despite increasing evidence of contamination, India currently lacks PFAS-specific drinking-water limits under IS 10500:2012.
- PFAS are a large group of **human-made chemical compounds** characterised by strong **carbon-fluorine (C-F) bonds,** which make them highly resistant to heat, water, oil and chemical degradation.
- **Forever Chemicals:** PFAS are commonly known as "**forever chemicals**" because many of these substances break down extremely slowly and can **persist in the environment for long periods**.
- **Applications:** Used in **non-stick cookware, waterproof textiles, stain-resistant fabrics, food packaging, firefighting foams** and **industrial coatings** due to their water-, **oil- and heat-resistant properties**.
- PFAS molecules are famously heat-resistant, water/oil-repellent, and chemically stable, making them widely used in non-stick cookware, firefighting foams, and stain-resistant coatings.
- FAS are **organic covalent compounds**, not ionic solids. Their heat resistance is due to the **Carbon-Fluorine (C-F) covalent bond**, which is one of the single strongest covalent bonds in organic chemistry (due to fluorine's high electronegativity and small atomic radius creating a short, highly polarized, and high dissociation-energy covalent bond). There are

no "ionic backbones" or "lattice energies" involved in PFAS polymers.

16. India's first Red List Assessment of Ecosystems (RLE) Project

Context: The Kerala State Biodiversity Board (KSBB) recently launched a pioneering Red List Assessment of Ecosystems (RLE) project, marking a first for any Indian State.

About India's first Red List Assessment of Ecosystems (RLE) Project

- It is an initiative launched by Keralam, which aims to transform conservation efforts from isolated species preservation to proactive, landscape-wide ecosystem management.
- **It is sanctioned and funded by the Kerala State Biodiversity Board (KSBB).**
- This initiative marks the first of its kind for any Indian State.
- The project is being executed by the Kerala Forest Research Institute (KFRI) along with MES Asmabi College.
- This two-year initiative will map and assess the risk of collapse for critical ecosystems across all 14 districts of the state, spanning high-altitude mountain summits, densely populated midlands, and vulnerable coastal stretches.
- **The study will utilise the rigorous IUCN Red List of Ecosystems (RLE) framework to assess the health and vulnerability of ecosystems.**
- By examining natural habitats across the State from forests and rivers to coastal belts, the project will pinpoint both climate-driven and human-induced threats.
- The spatial data will help local governments and planners to make evidence-based decisions for sustainable infrastructure development and targeted conservation.

17. Kailadevi Wildlife Sanctuary

Context: A new study by WWF-India, in collaboration with the Rajasthan Forest Department, highlights Kailadevi Wildlife Sanctuary as a key stronghold for wildlife conservation and tiger recovery in Rajasthan.

About Kailadevi Wildlife Sanctuary

- It is located in the Karauli district of Rajasthan.
- It spans about 674 sq.km. and was established in 1983.
- It serves as a northern extension and buffer zone of the Ranthambore Tiger Reserve, acting as a wildlife corridor connecting Ranthambore to the Chambal region.
- It is geographically characterized by rugged hills, deep gorges (locally referred to as khos), and dry deciduous forests, with the Banas River on its western edge and the Chambal River to the southeast.
- The sanctuary is also culturally significant due to the Kaila Devi Temple within its boundary, attracting many pilgrims.
- It has become a popular reference among environmentalists and conservationists for the community-initiated forest protection committees (referred to as kulhadi bandh panchayats) that are operational in the area.
- These forest protection committees prevent the carrying of axes into the forests, a symbol of protecting the forests.
- **Flora**: The forest vegetation mainly comprises species like dhok, khair, and tendu trees.
- **Fauna**: Its rich wildlife includes Bengal tigers, leopards, sloth bears, Indian grey wolves, striped hyenas, jackals, nilgai, chinkara, sambar, chital, and over 200 species of birds such as kingfishers and peafowl.

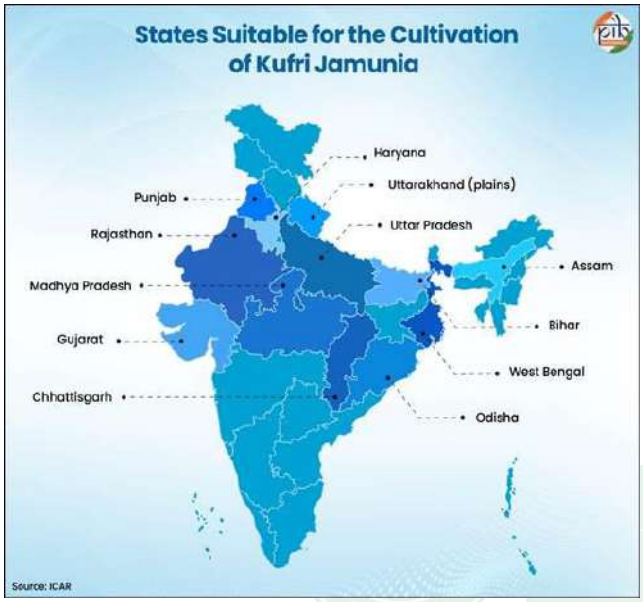
18. Kufri jamunia

Context: An important outcome of biofortification research has been the development of coloured potato varieties with enhanced nutritional value.

About Kufri jamunia

- **Kufri jamunia** was released in **2024**, the variety contains higher levels of **ascorbic acid,**

anthocyanin, and carotenoids than Kufri manik and Kufri neelkanth.
  - Its purple flesh indicates high antioxidant content and better nutritional quality including enhanced levels of zinc and iron.
- Kufri jamunia has demonstrated stable performance in multi-location trials and has been recommended for **cultivation in the North Indian plains.**



19. Barda Wildlife Sanctuary

Context: As per a recent study, the lions have come back to Barda Wildlife Sanctuary after nearly 144 years of absence.

About Barda Wildlife Sanctuary

- It is located in the Barda Hills of Gujarat, near the coastal city of Porbandar.
- Spread over an area of roughly 192.31 square kilometers, it was established in 1979.
- Known locally as Jam Barda, it was once a private hunting ground for the royal families of Jamnagar and Porbandar.
- It is surrounded by agricultural fields, wastelands, and forests, and the terrain of Barda is almost hilly.
- Rivers: There are two waterways, the Bileshvary River and the Joghri River, and two dams, Khambala and Fodara.
- **Tribes:** Ethnic races such as Maldharis, Bharvads, Rabaris, and Gadhvis live in this region.
- **Vegetation:** There are several forest sub-types, such as southern tropical forest, southern dry mixed deciduous forest, and northern tropical thorn forest.
- **Flora:**
  - The area has the maximum floral diversity in the state (650 plant species). Gorad, Babul, Dhav, Rayan, Ber, Jamun, Amli, Dhudhlo, Bamboo, etc.
  - Medicinal plants of great use grow profusely within the forested belt of the sanctuary.
- **Fauna:**
  - It shelters species like leopards, wolves, sambar deer, chinkara, hyenas, and blue bulls (nilgai).
  - The sanctuary is also a paradise for bird watchers, with numerous resident and migratory birds such as eagles, owls, crested serpent eagles, and partridges found here.
- The sanctuary is a key area for the conservation of Asiatic Lions.
- To develop Barda as the second home for the Asiatic lion, the state government implemented the 'Gir-Barda Project' in 1979.
- It is the first fully protected satellite lion habitat in Gujarat.
- It is now home to 17 Asiatic lions, according to recent reports.

20. Open Coalition on Compliance Carbon Markets

Context: While nearly 500 Indian companies across seven industrial sectors filed their first-ever compliance reports under Carbon Credit Trading Scheme (CCTS), India has stayed away from Open Coalition on Compliance Carbon Markets (OCCCM).

More:

- India has adopted a **compliance carbon market framework** in the form of a **Carbon Credit Trading Scheme** (CCTS), which is currently in its first phase.

About Open Coalition on Compliance Carbon Markets (OCCCM)

- OCCCM was initiated under **Brazil's leadership** during its **COP30 Presidency**.
  - It was formally launched on **7 May 2026 in Florence**, as a collaborative initiative.
  - On September 14, at its meeting in Wuhan, the coalition adopted its first work plan.
- **Purpose:** An **open, member-led coalition** that brings together countries operating or establishing compliance carbon markets, including compliance-based emissions trading systems and carbon taxes.
- **Chair and Co-Chair:** Coalition is chaired by **Brazil** and co-chaired by the **European Union** and **China**.
- **Members:** Brazil, China, European Union, Canada, France, Germany, New Zealand, Norway, Singapore, United Kingdom, Turkiye.

21. State of Biodiversity Action report

Context: State of Biodiversity Action report on collective progress in implementation of Kunming-Montreal Global Biodiversity Framework was released by UN Convention on Biological Diversity. It provides first comprehensive global stocktake of progress towards its 2030 targets and 2050 vision.

Gaps in Progress as Identified by the Report

- **Lack of Coherence Between Collective and Global Scope**: Collective **scope** and **planned actions** associated with national targets set by Parties do **not yet fully reflect the global targets**.
- **Pace of Advances:** Uneven among the targets, with those addressing drivers of biodiversity loss lagging behind; uneven across different ecosystems, with marine, coastal and inland water ecosystems consistently showing gaps in coverage.
- **Means of implementation:** Less progress in mobilizing and **tracking private finance** and **reducing incentives**, including subsidies, harmful for biodiversity.
- **Data and knowledge:** Major **gaps in data availability, data-sharing**, appropriate and operationalized indicators, existing infrastructure and technical capacity which create gaps in data and information.
- **Policy Gaps:** Parties have reported **barriers related to policy coherence** and coordination across sectors and levels of government; participation and engagement of rights holders, etc.

22. Homoporus Tridentata

Context: Recently, entomologists have announced the discovery of a previously unknown parasitoid wasp species, Homoporus tridentate.

About Homoporus Tridentata

- It is a new parasitoid wasp species.
- Its name is directly derived from the Latin-based anatomical description of its distinctive three-toothed clypeal margin.

Features

- The male species exhibits a brilliant metallic green head and thorax set against copper-brown eyes and ocelli.
- Its most prominent feature is clypeus (a shield on the front of the face) carries three distinct teeth, with the middle tooth noticeably longer than the two stouter lateral teeth.
- It possesses asymmetrical, or heterodont, mandibles, sporting four teeth on the right jaw and three on the left.
- Ecological Significance: The wasps in the genus Homoporus are natural parasitoids that target the larvae and pupae of agricultural and forestry pests.

	New Species	Categories
1.	Rhysida coorgensis	Centipede
2.	Asura buxa	Lichen Moth
3.	Amolops kamal	Cascade Frog
4.	Homoporus Tridentata	Parasitoid wasp

23. Amur Falcon

Context: Recently, the two satellite-tagged Amur Falcons (Falco amurensis) have returned to Manipur after travelling across 23 countries in Asia and Africa.

About Amur Falcon

- It is a migratory raptor of the falcon family.
- Other Names: Eastern Red-footed Falcon, Eastern Red-footed Kestrel, Manchurian Falcon, and Red-legged Falcon.
- Habitat: It is found across open forests, grasslands, wetlands and agricultural landscapes.
- Distribution: They breed in southeastern Siberia and Northern China and migrate long distances in large flocks to winter in Southern and East Africa.
- Along the way, large numbers pass through India, with the biggest congregations seen in the northeastern states mainly in Nagaland, Manipur, and parts of Assam and Arunachal Pradesh.
- The Amur Falcon has been one of the most successful flagship species for satellite telemetry tracking programs in India (e.g., tagging initiatives at Doyang Lake in Nagaland) to study transoceanic raptor migration.
- Amur Falcons are small, agile, diurnal (day-active) raptors - not large or nocturnal. They rely heavily on strong monsoon wind currents to assist their non-stop high-altitude flight across the Arabian Sea to East/Southern Africa, rather than avoiding oceanic winds.

24. Responding to Loss and Damage

Context: Loss and Damage Fund has set aside $21.6 million for Nepal.

About Fund for Responding to Loss and Damage (FRLD)

- **Origin: Agreement to establish the fund was reached at COP27 in 2022 in Sharm El-Sheikh, Egypt to consolidate global efforts to address climate-induced loss and damage.**
  - A transitional committee was formed in early 2024 to help design the Fund's framework.
  - During COP28 in 2023 in Dubai, the United Arab Emirates, the COP and CMA decided to operationalize the Fund as an entity entrusted with the operation of the financial mechanism.
- **Board: Constituted in 2023 with 26 members. Philippines was selected as the host of the Board in 2024.**
- **Secretariat and Trustee: World Bank.**
- **Established by:** Conference of Parties (COP) to United Nations Framework Convention on Climate Change and Conference of Parties serving as the meeting of the Parties to the Paris Agreement (CMA).

25. Osbeckia assamensis

Context: Researchers recently identified a new flowering plant species named Osbeckia assamensis in Assam's Manas National Park.

About Osbeckia assamensis

- It is a new species of flowering plant.
- It was discovered in grasslands within Manas National Park of Assam. The area forms part of the foothills of the Himalayas.
- It belongs to the Melastomataceae family, one of the ten largest families of flowering plants.
- It is a perennial shrub that grows between 2 and 2.5 metres tall.
- It distinguished it from the closely related Osbeckia nayarii by examining its stem, leaves, flowers, and seeds.
- The new species has an inflorescence bearing 30 to 35 flowers, compared with five to 12 in O. nayarii.
- It has pink flowers, large opposite leaves, and a largely unbranched stem.
- Its flowering and fruiting season extends from September to February.

- It also has distinctive hairs along its stem and longer seeds.
- Its conservation status has been classified as 'Data Deficient' under the IUCN criteria.

	Newly discovered species	Family
1.	Ophiorrhiza pemae	Rubiaceae
2.	Ceropegia tamilnaduensis	Apocynaceae
3.	Dicliptera pakhalica	Acanthaceae
4.	Osbeckia assamensis	Melastomataceae

26. International Centre for Integrated Mountain Development

Context: The Union ministry of environment, forest & climate change (MoEFCC) recently tasked Almora's GB Pant National Institute of Himalayan Environment (GBPNIHE) with coordinating activities of the International Centre for Integrated Mountain Development (ICIMOD) in India.

About International Centre for Integrated Mountain Development

- **It is an intergovernmental knowledge and learning centre working on behalf of the people of the Hindu Kush Himalaya (HKH).**
- It was formally established and inaugurated on 5 December 1983.
- **It is based in Kathmandu, Nepal.**
- **It works in and for its eight regional member countries (RMCs) of HKH: Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan.**
- **Mission**: Build and share knowledge that drives regional policy and action and attracts investment that enables the diverse countries and communities of the HKH to transition to greener, more inclusive, and climate-resilient development.
- Globalization and climate change have an increasing influence on the stability of fragile mountain ecosystems and the livelihoods of mountain people.
- ICIMOD aims to assist mountain people to understand these changes, adapt to them, and make the most of new opportunities, while addressing upstream-downstream issues.
- It supports regional transboundary programmes through partnerships with regional partner institutions, facilitates the exchange of experience, and serves as a regional knowledge hub.
- It also strengthens networking among regional and global centres of excellence.

27. Ranthambore Tiger Reserve

Context: Recently, Tigress T-2403 was spotted with three cubs in Ranthambore Tiger Reserve in Sawai Madhopur.

About Ranthambore Tiger Reserve

- Location: It is located in the Sawai Madhopur district of southeastern Rajasthan.
- It derives its name from the Ranthambore Fort (a World Heritage Site) situated within its precincts.
- It is located at the junction (great boundary fault) of the Aravalis and Vindhyan ranges.
- It is one of the largest tiger reserves in northern India. It spans an area of roughly 1,411 sq.km.
- **Topography**: It boasts a spectacular landscape filled with boulder-strewn highland plateaus, lakes, and rivers dotted with old forts and abandoned mosques.
- **Vegetation**: It is dry deciduous forests and open grassy meadow.
- **Rivers**: It is bounded to the north by the Banas River and to the south by the Chambal River.
- There are several lakes in the park known as Padam Talab, Raj Bagh Talab, and Malik Talab.
- **Flora**: Pure sands of Dhok tree (Anogeissus pendula) interspersed with grasslands at the plateaus, and other species like Acacia, Capparis, Zizyphus, Prosopis, etc are found here.
- **Fauna**
  - It consists of leopard, caracal, jungle cat, sambar, chital, chinkara, and wild boar.

- Peacocks, partridges, green pigeons, parakeets, sparrows, prinias, warblers, etc. are examples of avifauna.

28. Biomarkers

Context: Chemical signatures, commonly called biomarkers, are being studied for the early diagnosis of diseases such as Alzheimer's, Parkinson's and autoimmune encephalitis. However, their routine clinical use in India faces challenges relating to accuracy, affordability, laboratory standardisation and accessibility.

How do Biomarkers Work?

Diseases can produce molecular changes before visible symptoms develop.

The process involves:

- A disease changes the level or behaviour of certain molecules.
- Blood, cerebrospinal fluid, skin or tissue samples are collected.
- Laboratory instruments measure these molecular changes.
- The results are compared with established reference values.
- Doctors interpret the findings with symptoms, medical history, examination and imaging.

A disease-associated biomarker does not always mean that a person has or will develop that disease.

	Biomarkers	Diseases
1.	Amyloid-beta	Alzheimer's disease
2.	Alpha-synuclein	Parkinson's disease
3.	Neuronal antibodies	Autoimmune encephalitis
4.	Tau and p-tau217	Alzheimer's disease

29. Orange Oakleaf Butterfly

Context: Chhattisgarh is set to get its first official state butterfly, with the Orange Oakleaf (Kallima inachus) emerging as the winner of a public online poll.

About Orange Oakleaf Butterfly

- It is a nymphalid butterfly found in Tropical Asia from India to Japan.
- Appearance: It is known for its remarkable camouflage. With its wings folded, it closely resembles a dry, withered leaf. When it spreads its wings, it reveals bright orange, jet-black and deep velvety blue colours.

Habitat

- It is commonly found in subtropical and temperate forest zones, especially in areas with dense undergrowth and ample leaf litter.
- It thrives in altitudes ranging from 500 to 2000 meters and is often spotted near riverbanks, shaded forest trails, and damp patches where it feeds on fermenting fruit and tree sap.
- It is also known to mud-puddle.
- Unlike many butterflies, the Orange Oakleaf is not drawn to flowers. Instead, it is attracted to rotting fruit and tree sap.
- Ecological Significance: It acts as a pollinator and Its presence also signifies healthy forest habitats, as it relies on dense vegetation and leaf litter for survival.

	State Butterflies	Associated states
1.	Maharashtra	Blue Mormon
2.	Uttarakhand	Common Peacock
3.	Karnataka	Southern Birdwing
4.	Chhattisgarh	Orange Oakleaf

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CURRENT AFFAIRS TEST SERIES FOR CSE PRELIMS 2027

MODE
ONLINE / OFFLINE

OFFLINE TEST LOCATIONS
HIMAYAT NAGAR OR
ASHOK NAGAR BRANCH

13 TESTS
100 Qs EACH
TOTAL 1300 Qs

CURRENT AFFAIRS TEST SERIES PLAN - 2026-27

S.NO	TEST NAME	DATE OF TEST
1	CA April 2026	14.06.2026
2	CA May 2026	05.07.2026
3	CA June 2026	26.07.2026
4	CA July 2026	16.08.2026
5	CA August 2026	13.09.2026
6	CA September 2026	11.10.2026
7	CA October 2026	15.11.2026
8	CA November 2026	13.12.2026
9	CA December 2026	10.01.2027
10	CA January 2027	14.02.2027
11	CA February 2027	14.03.2027
12	CA March 2027	11.04.2027
13	CA April 2027	09.05.2027

TEST SERIES FEATURES

- DETAILED EXPLANATION PDFs for all Tests
- COVERS APRIL 2026 TO APRIL 2027 (Dates)
- HIGH - QUALITY MCQs
- COVERS LATEST MCQ PATTERNS BASED ON PYQS

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SCIENCE AND TECHNOLOGY

1. CHIME Telescope

Context: An international team, including researchers from the Raman Research Institute (RRI) in Bengaluru, has detected the faint radio glow of hydrogen from 9 billion years ago by using the CHIME radio telescope.

About CHIME Telescope

- The CHIME (Canadian Hydrogen Intensity Mapping Experiment) is a radio telescope located in British Columbia, Canada which was built in 2017.
- Focus: It was built to map the distribution of hydrogen gas in the early universe.
- It is capable of mapping the sky with unprecedented sensitivity and speed.
- It delivers a snapshot of what our sky looks like at radio wavelengths every day.

Components

- CHIME comprises four massive parabolic radio antennas that collect radio waves in the 400 to 800 MHz range.
- It has no moving parts and instead uses signal processing techniques to combine the information from over a thousand antennas to focus and point the telescope digitally.
- The telescope receives radio signals each day from half of the sky as the Earth rotates.

	List I (Telescope)	List II (Type / Primary Wavelength)
A.	CHIME	Radio telescope
B.	James Webb Space Telescope (JWST)	Infrared telescope
C.	Chandra	X-ray telescope
D.	Event Horizon Telescope (EHT)	Very-Long-Baseline Interferometry

2. Integrated Defence Staff

Context: Integrated Defence Staff (IDS) marked its silver jubilee, commemorating 25 years since its establishment.

Integrated Defence Staff

- **The IDS was established in 2001, following the recommendations of the Group of Ministers (GoM) constituted in the aftermath of the 1999 Kargil War.**
- **Headed by: Chief of Integrated Defence Staff (CISC), a three-star officer drawn from one of the three Services, the Army, Navy or Air Force.**
- **Headquarters: New Delhi.**

- **Role:**
  - The CISC serves as an important link among the three Armed Forces and supports the Chief of Defence Staff (CDS) in promoting jointness and integration among the Services.
  - The CISC coordinates matters relating to **joint planning, operations, training, intelligence, logistics, capability** development and other tri-service issues.

Note: The post of Chief of Defence Staff (CDS) did not supersede or replace the Chief of Integrated Defence Staff (CISC). Instead, the CDS serves as the permanent Chairman of the Chiefs of Staff Committee (COSC), and the CISC now functions as the principal staff officer to the CDS, assisting them within the Secretariat of the COSC / HQ IDS. The post of CISC continues to exist and operate alongside the CDS.

3. Creatine

Context: Creatine helped middle-aged adults gain muscle and strength even without a structured workout program in a new 12-week study.

About Creatine

- It is a naturally occurring nitrogen-containing organic compound.
- It is a natural source of energy that helps your skeletal muscles flex (contract).
- **It helps create a steady supply of energy in your muscles so they can keep working, especially while you're exercising**.

- About half of your body's supply of creatine comes from your diet, especially protein-rich foods such as:
  - Red meat (pork, veal, and beef).
  - Seafood (fish and shellfish).
  - Animal milk (like cow, goat, and sheep milk).

- **Your body produces the other half naturally in your liver, kidneys, and pancreas from amino acids such as arginine, glycine, and methionine.**
- Most creatine (about 95 percent) is stored in skeletal muscles as phosphocreatine.
- Phosphocreatine helps you make adenosine triphosphate (ATP), the primary energy currency of cells.
- So, creatine in your muscles normally is a supply for the energy you'll need during exercise.
- The rest of the creatine (about 5 percent) is stored in the heart, brain, and other tissues.
- Manufacturers also make creatine supplements. Some people take creatine supplements because they work out a lot or don't get enough creatine in their diet.
- Most creatine supplements use a form called creatine monohydrate.

4. Bulletin of the Atomic Scientists

Context: A new assessment published by the regarded Bulletin of the Atomic Scientists (BAS) says India continues to modernise and expand the systems that can deliver nuclear weapons, even as New Delhi maintains its long-standing doctrine of no first use.

About Bulletin of the Atomic Scientists

- It is an independent, nonprofit organization that sought to warn the public about the danger of nuclear weapons.
- The Bulletin was founded by a group called the Atomic Scientists of Chicago in September 1945 at the University of Chicago.
- Its founding members and sponsors were scientists who had contributed to the development of the first atomic bombs as part of the Manhattan Project, including physicists Albert Einstein, J. Robert Oppenheimer, and Eugene Rabinowitch.
- The Bulletin focuses on three main areas: nuclear risk, climate change, and disruptive technologies.
- It pursues its goals through media products, starting in 1945 as a mimeographed newsletter, then a magazine, and now as an online publication.
- Today, the Bulletin's website, premium magazine, videos, iconic Doomsday Clock, and regular events help advance actionable ideas to reduce existential threats.

Key Facts about Doomsday Clock

- To convey the particular peril posed by nuclear weapons, the BAS devised the Doomsday Clock in 1947.
- It is a symbolic clock adopted by atomic scientists to show how close human beings are considered to be to a global catastrophe, with midnight standing for annihilation, or "doomsday.".
- It is recognized as a universal symbol of threats to humanity from a variety of sources: nuclear and other weapons of mass destruction, climate change, and disruptive technologies.
- The Doomsday Clock appeared on the Bulletin's first cover when it transitioned from a newsletter to a magazine.
- Its original setting was seven minutes to midnight. Since its invention in 1947, the clock has been reset 27 times.

- In January 2026 the clock was set to 85 seconds before midnight, the closest it has ever been to doomsday.

5. 3D Printing

Context: Andhra Pradesh has initiated a pilot project at the national level for constructing rural houses using 3D Concrete Printing (3DCP) under the Pradhan Mantri Awas Yojana-Gramin (PMAY-G) initiative.

About 3D Printing

- 3D printing is a manufacturing process that uses computer-created design to make **three-dimensional objects layer by layer.** It was invented in the **1980s** by **Charles W. Hull.**
- It is an additive process, in which layers of a material like plastic, composites or bio-materials are built up to construct objects that range in shape, size, rigidity and color.
    - **In 3D concrete printing,** a computer-controlled printer deposits specially formulated concrete or cementitious material layer by layer to create building components or structures.
    - A robotic printer directly translates a digital Building Information Modelling (BIM) design into a physical structure by extruding specially formulated cementitious materials through a nozzle in successive horizontal layers.

Application of 3D technology:

- 3D printing is widely used in aerospace (e.g., printing rocket engine parts like SpaceX's SuperDraco or Rocket Lab's Rutherford engines) because it allows lightweight, complex geometry and reduces part counts.
- Medical and dental applications are among the most mature fields for 3D printing, enabling patient-specific prosthetics, titanium implants, and bio-scaffolding for tissue engineering.
- Construction 3D printing (using large-scale robotic arms extruding cementitious materials) is actively used worldwide to build residential houses and concrete infrastructure rapidly.
- Printed electronics (additive electronics) allows the deposition of conductive inks to create functional circuits, sensors, and flexible PCBs directly onto various substrates.

Note: Traditional semiconductor microprocessors and silicon chips are manufactured using photolithography, chemical etching, and cleanroom semiconductor fabrication processes, not 3D additive manufacturing. While nano-scale 3D printing exists in research labs, it is not used for commercial mass production of silicon chips.

6. Jumping Genes

Context: Ants branched into thousands of new species after the dinosaurs died, and a new study links that burst to jumping genes in their DNA.

About Jumping Genes

- **Jumping genes, scientifically called transposable elements (TEs) or transposons, are DNA sequences that move from one location on the genome to another.**
- **They are widespread in both prokaryotes and eukaryotes, often making up significant portions of an organism's genetic material.**
- In humans, for instance, transposons account for approximately 50% of the genome, whereas in corn, they account for up to 90%.
- Types: Transposons can be grouped into distinct types based on 2 main criteria: their mechanism of movement and their independence.
- They are classified as retrotransposons or DNA transposons, depending on how they move within the genome.
- They are classified as autonomous or non-autonomous, based on whether they require other transposons for their mobility.
- **Transposons have a dual nature as both a threat to genome stability and a driver of genetic diversity.**

- On the harmful side, they can inactivate genes or disrupt gene expression patterns by inserting into regulatory or coding regions, leading to diseases such as hemophilia, hypercholesterolemia and various cancers.
- However, transposons also play a key part in evolution.
- For instance, in plants, environmental stresses like climate change can trigger increased transposon activity, potentially giving rise to adaptive mutations that enhance survival.
- To counter the potentially damaging effects of transposons, most organisms have evolved epigenetic mechanisms to regulate their activity.
- In humans, for example, regions of the genome rich in transposons are often tightly condensed so that the transcription machinery cannot access them.
- This densely packed DNA is called heterochromatin, and it is formed through histone modifications (changes to the histone proteins around which the DNA is wound) and DNA methylation (the addition of methyl groups to cytosine bases).
- Other silencing mechanisms are based on RNAi or small RNAs, such as piRNAs, miRNAs, or siRNAs, to specifically target and inactivate transposons.
- While most TEs are located far away from genes in areas of the chromosome that can be thought of as gene deserts, some are located near genes and even target gene-rich regions.
- Transposons can also be useful tools in the lab, with applications in mutagenesis, transgenesis, and gene therapy.

7. Neutrinos

Context: The 2026 Nobel Prize in Physics has been awarded to Francis Halzen for his pioneering contribution to the IceCube Neutrino Observatory and the discovery of high-energy neutrinos of astrophysical origin.

What are Neutrinos and Why Do They Matter?

- Neutrinos are **fundamental subatomic particles** belonging to the **lepton family** of the **Standard Model.**
  - It means that **they cannot be broken down** into any smaller bits, like quarks and photons and electrons.
- Produced in **the Sun, nuclear reactions, supernovae, cosmic-ray interactions** and other high-energy astrophysical processes.
- They carry **no electric charge**, so they are **not affected by electromagnetic forces**.
- Neutrinos have a **non-zero but very small mass**. Their mass was established through the discovery of **neutrino oscillations**.
- They interact primarily through the **weak nuclear force and gravity,** making them extremely difficult to detect.
- Neutrinos come in **three types, called flavors.** There are **electron neutrinos, muon neutrinos and tau neutrinos.** They oscillate between all three.
  - A neutrino can **change from one flavour to another** while travelling (**Neutrino oscillation**).
- Trillions of neutrinos pass through the **Earth and human body every second**, with very few interacting with matter.
- Neutrinos are **not deflected by magnetic fields** unlike charged cosmic rays. Hence, they can help identify the **sources of energetic cosmic events**.
- Because interactions are rare, detectors such as **IceCube** use enormous volumes of water/ice. Neutrino interactions can produce **Cherenkov radiation**, observed as a characteristic **blue flash.**
- Neutrinos provide insights into **particle physics, astrophysics, cosmology and the extreme environments of the Universe**.

	Neutrinos	Locations
1.	Baksan Neutrino Observatory	Russia
2.	KM3NeT	Italy
3.	DUNE	USA
4.	Hyper-K	Japan

8. Nobel Prize in Chemistry & Its 2026 Recipient

Context: The 2026 Nobel Prize in Chemistry has brought global attention to chirality and homochirality, highlighting how chemical reactions can selectively produce one mirror-image form of a molecule.

About Nobel Prize in Chemistry & Its 2026 Recipient

- The **Nobel Prize in Chemistry**, established under Alfred Nobel's will, recognises discoveries or improvements of greatest benefit to humankind in chemistry.
- In 2026, **Henri B. Kagan and Kenso Soai** were recognised for work explaining how chemical reactions can generate and amplify **one enantiomer** over its mirror image.
- Their work connects **fundamental stereochemistry** with the chemistry of life and has important **applications in pharmaceuticals, agriculture, flavours and fragrances.**

About Chirality

- It refers to the property of an object or molecule that cannot be superimposed on its mirror image, analogous to the left and right hands.
  - The two mirror-image molecules are called **enantiomers**.
- Although **enantiomers have the same atoms and connectivity**, their **three-dimensional arrangements differ.**
- This distinction is crucial in biology because living systems exhibit **homochirality**, a strong preference for one enantiomer.
- **For example,** proteins predominantly use **L-amino acids**, while biological sugars predominantly occur in the **D-configuration**.
- The persistence of this **molecular 'handedness'** has been a major question concerning the **origin of life**.

9. Project Seabird

Context: Recently, the Chief of the defence staff inaugurated critical trunk utility and amenity infrastructure for the Indian Navy as part of Project Seabird Phase IIA at the naval base in Karnataka's Karwar.

About Project Seabird

- It is the largest naval infrastructure project for India.
- **Location**: It involves creation of a naval base at Karwar, Karnataka, on the west coast of India.
- It is a massive project spread over around 11,000 acres of land. With the first sealift facility in the country and a transfer system for docking and undocking ships and submarines.
- Phases of Project Seabird
  - **Phase 1:** Its first phase, which included the construction of a deep-sea harbour, breakwaters dredging, a township, a naval hospital, a dockyard uplift centre and a ship lift, was commissioned in 2005.
  - **Phase 2:** The development of phase 2 of INS Kadamba commenced in 2011.
- This phase is further divided into 2A and 2B. It was planned to expand the facilities to dock additional warships and a new Naval Air Station, among other projects.
- Once completed, it will be the largest naval base in the Eastern Hemisphere.
- It will be able to accommodate around 32 warships, 23 submarines, and hangers for several aircraft.

10. Atomic vs. Nuclear Clocks

Context: In two papers in Nature, scientists from Europe and China have now reported the world's first working nuclear clocks.

Mechanism: Atomic vs. Nuclear Clocks

- **Atomic Clock Limitation:** Measures outer-shell electron transitions, which are vulnerable to external electric, magnetic, and thermal disturbances.
- **Nuclear Clock Advantage:** Measures energy transitions within the atomic nucleus, which is naturally shielded from environmental noise by the outer electron cloud.
- **Key Innovation:** Unlike most nuclei that require high-energy X-rays or gamma rays, Thorium-229 has an exceptionally low transition energy that

can be triggered by a standard **ultraviolet (UV) laser**.

- **Feedback System:** A computer constantly checks if the laser excites the Thorium-229 nuclei; if excitation drops, the system detects frequency drift and automatically corrects the laser.

Key Experimental Demonstrations

- **China (Beijing & Shanghai):** Created a working nuclear clock prototype by embedding Thorium-229 into calcium fluoride crystals and connecting an ultraviolet laser to a real-time feedback loop.
- **Europe (Austria & Germany):** Ran a Thorium-229 nuclear clock simultaneously alongside a ytterbium atomic clock to search for ultralight dark matter.
- A nuclear clock is theoretically expected to achieve far higher stability and precision than an atomic clock because the atomic nucleus is extremely compact and isolated from surrounding room-temperature fluctuations and stray electromagnetic fields.
- Atomic clocks operate by tuning lasers or microwaves to the transitions of orbital electrons in the outer shell of an atom. In contrast, nuclear clocks measure energy state transitions of subatomic particles (protons and neutrons) inside the atomic nucleus itself (such as in the Thorium-229 isotope).
- Because outer-shell electrons are exposed to external environmental noise (electric/magnetic fields, thermal radiation), atomic clocks suffer from slight perturbations. The atomic nucleus, being shielded by the surrounding electron cloud and bound by the strong nuclear force, is fundamentally protected against these disturbances.

11. DSS

Context: India Meteorological Department (IMD) has dedicated the Cyclone Warning and Marine Weather Services Decision Support System (DSS) to the nation.

About DSS:

- DSS is an **interactive WebGIS** (web-based Geographic Information System) platform accessible via the IMD and Regional Specialised Meteorological Centre (RSMC) websites. It provides location-specific, consolidated cyclone and marine hazard data.
- Integrates and visualises observed and forecast **cyclone tracks, intensity levels, wind distributions**, and **district-level rainfall warnings** on a single interface.

Visual modelling of the "cone of uncertainty":

- The **"cone of uncertainty"** (often shaped like a widening funnel extending from the current position of a cyclone) depicts the probable track of a tropical cyclone's center.
- Because atmospheric forecasting inherently involves uncertainties in steering winds and pressure gradients, the cone grows wider over time (e.g., 24-hour vs. 72-hour forecasts) to visually capture the historical margin of error in tracking the storm's eye.

12. LNG Supplier Ranking

Context: Oman became India's largest supplier of liquefied natural gas (LNG), replacing the United States.

India's LNG Supplier Ranking

- India imported 2.17 million tonnes of LNG in September 2026, around **14% less than in August.**
- **Oman ranked first**, supplying 27% of India's total LNG imports and **Nigeria ranked second.**
- The **United States fell to third place** as its shipments to India declined by 59% from August.
- Qatar, traditionally a major supplier, ranked sixth, supplying around 94,000 tonnes.

	Ports in the news	Locations
1.	Duqm Port	Oman
2.	Lamu Port	Kenya
3.	Port of Piraeus	Greece
4.	Sabang Port	Indonesia

13. JWALA Missile

Context: JWALA, India's first private-sector micro-missile, is set for trials after successful solid rocket motor tests, strengthening indigenous counter-drone capabilities.

About JWALA Missile

- JWALA-MK1 is India's first indigenously developed private-sector micro-missile.
- It is being developed by IG Defence, a private Indian defence technology company.
- It is a short-range surface-to-air missile (SAM) engineered specifically as a "hard-kill" interceptor to physically destroy hostile drones/UAVs, offering a highly cost-effective alternative to traditional, expensive air-defence missiles.
- The JWALA missile does not operate in isolation. It serves as the physical effector within IG Defence's wider GRID Defend ecosystem.
- GRID is an advanced, AI-enabled battle-management network that stitches together various sensors, command structures, and weapons into a single common operational picture.

JWALA Missile Features

- The design uses a dual-pulse solid rocket motor along with fin control.
- It can engage targets from 2 km to 5 km.
- Its stated altitude range is 50 metres to 5,000 metres.
- Accuracy: A circular error probable (CEP) of less than 2 metres at its maximum range.
- Warhead: A 0.5 to 1.5 kg pre-fragmented high-explosive payload equipped with a proximity fuze for maximum effectiveness against small targets.
- It is designed to operate in electronic warfare and anti-jamming conditions.

14. Indian Cybercrime Coordination Centre

Context: The Indian Cyber Crime Coordination Centre (I4C) recently warned of a rise in financial fraud involving deceptive advertisements that use manipulated videos of the Prime Minister, the finance minister, and chief ministers to promote fake government welfare schemes.

About Indian Cybercrime Coordination Centre

- I4C has been established under the Ministry of Home Affairs (MHA) to act as a nodal point at the National level in the fight against cybercrime.
- The I4C was dedicated to the nation on 10th January 2020.
- It is designed to provide a framework and ecosystem for law enforcement agencies (LEAs) to deal with cybercrime in a coordinated and comprehensive manner.
- I4C brings together academia, industry, public, and government in the prevention, detection, investigation, and prosecution of cybercrimes.
- Headquarters: New Delhi.

	Cyber space regulating bodies	Associated ministries/departments
1.	Indian Cyber Crime Coordination Centre (I4C)	Ministry of Home Affairs (MHA)
2.	National Cyber Coordination Centre (NCCC)	Ministry of Electronics & Information Technology (MeitY)
3.	National Cyber Security Coordinator (NCSC)	National Security Council Secretariat (NSCS)
4.	Defence Cyber Agency (DCyA)	Ministry of Defence (MoD)

15. Centaurus X-3

Context: Scientists have discovered that one of the brightest X-ray pulsars, Centaurus X-3 is gobbling up material through an accretion disk.

About Centaurus X-3

- It is one of the brightest X-ray pulsars discovered in the constellation Centaurus.
- It is a high-mass X-ray binary (HMXB) where the companion is more than 10 times the Sun's mass,
- Location: It is located approximately 24,000 light-years from Earth.
- It contains a disk-fed pulsar with a period of 4.84 seconds that is in a 2.087-day orbit around an O-star companion.
- An X-ray binary pulsar consists of a pulsar- a highly magnetised neutron star, and a Sun-like star bound in a gravitational dance.
- A neutron star is a celestial body with the mass of our sun crunched into a ball the size of Bangalore.
- In an X-ray binary, the pulsar's extreme gravity pulls in material ejected by its companion star, and the pulsar starts accreting material from it, shooting out X-rays in the process.

16. Hypertext Preprocessor

Context: Two critical flaws in PHP, a programming language used by websites, led to emergency security updates and precautionary shutdowns worldwide.

About PHP

- **PHP, short for Hypertext Preprocessor,** is an **open-source programming language** used to develop dynamic websites and web applications.
- It helps websites process information, whether someone is **logging into an account, submitting an application or making an online purchase.**
- PHP is free to use and maintained by volunteers.
  - WordPress, which powers more than **40% of websites worldwide,** is powered by PHP. These websites include blogs, government portals, news websites and online shops.

What is PHP2Shell?

- PHP2Shell is the name given to **two critical vulnerabilities in PHP** that could allow **attackers to remotely execute malicious code on affected web servers** without logging in or accessing sensitive information stored in the server's memory.
- The flaws exist in PHP itself and may be exploitable before a website's own authentication checks are performed, depending on the affected configuration and attack conditions.

17. "Giant Sunscreen" Effect

Context: Recently, astronomers utilizing observations from the James Webb Space Telescope (JWST) revealed that TOI-561 b - a scorching, ultra-short-period lava planet maintains a thick, highly reflective atmosphere.

- Despite extreme stellar radiation, the planet reflects approximately **75% of incoming starlight** and an exotic silicate-mineral clouds acting as a "giant sunscreen."
- **Distance -** Located roughly 280 light-years from Earth.

Key Highlights

- **The "Giant Sunscreen" Effect**
  - Using JWST's Near-Infrared Spectrograph (NIRSpec) to map the planet's orbital phase curves, scientists discovered that TOI-561 b reflects nearly three-quarters of the starlight hitting it.
  - This immense reflectivity is driven by dense layers of **silicate-mineral clouds** suspended high above the surface, shielding the molten world from even harsher thermal loading.
- **Sustaining an "Impossible" Atmosphere**
  - Under standard astrophysical models, intensely irradiated rocky worlds orbiting close to their host stars lose their volatile gas envelopes early in their history.
  - **The Replenishment Hypothesis-** Scientists hypothesize that TOI-561 b's global **ocean of molten lava** acts as a planet-wide volcanic engine, continually venting gases (such as

carbon dioxide or sulfur dioxide analogs) to replenish the upper atmosphere as fast as stellar winds erode it.

Strategic Significance

- Planetary scientists are intensely studying ultra-hot lava worlds because Earth itself likely passed through a molten magma-ocean phase during its earliest history.
- Understanding how atmospheres behave and survive under extreme stellar bombardment provides vital clues to terrestrial planet evolution across the galaxy.

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GEOGRAPHY AND MAPPING

1. Permafrost

Context: Alaska's thawing permafrost is releasing acid and metals that turn rivers orange, changing water chemistry for dozens of miles.

About Permafrost

- Permafrost is any ground that remains completely frozen-32°F (0°C) or colder-for at least two years straight.
- While two years is the minimum for permafrost consideration, some regions have had frozen ground for hundreds of thousands of years.
- Scientists discovered the oldest known permafrost in Siberia, which has been frozen for the past 650,000 years.

Where are they found?

- These permanently frozen grounds are most common in regions with high mountains and in Earth's higher latitudes-near the North and South Poles.
- It can be found on land and below the ocean floor.
- Its thickness can range from one meter to more than 1,000 meters, covering entire regions, such as the Arctic tundra, or a single, isolated spot, such as a mountaintop of alpine permafrost.
- Permafrost covers large regions of the Earth. Almost a quarter of the land area in the Northern Hemisphere has permafrost underneath.
- It occurs in 85 percent of Alaska and 55 percent of Russia and Canada, and covers probably all of Antarctica.
- Permafrost contains vast amounts of frozen organic carbon. As it thaws, it significantly impacts the global climate by acting as a major positive feedback loop for global warming.
- The decomposition of organic matter released by thawing permafrost primarily emits **carbon dioxide (**CO_2**)** and **methane (**CH_4**)** not sulphur dioxide (SO_2).

2. English Channel

Context: Thirteen people were sentenced to prison terms of up to 10 years on September 30 in connection with the sinking of a boat in the English Channel nearly five years ago, in one of the biggest tragedies of migrants making the dangerous crossing.

English Channel:

- The English Channel is located between the Isle of Great Britain's southern coast and France's northern coast and separated from the North Sea on the north by the Strait of Dover. The Strait of Dover is the Channel's narrowest point at just 34 km2 from Cape Gris-Nez to Dover.



3. Indian Monsoon

Context: As per the India Meteorological Department (IMD) India's 2026 southwest monsoon ended with 759.4 mm of rain, 12.6% below the 868.6 mm normal.

About

- This is the **lowest rainfall recorded during the monsoon season since 2015**.
- The east and northeast region, which recorded 1,017.1 mm of rainfall, had its **driest monsoon since 1901**.

Categorisation of regional rainfall:

The IMD categorizes regional rainfall distribution based on the percentage departure from the Long Period Average (LPA):

- **Excess:** +20% or more
- **Normal:** –19% to +19%
- **Deficient:** –20% to –59%
- **Scanty:** –60% to –99%
- **No Rain:** –100%
- The India Meteorological Department (IMD) is the sole nodal agency under the Ministry of Earth Sciences responsible for monitoring monsoon rainfall and issuing rainfall classifications/statistics across country, subdivision, and district levels based on meteorology.
- The IMD classifies a region's seasonal rainfall based on its deviation/percentage departure from the **Long Period Average (LPA)**.
- When the percentage departure of realised rainfall is between **–20% and –59%** of the LPA, the region is declared as **"Deficient"**. If the departure is between **–60% and –99%**, the category is classified as **"Scanty"** (or Large Deficient depending on the spatial resolution/scale used).

4. Marshall Island

Context: The United States needs to take additional steps to remedy the nuclear legacy in the Marshall Islands by providing healthcare and releasing secret archives, according to a UN report presented to its human rights body on October 1.

Marshall Island:

- **Marshall Islands is a sovereign Micronesian island country, an associated state of the United States; with 29 coral atolls comprising 1,156 individual islands and islets located in the central Pacific Ocean.**
- It is geographically positioned in the Northern and Eastern hemispheres of the Earth and to the north of the Equator and to the west of the International Date Line.
- Marshall Islands is situated roughly midway between Hawaii and Australia; to the north of Narau and Kiribati; to the east of the Federated States of Micronesia and to the south of Wake Island.
- Marshall Islands shares maritime borders with the wake Island to the north; Kiribati to the southeast; Nauru to the south and the Federated States of Micronesia to the west.



5. Antelope Reef

Context: China is constructing a runway on Antelope Reef in the disputed Paracel Islands in the South

China Sea, potentially expanding its military reach in the region.

About Antelope Reef

- **Location:** Antelope Reef is part of the **Paracel Islands (Xisha Islands in Chinese)**, located in the northern **South China Sea,** near China's Hainan Island.
- **Territorial claims:** The Paracel Islands are claimed by **China, Vietnam and Taiwan.** However, China has exercised effective control over the archipelago since 1974.



6. Chad

Context: Nearly two years after French forces in Chad were abruptly shown the door, ties are quietly being rebuilt through business, diplomacy and a more discreet security partnership.



Chad:

- The north-central African country of Chad lies in the Northern and Eastern Hemispheres of the Earth. It is a landlocked country that shares its land boundaries with six countries. These are Libya, Sudan, and the Central African Republic to the north, east, and south respectively. It is also bordered by Cameroon and Nigeria to the southwest, and Niger to the west.

7. Dnipro River

Context: Russian drone strikes damaged key bridges across the Dnipro River in Kyiv recently.

About Dnipro River

- The Dnipro (Dnieper) River is one of the major transboundary rivers of Europe.
- It is the fourth-longest river in Europe (after the Volga, the Danube, and the Ural).
- Located in Eastern Europe, the Dnipro River and its many tributaries drain much of Belarus and Ukraine.
- It is the longest river in Ukraine.
- Historically, the river was an important barrier dividing Ukraine into right and left banks.



Course:

- It originates in Russia, in the low Valday Hills, 240 km west of Moscow.
- It flows in a generally southerly direction through western Russia, Belarus, and Ukraine to the Black Sea.
- Its mouth, called Dnieper Liman, is a swampy delta on a long inlet of the Black Sea.
- It runs a total length of 1,368 miles. Approximately 300 miles of the waterway is located in Russia, 430 miles are in Belarus, and 680 miles are within Ukraine.

8. Southeast Asia

Context: Beijing has long sought to increase its influence across Asia-Pacific, competing with Washington and its allies over crucial shipping routes and undersea resource exploration, including in the disputed South China Sea.



Southeast Asia:

- Southeast Asia, vast region of Asia situated east of the Indian subcontinent and south of China. It consists of two dissimilar portions: a continental projection (commonly called mainland Southeast Asia) and a string of archipelagoes to the south and east of the mainland (insular Southeast Asia).
- Extending some 700 miles (1,100 km) southward from the mainland into insular Southeast Asia is the Malay Peninsula; this peninsula structurally is part of the mainland, but it also shares many ecological and cultural affinities with the surrounding islands and thus functions as a bridge between the two regions.

Note: Indonesia: Straddles the Equator, spanning from approximately 6° N to 11° S latitude. Because a large portion of the country lies in the Southern Hemisphere, it does **not** lie totally between the Tropic of Cancer and the Equator.

9. Adriatic Sea

Context: Voters in Bosnia cast ballots on October 3 in a general election in which most are focused on everyday problems, while some mainstream politicians in the Balkan nation have whipped up war-era tensions that have kept the country divided since its brutal 1992-95 conflict.



Adriatic Sea:

The **Adriatic Sea** is a body of water separating the Italian Peninsula from the Balkan Peninsula. Six countries border the Adriatic Sea:

- **Italy** (West Coast)
- **Slovenia** (Short coastline near Koper)
- **Croatia** (Extensive coastline along the Dalmatian coast)

- **Bosnia and Herzegovina** (Has a 20 km narrow coastal corridor at Neum)
- **Montenegro** (Coastline including the Bay of Kotor)
- **Albania** (Coastline along the southern Adriatic down to the Strait of Otranto)

10. Fiji

Context: Extreme heat is increasingly linked to problems such as premature births or underweight babies; the UN climate chief warned on October 5 as Fiji hosted talks ahead of a major summit.



Fiji:

- **Fiji is an island country in Melanesia and an archipelago in the Southern Pacific Ocean, as a part of the continent of Oceania.**
- It is geographically positioned both in the Southern and Eastern hemispheres of the Earth. Fiji is situated in the northeast of Australia; in the north of New Zealand and is completely surrounded by the Pacific Ocean.
- Its closest neighbors are: Vanuatu to the west; New Caledonia to the southwest; New Zealand's Kermadec Islands to the southeast; Tonga to the east; the Samoa and France's Wallis and Futuna to the northeast and Tuvalu to the north.
- **The 180° meridian (Antimeridian) passes directly through Fiji-specifically slicing through the island of Taveuni. To avoid splitting the country into two different calendar days, the International Date Line (IDL) makes a zig-zag deviation to the east around Fiji, passing very closely alongside the island group so that all of Fiji stays within a single uniform time zone.**

11. Exclaves

Context: Moscow has accused the alliance of increasing military pressure around the strategic exclave and has sent a formal diplomatic note to the NATO over what it sees as attempts to isolate the territory; however, NATO has rejected the accusations, saying its activities in the region are 'defensive'.

Exclave:

A portion of a state geographically separated from its main body by the territory of one or more surrounding foreign states (e.g., Kaliningrad for Russia).

	Exclave	Associated countries
1.	Nakhchivan	Azerbaijan
2.	Cabinda	Angola
3.	Madha	Oman
4.	Kaliningrad	Russia

12. Prime Meridian

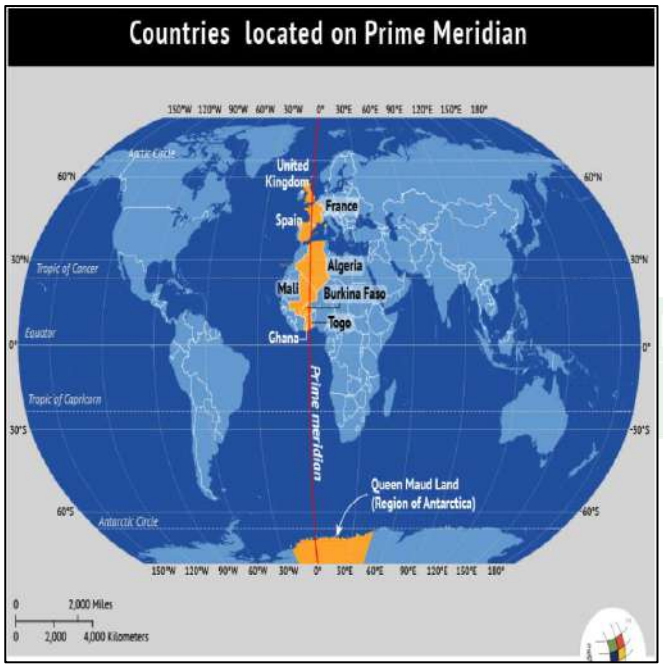
Context: The Malian army says it has entered the strategic northern city of Kidal, which was captured around five months ago by Tuareg separatists who announced their withdrawal earlier on October 6 as the military advanced.

Prime Meridian:

- Greenwich meridian, an imaginary line, last established in 1851, that was used to indicate 0° longitude.
- It passes through Greenwich, a borough of London, and terminates at the North and South

poles. Because it indicated 0° longitude, it was also known as the prime meridian.

- It served as the internationally recognized prime meridian from 1884 to 1984, when it was superseded by the International Reference Meridian (IRM), which differs from it only slightly.
- The historical Greenwich meridian passes not only through England but also through France and Spain in Europe; Algeria, Mali, Burkina Faso, Togo, and Ghana in Africa; and Antarctica at the South Pole. It intersects the Equator (0° latitude) in the Atlantic Ocean.



13. Rivers & Gulfs

Context: India and Ghana have signed a five-year Memorandum of Understanding (MoU) to strengthen cooperation in agricultural research, education, technology transfer and commercialisation.

	Rivers	Associated Gulfs
1.	Volta River	Gulf of Guinea
2.	Juba River	Gulf of Aden
3.	Rio Grande River	Gulf of Mexico
4.	Colorado River	Gulf of California

14. Malaysia

Context: The leader of Myanmar's military-backed government arrived in Malaysia on October 7 for talks as the two Southeast Asian nations work to repatriate thousands of Myanmar nationals despite international criticism of the transfers.

Malaysia:

- Malaysia is a Southeast Asian country located in the Northern and Eastern hemispheres of the Earth.
- The South China Sea separates Malaysia into two regions: Peninsular Malaysia (West Malaysia) and East Malaysia.
- Peninsular Malaysia is a part of mainland Southeast Asia and lies in the southern part of the Malay Peninsula, bordered by Thailand.
- The states of Sabah and Sarawak located on the northern edges of the Borneo Islands forms the East Malaysian region, and are bordered by Brunei and Indonesia.
- West Malaysia shares its maritime borders with Singapore, Indonesia and Vietnam, while East Malaysia shares it with Philippines and Vietnam.

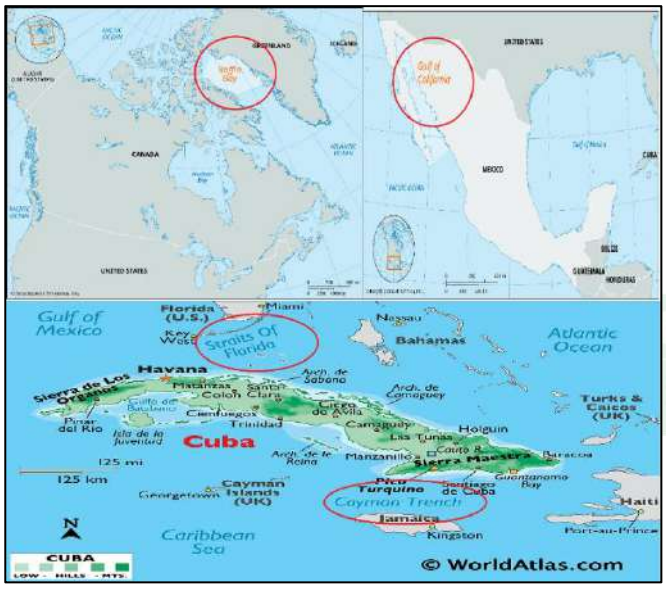


15. Geographical features around American Continent

Context: Cuban theatre, alongside music and ballet, has long been hailed as a cultural hallmark of an island with a tradition of promoting the arts that spans centuries.

Geographical features around American Continent:

- **Cayman Trench (**$\approx 18^\circ$ N $-$ 19° N**):** Located in the western Caribbean Sea between Jamaica and the Cayman Islands.
- **Strait of Florida (**$\approx 24^\circ$ N**):** Located between Florida (USA), Cuba, and the Bahamas, connecting the Gulf of Mexico with the Atlantic Ocean.
- **Gulf of California / Sea of Cortez (**$\approx 23^\circ$ N $-$ 31° N**, main axis** $\sim 27^\circ$ N**):** Located between the Baja California Peninsula and mainland Mexico.
- **Baffin Bay (**$\approx 70^\circ$ N $-$ 75° N**):** Located far north between Baffin Island (Canada) and Greenland.



16. Turkiye

Context: The Kurdistan Workers' Party (PKK) on Thursday accused the Turkish state of doing little to pursue the peace process that began in 2024, despite the Kurdish group having withdrawn all its combat forces from Turkiye.

Turkiye:

- Turkey is a transcontinental Eurasian country. The major part of the country lies in the Anatolian Plateau of Western Asia while a small part is located on Southeastern Europe's Balkan Peninsula.
- The Turkish Straits (Bosphorus and Dardanelles) and Sea of Marmara separate the European part of Turkey called East Thrace from Anatolia. Turkey is located in the Northern and Eastern Hemispheres of the Earth.
- It is bordered by seven countries: Greece and Bulgaria to the northwest, Georgia to the northeast, Armenia and Iran to the east, Iraq to the southeast, and Syria to the south. Nakhchivan, an exclave of Azerbaijan also borders Turkey to the east.
- The country has coastlines on the Black Sea to the north Aegean Sea to the west and the Mediterranean Sea to the south.
- The Sea of Marmara (also known as the Sea of Marmora) is an entirely internal sea located completely within the borders of Turkey. It connects the Black Sea to the Aegean Sea via two famous straits: Bosphorus Strait (connects Sea of Marmara to the Black Sea) and Dardanelles Strait (connects Sea of Marmara to the Aegean Sea). It separates Turkey's Asian landmass (Anatolia) from its European landmass (Thrace).
- The Pontic Mountains (also known as the Pontic Alps) run along the northern coast of Turkey, bordering the Black Sea. The mountain range that separates the Anatolian plateau of southern Turkey from Syria and the Mediterranean coastal region is the Taurus Mountains (specifically the Southeastern Taurus range).



17. South Sudan

Context: Inter-communal violence killed 71 people early on October 9 in South Sudan's central town of Rumbek, the interim government and witnesses said.



South Sudan:

- A landlocked country, South Sudan is located in East-Central Africa in the Northern and Eastern Hemispheres of the Earth. Six countries border South Sudan. These are Sudan to the north, Ethiopia to the east, Kenya to the southeast, Uganda to the south, Democratic Republic of the Congo to the southwest, and Central African Republic to the west.
- The **White Nile** flows directly through South Sudan. Entering from Uganda at Nimule, the river flows northward through the capital city of **Juba** and passes through the **Sudd**-one of the world's largest tropical wetlands-before continuing north into Sudan towards Khartoum, where it merges with the Blue Nile.
- The **Abyei Area** is a border region claimed by both Sudan and South Sudan. Under the 2005 Comprehensive Peace Agreement (CPA), its final sovereignty status was left unresolved, and it remains a heavily disputed territory administered with a special administrative status, monitored by the United Nations Interim Security Force for Abyei (UNISFA).

18. Panama

Context: An earthquake with a preliminary magnitude of 7.7 hit Panama causing structures to collapse and shaking the capital of the Central American country.

About Panama

- **Location**: It is a country of Central America located on the Isthmus of Panama.
- **Bordering Countries**: It is bordered by Costa Rica and Colombia.
- **Water Bodies**: It is bounded by the Caribbean Sea to the north and by the Pacific Ocean to the south.
- **Capital City**: Panama City.



19. Côte d'Ivoire

Context: External Affairs Minister held talks with Côte d'Ivoire's Vice Prime Minister and Foreign Affairs Minister in Abidjan to strengthen defence, counter-terrorism, and trade cooperation.

Côte d'Ivoire:

- Côte d'Ivoire (capital: Yamoussoukro; economic capital: **Abidjan**) is a West African country on the **Gulf of Guinea** and a **former French colony** (independent since 1960).
- **Borders:** Liberia (southwest), Guinea (northwest), Mali (north), Burkina Faso (northeast), and Ghana (east). It has a 515-km coastline on the Gulf of Guinea, between Liberia & Ghana; **lagoons line its eastern half**.
- **Rivers:** Cavally (along the Liberia border), Sassandra, Bandama (longest), and Comoé (from Burkina Faso).
- **Highest Point: Mount Nimba** (at the **tri-point border with Guinea and Liberia**), recognised as a UNESCO World Heritage Site.
- **Biodiversity: Taï National Park** is a natural UNESCO World Heritage Site that preserves one of the last major remnants of primary tropical forest in West Africa.
- It is the **world's largest producer of cocoa beans** and **raw cashew nuts**.



20. Shipping Routes

Context: A South Korean container ship returned on October 11 from a trial voyage through the Arctic, testing an alternative route opened by melting sea ice as conflict in West Asia disrupts global shipping.

Capital City	Country	Approximate Latitude
1. Beijing	China	~39°54′ N
2. Seoul	South Korea	~37°34′ N
3. Tokyo	Japan	~35°41′ N
4. Hanoi	Vietnam	~21°02′ N



21. Straits & Water Bodies

Context: China's military recently said its forces had followed and warned a Canadian and an Australian warship, which were sailing through the sensitive Taiwan Strait, in a move it criticised as a provocation.

	Straits	Associated water bodies
1.	Lombok Strait	Java Sea and Indian Ocean
2.	Strait of Messina	Tyrrhenian Sea and Ionian Sea
3.	Strait of Dover	English Channel and North Sea
4.	Strait of Magellan	Atlantic Ocean and Pacific Ocean

22. Locations in news

Context: Houthi fighters have tightened their siege of the Yemeni city of Taiz, where fighting has killed more than 60 people in the past 24 hours, military sources from both sides told AFP on October 12.

	Places in the news	Location
1.	El Fasher	Sudan
2.	Kursk Oblast	Russia
3.	Myawaddy	Myanmar
4.	Hudaydah	Yemen

23. Czech Republic

Context: Recently, the Indian defence minister held a bilateral meeting with the 1st Deputy Prime Minister and Minister of Industry and Trade of Czech Republic in New Delhi.

About Czech Republic

- **Location**: It is a landlocked country located in Central Europe.
- **Bordering Countries**: It is bordered by 4 nations: by Poland in the north and northeast; by Slovakia in the east; by Austria in the south and by Germany in the west and northwest.
- **Capital City**: Prague.



24. Bulgaria

Context: Eleven sailors were missing at sea on October 13 from a ship sunk by a drone attack off the coast of Bulgaria, the second deadly sinking of a cargo vessel in the area in a week, prompting Bulgaria to summon Russia's Ambassador.

Bulgaria:

- Bulgaria is a country located in the south eastern region of the European continent, occupying the eastern part of the Balkan Peninsula. It is geographically positioned both in the Northern and Eastern hemispheres of the Earth.
- Bulgaria is bordered by 5 countries: by Romania in the north; by Turkey and Greece in the south; by North Macedonia in the southwest and by Serbia in the west. It is bounded by the Black Sea in the east.



25. El Salvador

Context: India has operationalized its new resident mission in San José, to further strengthen bilateral relations between India and Costa Rica.

About:

- El Salvador is a small mountainous Central American nation. It is positioned in the Northern and Western hemispheres of the Earth. It is bordered by Honduras to the northeast; Guatemala to the northwest and by the Pacific

Ocean to the south. Since El Salvador mostly occupies the western side of the isthmus; it is the only Central American nation without a coast on the Caribbean.



26. Sukhna Lake

Context: India's Ramsar Site tally has reached 103, with Sukhna Lake in Chandigarh and Sauj Jheel in Uttar Pradesh becoming the latest additions.

Sukhna Lake

- Located at the edge of the city of **Chandigarh** and at the base of the **Outer Himalayas**, Sukhna Wetland is a **peri-urban reservoir** that plays an important role in regulating sediment and water flows from the surrounding catchment.
- The Site is particularly important for resident waterbirds and others migrating along the **Central Asian Flyway**, providing feeding, breeding, roosting and wintering habitats.
- Notable species include the **vulnerable common pochard** (Aythya ferina) and the **endangered Pallas's fish eagle** (Haliaeetus leucoryphus).

Sauj Jheel

- Sauj Jheel in the state of Uttar Pradesh is a **shallow lake** surrounded by farmland in the floodplain of the **Ganga River**.
- The Site is particularly important for waterbirds, regularly supporting more than 30,000 individuals, and has been designated as an **Important Bird and Biodiversity Area (IBA)** by BirdLife International.
- It forms part of a larger network of wetlands, contributing to ecological connectivity in the wider landscape, and is close to Saman Bird Sanctuary.
- Notable waterbird species recorded at the Site include the **vulnerable sarus crane** (Grus antigone) and **greater spotted eagle** (Clanga clanga).

27. Masaya Volcano

Context: Satellite measurements of Nicaragua's Masaya volcano suggest magma is entering one reservoir as another drains, offering clues that could improve monitoring for future hazards.

About Masaya Volcano

- It is an active basaltic shield-like caldera volcano located in Nicaragua in Central America, about 20 km southeast of the capital city, Managua.
- It forms part of the Central American Volcanic Arc, formed by the subduction of the Cocos Plate beneath the Caribbean Plate.
- The large El Ventarrón caldera (6 × 11.5 km) was formed by a series of Plinian eruptions in the past 6000 years.
- The caldera contains multiple collapse craters and cinder cones, with the currently active Santiago crater formed between 1850–1853.
- The volcano is known for its persistent lava lake and high degassing rates.
- Activity is typically Strombolian to Vulcanian with ash emissions, lava fountains, and occasional lava flows.
- The current activity at Santiago crater includes a convecting lava lake and continuous gas emissions.

	Volcanoes	Location
1.	Masaya Volcano	Nicaragua
2.	Mount Ibu	Indonesia
3.	Mayon Volcano	Philippines
4.	Great Sitkin	USA

28. Somalia

Context: Somalia announced on October 15 that parliamentary and presidential elections would be held next year in the deeply fragmented country that faces a long-running Islamist insurgency.



Somalia:

- Somalia is an African country located in the Horn of Africa (a peninsula forming the easternmost projection of Africa).
- **The Equator passes through southern Somalia. So while most of Somalia lies in the Northern Hemisphere, a small part stretches into the Southern Hemisphere. Longitudinally, Somalia is located entirely in the Eastern Hemisphere.**
- **Somalia has two major perennial rivers flowing through its southern territory: the Jubba River and the Shebelle River. Both originate in the Ethiopian Highlands and flow southeastward across southern Somalia, forming the country's main agricultural belt.**
- It has land borders with only two countries; Kenya to the southwest and Ethiopia to the west. The Gulf of Aden forms Somalia's northern borders and the Somali Sea and Guardafui Channel bound it to the east.

29. East African Rift System

Context: A peace deal signed in November 2022 ended two years of brutal fighting in the Ethiopian state, but disputes over political power, territory and the disarmament of armed groups remain unresolved; renewed fighting between the TPLF and govt. forces.

East African Rift System (EARS)

- **Definition:** A **divergent tectonic plate boundary** actively splitting the African Plate into two sub-plates: the **Nubian Plate** (west) and the **Somali Plate** (east).
- **Extent:** Stretches roughly **6,000 km** from the **Afar Triple Junction** (Red Sea/Gulf of Aden in the north) down to **Mozambique** in the south.
- **Mechanism:** Mantle plume upwelling causes continental rifting, crustal thinning, normal faulting, and graben formation. In millions of years, it will submerge, creating a new ocean basin.

Key Physical Features & Volcanism

- **Afar Depression (Triple Junction):** Meeting point of three spreading plates (Arabian, Nubian, Somali). Home to **Erta Ale** (active lava lake) and **Dallol** (hydrothermal fields).

- **Volcanism:**
  - **Mount Kilimanjaro** (Tanzania) – Highest peak in Africa (stratovolcano).
  - **Mount Kenya** (Kenya) – Extinct stratovolcano along the rift.
  - **Ol Doinyo Lengai** (Tanzania) – Unique "carbonatite" lava volcano (coolest, black/grey lava).
  - **Virunga Mountains** (DRC/Rwanda) – Active volcanic chain including **Mount Nyiragongo**.

Lakes:

- **Lake Tanganyika** and **Lake Malawi (Nyasa)** lie within the deep grabens of the Western Rift Valley, while **Lake Turkana** is located in the Eastern Rift Valley (Kenya). They are classic tectonic rift lakes characterized by great depth and steep escarpments.

While,

- **Lake Victoria:** Although it is one of the African Great Lakes, it is **not** a rift valley lake. It occupies a broad, shallow depression on the plateau situated in between the Eastern and Western branches of the East African Rift.
- **Lake Chad:** Located in the Sahel region of West-Central Africa, it is an endorheic shallow basin completely unrelated to the East African Rift system.

30. Togo

Context: Recently, India and Benin have held high-level talks in Porto-Novo to strengthen bilateral cooperation across defence, health, agriculture, and economic sectors.



Togo:

- Togo is a small West African country. It is located in the Northern and Eastern hemispheres of the Earth. It is bordered by three African nations; Burkina Faso to the north, Ghana to the west, and Benin to the east. The Bight of Benin of the Gulf of Guinea borders Togo to the south.

31. Thwaites Glacier

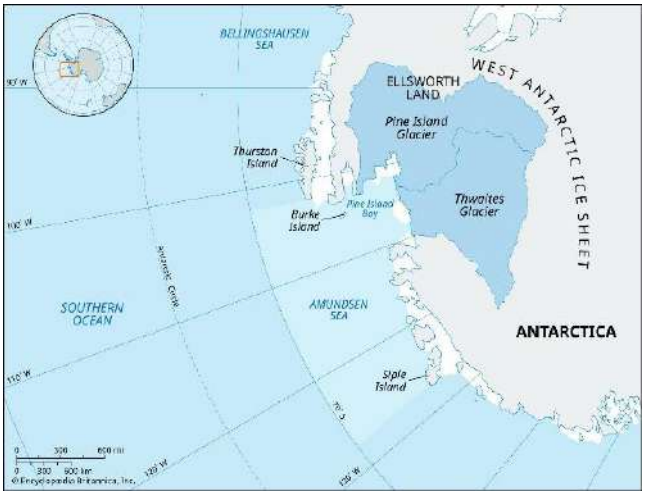
Context: Antarctica's "Doomsday Glacier" could add up to 3 cm to global sea levels by 2100, twice as much as earlier estimates suggested, according to a new study.

About Thwaites Glacier

- Thwaites Glacier, often referred to as the Doomsday Glacier, is a large glacier located on the north coast of West Antarctica, bordering the Amundsen Sea.
- It is a fast-flowing glacier covering an area of approximately 192,000 sq.km., an area about the size of the U.S. state of Florida and slightly smaller than the island of Great Britain.
- It has the world's widest glacial interface with the ocean, extending roughly 120 km.
- It is named for American glacial geologist and geomorphologist Frederik T. Thwaites.
- A portion of the glacier is an ice shelf over the Amundsen Sea, held up in several places by underwater plateaus.
- It is one of the most vulnerable and important glaciers in the world in terms of future global sea-level rise.

Amundsen Sea:

- The **Amundsen Sea** is an arm of the Southern Ocean off the coast of **Marie Byrd Land** in **West Antarctica**. It is bounded by Cape Flying Fish to the east and Cape Dart to the west. It is frequently in global climate news due to rapid ice shelf melting (e.g., Thwaites and Pine Island glaciers).



32. Kamchatka Peninsula

Context: Recently, an earthquake of magnitude 7 has struck the Kamchatka Peninsula region of Russia.

About Kamchatka Peninsula

- Location: It lies in far eastern Russia, between the Sea of Okhotsk on the west and the Pacific Ocean and Bering Sea on the east.
- It is one of the world's most concentrated areas of geothermal activity.
- It contains the "volcanoes of Kamchatka", a UNESCO World Heritage Site.
- It is part of the Kamchatka Krai. Kamchatka, also known as a land of fire and ice, sits on the Pacific Ring of Fire and is home to over 150 volcanoes, including 29 active volcanoes.
- It is one of the largest peninsulas in the world.



(Explanation self-explanatory)

33. Port of Constanta

Context: Recently, the Indian mission in Bucharest said a chemical tanker carrying nine Indian seafarers, which was hit by a drone at an anchorage off Romania has reached the Port of Constanta safely.

About Port of Constanta

- Location: It is one of the key Romanian maritime ports in the Black Sea Region.
- It is the only seaport directly connected to the Danube River through the Danube-Black Sea Canal.
- This port also plays a key role for the Danube countries in Central and East Europe through the Danube River.
- Significance: It is playing a highly important role as the transit node for the landlocked countries in Central and South-East Europe.

Sr no.	Seas	Adjacent Sea	Connecting Strait
1	Sea of Azov	Black Sea	Kerch Strait
2	Sea of Marmara	Aegean Sea	Dardanelles Strait
3	Andaman Sea	South China Sea	Strait of Malacca
4	Chukchi Sea	Bering Sea	Bering Strait

34. Tribes & Regions

Context: Thousands of Greenlandic Inuit women and girls were fitted with IUDs without their consent between the 1960s and 1990s, in a birth-control programme reportedly aimed at controlling the island's population.

	Tribes	Regions
1.	Māori	Australia/New Zealand
2.	Inuit	Arctic coasts of Canada, Greenland, and Alaska
3.	Sami	Arctic Norway, Sweden, Finland, Kola Peninsula of Russia
4.	Bedouin	Arabian Peninsula & Sinai Desert

35. Puzhal Lake

Context: The bodies of two 14-year-old schoolboys who drowned in Puzhal Lake near Murugambedu were recovered recently.

About Puzhal Lake

- Puzhal Lake, also known as Red Hills Lake, is a manmade freshwater lake located in Red Hills, Thiruvallur district, Tamil Nadu.
- It was built in the 19th century, during the British Period.
- It is one of the three main rain-fed reservoirs from where water is being drawn to be supplied in the city of Chennai, the other two being the Chembarambakkam Lake and Porur Lake.
- It's like a giant natural storage tank that collects rainwater and water from other sources.
- It can hold a huge amount of water, about 3300 million cubic feet.

All four water bodies are prominent man-made (artificial) lakes or reservoirs:

- **Dhebar Lake (Jaisamand Lake):** Created by damming the Gomti River in Rajasthan.
- **Periyar Lake:** Created by the Mullaperiyar Dam across the Periyar River in Kerala.
- **Umiam Lake:** Created by damming the Umiam River near Shillong, Meghalaya.
- **Puzhal Lake (Red Hills Lake):** Historical artificial reservoir in Tamil Nadu supplying drinking water to Chennai.

36. Windward Passage

Context: The members of El Salvador's military deployed in Haiti as part of the international security and peacekeeping mission were ambushed by local armed gangs.

Windward Passage:

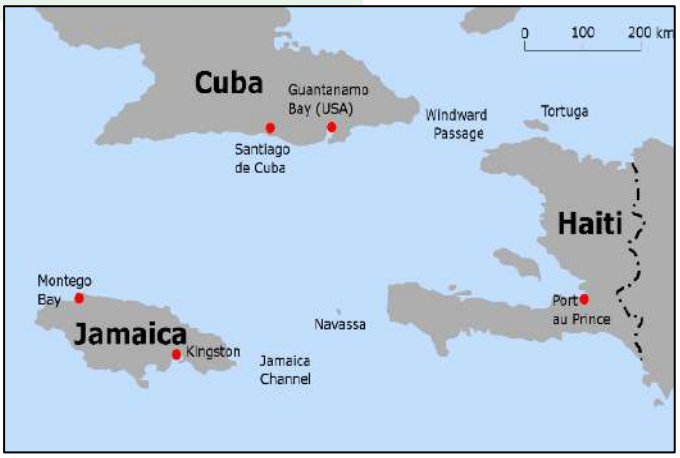
- A strategic strait in the Caribbean Sea that connects the **Atlantic Ocean** directly to the **Caribbean Sea**.
- **Land Borders:** Separates the easternmost tip of **Cuba** (Cape Maisí) from the north-westernmost tip of **Haiti / Hispaniola** (Cape Saint-Nicolas).

Dimensions:

- **Width:** Approximately 80 kilometers (50 miles) wide.
- **Threshold Depth:** Reaches depths exceeding 1,700 meters, allowing deep-draft commercial and naval vessel transit.

Geopolitical & Trade Significance

- **Panama Canal Access:** Acts as the primary direct maritime highway for shipping traffic travelling between the **Eastern Seaboard of the United States / Europe** and the **Panama Canal**.
- **Naval Chokepoint:** Provides critical military access and surveillance capabilities over the Greater Antilles maritime routes.
- **Migrant & Interdiction Corridor:** Frequently monitored by the US Coast Guard for maritime security, counter-narcotics operations, and migration tracking.



37. Lake Maracaibo Region

Context: Experts say Trump's numbers don't add up. A single figure sets Venezuela apart from the rest of the world: 303 billion barrels of so-called proven oil reserves. But experts say the country's estimate is inherently problematic and far from proven - rooted in exaggerated, ageing data from a corrupt government.

The Lake Maracaibo Region in north-western Venezuela:

- Location: A large tidal bay/lake basin connected to the Gulf of Venezuela and the Caribbean Sea.
- Resource: Contains one of the world's oldest and largest crude oil extraction basins, driving Venezuela's oil boom in the 20th century and establishing its role as a key OPEC founder.
- Geopolitical & Environmental Context: Suffers from severe oil leaks, toxic cyanobacteria blooms, and decaying state-run energy infrastructure, making it a critical focus area in Western Hemisphere energy and environmental studies.



38. Azerbaijan

Context: The External Affairs Minister S. Jaishankar's visit to Azerbaijan marks an effort to restore India-Azerbaijan relations following differences over Operation Sindoor.

Azerbaijan:

- Azerbaijan is located at the junction of Eastern Europe and Western Asia along the southern flanks of the Caucasus Mountains. It is situated both in the Northern and Eastern hemispheres of the Earth. Azerbaijan is bordered by Russia in the north, Georgia in the northwest, Armenia in the west, and Iran in the south. It is bounded in the east by the Caspian Sea.
- Azerbaijan lies at the intersection of Eastern Europe and Western Asia in the South Caucasus region. Both the **Greater Caucasus Range** (forming its northern border with Russia, home to Azerbaijan's highest peak, Mount Bazardüzü) and the **Lesser Caucasus Range** (spanning its south-western region) are situated in Azerbaijan.
- Azerbaijan is bordered by the **Caspian Sea** to its east, giving it a coastline of approximately 713 km, which includes the strategic **Absheron Peninsula** (where the capital city, Baku, is located).



39. Zavodovski Island

Context: According to research by the British Antarctic Survey (BAS), the number of breeding chinstrap penguins on the Zavodovski Island declined nearly 63% in 14 years.

About Zavodovski Island

- **Location:** It is an uninhabited volcanic island situated in the Traversay Islands subgroup of the South Sandwich Islands in the South Atlantic Ocean.

- It is home to the largest penguin colony in the world and unique terrestrial fauna and flora.
- **Volcano:** The basaltic stratovolcano on the island, known as Mount Curry, has a large lava platform extending east from two parasitic cones on the side of the main edifice.

	Islands in the news	Associated oceans
1.	Zavodovski Island	Atlantic Ocean
2.	Zuqar Island	Indian Ocean
3.	Hans Islands	Arctic Ocean
4.	New Caledonia Island	Pacific Ocean

40. Bonin Islands

Context: A magnitude 6.5 earthquake recently struck the Bonin Islands region of Japan.

About Bonin Islands

- The Bonin Islands, also known as the Ogasawara Islands, are some 30 volcanic islands and islets in the central Pacific Ocean, about 800 km southeast of Japan.
- The islands command a strategic position astride the Pacific approaches to East Asia.



History:

- The islands were claimed by Japan from the British in 1875 and placed under the Tokyo prefecture in 1880.
- In World War II the islands formed a major Japanese military stronghold until they were occupied by the U.S. Navy in 1945.
- The islands were administered by the U.S. military until 1968, when they were returned to Japan.

41. Vanuatu

Context: A preliminary magnitude 6.9 earthquake recently hit off the coast of Vanuatu, a South Pacific Island nation, according to the US Geological Survey, prompting a tsunami warning for the area that was later rescinded.



About Vanuatu

- Vanuatu, officially the Republic of Vanuatu, is an island country located in the South Pacific Ocean.
- **It is a Melanesian archipelago made up of 83 islands, of which only 65 are inhabited. Most islands are volcanic in origin. The largest island is Espíritu Santo.**

- **The islands extend north-south for some 650 km in an irregular Y shape.**
- **They lie about 800 kilometres west of Fiji and nearly 1800 kilometres east of Australia (separated by Coral Sea).**

Geography:

- A diverse relief-ranging from rugged mountains and high plateaus to rolling hills and low plateaus, with coastal terraces and offshore coral reefs-characterizes the islands.
- The country is home to several active volcanoes, including Mount Yasur, which is one of the world's most accessible active volcanoes.

42. Victoria Mode

Context: A recent study by the India Meteorological Department (IMD) has linked changes in India's climate zones to the Pacific Ocean phenomenon known as the Victoria Mode (VM).

What is Victoria Mode?

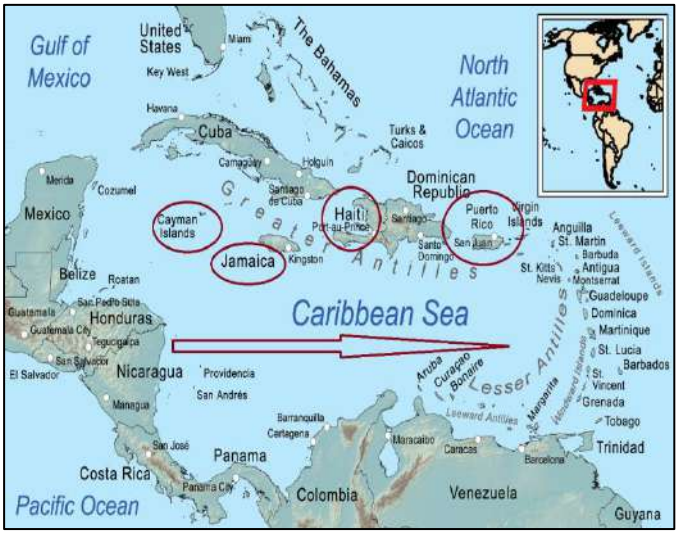
- **Victoria Mode (VM) is a recurring pattern of warm and cool sea-surface temperature variations in the North Pacific Ocean.**
- It influences atmospheric circulation and the movement of moisture, affecting rainfall patterns over distant regions, including India.
- **The study associates the negative phase of Victoria Mode with reduced moisture transport towards northern India, contributing to declining rainfall and the expansion of drier climate zones.**

43. Caribbean Islands

Context: Caribbean nations campaigning for slavery reparations have won support from an unexpected source - the descendants of some of Britain's most prominent families to have benefitted from the slave trade.

Geographical Sequence (West to East):

- **Cayman Islands** (≈ 81.3°W to 79.8°W)
- **Jamaica** (≈ 78.4°W to 76.2°W)
- **Haiti** (western part of Hispaniola) (≈ 74.4°W to 71.7°W)
- **Puerto Rico** (≈ 67.3°W to 65.6°W)



44. Netherlands

Context: Recently, the Union Minister for Agriculture and Farmers Welfare held bilateral talks with the Minister for Agriculture, Fisheries, Food Security and Nature, Netherlands.



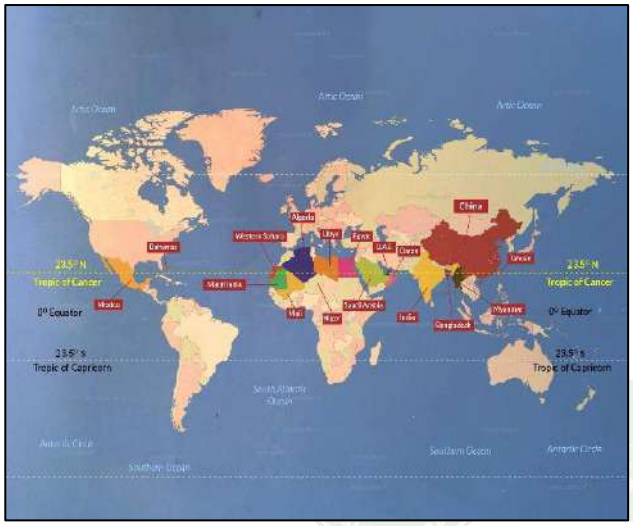
About Netherlands

- **Location**: It is located in Northwestern Europe.
- **Bordering Countries**: It is bordered by Germany in the east; and Belgium in the south.

- **Water Bodies:** It is bounded by the North Sea in the north and west.
- **Capital City**: Amsterdam.

45. Tropic of Cancer

Context: Experts have warned Bangladesh that deadly outbreaks of diphtheria, whooping cough and polio could follow an ongoing measles epidemic that has already killed over 1,200 children, according to a report seen by AFP on October 26.



Tropic of Cancer ($23\frac{1}{2}^{\circ}$ N) passes through exactly 8 Asian nations/territories:

- **Saudi Arabia** (Middle East)
- **United Arab Emirates (UAE)** (Middle East)
- **Oman** (Middle East)
- **India** (South Asia - passes through 8 Indian states)
- **Bangladesh** (South Asia)
- **Myanmar** (Southeast Asia)
- **China** (East Asia)
- **Taiwan** (East Asia)

46. Liechtenstein

Context: PM Modi held bilateral talks with Liechtenstein's Hereditary Prince Alois at Hyderabad House, New Delhi.

About Liechtenstein

- **Government:** A small European monarchy. The Prince is head of state, and Hereditary Prince Alois acts as head of state on his behalf. It has a one-house parliament, the Landtag, and the Prime Minister is Brigitte Haas.
  - It abolished its military in 1868 and stayed neutral. Police handle internal security.
- **Location:** In the Alps, in the upper Rhine valley. **It borders Switzerland and Austria.**
- **Doubly landlocked:** It is one of only two such countries. It is landlocked, and so are all its neighbours. The other is Uzbekistan.



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ART AND CULTURE

1. Classical Languages

Context: The Ministry of Education, has approved the establishment of five Centres of Excellence (CoEs) for the study of Classical Assamese, Bengali, Marathi, Pali and Prakrit.

What is a Classical Language?

- Classical languages are **ancient languages** with **independent traditions** and a **rich literary history** that continue to influence various literary styles and philosophical texts.

List of Classical Languages

- Tamil (2004)
- Sanskrit (2005)
- Kannada (2008)
- Telugu (2008)
- Malayalam (2013)
- Odia (2014)
- Marathi (2024)
- Bengali (2024)
- Assamese (2024)
- Pali (2024)
- Prakrit (2024)

Criteria for declaring a language as 'Classical'

- The recognition of a classical language is based on criteria established by a **Linguistic Experts Committee**. They are:
  - High antiquity of (its) is early texts/recorded history over a period of **1500- 2000 years**.
  - A body of ancient literature/texts, which is considered a **heritage by generations of speakers**.
  - **Knowledge texts**, especially prose texts in addition to poetry, epigraphical and **inscriptional evidence**.
- The Classical Languages and literature could be **distinct from its current form** or could be **discontinuous with later forms** of its offshoots.

2. Kadavumbhagam Synagogue

Context: Recent incidents involving the Kadavumbhagam Synagogue in Ernakulam and the heritage Koder House in Fort Kochi have renewed attention to Kerala's declining Jewish community.

About

- Jewish migration to Kerala is associated with the region's flourishing ancient spice trade. The state's Jews are divided into **two distinct communities** - the Malabari or **"black" Jews** and the Paradesi or **"white" Jews.**
- There were two other smaller Jewish communities in Cochin.
  - **The Arab-speaking Baghdadi Jews**, who arrived in the **18th and 19th centuries** from places in present-day **Iran, Iraq, and Afghanistan,** gradually came to be considered as **"white" Jews.**
  - **Meshuchrarim:** A term used to refer to a group who were part of the Paradesi community, which included **freed slaves brought from parts of Europe** as well as converts and their descendants.

Dwindling population of Jews in India

- Since the **1950s,** there has been a steady migration of **Kerala Jews to Israel.**
- **Aliyah:** Following the establishment of **Israel in 1948**, large-scale migration from Kerala to Israel took place.
  - **Aliyah** refers to Jewish immigration to Israel.
- **Queenie Hallegua,** the last woman of Kerala's Paradesi Jewish community died in Kochi in 2024.

3. Charles Correa Gold Medal

Context: A Kochi-based student of architecture recently won the 28th Charles Correa Gold Medal in architecture in Mumbai.

About Charles Correa Gold Medal

- It is an annual award initiated in 1998 by the Indian architect and urbanist Charles Correa.
- The medal recognises quality and talent among young students of architecture for their undergraduate thesis project in a first professional degree course.
- The Charles Correa Foundation (CCF) administers the Gold Medal annually.
- Eligibility: Final-year students pursuing undergraduate professional degree at eligible Indian architecture colleges.

Selection:

- Participating colleges nominate one student's individual thesis project.
- The student must be the sole author of the project. Group work is not permitted.
- A jury of eminent architects review the submissions and identify an outstanding student who will be awarded the Medal.
- The applicant college of architecture must be located in India and approved by the Council of Architecture (COA).
- Initially the award was open only to Mumbai and Goa architecture colleges, but from 2022 forward, CCF invites all colleges across India.
- From 2025 to 2027, the medal focuses on thesis projects that address 'Equitability through Design'.

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S.NO	TEST NAME	DATE OF TEST
1	CA April 2026	14.06.2026
2	CA May 2026	05.07.2026
3	CA June 2026	26.07.2026
4	CA July 2026	16.08.2026
5	CA August 2026	13.09.2026
6	CA September 2026	11.10.2026
7	CA October 2026	15.11.2026
8	CA November 2026	13.12.2026
9	CA December 2026	10.01.2027
10	CA January 2027	14.02.2027
11	CA February 2027	14.03.2027
12	CA March 2027	11.04.2027
13	CA April 2027	09.05.2027

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MISCELLANEOUS

1. Padma Awards

Context: Recently, the President of India conferred 4 Padma Vibhushan, 10 Padma Bhushan, and 57 Padma Shri Awards at the Civil Investiture Ceremony-I at Rashtrapati Bhawan's Ganatantra Mandap.

Eligibility Criteria

- All persons, regardless of race, occupation, position or gender, are eligible for the award.
- Government servants, including employees of Public Sector Undertakings (PSUs), are not eligible, except doctors and scientists.
- Awards are normally not conferred posthumously, but in highly deserving cases, exceptions are allowed.
- A minimum 5-year gap is required for conferring a higher category Padma award upon a previously awarded individual. However, this can be relaxed by the Awards Committee in exceptional cases.
- Nominations are open to the public, and self-nomination is also allowed.

Selection Process

- All nominations are evaluated by the Padma Awards Committee, which is constituted annually by the Prime Minister.
- The Committee is headed by the Cabinet Secretary.
- Its recommendations are submitted to the Prime Minister and President for final approval.
- The awards are presented by the President, usually in March or April.
- Awardees receive a Sanad (certificate) signed by the President and a medallion.

2. ULLAS - Nav Bharat Saaksharta Karyakram

Context: Lakshadweep has achieved full literacy status under the ULLAS - Nav Bharat Saaksharta Karyakram.

ULLAS - Nav Bharat Saaksharta Karyakram (New India Literacy Programme)

- It is a **centrally sponsored scheme** implemented from **2022-2027.**
  - The scheme, aligned with NEP 2020, targets adults (**aged 15 years and above**) who can't go to school.

- **It has five components**: Foundational Literacy and Numeracy, Critical Life Skills, Basic Education, Vocational Skills and Continuing Education.
- **The vision of the ULLAS** Scheme is to make India **Jan Jan Saakshar** and is based on the spirit of **Kartavya Bodh** and is being implemented on volunteerism.

About Literacy

- **As per the Office of the Registrar General of India, a literate person is someone aged 7 or above who can read and write with understanding in any language.**
- **The Ministry of Education (MoE)-under initiatives like the ULLAS - Nav Bharat Saksharta Karyakram (New India Literacy Programme)-defines and declares a State or Union Territory as "fully literate".**

- The Department of School Education and Literacy has introduced a refined definition of literacy aligned with **NEP 2020 and SDG 4.6 goals.**
  - Literacy is now defined as the ability to read, write, and compute with comprehension, along with critical life skills such as digital and financial literacy. This expanded definition aims to ensure full societal participation and economic progress.
  - **A state/UT achieving 95% literacy is considered fully literate.**

3. Bharat Tulip

Context: Recently, the Ministry of Social Justice & Empowerment has introduced BHARAT TULIP at the Mysuru Dasara Exhibition Grounds at Mysuru in Karnataka.

About Bharat Tulip

- Bharat Tulip (Traditional Artisans' Upliftment Livelihood Programme) was launched in 2024.
- **It is an initiative by the National Backward Classes Finance and Development Corporation (NBCFDC) under the Ministry of Social Justice and Empowerment**.
- It is a transformative platform designed to empower marginalized artisans by integrating them into the global digital economy.

Objectives

- Empower artisans with access to digital marketplaces.
- Enable artisans to participate in domestic/global trade fairs, exhibitions, and fashion shows.

Functions of Tulip

- **E-Commerce Integration**: **Tulip collaborates with leading e-commerce platforms to expand artisans' reach and boost sales opportunities.**
- **Facilitating Sales:** It enables artisans to sell high-quality products through digital marketplaces.
- **Quality Assurance**: Ensuring rigorous quality checks so that only premium products are delivered directly to customers.
- **Skill Development**: Providing essential training to artisans to improve craftsmanship and market readiness.
- **Global Outreach**: Expanding artisans' presence on international B2C platforms to tap into global markets.
- **Participation in Fair**: Offering artisans opportunities to showcase and sell their products at national and international fairs, opening new revenue streams.

4. SIOFA

Context: The Union Government approved India's accession to the Southern Indian Ocean Fisheries Agreement (SIOFA), elevating its status from a Cooperating Non-Contracting Party to a full Contracting Party.

What is SIOFA?

- **The Southern Indian Ocean Fisheries Agreement (SIOFA) is a regional agreement for the conservation and management of fishery resources in the high seas of the Southern Indian Ocean.**
- **It covers fish, molluscs, crustaceans and other sedentary species, while excluding highly migratory species listed in Annex I of the United Nations Convention on the Law of the Sea (UNCLOS) and sedentary species falling under the fishing jurisdiction of coastal states.**
- The Indian Ocean has **two** major regional fisheries management frameworks: **SIOFA and the Indian Ocean Tuna Commission (IOTC).**
    - India has been a contracting party to the IOTC **since 1996**, which manages highly migratory tuna and tuna-like species.

5. National Social Assistance Programme

Context: Recently, the Union Cabinet has approved the proposal of the National Social Assistance Programme (NSAP) with a total outlay of Rs. 53,428 crore for five years from 2026-27 to 2030-31.

About National Social Assistance Programme

- **It is a fully funded Centrally Sponsored Scheme launched in 1995.**
- **It extends financial support to individuals living below the poverty line (BPL).**
- It is a key social welfare scheme that provides pensions to vulnerable groups, including the elderly, widows, and persons with disabilities.
- **Nodal Ministry: It is implemented by the Ministry of Rural Development.**

National Social Assistance Programme (NSAP) covers Sub Schemes

- Indira Gandhi National Old Age Pension Scheme (IGNOAPS): Under IGNOAPS, the Centre provides financial assistance of Rs 200 per month to individuals aged 60-79 years and Rs 500 per month to those aged 80 and above.
- Indira Gandhi National Widow Pension Scheme (IGNWPS): Under IGNWPS, the Centre provides Rs 300 per month to widows aged 40-79 years and Rs 500 to those 80 and above.
- Indira Gandhi National Disability Pension Scheme (IGNDPS): Financial assistance of Rs 300 per month is provided to individuals with severe or multiple disabilities aged 18-79, and Rs 500 to those aged 80 years and above.
- National Family Benefit Scheme (NFBS): Under this the amount of one-time financial assistance is fixed at Rs 20,000. This is provided to families after the death of a primary breadwinner aged 18 to 59.

News changes to National Social Assistance Programme

- NSAP will now be known as Pradhan Mantri Samajik Sahayata Yojana,
- IGNOAPS has been renamed as Pradhan Mantri Vridhavastha Pension Yojana.
- IGNWPS as the Pradhan Mantri Vidhawa Pension Yojana.
- IGNDPS as the Pradhan Mantri Divyangjan Pension Yojana.
- Under the Divyangjan pension scheme, a beneficiary in the age group of 0-79 years will receive Rs 375 - up from Rs 300 currently, while beneficiaries in the age group of 80 years and above will get Rs 625 - up from Rs 500 at present.
- National Family Benefit scheme as the Pradhan Mantri Parivar Labh Yojana.

6. Kpler Data

Context: In September, the Consultative Shipping Group, a group of leading maritime nations, said conflicts such as over the Strait of Hormuz and Black Sea are "not episodic shocks; they are signals of a structural shift in the operating environment of global trade.

Kpler Data:

- **Kpler** is a leading real-time data and analytics platform used by energy traders, logistics firms, governments, and economic analysts.
- It combines **Automatic Identification System (AIS) vessel tracking**, satellite imagery, custom terminal/port intelligence, and trade documentation to monitor bulk commodity shipments (such as crude oil, LNG, dry bulk, and refined products) across the globe.

7. CRPF

Context: The Central Reserve Police Force (CRPF) is reintroducing the military ranks of lance naik and naik to address delayed promotions and accommodate Agniveers retiring from the Army.

Background

- The **lance naik and naik ranks** were **abolished in the force in 1997** and merged with the police ranks of constable and head constable through a Ministry of Home Affairs (MHA) order.
  - The two ranks are **still operational in the Army.**
- **Promotion structure:** According to the hierarchy, a jawan who joins the force as a constable gains the first promotion of lance naik in five years, followed by the promotion to **naik in 10 years** and subsequently **head constable in 20 years.**
  - Currently, the about 3.25 lakh personnel-strong CRPF is facing acute stagnation in promotions in these ranks, as a constable gets his first promotion in 22-25 years on average.

Reasons for Restorations

- Its aim is to provide **two more promotions to the constabulary** before they reach the head constable rank, which will help address their grievances along with boosting their morale.

- It also wants to make the **CRPF service attractive for the Agniveers from the Army,** whose first batch will begin retiring later this year, and will be eligible to join the Central Armed Police Forces (CAPFs), including the CRPF.
    - **Agniveers are short-term military personnel** recruited into the three forces for **four years** under the Centre's Agnipath scheme.

Officer's hierarchy in CRPF:

In ascending order of rank (from lowest to highest):

- **Inspector** (Subordinate Officer rank)
- **Subedar Major** (Highest Subordinate Officer rank)
- **Assistant Commandant** (Entry-level Gazetted Officer rank)
- **Deputy Commandant** (Senior Gazetted Officer rank)

8. International Whaling Commission

Context: A global database of blue whale strandings has highlighted India's western coast, particularly Gujarat, as an important region for recording whale strandings.

International Whaling Commission

- **The International Whaling Commission (IWC) was set up under the International Convention for the Regulation of Whaling, signed in 1946, as the global body responsible for the management of whaling and conservation of whales.**
    - A commercial whaling moratorium was **adopted in 1982** and came into full force in **1986.**
- **Headquarters: Impington (Cambridge), United Kingdom.**
- The Commission continues to **regulate Aboriginal Subsistence Whaling**, which is conducted by indigenous communities, often in remote parts of the world.
- The Convention recognises **three different types of whaling:** commercial, aboriginal subsistence and special permit (also known as scientific) whaling.
- Its membership includes **89 governments** from all over the world.
    - **India has been a member of the International Whaling Commission since 1981.**

9. Financial Messaging Systems

Context: Reports of Elon Musk throttling Starshield services to Ukraine have revived concerns over India's dependence on foreign-controlled critical technologies.

	Financial Messaging Systems	Associated countries
1.	CIPS (Cross-Border Interbank Payment System)	China
2.	SPFS (System for Transfer of Financial Messages)	Russia
3.	SFMS (Structured Financial Messaging System)	India
4.	SEPAM (System for Electronic Payments Messaging)	Iran

10. Sakharov Prize

Context: The European Union has awarded the International Criminal Court (ICC) its top human rights honour, the Sakharov Prize for Freedom of Thought. The recognition comes amid US sanctions targeting the Court.

About the Prize

- **Established in 1988, the Sakharov Prize for Freedom of Thought is named after Soviet dissident and Nobel Peace laureate Andrei Sakharov.**
- It honours individuals and groups defending human rights and fundamental freedoms.
- **The final winner or winners of the Sakharov Prize are chosen by the Conference of Presidents, a European Parliament body led by the president, which includes the leaders of all**

the political groups represented in the Parliament, making the choice of laureates a truly European choice.

- The award carries an **endowment of €50,000** and is presented at the **European Parliament in Strasbourg** (France) each December.

11. Oskar Klein Medal

Context: Renowned Indian theoretical physicist Professor Ashoke Sen has been awarded the prestigious Oskar Klein Medal for 2026, becoming the first Indian physicist to receive the international honour.

About

- Sen was recognised for his pioneering contributions to **string theory** which seeks to explain the fundamental nature of the universe, black hole entropy and string field theory, which have significantly shaped modern theoretical physics.
- An alumnus of Presidency College, Kolkata, and the University of Calcutta, he has also received the **Padma Shri, Padma Bhushan, Dirac Medal, Boltzmann Medal and Breakthrough Prize in Fundamental Physics**.

Oskar Klein Medal

- **Established in 1988, the medal recognises distinguished contributions to physics and is named after Swedish theoretical physicist Oskar Klein.**
- **It is awarded annually by Stockholm University and the Nobel Committee for Physics of the Royal Swedish Academy of Sciences in Sweden.**
- Previous recipients include **Nobel laureates** Stephen Hawking, Peter Higgs, Chen-Ning Yang, Steven Weinberg and Hans Bethe, underlining the award's international standing.

12. China Zorrilla

Context: The world's largest battery-electric vessel, China Zorilla, recently entered commercial service after completing its maiden trip between Buenos Aires, Argentina, and Colonia, Uruguay.

About China Zorrilla

- It is the world's largest battery-electric vessel.
- Previously known as Incat Hull 096, it was built by Australian shipbuilding company Incat Tasmania for South American ferry operator Buquebus.
- It is named after China Zorrilla, the celebrated Uruguayan actress and theatre personality.
- It is sailing under the flag of Uruguay.

Uruguay:

- Uruguay is a country located on the southeastern coast of South America. It is geographically positioned in the Southern and Western hemispheres of the Earth; being the only South American nation to be situated entirely south of the Tropic of Capricorn. Uruguay is bordered by Argentina to the west and southwest; by Brazil to the north and east; by the Rio de la Plata to the south and by the South Atlantic Ocean to the southeast.



13. Hydroseeding

Context: Tata Steel has introduced hydroseeding at its West Bokaro Division in Ramgarh district, Jharkhand.

What is hydroseeding?

- It is a mechanised way of planting. Seeds, mulch, fertilizer and a binding agent are mixed with water into a slurry. This slurry is then sprayed over bare ground using a high-pressure machine.
- It allows for quickly growing green cover on damaged land, holding slopes in place, stop soil erosion by wind and water, and restoring overburdened dumps without heavy manual planting.

Advantages

- **Controls erosion:** It binds soil particles at once, reducing rain washouts, rill erosion and dump-slope landslides.
- **Faster growth**: The nutrient-rich slurry gives seeds water and nutrients from day one, leading to even germination and dense roots.
- **Cost-effective:** It cuts labour and transport costs compared with sodding or hand planting on large industrial sites.
- Hydroseeding (or hydraulic mulch seeding) is a slurry-based planting technique. It involves mixing seeds, fertilizers, organic fiber mulch (like wood or paper fiber), water, and specialized **tackifiers** (natural or synthetic binding glues) into a homogenized mixture and spraying it evenly over exposed soil or cut slopes using high-pressure equipment.
- Hydroseeding does **not** rely exclusively on exotic species. Ecological restoration standards strongly favour using **indigenous/native pioneer grasses and local herbaceous species**.
- Hydroseeding is **specifically designed for steep slopes and degraded lands**, including mining overburden dumps, highway cut-slopes, and landslide-prone hill tracks. The tackifiers and mulches in the slurry lock the seeds and moisture onto high-gradient inclines where traditional broadcast seeding would simply wash away under heavy rainfall.

14. Earthshot Prize 2026

Context: The Earthshot Prize 2026 will take place in Mumbai on November 16-17, marking the initiative's first event in India.

About:

- **Founded by Prince William in 2020, the prize supports innovative solutions to environmental challenges by 2030.**
- **It is open across a wide spectrum of sectors, including individuals, activists, grassroot non-profits, commercial startups, private companies, cities, and national/sub-national public sector bodies.**
- Its five categories cover nature restoration, clean air, ocean protection, waste reduction and climate solutions.
- Fifteen finalists compete, with five winners receiving £1 million each.
- Indian finalists include Mahindra Last Mile Mobility and Mahila Housing Trust; Karan Johar will host the ceremony, which will stream on Prime Video.
- **Key Fact**: Each Earthshot Prize winner receives £1 million.

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