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Monthly Magazine



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PREFACE

Current Affairs UPSC CSE Prelims 2026

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

1. **Saving preparation time:** Consolidates key current affairs from multiple sources for CSE Prelims.
2. **Reinforcing static concepts:** Links static concepts with current affairs
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- Aligns with the CSE prelims exam pattern.
- Aids understanding and recall by offering multiple perspectives on current affairs.
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Details of our Current Affairs Test Series are on the back cover and inside this magazine.

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

R. C. Reddy IAS Study Circle
Hyderabad



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POLITY

1. President's Bodyguard

Context: President Droupadi Murmu presented the Diamond Jubilee Silver Trumpet and Trumpet Banner to the President's Bodyguard (PBG), marking 75 years since it was designated as the elite regiment in 1950.

President's Bodyguard

- The President's Bodyguard is the **oldest regiment of the Indian Army**, tracing its origins back to **1773** when it was raised as the **Governor-General's Bodyguard**, later known as the **Viceroy's Bodyguard**.
- Following India's transition to a republic, the regiment was renamed the **President's Bodyguard on January 27, 1950**.
- The PBG is the only Regiment that is permitted two 'Standards', namely the President's Standard of Body Guard and the Regimental Standard of The PBG.
- The **President's Bodyguard (PBG)**, raised in **1773**, is the **oldest surviving regiment** in the Indian Army.
- Personnel are drawn from **both the Armoured Corps and the Artillery** (specifically, Rajput, Jat, and Sikh communities of India).
- Besides ceremonial duties like the Guard of Honour and Republic Day escort, the unit also serves an **operational role** as a **reconnaissance and tank crew regiment** during wartime.
- The PBG functions under the **Indian Army** and comes under the **Adjutant General's Branch**, not the Prime Minister's Office.

2. Shelly Mahajan versus MS Bhanushree Bahl & Anr

Context: Recently, the Delhi High Court (HC), in *Shelly Mahajan versus MS Bhanushree Bahl & Anr*, has opened the door for spouses to seek damages, in the civil sphere, from third parties.

About

- The High Court issued summons in a wife's suit seeking **damages for Alienation of Affection (AoA)**, against her husband's alleged affair partner.
- **AoA** is a term from common law referring to a **"heart-balm" tort**, which allows a **spouse to sue a third party**, usually the lover, for **wilfully interfering in the marriage** and causing 'loss of affection and companionship'.
- **Notably**, the Indian legal framework **neither codifies nor prohibits AoA**.
 - In *Pinakin Mahipatray Rawal versus State of Gujarat (2013)*, the Supreme Court held that **"alienation of affection by a stranger, if proved, is an intentional tort."**
 - In *Indra Sarma versus V.K.V. Sarma*, the top court further noted that AoA could even **give children a cause of action against a third party** for alienating their father.
- The doctrine has never been used to award damages in India.

Major Takeaway from the Ruling:

- The HC clarified that **while Joseph Shine decriminalised adultery (2018)**, it **did not** grant a licence for **'extramarital relationships' free of civil or legal implications**.
- The ruling clarified that **while adultery is decriminalised**, it **still carries civil consequences in India**.
 - These include **loss of consortium claims**, **compensation suits like the AoA case**, and the **personal remedy of divorce**.

3. Public Trust Doctrine

Context: The Supreme Court recently held that the doctrine of public trust is not confined only to natural waterbodies such as rivers, lakes, and wetlands but also extends to man-made or artificially created waterbodies that serve ecological or environmental purposes.

About Public Trust Doctrine

- It is a legal principle establishing that certain natural and cultural resources are preserved for public use.
- Rooted in Roman law and developed through English common law, this doctrine encompasses various public assets such as tidal waters, lakes, rivers, wetlands, and ecosystems.
- It rests on the principle that certain resources have such great importance to the people as a whole that it would be wholly unjustified to make them a subject of private ownership.
- The public is considered the owner of the resources, and the government protects and maintains these resources for the public's use.
- The doctrine enjoins upon the government to safeguard the resources for the enjoyment of the final public instead of to allow their use for personal possession or industrial functions.
- Three types of restrictions on governmental authority are often thought to be imposed by the public trust:
 - the property subject to the trust must not only be used for a public purpose, but it must be held available for use by the general public;
 - the property may not be sold, even for a fair cash equivalent;
 - the property must be maintained for particular types of uses.

4. Notaries (Amendment) Rules, 2025

Context: The Department of Legal Affairs, Ministry of Law and Justice, has notified the Notaries (Amendment) Rules, 2025.

More on the news:

- The **Ministry of Law and Justice** has amended the **Notaries Rules, 1956**, increasing the maximum number of **notaries** in **Gujarat (2,900 to 6,000)**, **Tamil Nadu (2,500 to 3,500)**, **Rajasthan (2,000 to 3,000)**, and **Nagaland (200 to 400)** to address rising

demand driven by **population growth** and administrative expansion.

- The **Notaries (Amendment) Rules, 2025** came into effect on **October 17, 2025**, enhancing legal service access in these states.

5. Doctrine of Lis Pendens

Context: The Delhi High Court has held that courts can exempt a property from the doctrine of lis pendens, to shield genuine owners from vexatious suits.

About Doctrine of Lis Pendens

- The Doctrine of Lis Pendens, derived from Latin, translates to “pending litigation.”
- It is a legal principle that pertains to immovable property and is dealt with in Section 52 of the Transfer of Property Act (TPA), 1882, in India.
 - Section 52 of the TPA, 1882, provides that if there is any transfer of any immovable property pending litigation, the same shall not affect the rights of the parties in respect to the immovable property.
 - The outcome of the litigation, passed by a court of competent jurisdiction, in the matter during the pendency of which the transfer had taken place, would be binding upon such a purchaser, who has purchased the property during the pending litigation.
- The underlying rationale behind this doctrine is to prevent the subject matter of a lawsuit from being transferred to a third party while the case is still pending.
 - In situations involving immovable property, any transfer of ownership must comply with the court's decision, and the transferee is bound by the court's judgment.
 - The effect of the rule of lis pendens is not to invalidate or avoid the transfer but to make it subject to the result of the litigation.
- This doctrine serves to protect the rights and interests of parties involved in a pending lawsuit concerning a specific property.



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When I was looking to join coaching, many suggested R.C. Reddy IAS Study Circle because this is a very experienced and standard institution. I joined as a complete beginner after graduation with no prior exam preparation. I started preparing after joining here.

I cleared the Civil Services exam in my first attempt. The guidance and the kind of exposure this institute has given me was of great help. R.C.Reddy sir's introductory classes and all the other faculty's lectures, notes and tips has helped me immensely. I owe this success to R.C. Reddy sir and all the faculty members for their excellent guidance during all three stages of the exam (Prelims, Mains and Interview guidance).

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ECONOMY

1. Retail algo trading framework

Context: Capital markets regulator SEBI on September 30 granted additional time to stock brokers for the full rollout of the retail algo trading framework by April next year, allowing a phased implementation to ensure a smooth transition to the new system.

Spoofing

- Spoofing is the practice of placing large fake buy or sell orders that the trader does not intend to execute, with the purpose of manipulating market prices. The goal is to deceive others into thinking demand or supply is stronger than it is, influencing their trading behavior.

In a typical spoofing sequence:

- The trader places a large buy order to simulate strong demand.
- Other market participants respond by raising prices.
- Before the order is executed, the trader cancels it and then sells at the artificially inflated price.
- The same logic applies in reverse for selling manipulation.

Spoofing distorts price discovery, creates false liquidity, and is banned under laws such as the U.S. Dodd–Frank Act and by regulatory bodies like SEBI in India.

Layering

- Layering is a more sophisticated variant of spoofing. Instead of placing one large fake order, a trader enters multiple fake orders at different price levels (layers) on one side of the order book to make the market appear very strong or weak.

Process of layering:

1. The trader places genuine orders on one side (say to sell).

2. On the opposite side (buy side), they place multiple non-genuine buy orders at several price tiers.
3. This creates the illusion of deep buying interest.
4. When prices move up as others react, the trader cancels the fake buy orders and executes their genuine sell order at a better price.

2. Special Rupee Vostro Account

1. What is an SRVA?

A Special Rupee Vostro Account (SRVA) is a rupee-denominated bank account maintained by a foreign bank (or correspondent bank) with an Indian bank, under the framework of the Reserve Bank of India (RBI). Through this account:

- Imports from India may be paid in Indian Rupees (INR) into the SRVA of the foreign bank's corresponding Indian bank.
- Exports from India may receive proceeds in INR credited via that SRVA arrangement.
- The mechanism enables trade settlement between India and partner countries in INR, rather than always using a third currency (e.g., USD).

2. Why was it introduced?

The SRVA framework supports several objectives:

- To promote **invoicing, payment and settlement in Indian Rupees** in cross-border trade.
- To reduce dependency on “hard” freely convertible currencies (like USD or EUR) in bilateral trade, particularly with partner countries facing foreign-exchange constraints.
- To support the gradual **internationalisation of the Indian Rupee (INR)**, increasing its use in global trade and finance.

3. Key Features / Salient Aspects

Here are the major features of the SRVA mechanism:

- **Invoicing & Settlement:** Exports/imports under the SRVA arrangement may be denominated, paid and settled in INR.
- **Exchange Rate:** The exchange rate between INR and the partner currency (or a cross-currency derived rate) is market-determined.
- **Repatriation:** Balance in the SRVA can be repatriated in a freely convertible currency and/or the currency of the beneficiary trading partner country, depending on the underlying transaction.
- **Use of Funds:** The rupee balance may be used for permissible current and capital account transactions (under existing FEMA framework) and, in recent updates, surplus balances may be invested in government securities.
- **Eligibility:** The foreign bank must have correspondent banking relationship with the Indian authorised dealer (AD) bank and meet due diligence (KYC, etc.). Approval (initially) from the RBI was required.
- SRVAs are **rupee-denominated accounts** maintained by foreign banks in Indian banks, enabling settlement of trade transactions in INR.
- The **RBI introduced SRVA guidelines in July 2022** to **internationalize the rupee** and reduce dependence on hard currencies like USD.
- Since invoicing and settlement occur directly in **Indian Rupees**, it **removes exchange rate conversion** between the partner's currency and INR.
- SRVAs can also be used for **investments, project exports, and advance flow management** as approved by the RBI.

3. ECL Framework

Context: The central bank has announced measures to promote wider use of the rupee in cross-border transactions, including permitting rupee loans to Bhutan, Nepal and Sri Lanka, introducing reference rates for key trading partner currencies, and allowing Special Rupee Vostro Account balances to be invested in corporate bonds and commercial papers.

What is the ECL Framework?

- The ECL framework is a **forward-looking approach** to provisioning for credit losses. Under this regime, banks estimate expected losses on their lending portfolios (and other financial assets) in advance of actual defaults or non-performance.
- The current Indian provisioning regime for banks is largely based on an “incurred loss” model (i.e., banks recognise provisions when losses have been incurred or assets have become non-performing). Under ECL, the idea is to move to “expected losses” — recognising earlier, based on risk deterioration, not simply when a default has already happened.
- Essentially:

$$\begin{aligned} \text{ECL} &= \text{Exposure at Default (EAD)} \\ &\quad \times \text{Probability of Default (PD)} \\ &\quad \times \text{Loss Given Default (LGD)} \end{aligned}$$

This is a commonly used formula (originally under IFRS 9) for estimating credit losses.

Why is RBI introducing the ECL framework?

- **Earlier recognition of credit risk:** The incurred-loss model tends to delay recognition of losses until a triggering event occurs (e.g., 90+ days past due). ECL aims to recognise emerging risks earlier.
- **Alignment with global standards:** Many jurisdictions have adopted frameworks such as IFRS 9 (by the International Accounting Standards Board) or ASC 326 (in the U.S.) that incorporate expected-loss models. India is moving in that direction.
- **Strengthening bank resilience:** Earlier recognition and provisioning helps banks build buffers before losses materialise, thereby enhancing stability.
- **Better risk management and transparency:** Enables banks (and regulators) to understand and manage loan portfolios more proactively.
- Under RBI's **ECL framework (2024)**, banks must **estimate credit losses based on expected future events** and **recognize impairment according to the stage of credit risk**, even before an actual default. This means early recognition of losses

based on deterioration in credit quality, not just default.

- The **stage classification** (Stage 1, 2, and 3) under ECL is **not determined solely by DPD (Days Past Due)**. It also depends on **significant increase in credit risk (SICR)**, **forward-looking macroeconomic information**, and **internal risk assessments**. Thus, while DPD may act as a backstop indicator, the classification is **risk-based, not mechanically time-based**.

4. Payments Regulatory Board

Context: The Reserve Bank of India (RBI) has constituted a six-member Payments Regulatory Board (PRB) to oversee the country's payment systems.

Payments Regulatory Board (PRB)

- The PRB replaces the Board for Regulation and Supervision of Payment and Settlement Systems (BPSS), a committee of the RBI's Central Board.
- The new board derives its authority from the **Payment and Settlement Systems Act, 2007**.
- It will be supported by the RBI's Department of Payment and Settlement Systems (DPSS), which will report directly to it.

Composition

- It will be chaired by RBI Governor Sanjay Malhotra, the PRB includes two other RBI officials—the Deputy Governor and Executive Director for Payment Systems—and three Central Government nominees: the Secretaries of Financial Services and Electronics & IT, along with former Telecom Secretary Aruna Sundararajan.
- Decisions will be made by majority vote, with the chairperson (or deputy governor in absence) holding a casting vote in case of a tie.
- The Board must meet at least twice annually, and decisions may also be made via circulation if directed by the chairperson.
- The RBI's principal legal adviser is a permanent invitee to PRB meetings.

Functions

- The Board is responsible for the regulation and supervision of all payment systems including electronic and non-electronic, domestic and cross-border systems.

5. Stablecoins

Context: The Finance Minister said that countries would have to “prepare to engage” with stablecoins whether they welcome the change or not.

What are stablecoins?

- Stablecoins are **cryptocurrencies designed to maintain price stability** by pegging their value to underlying assets such as:
 - Fiat currencies (e.g., USD, Euro),
 - Commodities (e.g., gold),
 - Other cryptocurrencies, or
 - Algorithm-based systems.
- Stablecoins are **different from or Central Bank Digital Currencies (CBDCs)**, which are digital currencies officially issued and controlled by a government's central bank.
 - Meanwhile, stablecoins can be privately issued and can also be pegged to foreign currencies.

Global Scenario in stablecoins

- The U.S. passed the **Genius Act**, which mandates that stablecoins be **fully backed by liquid assets** (like cash or Treasury bills) and requires regular disclosures.
- **Japan & Singapore** have introduced targeted regulations for stablecoins.
- **China** has long prioritized the development of its **sovereign digital yuan**, however it is now also examining the rising use of **yuan-backed stablecoins**.
- Stablecoins are cryptocurrencies designed to minimize price volatility. They achieve this by pegging their value to reserve assets like fiat currencies (e.g., US dollar), commodities (e.g., gold), or through algorithmic mechanisms that adjust supply and demand. Their purpose is to maintain a stable value, unlike typical

cryptocurrencies such as Bitcoin or Ethereum, which are highly volatile.

- Stablecoins are not primarily issued for speculative trading or to enable rapid price fluctuations. In fact, their main function is the opposite — to provide price stability, facilitate cross-border payments, serve as a stable medium of exchange in decentralized finance (DeFi), and act as a store of value within the crypto ecosystem.

6. Securities Transaction Tax

Context: The Supreme Court of India decided to examine a plea challenging the constitutional validity of the Securities Transaction Tax (STT).

Securities Transaction Tax (STT)

- It is a **direct tax** levied on securities transactions through a listed stock exchange, as imposed under the **Finance Act, 2004**.
- It aims to **combat tax evasion in the stock market**.
- It is charged on the transaction value of securities traded on the Indian stock exchange.
 - It includes – derivatives, shares, and equity-oriented mutual funds.
- It is applied on the buying and selling of securities irrespective of the profit or loss made in the transaction.
- Purchase of listed equity shares through exchanges attracts STT.
- Unlisted share transfers are not subject to STT; they are subject to capital gains tax.
- Sale of equity-oriented mutual fund units through a recognized exchange attracts STT.
- Off-market transfers or transactions in **government securities** are exempt from STT.

7. Gazelles and Cheetahs in the Startup Ecosystem

Context: Startups are emerging as the new driving force of India's defence innovation ecosystem, said Defence Minister recently, while calling upon young

entrepreneurs to set new benchmarks and create India's first defence unicorn.

What are Gazelles and Cheetahs in the Startup Ecosystem?

- Gazelle is a startup founded after 2000 with the potential to go unicorn in two years, while "cheetah" may go unicorn in the next four years.
- Gazelles have an estimated valuation ranging from \$500 million to \$1 billion, and the valuation of cheetahs ranges from \$200 million to \$500 million.

Note: Policies targeting them focus on **growth acceleration, innovation incentives, and venture capital facilitation**, rather than broad subsidies or protectionism.

8. Reserve Bank Integrated Ombudsman Scheme

Context: State co-operative banks and central co-operative banks will come under the ambit of the Reserve Bank Integrated Ombudsman Scheme, 2021.

Reserve Bank Integrated Ombudsman Scheme (RB-IOS)

- It was launched in 2021, to provide customers of regulated entities (REs) a speedy, cost-effective, and expeditious grievance redress mechanism.
- **Coverage:** All commercial banks, regional rural banks (RRBs), state co-operative banks, central co-operative banks, and scheduled/non-scheduled primary (urban) co-operative banks with a deposit size of ₹50 crore or more.
 - All Non-Banking Financial Companies (excluding housing finance companies) with asset size of ₹100 crore or more that accept deposits or have a customer interface.
 - Credit information companies are also covered under the scheme.
- **Key Features:**
 - Integrated platform combining multiple ombudsman schemes.

- Offers uniform, transparent, and faster grievance resolution across all regulated entities.
- **Significance:**
 - Strengthens consumer protection in the financial sector.
 - Enhances trust and accountability in banks, NBFCs, and CICs.
 - Supports financial inclusion and digital banking initiatives.

9. Foreign Currency Settlement System

Context: Recently, the union Finance Minister launched a Foreign Currency Settlement System (FCSS) (India's first) at the International Financial Services Centre (IFSC) in Gujarat International Finance Tec-City (GIFT City).

About Foreign Currency Settlement System

- It is established under a comprehensive legal and regulatory framework of the Payment and Settlement Systems Act, 2007.
- It is authorised by International Financial Services Centres Authority (IFSCA).

Key Features

- It enables foreign currency transactions between IFSC Banking Units (IBUs) to be settled locally instead of routing through the traditional correspondent banking route.
- It provides a structured framework for the settlement of foreign currency transactions, enabling market participants to process cross-border payments with greater speed, reliability, and legal certainty.
- Initially, the system will support US dollar transactions, with scope to add other foreign currencies over time.
- **It is operated by the CCIL IFSC Limited (CCIL IFSC), a subsidiary of Clearing Corporation of India Limited.**
- Currently, foreign currency transactions in GIFT IFSC are processed via correspondent banking routes i.e through multiple Nostro account

relationships (accounts held with foreign banks) and intermediaries to route funds.

- That chain of relay can lead to settlement lags of 36 to 48 hours.

10. Limestone Classified as a Major Mineral

Context: The Ministry of Mines has issued a notification, classifying limestone entirely as a major mineral, removing its dual classification as both a major and minor mineral.

About Limestone Classified as a Major Mineral:

- **What it is?**
 - Limestone is a **sedimentary rock composed mainly of calcium carbonate (CaCO₃)**, widely used in **cement, steel, fertilizer, sugar, and chemical industries**. It is also an important building and industrial raw material with high commercial significance.
- **Background:**
 - Earlier, limestone was classified based on **end use** — minor when used for lime production in building material and major when used for industrial purposes.
 - The **new notification (October 2025)** removes this end-use distinction, treating all limestone uniformly as a **major mineral** under the **Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act)**.
- **Aim:**
 - To simplify mineral regulation and eliminate artificial distinctions between major and minor mineral categories.
 - To promote ease of doing business, enabling leaseholders to sell limestone freely to any industry.
- The MMDR Act, 1957 and its amendments do not provide a positive, exhaustive list titled "Major Minerals."
- Section 3(e) of the MMDR Act defines "Minor Minerals" and gives the Central Government the power to add to this list by notification. By regulatory convention, all minerals that are **not**

declared as minor minerals are automatically treated as major minerals.

- The lack of a fixed list of major minerals is a direct consequence of the legal mechanism, where the Central Government only needs to define the **Minor** minerals. This mechanism makes the classification of “Major” minerals dynamic and derived by exclusion, rather than by an explicit list.

11. Trade and Control of Explosives Products in India

Context: The Directorate of Revenue Intelligence (DRI) seized 46,640 smuggled Chinese firecrackers worth ₹4.82 crore at Nhava Sheva port under its ongoing “Operation Fire Trail”.

Trade and Control of Explosives Products in India

1. Legal Framework

The regulation of explosives in India is primarily governed by:

- **The Explosives Act, 1884** – the main legislation for controlling manufacture, possession, use, sale, transport, import, and export of explosives.
- **The Explosives Rules, 2008** – detailed provisions under the Act prescribing licensing procedures, safety standards, and handling requirements.
- **The Ammonium Nitrate Rules, 2012** – specifically regulate the manufacture, conversion, import, export, transport, possession, sale, and use of ammonium nitrate, due to its potential misuse.
- **The Static and Mobile Pressure Vessels (Unfired) Rules, 2016** – cover safety in storage and transport of gases under pressure.

2. Regulatory Authority

- **Petroleum and Explosives Safety Organisation (PESO)** is the national authority responsible for administering the Explosives Act and Rules.
- **PESO operates under the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry, Government of India.**

- Headquartered at **Nagpur, Maharashtra**, PESO ensures safety in manufacture, storage, transportation, and usage of explosives and hazardous materials.

3. Key Functions of PESO

- Licensing for manufacture, storage, sale, import, and export of explosives.
- Granting approvals for explosives plants, magazines, and transport vehicles.
- Conducting safety audits and inspections.
- Ensuring compliance with international safety standards (like UN recommendations on transport of dangerous goods).
- Investigating accidents involving explosives or petroleum products.

12. Authorized Economic Operator (AEO) Programme

Context: The World Trade Organization (WTO) recently praised India's liberalised Authorised Economic Operator (AEO) programme for significantly increasing the participation of micro, small, and medium enterprises (MSMEs) in international trade.

About Authorized Economic Operator (AEO) Programme

- **AEO is a programme under the aegis of the World Customs Organisation (WCO) SAFE Framework of Standards to secure and facilitate Global Trade.**
 - The WCO in June, 2005, with a view to secure the international supply chain, adopted the SAFE Framework of Standards (WCO SAFE FoS).
 - AEO is one of the three pillars on which the SAFE FoS is formed.
 - AEO helps to build a closer partnership between the customs department and the trade industry.
- WCO SAFE FoS is the basis of the Indian AEO programme.
- AEO is a voluntary compliance programme which enables Indian Customs to enhance and

streamline cargo security through close cooperation with the principal stakeholders of the international supply chain viz. importers, exporters, logistics providers, custodians or terminal operators, custom brokers, and warehouse operators.

- **Launched by the Central Board of Indirect Taxes and Customs (CBIC) as a pilot in 2011 and revised in 2016, the AEO programme merges India's earlier accredited client programme.**
- It is implemented by the Directorate of International Customs of CBIC.
- Under the AEO programme, an entity engaged in international trade is approved by Customs as compliant with supply chain security standards and granted AEO status & certain benefits.
 - **An AEO is a business entity involved in the international movement of goods requiring compliance with provisions of the national customs law.**
 - Once granted an AEO status, they are entitled to faster clearances, deferred duty payments, and reduced inspection frequency.
 - Thus, an entity with an AEO status can be considered a reliable trading partner and a secure trader.
- This segmentation approach enables customs resources to focus on less noncompliant or risky businesses for control.

13. Duty-Free Tariff Preference (DFTP) Scheme

Context: Recently, the World Trade Organization credits India's Duty-Free Tariff Preference (DFTP) scheme for boosting exports from the poorest nation.

About Duty-Free Tariff Preference (DFTP) Scheme

- It was initiated in 2008 and offers Least Developed Countries (LDCs) preferential access to the Indian market.
- The DFTP scheme aims to boost LDCs' economic growth, diversify exports, and strengthen trade relations.

- **Objective:** The objective of the scheme for LDCs is grant of tariff preferences on the exports of the Least Developed Countries on imports to India.
- **After subsequent revisions, the scheme now covers about 98.2% of India's total tariff lines, offering duty-free or preferential duty access to LDCs for most goods.**

Key Features of India's DFTP Scheme

- **Duty-Free Access to Indian Market:** Under the DFTP scheme, products from LDCs are eligible for duty-free access to the Indian market.
- **Eligible Countries:** It is available to all LDCs recognized by the United Nations. India offers this preferential access to around 48 countries classified as LDCs, including countries in Africa, Asia, and the Pacific.
- **Eligible Products:** A wide range of products from LDCs can benefit from the DFTP scheme. These include:
 - **Agricultural products:** Fruits, vegetables, spices, and grains.
 - **Textiles and garments:** Clothing, fabrics, and textiles made in LDCs.
 - **Handicrafts and traditional goods:** Handwoven textiles, jewelry, and locally produced crafts.
 - **Leather goods:** Leather garments, bags, and accessories.
 - **Minerals and metals:** Products like gold, diamonds, and other raw materials.

Note: The DFTP scheme is implemented by the Directorate General of Foreign Trade (DGFT), that operates under the Ministry of Commerce and Industry.

14. Acquisition Financing (Loans for Buying Companies)

Context: The Reserve Bank of India (RBI) has issued a draft circular proposing limits on banks exposure to capital markets and corporate acquisitions to manage risks while promoting credit growth.

What are the Key Proposals?

- **Capital Market Exposure:** Banks' aggregate exposure, including direct and indirect (through funds, guarantees), should not exceed **40%** of their **Tier-1 capital**.
 - **Tier-1 capital** includes **equity, retained earnings**, and certain instruments capable of absorbing losses.
- **Acquisition Financing (Loans for Buying Companies):**
 - Banks' exposure to acquisition finance should be capped at **10%** of **Tier-1 capital**.
 - Banks may finance up to **70%** of the acquisition deal value; the remaining **30%** must come from the acquiring company.
 - **Only listed entities** with satisfactory net worth and profitability for the last **three years** are **eligible**.
 - Loans must be fully secured by the target company's shares, so the bank can recover money if needed.
- It proposed **revised risk-weight guidelines** for non-banking financial companies' infrastructure loans, a move that could lower capital requirements for lenders financing established projects.
- **Tier 1 capital** (especially **Common Equity Tier 1**) includes **paid-up equity capital, reserves, retained earnings**, and certain perpetual instruments like AT1 bonds. It absorbs losses **while the bank continues operating** — hence called **"going-concern capital."**
- **Perpetual instruments** like Additional Tier 1 (AT1) bonds are part of **Tier 1 capital**, not Tier 2. **Common equity shares** are **CET1**, the strongest form of Tier 1 capital — not Tier 2.
- **Subordinated debt, hybrid debt instruments**, and **general loan-loss reserves** form part of **Tier 2 capital**, which absorbs losses **only upon liquidation** — hence called **"gone-concern capital."**
- The **Capital Conservation Buffer (CCB)** of **2.5%** of **Risk-Weighted Assets (RWA)** must be held **over and above the minimum Tier 1 capital**, as part of Basel III reforms to strengthen bank resilience.

15. SWAMIH Fund

Context: The Reserve Bank of India will exempt a government-backed SWAMIH fund from its tightened rules for alternate investment funds (AIF).

About SWAMIH Fund

- The Special Window for Affordable and Mid-Income Housing (SWAMIH) Investment Fund I was set up in 2019 to rescue stressed real estate projects by providing debt financing for stalled housing projects.
- The Fund is sponsored by the Ministry of Finance, Government of India.
- **Fund Managed by:** It is managed by SBICAP Ventures Ltd.
- It is a **Category-II AIF (Alternate Investment Fund)** debt fund registered with the Securities and Exchange Board of India.
- The SWAMIH Fund is considered the lender of last resort for distressed projects for established developers with troubled projects.

Eligibility Criteria for Funding

- Real estate projects must be registered under the Real Estate (Regulation and Development) Act (RERA) 2016.
- The project must be classified as a non-performing asset (NPA) or be under insolvency proceedings.
- The project should have been declared as a "stalled" or "delayed" project by a competent authority.
- The fund is available only for projects that fall under the affordable and mid-income housing categories.

16. 8th Central Pay Commission

Context: The Union Cabinet has approved the Terms of Reference (ToR) for the 8th Central Pay Commission (CPC) headed by Justice Ranjana Prakash Desai (Retd.).

About The 8th Central Pay Commission:

- **Definition:**
 - The 8th Central Pay Commission (CPC) is a temporary expert body set up by the Union Government to review and recommend revisions in the salary structure, allowances, and pension benefits of Central Government employees.
- **Establishment:** Announced in **January 2025** and formally constituted after Cabinet approval in **October 2025** to ensure timely implementation from 2026.
- **Composition:**
 - **Chairperson:** Justice Ranjana Prakash Desai (Retd.)
 - **Part-time Member:** Prof. Pulak Ghosh, IIM Bangalore
 - **Member-Secretary:** Pankaj Jain, Petroleum Secretary
- **Tenure:** The Commission will submit its **final report within 18 months** of constitution and may provide **interim recommendations** on specific issues.
- **Coverage:** The 8th CPC covers serving and retired employees of the Central Government, defence forces, All India Services, and Union Territories.
- The **Constitution of India does not explicitly mention** the establishment of a Central Pay Commission.
- After the CPC submits its report, it is reviewed by an Empowered Committee of Secretaries (E-CoS) headed by the Cabinet Secretary. This committee evaluates fiscal implications and implementation feasibility before forwarding it to the Union Cabinet for final decision.
- The 7th CPC introduced a fitment factor to ensure uniform pay revision across levels. The fitment factor of 2.57 was used to multiply the existing basic pay (from the 6th CPC) to arrive at new pay under the Pay Matrix.
- The CPC's mandate includes **pension reforms** and rationalization of **pensionary benefits** for both **civilian employees** and **defence personnel**, including **One Rank One Pension (OROP)** considerations for armed forces.

17. Impact of US federal Bank rate cuts in Indian Market

Context: The U.S. Federal Reserve on October 29 announced its second straight quarter-point interest rate cut to hedge against growing labour market risks, in a meeting that highlighted growing divisions among its ranks. Policymakers voted 10-2 in favour of lowering the bank's key lending rate to between 3.75% and 4.00%.

Impact of US federal Bank rate cuts in Indian Market:

- **Increase in capital inflows:** A Fed rate cut reduces U.S. yields, prompting investors to seek **higher returns** in emerging markets like India, boosting **FPI (Foreign Portfolio Investment)**.
- **Depreciation of the dollar & rupee appreciation:** Lower U.S. interest rates typically weaken the dollar, leading to **relative appreciation** of currencies like the **Indian rupee**.
- **Reduction in borrowing costs & improved liquidity:** Rate cuts make **global credit cheaper**, improving liquidity in emerging markets and supporting **stock market rallies**.

While,

- **Increase in export competitiveness:** A stronger dollar would make Indian exports cheaper, but after a Fed rate cut, the **dollar tends to weaken**, reducing export competitiveness slightly.



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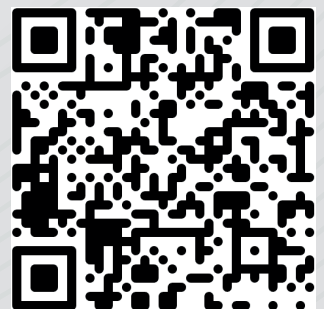
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INTERNATIONAL RELATIONS

1. Mutual Legal Assistance

Context: India has formally invoked the Mutual Legal Assistance Treaty (MLAT) with Singapore, seeking cooperation in the investigation into the death of singer Zubeen Garg in the southeast Asian country.

Mutual Legal Assistance

- Mutual Legal Assistance is a mechanism whereby countries cooperate with one another in order to provide and obtain formal assistance in prevention, suppression, investigation and prosecution of crime.
- **Aim:** To ensure that the criminals do not escape or sabotage the due process of law for want of evidence available in different countries.
- India provides mutual legal assistance in criminal matters through **Bilateral/Multilateral Agreements, or International Conventions or on the basis of assurance of reciprocity.**
- Assistance can also be sought for offences that have a cross-border dimension or where part of the offence or evidence lies abroad.
- India has MLATs with countries following both common law (e.g., UK, USA) and civil law systems (e.g., France, Italy).
- India has entered into MLAT with more than 45 countries.
- **Nodal Ministry:** Ministry of Home Affairs (MHA).

2. International Civil Aviation Organization

Context: India has been re-elected to Part II of the Council of International Civil Aviation Organization (ICAO) for the 2025-2028 term, reflecting increased global confidence in its leadership in international civil aviation.

Council of International Civil Aviation Organization (ICAO)

- It is a specialized UN agency established in 1944 that helps 193 countries collaborate for safe, efficient, and sustainable global air travel.

- **Part II of the ICAO Council comprises States** making the largest contribution to the provision of facilities for international civil air navigation
- **The ICAO Assembly, held every three years, is the sovereign body of the organization and comprises all 193 signatory States to the Chicago Convention.**
 - The 36-member Council, elected during the Assembly, serves as ICAO's governing body for a three-year term.
 - **India has been a founding member of ICAO since 1944 and has maintained an uninterrupted presence on the Council for 81 years.**
 - The country continues to play a pivotal role in shaping ICAO's mission to promote safe, secure, sustainable, and inclusive international civil aviation.

3. International Social Security Association

Context: Recently, the Union Labour Ministry has highlighted the expansion of social protection in the country from 19% in 2015 to over 64% in 2025 at a conclave of the International Social Security Association (ISSA) held in Kuala Lumpur.

About International Social Security Association

- It was founded in 1927, under the auspices of the International Labour Organization (ILO).
- It is the principal international organisation for social security organisations, governments and departments of social security.
- **It promotes excellence in social security administration through professional guidelines, expert knowledge, services and support to enable its members to develop dynamic social security systems.**
- India is a member country of this organization
- **Headquarters:** Geneva, Switzerland.

Governance of International Social Security Association

- **General Assembly:** It is actually the constituent assembly of the Association and is the highest statutory body. It consists of all members of the ISSA who are directly represented. It meets every three years.
- **Council:** It constitutes the electoral body of the Association, composed of the titular delegates of each country in which the ISSA has at least one affiliate member, with each of these countries having one titular delegate.
- **Bureau:** It constitutes the administrative authority of the Association, composed of the President of the ISSA, the Treasurer, the Secretary General, and elected members representing the different geographical regions of the world.
- **Control Commission:** It examines the financial records of the Association and the annual report and statements presented to the Bureau by the Treasurer, and verify that all financial transactions have been carried out in conformity with the Financial Regulations.

4. Moscow Format

Context: India, China, Pakistan attend 10-nation Moscow Format talks that inducts Mr. Muttaqi, as an “official” member for the first time.

About

- The Moscow Format is a regional diplomatic initiative established in 2017 to address the Afghanistan conflict, promote stability, and foster national reconciliation.
- It serves as a platform for regional countries to coordinate on Afghan peace and stability.
- Its members are India, Afghanistan, China, Iran, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Tajikistan, and Uzbekistan.

5. Fomoflation

Context: The recent signing of a proclamation by the U.S. president raising the annual fee for H-1B visas to

\$100,000 a year led to a sudden panic-driven demand that pushed ticket prices higher, illustrating a textbook case of fomoflation.

About Fomoflation

- Fomoflation occurs when consumer behaviour (demand psychology) and market or supply pressures combine to create rapid inflation even in essentials, where prices rise faster than underlying economic factors would justify.
- The cycle of panic-driven demand and resultant price surges illustrates how fomoflation operates.
- Therefore, it is the fear of ‘scarcity’ or the Fear Of Missing Out (FOMO) which triggers buying frenzy, setting off an ‘artificial demand’ loop and eventual price rises.
- Unlike usual inflation, which is an outcome of macroeconomic factors, fomoflation arises from behavioral psychology, often amplified by social media.
- It can also be seen in consumer goods.
 - For example, during festive seasons, demand for staples such as pulses and cooking oil spikes after media reports highlight potential shortages or price hikes.
- Influenced by the reports, consumers rush to stock up, pushing prices higher even when supply is sufficient.

6. International Committee of the Red Cross

Context: The International Committee of the Red Cross (ICRC) has been playing a key role in the Israel– Hamas hostage and prisoner exchanges (2023–2025).

About The International Committee of the Red Cross (ICRC):

- **What It Is?**
 - A global humanitarian network of over 80 million members and volunteers, dedicated to protecting human life and dignity during war, disaster, and crisis.
- **Established In: 1863**, by **Henry Dunant**, a Swiss humanitarian, after witnessing the horrors of the **Battle of Solferino (1859)**.

- **Aim:** To provide neutral, impartial, and independent humanitarian assistance to those affected by armed conflict and natural disasters, ensuring adherence to International Humanitarian Law (IHL).

Historical Background:

- Founded as the **International Committee of the Red Cross (ICRC)** in **Geneva, Switzerland**, it marked the start of organized humanitarian response in wartime.
- The idea evolved into a **global movement**, leading to the establishment of the **Red Cross and Red Crescent emblems** as symbols of protection and neutrality.
- In **2005**, the **Red Crystal emblem** was added for use by countries not using the cross or crescent for cultural or political reasons.
- The Geneva Conventions grant the ICRC the specific right to visit prisoners of war and detainees, organize relief operations, and mediate between warring parties.
- The Movement consists of three main components: the **ICRC** (neutral intermediary in armed conflict), the **IFRC** (coordinates national societies in times of peace and natural disaster), and the **National Societies** (the Red Cross or Red Crescent Society in each country).
- The ICRC, the original organization founded in 1863, has its headquarters in **Geneva, Switzerland**.

7. MERCOSUR Group

Context: Recently, India and Brazil agreed to significantly expand their existing trade agreement between India and the MERCOSUR bloc.

About MERCOSUR Group

- The Southern Common Market (MERCOSUR for its Spanish initials) is a South American regional economic organization.
- It is the fourth largest integrated market after the European Union (EU), North American Free Trade Agreement (NAFTA), and ASEAN.

- It was created in 1991 by signing the Treaty of Asunción.
- **Objective:** Free movement of goods, services, capital and people and it became a customs union in January 1995.
- **Member countries:**
 - It originally comprised Argentina, Brazil, Paraguay, and Uruguay as its members.
 - Bolivia and Venezuela joined it later. (Venezuela has been suspended since December 1, 2016).
 - Mercosur also counts Chile, Colombia, Ecuador, Guyana, Peru, and Suriname as associate members.
- **Headquarters: Montevideo, Uruguay.**
- Its official working languages are Spanish and Portuguese.

Governance of MERCOSUR Group

- **Common Market Council:** It is the bloc's highest decision-making body, and provides a high-level forum for coordinating foreign and economic policy.
- The group consists of the foreign and economic ministers of each member state, or their equivalent, and decisions are made by consensus.
- The group's presidency rotates every six months among its full members.
- **India and MERCOSUR:** India and MERCOSUR signed a Preferential Trade Agreement (PTA) in 2004.

8. New Development Bank

Context: The New Development Bank (NDB) — co-founded by BRICS nations in 2015 — marks its 10th anniversary, while Pakistan has formally sought China's support to join the institution to diversify from IMF and World Bank dependence amid its economic crisis.

About The New Development Bank (NDB):

- **What It Is?**
 - The NDB is a multilateral development bank established by the BRICS countries — Brazil,

Russia, India, China, and South Africa — to fund infrastructure and sustainable development projects in emerging markets and developing economies (EMDCs).

- **Established In:**
 - **Treaty Signed: July 2014, Fortaleza, Brazil.**
 - **Came into Force:** July 2015
- **Headquarters:** Shanghai, China
- **Members:**
 - **Founding Members:** Brazil, Russia, India, China, South Africa.
 - **New Members:** Bangladesh (2021), UAE (2021), Egypt (2023), Algeria (2025).
 - **Prospective Members:** Uruguay, Uzbekistan, Colombia (awaiting ratification).
 - **Authorized Capital:** billion (with billion subscribed, equally by the founding members).
 - **Each founding member holds equal voting rights, with no veto power — ensuring democratic decision-making.**

9. Kafala System

Context: In a historic reform, Saudi Arabia has abolished the kafala system, a long-criticised labour framework that governed millions of foreign workers, including a large Indian diaspora.

What Was the Kafala System?

- The kafala (sponsorship) system was introduced in the 1950s across most Gulf Cooperation Council (GCC) countries. It allowed employers (kafeels) to exercise near-total control over foreign workers, particularly those in domestic work, construction, hospitality, and sanitation.

Key restrictions under kafala included,

- Seizure of passports by employers
- No freedom to change jobs without employer consent
- No right to exit the country without written approval
- Limited access to legal or labour protections
- No minimum wage or union rights for many sectors

This created a severe power imbalance, often trapping workers in exploitative, abusive, or unsafe conditions with little recourse.

10. Sevilla Forum

Context: At the 16th United Nations Conference on Trade and Development (UNCTAD16) held in Geneva, a new global initiative, the Sevilla Forum on Debt, was launched.

About the Sevilla Forum

- The Forum, led by Spain and supported by UNCTAD and the United Nations Department of Economic and Social Affairs (UN DESA), aims to create a permanent, inclusive platform for dialogue and coordinated action on sovereign debt challenges.
- It marks one of the first tangible outcomes of the Fourth International Conference on Financing for Development (FfD4) and is part of the broader Sevilla Platform for Action, which operationalizes the Sevilla Commitment.
 - **The Sevilla Commitment** lays down a roadmap for strengthening development financing and ensuring debt sustainability in developing economies.

11. International Convention against Doping in Sport

Context: India was re-elected as Vice-Chairperson of the Bureau representing the Asia-Pacific (Group IV) during the 10th Session of the Conference of Parties (COP10) to UNESCO's International Convention against Doping in Sport, held in Paris to commemorate the Convention's 20th anniversary.

International Convention against Doping in Sport

- UNESCO's International Convention against Doping in Sport (2005) is a multilateral treaty by which States agree to adopt national and international measures to prevent and eliminate doping in sport.

- The Convention was adopted during the 33rd session of UNESCO's General Conference (19 October 2005) and entered into force on 1 February 2007.
- Since its initial ratification by 30 countries, the Convention now counts with 192 States Parties, making it UNESCO's second most ratified treaty.
- **It is the only legally binding international instrument committed to promoting integrity and eliminating doping in sport globally.**

Objectives

- It aims to harmonize anti-doping legislation, guidelines, regulations, and rules internationally in order to provide a level and safe playing environment for all athletes.
- It offers a legal framework for States Parties to promote integrity in sport by encouraging international cooperation, restricting access to banned substances, supporting doping controls and national testing programs, and fostering best practices in supplement distribution.
- It also backs anti-doping education and research.

12. Notice to Airmen

Context: India recently issued a Notice to Airmen (NOTAM) for a large-scale tri-services military exercise, "Ex Trishul," to be conducted along the Pakistan border.

About Notice to Airmen (NOTAM)

- Notice to Airmen, also known as Notice to Air Mission, is a notice containing information concerning the establishment, condition, or change in any aeronautical facility, service, procedure, or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.
- In short, a NOTAM is a notification from an official body alerting airspace users to hazards along their route, both in the air and on the ground.
- NOTAMs update pilots about changes in airspace, airports, and equipment that affect aircraft operations.

- NOTAMs are issued by national aviation authorities for a number of reasons, such as:
 - Hazards such as air-shows, parachute jumps, and glider or micro-light flying;
 - Flights by important people such as heads of state;
 - Closed runways, taxiways, etc;
 - Unserviceable radio navigational aids;
 - Military exercises with resulting airspace restrictions;
 - Unserviceable lights on tall obstructions;
 - Temporary erection of obstacles near airfields (e.g. cranes).
- A **NOTAM (Notice to Air Missions)** is an official notice distributed by an **aeronautical information service** that alerts pilots and flight operations personnel to **temporary or permanent changes** in the status of airspace, airports, navigation aids, or other critical flight-related information.
- The issuance and format of NOTAMs are governed internationally by **ICAO Annex 15** (Aeronautical Information Services) and **ICAO Doc 8126 (AIS Manual)**, ensuring standardized dissemination across countries.
- In India, NOTAMs are issued and managed by the **Airports Authority of India (AAI)**, not DGCA, through its **Aeronautical Information Service (AIS)** headquartered at Delhi and regional offices. DGCA is the regulator, but AAI operates the AIS infrastructure.

13. Asia-Pacific Economic Cooperation

Context: US President Donald Trump and his Chinese counterpart Xi Jinping are likely to meet at the Asia-Pacific Economic Cooperation (APEC) summit in South Korea.

About Asia-Pacific Economic Cooperation (APEC)

- It is a regional economic forum established in 1989 to leverage the growing interdependence of the Asia-Pacific.
- It aims to create greater prosperity for the people of the region by promoting balanced, inclusive,

sustainable, innovative, and secure growth and by accelerating regional economic integration.

- The focus of APEC has been on trade and economic issues, and hence, it terms the countries as “economies”.
- It has been operating on the basis of non-binding commitments, with decisions taken through commitments and consensus undertaken on a voluntary basis.
- There are no binding commitments or treaty obligations.

- **Member Countries:**

- Currently, **APEC has 21 members.**
 - The criterion for membership, however, is that each member must be an independent economic entity, rather than a sovereign state.
 - The grouping’s current members are **Australia, Brunei, Hong Kong, New Zealand, Papua New Guinea, the Philippines, Indonesia, China, Japan, South Korea, Russia, Canada, the United States, Mexico, Peru, Chile, Malaysia, Vietnam, Singapore, Thailand, and Taiwan.**
- The APEC Secretariat is based in Singapore and operates as the core support mechanism for the APEC process.
- APEC’s member economies are home to more than 2.9 billion people and make up over 60 percent of global GDP.

14. Senegal

Context: The cemetery was created in 1926 by colonial France to bury African soldiers. Some researchers believe that riflemen killed in the Thiaroye massacre were buried there.

Senegal:

- **Capital:** Dakar
- **Location:** West Africa, along the Atlantic Ocean
- **Languages:** French (official), Wolof widely spoken
- **Borders:** Mauritania (N), Mali (E), Guinea & Guinea-Bissau (S), Atlantic Ocean (W), and The Gambia (enclave within).

- **Significance:** Stable democracy, major exporter of phosphates, and home to **Lake Retba (Lac Rose)** — known for its pink waters.
- The **Senegal River** flows along the northern border separating **Senegal** and **Mauritania**, and empties into the Atlantic Ocean near **Saint-Louis**.
- **The Gambia** is almost entirely surrounded by **Senegal**, except for a narrow **Atlantic coastline** to the west. The two nations form what is often called the **Senegambia region**.



15. Tajikistan

Context: The Indian military has wound up its presence at a strategic Ayni airbase in Tajikistan, after the lapse of a bilateral agreement.

About Tajikistan

- Tajikistan is a landlocked country in the heart of Central Asia.

- **Bordering countries:** It is bordered with Kyrgyzstan (North), Uzbekistan (West), China (East), and Afghanistan (South).
- It is one of the members of Shanghai Cooperation Organisation.
- **Political Structure:** It is governed by the President, and the legislative function is assigned to the bicameral parliament

Geographic Features of Tajikistan

- **Terrain:** Mountainous region dominated by the Alay Mountains in the north and the Pamirs in the southeast.
- **Highest Point:** Tajikistan's highest point is Qullai Ismoili Somoni which peaks at 24,589 ft. (7,495 m).
- **Rivers:** It has a dense river network, including the Syr Darya and the Amu Darya.
- **Climate:** It consists of mid-latitude continental, hot summers, mild winters; semiarid to polar in Pamir Mountains.
- **Lakes:** Lake Karakul and Iskanderkul
- **Natural resources:** Petroleum, Uranium, Mercury, brown coal, lead, zinc, antimony, tungsten, silver, gold etc.
- **Capital City:** Dushanbe
- Tajikistan is **landlocked** and bordered by **Afghanistan (south)**, **China (east)**, **Kyrgyzstan (north)**, and **Uzbekistan (west)**.
- The **Amu Darya River** forms part of **Tajikistan's southern border with Afghanistan**, not China. Tajikistan's border with China lies across the **Pamir Mountains**, not along a river.



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6	CA September 2025	12.10.2025
7	CA October 2025	16.11.2025
8	CA November 2025	14.12.2025
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ENVIRONMENT

1. Bhagwan Mahaveer Wildlife Sanctuary

Context: Goa's State Board for Wildlife recently recommended that the proposal for wildlife clearance for iron ore handling at Kalem railway station in Bhagwan Mahaveer Wildlife Sanctuary and National Park be placed before the National Board for Wildlife (NBWL) for their "consideration".

About Bhagwan Mahaveer Wildlife Sanctuary

- It is located on the eastern border of the state of Goa, near the village of Mollem.
- Set amidst the foothills of the Western Ghats, it covers an area of 240 sq. km, out of which 170 sq.km. is dedicated to the Mollem National Park built at the core of the sanctuary.
- Originally known as the Mollem Game Sanctuary, it was declared a wildlife sanctuary in 1969 and then renamed the Bhagwan Mahavir Wildlife Sanctuary.
- It is also home to the famous Dudhsagar waterfall, the Devil's Canyon, the Tambdi Surla temple, the Tambdi falls, and a number of other historic and religious sites.
- **Vegetation:** West Coast tropical evergreen forests, West Coast semi-evergreen forests, and moist deciduous forests.
- **Flora:** Teak, bamboo, cashew, and eucalyptus trees dominate the landscape.
- **Fauna:**
 - The sanctuary is particularly known for its Leopards, Elephants, Deers & Gaur, or Indian Bison.
 - The chief attraction of the sanctuary is the King Cobra, which is found here in abundance.
 - It is home to around 200 species of various types of birds, like the Malabar pied hornbill, Indian black woodpecker, great Indian hornbill,

kingfishers, paradise flycatcher, shrikes, grey jungle fowl, etc.

2. Kanha Tiger Reserve

Context: Recently, three tigers, including two female cubs, have been found dead inside the Kanha Tiger Reserve (KTR) attributing the deaths to territorial fights among big cats.

About Kanha Tiger Reserve

- **Location:** It is located in the "Maikal" ranges of the Satpuras in the state of Madhya Pradesh.
- It was declared a reserve forest in 1879 and revalued as a wildlife sanctuary in 1933. Its position was further upgraded to a national park in 1955.
- **Corridor:** It has an active corridor between Kanha and Pench Tiger Reserves. Kanha is also connected with the Achanakmar Tiger Reserve of Chhattisgarh State.
- **Habitat:** It is characterized mainly by forested shallow undulations, hills with varying degrees of slopes, plateaus, and valleys.
- **Tribal Communities:** The region is known for some of the ancient tribal communities, like the Gond and Baiga still inhabit the region.
- It is also the first tiger reserve in India to officially introduce a mascot, "Bhoorsingh the Barasingha".
- **Flora:** It is primarily a moist Sal and moist mixed deciduous forest where Bamboo, Tendu, Sal, Jamun, Arjun, and Lendia flourish.
- **Fauna:** The Park has a significant population of Royal Bengal Tigers, leopards, sloth bears, and Indian wild dogs.
- The Park is respected globally for saving the Barasingha (the state animal of Madhya Pradesh) from near extinction and has the unique distinction of harbouring the last world population of this deer species.

3. Coral Triangle

Context: The Philippines is preparing to host Southeast Asia's first coral larvae cryobank which links research institutions in the Philippines, Taiwan, Indonesia, Malaysia, and Thailand to create a network of cryobanks across the Coral Triangle.

About Coral Triangle

- It is often referred to as the 'Amazon of the seas', is a huge marine area spanning over 10 million square kilometres.
- **Countries of coral Triangle:** It includes countries like Indonesia, Malaysia, Papua New Guinea, Singapore, the Philippines, Timor-Leste, and the Solomon Islands.
- **Significance:** The Triangle is home to more than three-quarters of the world's coral species, a third of all reef fish, the vast mangrove forests, and six of the seven marine turtle species.
- It also sustains the food security and livelihoods of more than 120 million people.
- **Threats:** Growing carbon emissions, destructive fishing, air, water, and soil pollution, and the accelerating effects of climate change are all driving coral bleaching, habitat loss, and species decline.
- The Coral Triangle, located in the western Pacific Ocean, is often called the "Amazon of the Seas." It holds 76% of the world's coral species and over 37% of the world's reef fish species, confirming its status as the global epicentre of marine biodiversity.
- The Coral Triangle is part of the **Ring of Fire** and is one of the most **tectonically active** regions on Earth (e.g., bordering the Philippines and Sunda Plates). This activity is linked to sea-level stability in the past, which helped species survive.

4. Sathyamangalam Tiger Reserve

Context: The Madras High Court recently ordered appropriate action against all illegal resorts and tourist lodges functioning within the prohibited zone of Sathyamangalam Tiger Reserve (STR).

About Sathyamangalam Tiger Reserve

- It is located at the junction of the Eastern and the Western Ghats in the Nilgiri Biosphere Reserve, in the Erode District of Tamil Nadu.
- It covers an area of over 1,400 sq.km.
- It is contiguous with the Mudumalai Tiger Reserve, Bandipur Tiger Reserve (Karnataka), and BR Tiger Reserve and Wildlife Sanctuary (Karnataka).
- Together, these reserves-forming the Nilgiris biosphere landscape, have the biggest tiger population in the world, at over 280 tigers.
- The region was once part of the traditional hunting grounds of local rulers and also played a strategic role as a passage between Tamil Nadu and Karnataka, owing to its position along the historic Mysore–Tamil Nadu trade routes.
- The terrain is hilly and undulating with altitude ranging between 750 m and 1649 m.
- **Climate:**
 - It is subtropical and dry.
 - The summers are hot and dry; the monsoons are wet and cooler, with river flooding.
- **Rivers:** Some of the prominent rivers in the region include the Bhavani, Moyar, and Noyyal rivers.
- **Tribal Communities:** It is home to several indigenous tribal communities, including the Irula and Kurumba tribes.
- **Vegetation:** It consists of southern tropical dry thorn forests, mixed deciduous forests, semi-evergreen forests, and riparian forests.
- **Flora:** Prominent tree species include teak, sandalwood, bamboo, Terminalia, and Albizia, alongside medicinal plants and shrubs that support both wildlife and local communities.
- **Fauna:** The major species are Elephant, Tiger, Panther, Sloth bear, Gaur, Black Buck, Spotted deer, Wild boar, Black napped hare, Common langur Nilgiri langur, Striped neck mongoose, and Bonnet macaque.

5. IUCN

Context: Recently, India unveiled its National Red List Roadmap and Vision 2025-2030 at the IUCN World Conservation Congress 2025.

Key Facts about IUCN

- The International Union for Conservation of Nature (IUCN) is a membership Union of government and civil society organisations.
- It was created in 1948, IUCN is now the world's largest and most diverse environmental network, harnessing the knowledge, resources.

Governance of IUCN

- **President and Council:** The council is IUCN's principal governing body in between sessions of the World Conservation Congress. The IUCN President presides over the IUCN Council.
- **IUCN World Conservation Congress:** The Members' Assembly of the IUCN World Conservation Congress is IUCN's highest governing body.
- IUCN Members discuss strategic topics, adopt motions defining IUCN's general policy, approve the IUCN programme, amend IUCN's statutes and elect the IUCN Council.
- **IUCN Statutes:** It lays out the governance of IUCN.
- IUCN indeed maintains the **IUCN Red List**, a key indicator of global biodiversity health.
- The IUCN is **not a UN specialized agency**; it is an **independent international organization** with observer status at the UN.
- Its headquarters are in **Gland, Switzerland**, and it is unique in uniting **governmental and non-governmental members**.
- The **Global Biodiversity Framework** is adopted under the **CBD**, but formulated primarily by **CBD member states**, not IUCN itself.

6. Palamau Tiger Reserve

Context: Village hunters near Palamu Tiger Reserve surrendered their weapons, including guns and traps, during Wildlife Week celebrations.

About Palamau Tiger Reserve

- It is located on the western side of the Latehar district on the Chhotanagpur plateau in Jharkhand.

- The reserve forms a part of the Betla National Park.
- It is spread over an area of approximately 1026 sq. km.
- 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**.
- The terrain is undulating with valleys, hills, and plains.
- Three rivers, namely North Koyal, Auranga, and Burha, flow through the valleys.
- The area is drought-prone, with Burha being the only perennial river.
- The geological formation consists of gneiss and includes granite and limestone.
- The area is very rich in minerals like Bauxite and Coal.
- **Flora:** The vegetation comprises moist deciduous and dry deciduous forests to include 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.

7. Green Sea Turtle

Context: According to the International Union for Conservation of Nature (IUCN) the Red List status of the green sea turtle (*Chelonia mydas*) has improved from Endangered to Least Concern due to sustained conservation.

About Green Sea Turtle

- It is the largest hard-shelled sea turtle.
- The common name of this species refers to the usually green fat found beneath its carapace, not to the color of its carapace, which is olive to black.
- **Food:** The diet of Green sea turtles changes with age. Juveniles are carnivorous, but as they mature they become omnivorous.

- Green turtles serve as keystone species in tropical marine ecosystems.
- Distribution: The species is found in tropical and subtropical waters around the globe.

Features of Green Sea Turtle

- They have a comparatively small head.
- They do not have teeth, but their jaws have modified “beaks” suited to their particular diet.
- They do not have visible ears but have eardrums covered by skin. They hear best at low frequencies, and their sense of smell is excellent.
- They spend almost all their lives underwater and come out of the water only when nesting.
- **Lifespan:** Estimated to be 60-70 years.
- **Conservation Status:** IUCN: Least Concern.
- Adult green sea turtles are one of the few species of sea turtles that are primarily herbivores.
- The abundant plant material (like chlorophyll) in their diet causes the unique green coloration of their body fat and cartilage, which is where the species gets its common name.
- Green sea turtles are **not** named for the color of their shell, which is usually brown, olive, or black, and the algae that sometimes grows on the shell is not the source of the name. They are named for the color of their **fat/cartilage**.

8. IUCN's World Commission on Protected Areas

Context: Recently, the Director of Kaziranga National Park and Tiger Reserve has received the Kenton R. Miller Award, constituted by the IUCN World Commission on Protected Areas (WCPA).

About IUCN's World Commission on Protected Areas

- IUCN World Commission on Protected Areas is one of six technical commissions of the International Union for Conservation of Nature (IUCN).
- It was established in 1948 as a global network dedicated to the conservation of nature and the sustainable use of natural resources.
- Functions: It specializes in protected area governance, management, and policy, supporting

the creation and effective management of protected areas globally, including national parks, reserves, and marine protected areas.

Key Facts about Kenton R. Miller Award

- It was established in 2006.
- It is presented every two years by the IUCN-WCPA for Innovation in National Parks and Protected Area Sustainability.
- It was named after a former Director General of the IUCN.
- The award recognises individuals or teams whose innovations in planning, management, finance, governance, monitoring, capacity building, and communication have a significant impact and peer recognition without prior international awards.
- The Kenton Miller Award comes with a US \$5,000 cash prize.
- The World Commission on Protected Areas (WCPA) is one of the six commissions of IUCN, serving as the leading global network of protected area professionals working to support effective governance, planning, and management of protected areas.
- The IUCN World Parks Congress, organised by the WCPA, is held once every ten years, not five.
- WCPA supports the achievement of Aichi Target 11, which aims to conserve at least 17% of terrestrial and 10% of marine areas through well-managed protected systems.

9. IUCN Red List of Threatened Species

Context: Arctic seals and global bird populations are facing severe threats from climate change and human activities, as highlighted in the latest IUCN Red List of Threatened Species released at the World Conservation Congress in Abu Dhabi.

Key Findings of the Report

- **Status of Arctic Seals:** The IUCN Red List now includes **172,620 species**, of which **48,646** are threatened with extinction.

- The hooded seal has been moved from **Vulnerable to Endangered status**.
 - Bearded and harp seals are now classified as **Near Threatened**.
- **Status of global bird populations:** 61% of bird species are experiencing population decline, up from 44% in 2016.
 - Out of 11,185 bird species, 1,256 (11.5%) are globally threatened.
- The green sea turtle has been downlisted from **endangered to least concern** after its population rose by 28% since the 1970s.

10. Global Tipping Points Report 2025

Context: Warm-water coral reefs have been identified as the world's first climate tipping point, according to the Global Tipping Points Report 2025.

What is a "tipping point"?

- A climate tipping point refers to a threshold beyond which a small change in global temperature can trigger a self-reinforcing and potentially irreversible shift in a natural system.
- For coral reefs, this threshold is estimated to lie between **1°C and 1.5°C** of warming.
- Once exceeded, reefs can rapidly degrade, leading to bleaching, coral death, and transformation into algae-dominated ecosystems.
- Thawing permafrost releases **methane (CH₄)** and **CO₂**, amplifying warming through a **positive feedback loop**.
- A weakened **AMOC** affects **heat transport**, influencing **monsoon systems** and **regional rainfall patterns**.
- While Himalayan glacier melting has serious **regional impacts**, it is **not classified as a global tipping point** by the IPCC — unlike large-scale systems like **AMOC** or **ice sheets**.
- **Boreal Forest dieback** can transform a **carbon sink into a source**, intensifying climate feedback.

11. Species Survival Commission

Context: The International Union for Conservation of Nature (IUCN) elected Wildlife Trust of India's (WTI) founder Vivek Menon as the new chair of the Species Survival Commission (SSC), making him the first Asian to hold the post.

Species Survival Commission (SSC)

- The IUCN Species Survival Commission (SSC) is a science-based network of more than 10,500 volunteer experts from almost every country of the world.
- It is one of the six expert commissions under the global body that advises the IUCN secretariat on matters concerning biodiversity and species conservation.
- The commission and its specialist groups play a key role in preparing the IUCN's red list of threatened species.

12. International Union for the Protection of New Varieties of Plants

Context: The report released by GRAIN documented how a growing number of FTAs compel countries to adopt plant variety protection standards set by the 1991 UPOV Convention.

About International Union for the Protection of New Varieties of Plants (UPOV)

- **UPOV is an intergovernmental organization established in 1961 to provide an effective system of plant variety protection.**
- It administers the UPOV Convention, which provides a legal framework for plant variety protection implemented by its members.
- **Purpose:** Under this framework, breeders of new plant varieties are granted an intellectual property right known as the breeder's right, which incentivizes innovation in plant breeding.
- The UPOV Convention entered into force in 1968 and was revised in 1972, 1978 and 1991, each time strengthening plant breeders' rights.

- **Member countries:** 80 members have become members of UPOV. (India is not a member of this organization).
- **Headquarter:** Geneva (Switzerland).

Governance of International Union for the Protection of New Varieties of Plants (UPOV)

- The UPOV member countries hold annual meetings of the UPOV Council, a permanent body under the UPOV Convention.
- Other UPOV bodies include the Consultative Committee, the Administrative and Legal Committee, and the Technical Committee.

13. State of Finance for Forests

Context: The first State of Finance for Forests (SFF) report was recently released by the United Nations Environment Programme (UNEP).

State of Finance for Forests (SFF)

- It provides a global overview of public and private forest finance in 2023, comparing current flows with the investments needed to realize forests' potential to address climate change, biodiversity loss, and land degradation.
- It integrates key private finance channels and nature-related asset classes such as certified commodity supply chains, impact investing, carbon and biodiversity markets, philanthropic funding, and private capital mobilized through public finance

Key Findings

- It highlights a critical underinvestment in forests, which are essential for combating climate change, biodiversity loss, and land degradation.
- In 2023, global forest finance stood at US\$84 billion, far below the US\$300 billion needed annually by 2030 and US\$498 billion by 2050, leaving a US\$216 billion yearly gap.
- Private forest finance was just US\$7.5 billion, mostly targeting low-risk markets rather than tropical commodities linked to deforestation.

- Meanwhile, environmentally harmful subsidies totalled US\$406 billion, and private institutions had US\$8.9 trillion in active financing tied to high deforestation-risk companies, underscoring the urgent need to redirect capital toward sustainable forest investments.

14. Rakchham Chitkul Wildlife Sanctuary

Context: An international bird-watching programme was recently organised at the scenic Rakchham area of the Rakchham-Chitkul Wildlife Sanctuary in Himachal Pradesh.

About Rakchham Chitkul Wildlife Sanctuary

- It is located in the Kinnaur district of Himachal Pradesh.
- It is spread over an area of 30.98 sq.km.
- It is situated at an elevation ranging from 3200 to 5486 meters above sea level.
- It is a part of the Western Himalayan range.
- It is surrounded by snow-capped mountains, lush green valleys, and gushing rivers.
- The perilous Lamkhanga Pass is one of the many trekking routes that pass through this sanctuary.
 - This pass connects the Himachal Pradesh province of Kinnaur to the Uttarakhand region of Gangotri.
- Unlike the climate of other sanctuaries in Himachal Pradesh, the sanctuary is located in a dry zone, hence it does not experience monsoons.
- **Flora:** Some of the common flora found in the sanctuary include rhododendrons, oak trees, pine trees, and medicinal herbs.
- **Fauna:** It is also home to various species of wildlife, such as snow leopards, Himalayan black bears, musk deer, and numerous bird species.

15. Nauru

Context: Australia has defended its A\$2.5 billion, 30-year agreement with Nauru to resettle deported non-citizens, a move criticised by human rights groups who allege it shifts refugee responsibility to smaller, aid-dependent Pacific nations.

About Nauru:

- Nauru is a **micronation in the southwestern Pacific Ocean**, recognized as the **world's third-smallest country** by land area and population. It functions as a **unitary parliamentary republic** with a 19-member legislature.

Geographic Location:

- Located **25 miles south of the Equator**, Nauru lies in **southeastern Micronesia**, about **800 km northeast of the Solomon Islands** and **300 km west of Kiribati's Banaba Island**.
- Its land area is only **21 sq. km**, making it one of the most compact sovereign states globally.

Administrative Centre: The nation lacks an official capital, but the **district of Yaren** hosts the Parliament, Presidential offices, and administrative institutions, serving as the **de facto capital**.

Geological and Environmental Features:

- The island is a **raised coral atoll** with a ring of fertile coastal land encircling **Buada Lagoon**, its only inland water body.
- The interior plateau, elevated about **100 feet above sea level**, is rich in **phosphate rock** derived from ancient bird guano deposits.
- Phosphate mining has degraded over 80% of Nauru's land**, creating sharp limestone pinnacles and limiting agriculture.
- The island faces **severe freshwater scarcity**, with rainfall-dependent reservoirs and imported water supplies.



Note: Nuclear testing was conducted by various nations, most notably the **United States**, on **other Pacific islands**, such as the **Marshall Islands** (also in Micronesia), but not on Nauru itself.

16. Kali Tiger Reserve

Context: The foresters at Kali Tiger Reserve near Dandeli in the Uttara Kannada district in Karnataka were up for a surprise when they sighted and recorded the presence of a striped hyena (locally called *katte kiruba*).

About Kali Tiger Reserve

- It is situated in the Uttara Kannada district of Karnataka.
- It covers an area of 834.16 sq.km.
- It is composed of Dandeli Wildlife Sanctuary and Anshi National Park.
- These two protected areas are contiguous to each other and form a single tract of the protected area located in the biologically sensitive Western Ghats.
- River:** The Kali River, which forms the major source of water for Uttara Kannada, flows through the tiger reserve, and hence the name.
- Vegetation:** It is a blend of semi-evergreen and moist deciduous forests, interspersed with patches of bamboo and grasslands.
- Flora:** The reserve is rich in plant diversity, featuring species like teak, silver oak, eucalyptus, and various medicinal plants.
- Fauna:**
 - Animals found in the Tiger Reserve include Tiger, Leopard, Elephant, Bison, Wild dog, Sambar, Spotted deer, Sloth bear, Wild boar, Hanuman langur, Bonnet macaque, etc.
 - The area holds one of the highest populations of Great Indian Hornbills in the Western Ghats.
 - It is also home to rare black panthers.

17. Global Forest Resources Assessment (GFRA) 2025

Context: India has moved up to the 9th position in terms of total forest area globally, as per the Global Forest Resources Assessment (GFRA) 2025, released by the Food and Agriculture Organization (FAO) in Bali. The GFRA is published every five years.

Key Findings

- Globally, forests cover **4.14 billion hectares**, accounting for about **32%** of total land area, translating to **0.5 hectares of forest per person**.
- **Russia** has the largest forest cover followed by **Brazil, Canada, the USA, China, Congo, Australia, Indonesia, India and Peru**.
- The report highlights that **global deforestation** has slowed in the past decade.
 - However, the world continues to lose **10.9 million hectares** of forest every year (**2015–2025**), a rate still considered alarmingly high.
- **India's Forest Cover Status:**
 - India's forest cover stands at **72.7 million hectares**, representing about **2%** of global forest area.
 - India has maintained its **third position** worldwide after **China and Russia** in terms of **annual forest gain**.
 - **India and Indonesia** together represent over **70%** of global agroforestry areas, indicating strong integration of trees in farmlands.

18. Central Asian Mammals Initiative

Context: Central Asian nations, including India, have endorsed a six-year transboundary conservation plan under the Central Asian Mammals Initiative (CAMI) to protect 17 migratory mammal species.

About Central Asian Mammals Initiative (CAMI):
What it is?

- The Central Asian Mammals Initiative (CAMI) is a collaborative conservation framework under the

Convention on the Conservation of Migratory Species of Wild Animals (CMS), aimed at protecting migratory and nomadic mammals across Central Asia's vast steppe, desert, and mountain ecosystems.

- **Established in:** Launched in **2014** during **COP11 of CMS** held in Quito, Ecuador, and later revised at COP13 (Gandhinagar, India, 2020).
- **Aim:** To preserve migratory connectivity, combat threats such as habitat fragmentation, poaching, and climate change, and enhance cross-border cooperation among Central Asian nations for shared species conservation.

Key Features:

- Covers **17 flagship species**, including **Saiga antelope, Snow leopard, Wild camel, Urial, Argali sheep, Bukhara deer, and Persian leopard**.
- Encourages **regional coordination** through national action plans, data sharing, and removal of physical migration barriers.
- Promotes **ecosystem-level management** rather than isolated species protection.
- Engages **governments, NGOs, IUCN, and local communities** in a multi-stakeholder approach.

Serengeti of the North:

- The **Arctic National Wildlife Refuge (ANWR)** is called the "Serengeti of the North" mainly due to the **mass migration of the Porcupine caribou herd**, comparable to the wildebeest migration in the Serengeti. This migration underpins a complex **trophic web** involving wolves, bears, raptors, and indigenous subsistence communities, making it a rare large-scale intact terrestrial migration system in the Northern Hemisphere.

19. Kamlang Tiger Reserve

Context: Arunachal Pradesh Deputy Chief Minister recently said the state government will develop a nature trail and an angling spot in the Kamlang Tiger Reserve area in the Lohit district to promote tourism and empower local communities.

About Kamlang Tiger Reserve

- It is located in the southeastern part of Lohit District in Arunachal Pradesh near the border with Myanmar.
- It is a part of the larger Eastern Himalayan Biodiversity Hot Spot.
- It is named after the Kamlang River, which flows through the reserve and joins the Brahmaputra.
- It is spread between the famed Namdapha National Park on its south and the Lang River on its north.
- The western border is formed by the Lati River, while its eastern part is bordered by the Tawe River.
- The local inhabitants of the Sanctuary are known as Hishmi, Digaru, and Mizo.
- Landscape: It encompasses a diverse range of landscapes, including dense tropical forests, grasslands, rivers, and hills.
- **Climate:** It enjoys a subtropical climate as it falls within the subtropical zone.
- **Vegetation:** The vegetation types include moist evergreen tropical forests in the foothills and subtropical and temperate forests in higher elevations.
- **Flora:** Common species of trees in the reserve include *Ammora wallichii* (Amari), *Gmelina arborea* (Gamari), *Terminalia chebula* (Hillika), *Canarium resiniferum* (Dhuna), and many others.
- **Fauna:**
 - All four big cats, including the Snow Leopard, Clouded Leopard, Leopard and Tiger, are the common inhabitants.
 - Certain endangered species, such as Himalayan Palm Civets, Leopard Cat, Slow Lories and Hoolock Gibbon, can also be spotted in the sanctuary.
 - Other species commonly found here are Giant and Flying Squirrels, Hornbills, Deer, Civets, Boar, Capped Langur, Stump Tailed Macaque etc.

20. Panna Tiger Reserve

Context: Vatsala', considered to be Asia's oldest elephant, died recently at the age of more than 100 years at the Panna Tiger Reserve in Madhya Pradesh.

About Panna Tiger Reserve

- **Location:** It is located in the Vindhyan mountain range in the northern part of Madhya Pradesh.
- Standing over an area of 542 sq.km., it is the only tiger reserve in the entire Bundhelkhand region.
- It falls in biogeographic zones of the Deccan Peninsula and the Biotic Province of the Central highlands.
- It was declared a Project Tiger Reserve by the Government of India in 1994.
- **Landscape:**
 - It is characterized by a 'Table Top' topography.
 - It consists of extensive plateaus and gorges.
 - Two plateaus run parallel to each other from southwest to northeasterly direction.
 - River: The Ken River flows from south to north through the reserve.
 - The reserve is also dotted with two-thousand-year-old rock paintings.
 - The region surrounding the reserve is home to various indigenous tribes, each with its distinct culture and traditions. The Baiga and Gond tribes are among the prominent ones.
- **Flora:**
 - The dominant vegetation type is dry deciduous forest interspersed with grassland areas.
 - In the north, it is surrounded by teak forest, and in the east, it is surrounded by Teak-Kardhai mixed forest. It is the northernmost boundary of the natural distribution of teak (*Tectona grandis*).
 - The tree species *Acacia catachu* dominates the dry, steep slopes of the plateaus here.
- **Fauna:**
 - It supports a sizable population of Tiger, Sloth Bear, Leopard, and Striped Hyena.
 - Other prominent carnivores are Jackal, Wolf, Wild Dog, Jungle Cat, and Rusty Spotted Cat.

21. Red Sanders (*Pterocarpus santalinus*)

Context: The National Biodiversity Authority (NBA), under India's Access and Benefit Sharing (ABS) framework, has released ₹55 lakh to 18 farmers cultivating Red Sanders (*Pterocarpus santalinus*).

About Red Sanders (*Pterocarpus santalinus*)

- It is commonly known as **Red Sandalwood**.
- It is a medium-sized tree (10–15 m tall) found in dry deciduous forests, either in mixed stands with native species or as pure stands.
- It is a prized hardwood known for its use in furniture, instruments, carvings, and tools.
- **The red coloration of the heartwood comes from the anthraquinone pigment "santalin."** It gives Red Sandalwood its unique appearance and commercial value.
- **It is an endemic species to Eastern Ghats found in Andhra Pradesh and has ecological, economic, and cultural significance.**
 - It is also cultivated in **Andhra Pradesh, Tamil Nadu, Karnataka, Odisha** and other States.
- The species is protected under the **Wildlife Protection Act, 1972**, and listed under the **Convention on International Trade in Endangered Species (CITES)**, which strictly regulates its international trade.
 - **It is listed under Appendix II of CITES.**
 - The IUCN Red List of threatened species classifies it as **Endangered**.

22. Karakoram Wildlife Sanctuary

Context: Recently, a proposal of redrawing the boundaries and expanse of the Karakoram wildlife sanctuary in Ladakh was received by the central government.

About Karakoram Wildlife Sanctuary

- **Location:** It is located in the union territory of Ladakh along the territory's border with Jammu and Kashmir.

- It is situated just to the north of Hemis National Park and to the east of Deosai National Park.
- **Terrain:** It is well known for its diverse landscape, featuring snow-covered peaks, alpine fields, and deep ravines.
- **Climatic condition:** The average temperature during the warmest month is lower than 0 degrees Celsius in some heights and remains below 10 degrees Celsius in other parts.
- **Major Peaks:** Major peaks within this Wildlife Sanctuary include Saltoro Kangri, Saser Kangri I, and K12.
- **Rivers:** Shyok and Nubra Rivers are the major water sources of this sanctuary.
- **Vegetation:** It is rich in alpine vegetation, medicinal plants, cold desert flora, endemic and rare species, and glacier vegetation.
- **Fauna:** Ural, the argali, Tibetan gazelle, Siberian ibex, the bharal (blue sheep), and the snow leopard, Tibetan antelope (chiru) and Bactrian camel etc.
- **Flora:** It comprises broad-leaved shrubs namely the Rosia webbiana, Ephedra, Caragiana and several other bushes.

23. Iberian Lynx

Context: Recently, a photographer in Spain spotted the world's first-ever white Iberian lynx.

About Iberian Lynx

- **It is a carnivore species endemic to Europe.**
- **Appearance:** It is the world's most endangered and known for its pointy ears, long legs and leopard-like spotted fur.
- This species, like other cat species, is sexually dimorphic, with males being heavier and longer than females.
- This lynx is generally nocturnal and its activity patterns are closely synchronized with those of their major prey, the rabbit.
- **Habitat:** It requires variable terrain below 1300 m, containing a mosaic of closed Mediterranean scrubland interspersed with open patches of grassland, often with marsh ecotones.

- **Distribution:** Iberian lynx are found only in two small areas of southwest Spain on the Iberian Peninsula, west of the Pyrenees mountains.
- **Threats:** These are related to human activities, such as poaching and habitat destruction, Illegal Hunting and decreased food base etc.
- **Conservation Status of Iberian Lynx**
 - **IUCN Red list:** Vulnerable.
 - **CITES:** Appendix II.

24. Nauradehi Sanctuary

Context: Madhya Pradesh Chief Minister announced that Nauradehi Wildlife Sanctuary will become the third home for cheetahs in the state after Kuno National Park and Gandhi Sagar Sanctuary.

About Nauradehi Sanctuary to Become 3rd Home for Cheetahs:

- **What it is?**
 - Nauradehi Wildlife Sanctuary is one of India's largest sanctuaries, spread over 1,197 sq. km, and serves as a crucial wildlife corridor in the upper Vindhyan range of Madhya Pradesh.
- **Located in:**
 - The sanctuary lies across Sagar, Damoh, and Narsinghpur districts of Madhya Pradesh, situated between the **Yamuna and Narmada River basins**.
 - Major rivers like **Bamner, Kopra, and Bearma** flow through it.

- **History and Ecology:**
 - Declared a sanctuary to conserve central Indian fauna, Nauradehi has **mixed deciduous forests, Vindhyan sandstone formations, and diverse soil types** (red, black, and alluvial).
 - It supports over 250 animal species, including tiger, leopard, sloth bear, wild dog, chinkara, sambhar, and blackbuck, along with 170+ bird species such as storks, vultures, and pheasants.
- **Features:**
 - **Altitude:** 400–600 metres above sea level.
 - **Rainfall:** Around 1,200 mm annually.
 - Rich in **grasses, herbs, shrubs, and bamboo**, making it ideal for herbivores and potential cheetah prey base.



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SCIENCE AND TECHNOLOGY

1. Indian Radio Software Architecture Standard

Context: Recently, the Defence Research and Development Organisation (DRDO), in collaboration with the Integrated Defence Staff and the Tri-Services released Indian Radio Software Architecture (IRSA) standard 1.0.

About Indian Radio Software Architecture Standard

- It provides a standardised software architecture defining how different radio systems communicate securely and efficiently.
- It is India's first national specification defining a standardized software architecture for Software Defined Radios.
- **Vision:** To position IRSA as a global benchmark — enabling India to shape the future of SDR technology and export IRSA-compliant solutions to friendly nations.
- It is a comprehensive software specification for Software Defined Radios (SDR), defining standardized interfaces, APIs, execution environments, and waveform portability mechanisms, SDR Interoperability, Certification and Conformance.
- India's IRSA now joins the elite group of global SDR frameworks — alongside the US Software Communications Architecture (SCA), Europe's ESSOR, and NATO's STANAG SDR standards.
- It is prepared as per Standardization of Indigenous Software Defined Radio initiative of Directorate of Standardization (DoS) under Department of Defence Production (DDP) in Ministry of Defence (MOD) India.
- The primary goal of IRSA, similar to international standards like the Software Communications Architecture (SCA), is to establish a **uniform and open software framework** for all SDRs procured or developed for the Indian Armed Forces.
- A key function of a standard like IRSA is to decouple the radio's software (**waveform**) from the hardware. This ensures a waveform

developed for one IRSA-compliant radio can be easily run on any other IRSA-compliant hardware (**portability**), promoting system-level **interoperability**.

- The IRSA Standard 1.0 was developed primarily by the **Defence Research and Development Organisation (DRDO)**, specifically its laboratories involved in electronic warfare and communication, in collaboration with the Indian Armed Forces and industry partners. TRAI and DoT are civilian telecommunications bodies and are not the development agencies for this defense-specific SDR standard.

2. Marine Stewardship Council

Context: About 10 Indian marine and saline fish and shrimp varieties are set to get the global Marine Stewardship Council (MSC) certification soon.

Marine Stewardship Council (MSC):

- The **Marine Stewardship Council (MSC)** is a **non-profit international organization** established in **1997** to address unsustainable fishing. It sets global standards for **sustainable fishing and seafood traceability**, offering eco-certification and labeling (the blue MSC label) to fisheries that meet its sustainability criteria.

About Marine Stewardship Council (MSC) Certification

- The Marine Stewardship Council (MSC) is an international non-profit organisation that sets globally recognised, science-based standards for sustainable fishing and seafood traceability.
- The MSC certification program recognises and rewards sustainable fishing practices and is helping create a more sustainable seafood market.
- **Assessment:** The MSC certification scheme is based on independent third-party assessments

and is built on three principles: Stock health, Environmental impacts, Effective management.

- This certification is open to all fisheries that wish to voluntarily demonstrate that their operations are sustainable, regardless of their location, size and fishing gear.
- **Validity:** The certification is valid for 5 years, but subjected to annual surveillance audits.
- It is the only wild-capture fisheries certification based on the Food and Agriculture Organisation's (FAO) Code of Conduct for Responsible Fishing and Guidelines for the Eco-labelling of Fish and Fishery Products from Marine Capture Fisheries.
- Astamudi clam (*Paphia malabarica*) is India's first Marine Stewardship Council (MSC) certified fisheries.

3. Plutonium Management and Disposition Agreement

Context: Russia's lower house of parliament on Wednesday (October 8, 2025) approved a move to withdraw from a landmark agreement with the United States aimed at reducing vast stockpiles of weapons-grade plutonium left over from thousands of Cold War nuclear warheads.

About Plutonium Management and Disposition Agreement

- It is an agreement between the United States and Russia signed in 2000.
- It came into force in 2011.
- It aimed at reducing vast stockpiles of weapons-grade plutonium left over from thousands of Cold War nuclear warheads.
 - After dismantling thousands of warheads after the Cold War, both Moscow and Washington were left with huge stockpiles of weapons-grade plutonium which was costly to store and posed a potential proliferation risk.
- The aim of the PMDA was to dispose of the weapons-grade plutonium, by converting it into safer forms - such as mixed oxide (MOX) fuel or by irradiating plutonium in fast-neutron reactors for electricity production.

- It committed both the United States and Russia to dispose of at least 34 tonnes of weapons-grade plutonium each.
 - Russia in 2016 suspended implementation of the agreement, citing U.S. sanctions and what it cast as unfriendly actions against Russia, NATO enlargement, and changes to the way the United States was disposing of its plutonium.
- Russia said at the time that the United States had not abided by the agreement after Washington moved, without Russian approval, to simply dilute the plutonium and dispose of it.

4. Insecure Direct Object Reference

Context: A serious data leak was narrowly avoided after the Indian government fixed a major security flaw known as an IDOR, or "insecure direct object reference," in its income tax e-filing portal.

About Insecure Direct Object Reference

- It is a web application security vulnerability that occurs when an application exposes internal object identifiers, such as database keys or file paths, to users without proper access controls.
- It can enable attackers to manipulate these identifiers and gain unauthorized access to sensitive data or perform unauthorized actions on the system.
- IDOR vulnerabilities arise due to inadequate validation and authorization checks on user-supplied input, which may allow malicious users to bypass intended access restrictions.

How does it happen?

- Websites often want to serve different content to different users: for example, a shopping website might let each user view their purchase history.
- Websites can identify users by authenticating them, using a method such as a password or a passkey.
- Often, once a website has authenticated a user, they will set a session cookie in that user's browser: then, when the user makes a request,

the server will know that the request came from this authenticated user.

- However, as well as checking that the request came from an authenticated user, the server must implement access control for the resources that the user requests: that is, they must check that this user is allowed to access the specific resource requested.
- For example, each authenticated user must only be allowed to see their own purchase history.
- If a server does not implement access control for resources, then an attacker who is signed into the site may be able to access the resources belonging to a different user.
- This is called an Insecure Direct Object Reference (IDOR) attack.

5. Solar Dimming

Context: A recent joint study published in Nature's Scientific Reports shows India's sunlight hours are shrinking due to pollution and cloud buildup threatening the country's solar energy ambitions.

What is Solar Dimming?

- Solar dimming refers to the observed decrease in surface solar radiation reaching the earth, It's caused primarily by:
 - **Aerosol pollution** from industrial emissions, vehicular exhaust, and biomass burning.
 - **Persistent cloud cover**, especially during monsoon months.
 - **Urban haze and humidity**, which scatter and absorb sunlight.

Key Findings of the Study on India

- **Decline in Sunshine Hours:** The North Indian plains experienced the steepest reduction, losing about 13.1 hours of sunshine per year on average over the last three decades.
- **Twomey Effect:** The study highlighted the Twomey effect, where increased anthropogenic aerosol emissions (from factories, vehicles, biomass burning) lead to a higher number of smaller cloud droplets.

- **Major Factor of Decline:** The primary cause of long-term solar dimming is the rise in aerosol concentrations largely due to industrial outputs, vehicular emissions, and biomass burning.
 - **Aerosols** act as **tiny seeds for cloud formation**, keeping skies overcast longer and reducing the sunlight that reaches the ground.
 - There are two types of aerosols namely **primary** and **secondary**. **Primary aerosols** are directly emitted particles like sea salt, dust, and soot, while **secondary aerosols** form in the atmosphere through chemical reactions of gases such as SO₂, NO_x, and VOCs into sulphates, nitrates, or organic aerosols.
- **Solar dimming** is a genuine phenomenon that causes a **temporary reduction in surface temperatures**. It does this by decreasing the amount of **solar radiation** (sunlight) that reaches the Earth's surface. This reduction in incoming energy naturally leads to a cooling effect.
- The process is driven by **aerosols and particulate matter** (like sulfates from industrial emissions or ash from volcanoes) that are suspended in the atmosphere. These particles **scatter and absorb** sunlight, which prevents some of it from reaching the ground and reflects a portion of it back into space. This scattering and absorption is precisely what leads to the "dimming" effect.

6. Diethylene Glycol

Context: At least 14 children in India's Madhya Pradesh died after consuming Coldrif syrup, found to contain a toxic contaminant, diethylene glycol (DEG).

About Diethylene Glycol

- Diethylene glycol (also known as 2,2-oxydiethanol and diglycol) is a clear, colourless, odourless liquid with the formula C₄H₁₀O₃.
- It is soluble both in water and in many organic compounds and has hygroscopic properties which makes it a useful industrial chemical.
- It is primarily used in industrial applications such as antifreeze, brake fluids, and solvents.

- It is not intended for human consumption.
- When ingested, DEG is metabolised in the body into toxic compounds that can cause severe kidney damage, leading to acute kidney injury, anuria (inability to urinate), and death.
- Symptoms of poisoning can include nausea, vomiting, abdominal pain, and lethargy, often progressing rapidly to renal failure.
- Diethylene glycol (DEG) contamination in pharmaceutical products, especially liquid formulations like syrups, has unfortunately been the cause of numerous mass poisoning incidents globally over several decades. DEG is toxic when ingested, causing kidney failure and death.
- DEG is an industrial solvent that is significantly cheaper than pharmaceutical-grade excipients like **glycerin** (or glycerol) and **propylene glycol**. It has a similar syrupy consistency, sweet taste, and is miscible with water, making it an appealing, though highly toxic, fraudulent substitute in unscrupulous manufacturing practices.
- Diethylene glycol is used as a cheap, deceptively similar substitute for safer pharmaceutical solvents (glycerin/propylene glycol). This fraudulent substitution leads to DEG contaminating syrups, causing mass poisoning.

7. Certified Randomness Technique Using One Qubit

Context: Researchers at the Raman Research Institute (RRI), Bengaluru, have demonstrated a new certified randomness generation technique using a single qubit on IBM's cloud-based quantum computer.

About Certified Randomness Technique Using One Qubit:

What it is?

- The **certified randomness technique** is a **quantum-based random number generation method** that leverages the intrinsic unpredictability of quantum mechanics.
- It produces **truly random numbers** that cannot be replicated or faked by classical systems, ensuring

absolute unpredictability for cryptography and secure communications.

- **Developed by:** Raman Research Institute (RRI), Bengaluru, in collaboration with IBM.

How it Works?

- The method uses **one qubit** in a simple quantum circuit with a series of single-qubit gate rotations.
- Measurements are made at **three different times** to test the **Leggett–Garg Inequality (LGI)** — a temporal version of the Bell inequality.
- **Violation of the LGI**, along with adherence to the **“no-signalling-in-time”** condition, confirms that the randomness arises purely from quantum processes.
- Error-mitigation and readout correction ensure results are free from classical or hardware-induced noise.

Key Features:

- **Single-Qubit Simplicity:** Requires only one qubit and shallow circuits, making it accessible on current cloud-based quantum processors.
- **Device-Independent Certification:** Guarantees that randomness is quantum-generated, independent of the device's internal architecture.
- **Error-Resilient Design:** Incorporates error-mitigation techniques to enhance reliability and match theoretical predictions.
- **Scalable Implementation:** Can be expanded for benchmarking qubits or integrated into real-time secure systems.

Significance of the Discovery:

- **Quantum Advantage in Practice:** Demonstrates that quantum-certified randomness can be achieved on existing noisy intermediate-scale quantum (NISQ) machines.
- **Cybersecurity Breakthrough:** Provides tamper-proof random numbers crucial for data encryption, cryptographic keys, and secure communications.
- **Foundational Validation:** Confirms Leggett–Garg inequality violations on a real quantum device, reinforcing quantum theory.

8. Keratoconus

Context: A recent study has revealed that the treatment of keratoconus, a condition that threatens vision, can worsen even after treatment.

About Keratoconus

- It is a vision disorder that occurs when the normally round cornea (the front part of the eye) becomes thin and irregular (cone) shaped.
- This abnormal shape prevents the light entering the eye from being focused correctly on the retina and causes distortion of vision.
- Keratoconus often starts when people are in their late teens to early 20s.
- The vision symptoms slowly get worse over a period of about 10 to 20 years.
- It often affects both eyes and can lead to very different vision between the two eyes.
- Symptoms can differ in each eye, and they can change over time.
- **Treatment and Prevention:**
 - There is no known prevention for keratoconus.
 - Early stages can be treated with glasses, but with progression of the disease into late childhood and early adulthood, corneal transplantation may be needed to restore sight.
 - Corneal collagen cross-linking is a procedure designed to stop the progression of keratoconus or slow it down.
- Keratoconus is a **degenerative disorder** where the **cornea thins and weakens**, leading to a **cone-shaped bulge**.
- The cause is **loss or weakening of collagen cross-links**, not excessive cross-linking — which means the cornea becomes less rigid, not more.

9. Qubit

Context: Caltech has built the world's largest neutral-atom qubit array—6,100 qubits—pushing quantum computers closer to error correction and full-scale computation.

About Qubit

- A qubit, or quantum bit, is the basic unit of information used to encode data in quantum computing.
- It can be best understood as the quantum equivalent of the traditional bit used by classical computers to encode information in binary.
- In classical computing the information is encoded in bits, where each bit can have the value zero or one.
- In quantum computing the information is encoded in qubits. A qubit is a two-level quantum system where the two basis qubit states are usually written as $|0\rangle$ and $|1\rangle$.
- A qubit can be in state $|0\rangle$, $|1\rangle$, or (unlike a classical bit) in a linear combination of both states.
- The name of this phenomenon is superposition.
- The term “qubit” is attributed to American theoretical physicist Benjamin Schumacher.
- Qubits are generally, although not exclusively, created by manipulating and measuring quantum particles (the smallest known building blocks of the physical universe), such as photons, electrons, trapped ions, superconducting circuits and atoms.
- Enabled by the unique properties of quantum mechanics, quantum computers use qubits to store more data than traditional bits, vastly improve cryptographic systems and perform very advanced computations that would take thousands of years (or be impossible) for even classical supercomputers to complete.
- Qubits leverage superposition (representing both 0 and 1 simultaneously) and entanglement (correlation between qubits), enabling vastly greater computational potential than classical bits.
- Qubits must be preserved at extremely low temperatures (near absolute zero, around -273°C) to maintain stability and prevent decoherence, not high temperatures.

10. Coffee-Stain Effect Mechanism

Context: Scientists at the Raman Research Institute (RRI) in India have developed an effective and

sensitive method to detect toxic molecules like Rhodamine B using the coffee-ring effect combined with nanotechnology.

Coffee-Stain Effect Mechanism

- The coffee-ring effect is a natural phenomenon where, as a droplet of liquid evaporates, capillary flow moves suspended particles from the center to the edge of the droplet, resulting in a characteristic ring-shaped pattern of particle deposition.

About Rhodamine B

- Rhodamine B is a **water-soluble synthetic dye** known for its bright pink fluorescent color.
- It is widely used in scientific research including fluorescence microscopy, flow cytometry, and biochemical assays such as ELISA.
- Rhodamine B is **toxic and has carcinogenic potential**; it can cause damage to skin, eyes, and the respiratory system.

11. Prussian Blue Capsules

Context: India has gifted critical Prussian Blue Capsules to Indonesia to mitigate the effects of Cesium-137 contamination.

About Prussian Blue Capsules

- Prussian Blue Capsules are a specialized medication used primarily to treat internal contamination with radioactive cesium or thallium, as well as non-radioactive thallium poisoning.
- The capsules work by trapping these toxic substances in the intestines, preventing their absorption into the body, and facilitating their removal through bowel movements.

12. Time Rondeau Crystal

Context: An international team of scientists has discovered a new phase of matter called the Time Rondeau Crystal (TRC), a state where order and disorder coexist in time.

What is a Time Rondeau Crystal (TRC)?

- A Time Rondeau Crystal (TRC) is a **new phase of matter** discovered recently.
- It is **similar to a time crystal**, but with a special difference:
 - It shows **both order and randomness in time**.
 - The system repeats its pattern after some time (order), but between these repetitions, its behavior is irregular (disorder).
- Scientists created the TRC by using **carbon-13 atoms in a diamond** and controlling their spins with **microwave pulses**.
- The pulses were not given at fixed intervals, there was some **randomness**, but still, the system showed regular patterns over longer periods.

Potential Applications

- Quantum technology:** It can help design new types of quantum sensors that detect specific time patterns.
- Information storage:** Data can be stored in the timing of TRC's repeating patterns.
- Scientific research:** Helps scientists understand how order can exist even within disorder, opening new ways to study materials.

13. Magnetic Weak Spots

Context: Recent findings from the European Space Agency's (ESA) Swarm mission reveal that the South Atlantic Anomaly (SAA) — the region of weakest intensity in Earth's magnetic field — has expanded by nearly 0.9% since 2014.

What Are Magnetic Weak Spots?

- Definition:**
 - Magnetic weak spots are localized regions of diminished geomagnetic intensity on Earth's surface caused by uneven distribution of magnetic flux within the planet's outer core.
- Why They Form:**
 - Uneven Core Flow:** The molten metals in Earth's outer core do not circulate uniformly, causing some regions to produce weaker magnetic fields.

- **Reverse Magnetic Flux:** In certain zones like the SAA, magnetic field lines loop backward into the core, lowering the surface magnetic strength.
- **Core Dynamics:** Constant fluid motion, convection currents, and thermal variations in the liquid outer core lead to periodic reorganisation of magnetic strength zones.
- Satellites, particularly those in **Low Earth Orbit (LEO)** and **Medium Earth Orbit (MEO)**, experience a significantly increased flux of high-energy **protons** and electrons when traversing the SAA.
- The Earth's magnetic field acts as a protective shield, trapping charged particles in the Van Allen Belts. In the region over the South Atlantic (extending from South America to South Africa), the magnetic field lines are pushed closer to the Earth's surface due to the non-alignment of the magnetic axis and the Earth's rotation axis. This weaker magnetic field at lower altitudes effectively lowers the barrier of the inner Van Allen Belt, allowing energetic particles (primarily protons) to descend deep into the atmosphere, directly striking satellites at altitudes where they would normally be protected.
- The **weak magnetic field** is the reason why **charged particles penetrate lower** which in turn is the reason for the **electronic vulnerability** of satellites.

14. Zombie Deer Disease

Context: Health officials in Florida have confirmed new cases of Chronic Wasting Disease (CWD)—popularly known as “Zombie Deer Disease”—marking the state’s second detected instance of the fatal neurological infection in wild deer.

About Zombie Deer Disease:

- **What it is?**
 - A fatal neurological disorder that affects deer, elk, and moose, caused by abnormal prion proteins that damage the brain and nervous system.

- Classified under Transmissible Spongiform Encephalopathies (TSEs) — the same group as mad cow disease (BSE).
- **Origin:**
 - First detected in Colorado, USA, in the 1960s, it has now spread across 34 U.S. states, including Florida (2023, 2025), Canada, and parts of Europe.
 - The 2025 detection marks its geographical expansion into the southeastern U.S.
- **Vector (Causative Agent):**
 - Caused by infectious prions, misfolded proteins that trigger the breakdown of normal brain proteins.
 - These prions are resistant to heat, radiation, and disinfectants, making them extremely persistent in the environment.

	Diseases	Animals
1	Chronic Wasting Disease (CWD)	Deer, elk, moose
2	Tularemia	Rabbits and rodents
3	White-Nose Syndrome	Bats
4	Chytridiomycosis	Frogs, toads, salamanders

15. MAM01 (Monoclonal Antibody Against Malaria)

Context: A new monoclonal antibody named MAM01 has shown strong protective effects against malaria in an early clinical trial by U.S. researchers.

About MAM01 (Monoclonal Antibody Against Malaria):

What it is?

- **MAM01** is a novel monoclonal antibody (mAb) engineered to prevent malaria infection by neutralising the *Plasmodium falciparum* parasite before it enters the bloodstream.

- It represents a passive immunisation strategy, distinct from traditional vaccines that trigger an active immune response.

Developed by:

- Created by the University of Maryland School of Medicine's Center for Vaccine Development and Global Health (CVD), USA.

Aim:

- Designed to provide **immediate and long-lasting protection** against malaria, particularly for **young children and pregnant women** in endemic regions.
- Seeks to overcome the limitations of existing malaria vaccines that require **multiple doses and boosters**.

Key Features:

- **Targets a conserved region** of the Plasmodium falciparum **circumsporozoite protein (CSP)** — a critical molecule that enables the parasite to infect liver cells.
- **Single-dose administration** offers **months-long protection** with minimal side effects.
- **Phase 1 trial** involved 38 malaria-naïve adults aged 18–50 in a **randomised, double-blind, placebo-controlled study**.
- Provided **100% protection at the highest dose**, with no severe adverse reactions reported.
- Demonstrates **dose-dependent efficacy**, showing higher protection with increasing antibody concentration.

16. Quantum Echoes algorithm

Context: Google claims its quantum processor “Willow” has achieved the first verifiable quantum advantage—performing a task practically impossible for classical computers.

About

- Willow ran the **Quantum Echoes algorithm** **13,000x faster** than the best classical supercomputers.

- Quantum Echoes is a special algorithm developed to study how information spreads and scrambles in a quantum system.
- It helps scientists “unscramble” information in chaotic quantum systems to understand the underlying rules (the Hamiltonian).

Significance

- Google's Willow quantum processor ran a task 13,000 times faster than the world's fastest classical supercomputer.
 - **Classical simulation would take over 3 years, Willow did it in hours.**
- Helps understand **complex quantum systems**, study new materials, and possibly discover drugs.
- A big step toward **practical quantum computing** and real-world applications.

Note: The **Quantum Echoes algorithm** (2025) from **Google Quantum AI** explores **quantum information dynamics**—how information disperses (scrambles) and can partially “echo” back when the system's evolution is reversed.

17. 2025 PN7 Special

Context: NASA has confirmed that asteroid **2025 PN7** is now Earth's new quasi-moon — a tiny space companion travelling around the Sun along a path similar to our planet's. Discover how it moves, how scientists found it, and why this rare phenomenon is so fascinating.

What makes 2025 PN7 Special?

- The asteroid **2025 PN7** is **not directly orbiting Earth like our natural moon**. Instead, it travels around the Sun on a path that nearly matches Earth's.
- This unique movement makes it appear as if it's staying close to us, even though it's actually an independent traveller in space.
- NASA scientists describe it as being like “a friendly runner keeping pace on the same track — close enough to notice but never touching.”

- Researchers believe 2025 PN7 has been moving near Earth's orbit for almost 60 years, and it may continue to do so **until around 2083**, before eventually drifting away into deep space.

How close Is it to Earth?

- At its closest point, the asteroid comes within **about 4 million kilometres of Earth** — nearly 10 times farther than our moon.
- At its farthest, it moves out to 17 million kilometres, depending on how the Sun's and planets' gravity affect its orbit.
- This makes 2025 PN7 a safe visitor — it poses no danger to Earth, as it stays far outside our atmosphere and cannot collide with our planet.

What is a Quasi-Moon?

- A quasi-moon (or quasi-satellite) is a small celestial body that:
 - it orbits the **Sun**, but remains **gravitationally influenced by the planet**, staying near it over long timescales.
 - The hallmark of a quasi-moon is a **1:1 orbital resonance** — it takes **nearly the same time as the planet** to complete one orbit around the Sun.
 - A quasi-moon **does not lie permanently within the Hill sphere** of the planet (the region where the planet's gravity dominates).
 - From the planet's perspective, a quasi-moon appears to move in a **retrograde or looping path** (like a lopsided orbit), often described as a **horseshoe or tadpole orbit** due to its resonant motion.

18. United Nations Convention against Cybercrime

Context: 72 nations have signed a landmark United Nations Convention against Cybercrime treaty in Hanoi aimed at tackling cybercrime.

United Nations Convention against Cybercrime

- **Aim:** It proposes a legislative framework to boost international cooperation among law

enforcement agencies and offer technical assistance to countries that lack adequate infrastructure for combating cybercrime.

- **First Universal Convention:** The Convention against Cybercrime establishes the first universal framework for investigating and prosecuting offences committed online – from ransomware and financial fraud to the non-consensual sharing of intimate images.
- **Adoption:** It was adopted by the General Assembly in 2024 after five years of negotiation.
 - The signing process is expected to remain open till next year.
- **Legally Binding:** The UN Cybercrime Convention is a powerful, legally binding instrument to strengthen the collective defences against cybercrime.
- **Key Provisions:** It criminalises the following types of crimes:
 - **Cyber-dependent crimes:** Unauthorized access (hacking), data interference.
 - **Cyber-enabled crimes:** Online fraud, non-consensual dissemination of intimate images.
 - **Child exploitation:** Online sexual abuse, distribution of abuse material, solicitation/grooming.
 - It facilitates the sharing of electronic evidence across borders and establishes a 24/7 cooperation network among States.
 - It also makes history as the first international treaty to recognise the non-consensual dissemination of intimate images as an offence – a significant victory for victims of online abuse.
- **Enforcement:** It will enter into force 90 days after the 40th State deposits its ratification.
- **Conference of the States Parties:** After entry into force, a Conference of the States Parties will convene periodically to improve the capacity of and cooperation between States Parties.
- **Secretariat:** The United Nations Office on Drugs and Crime serves as the secretariat to the Ad Hoc Committee and to the future Conference of the States Parties.

19. Software Defined Radio

Context: In a major step toward modernising military communication systems, the Indian Army has signed a landmark contract for the procurement of its first indigenously designed and manufactured Software Defined Radios (SDR). This advanced Radio is developed by the Defense Research and Development Organisation (DRDO) and produced by Bharat Electronics Limited (BEL).

Software Defined Radio (SDR):

- A **Software Defined Radio (SDR)** is a radio communication system where the traditional hardware components (such as mixers, filters, modulators/demodulators, and detectors) are implemented by software running on a personal computer or an embedded computing device.

Core Concept and Definition

- SDR moves the processing of the radio signal from specialized, fixed hardware circuits to flexible **Digital Signal Processing (DSP)** technology.
- Traditional Radio:** Functions (like frequency tuning, modulation, and filtering) are set by dedicated analog electronic circuits and components. To change the radio's function, the hardware must be changed.
- SDR:** The signal is converted to digital data as close to the antenna as possible (ideally right after the amplifier). This digital data is then manipulated entirely by **software**, allowing the same piece of hardware to perform different radio functions simply by changing the program.

Key Components

The basic architecture of an SDR involves the following key components:

Component	Function
Antenna	Receives or transmits the Radio Frequency (RF) signal.
Front-End RF Hardware	Includes filters, low-noise amplifiers (LNA), and often a mixer to down-

	convert the RF signal to a lower intermediate frequency (IF) or baseband frequency.
Analog-to-Digital Converter (ADC)	The critical component that converts the continuous analog IF/baseband signal into a stream of discrete digital data .
Host Computer/DSP Unit	The "brain" of the SDR. Runs the software that handles all the traditional radio functions, including demodulation, decoding, filtering, and spectrum analysis.
Digital-to-Analog Converter (DAC)	(For transmission) Converts the processed digital signal back into an analog signal.

- SDRs are vital for defense systems because they ensure **interoperability**, **secure communication**, and **real-time adaptability** across different units and forces.
- SDRs achieve flexibility by **digitizing radio functions** that were once hardware-based. They can **switch frequencies, modulations, and protocols** through software updates — a key feature for tactical operations.

20. Poseidon drone

Context: President Vladimir Putin said on October 29 that Russia had successfully tested a Poseidon nuclear-powered super torpedo that military analysts say is capable of devastating coastal regions by triggering vast radioactive ocean swells.

Poseidon drone

- It is a new atomic-powered and nuclear-capable underwater drone.
- It outperforms all existing systems in speed and depth.
- It is designed to travel at a speed of up to 200 kph (124 mph) significantly faster than any existing torpedoes or warships.

- It is designed to evade defences to cause a tsunami powerful enough to devastate a coastal city.

21. Global Virus Network

Context: The Global Virus Network (GVN) has expanded its international coalition by incorporating three distinguished Centers of Excellence located in the Americas, broadening its capacity to address pressing viral threats on a global scale.

About Global Virus Network (GVN)

- It is a voluntary consortium of virology laboratories and affiliated scientists that seek to prevent and control global viral threats.
 - It represents more than 25 countries and includes experts in every class of virus-causing disease in humans.
 - **No single institution in the world has expertise in all viral areas.**
 - GVN brings the best medical virologists together to leverage individual strengths and to focus global teams of scientists on key scientific problems.
- The power of GVN lies in its global reach, the depth of its science, and its commitment to solving viral challenges facing the human population.
 - The GVN has 3 main interest areas:
 - Support for cutting-edge research
 - Public education
 - Advocacy



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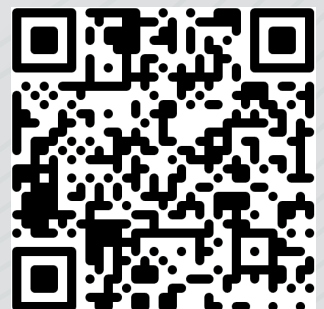
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GEOGRAPHY AND MAPPING

1. South Africa

Context: South Africa's Ambassador to France was found dead on September 30 outside a Paris hotel after the window of his room in the high-rise building was forced open. A source close to the case said Nkosinathi Emmanuel Nathi Mthethwa, 58, usually known as Nathi Mthethwa, had depression and his death could have been suicide.

South Africa:

- South Africa shares land borders with **Namibia**, **Botswana**, **Zimbabwe**, **Mozambique** (only via Kruger–Limpopo tripoint, not an official continuous land border), **Eswatini (Swaziland)**, and **Lesotho** (completely landlocked within South Africa).



2. Niger River

Context: An accident involving a boat carrying passengers on the Niger River in north-central Nigeria has killed at least 26 people recently.

Niger River:

- The **Niger River** originates in the **Guinea Highlands**, flows through **Mali**, enters **Niger**, and finally passes through **Nigeria** before emptying into the **Gulf of Guinea** (Atlantic Ocean).
- It flows through **4 countries: Guinea, Mali, Niger, and Nigeria**.



3. India-Bangladesh transboundary rivers

Context: As the Durga Puja immersions commenced on the Ichamati river, a heightened security presence was initiated on the India-Bangladesh border.

India-Bangladesh transboundary rivers:

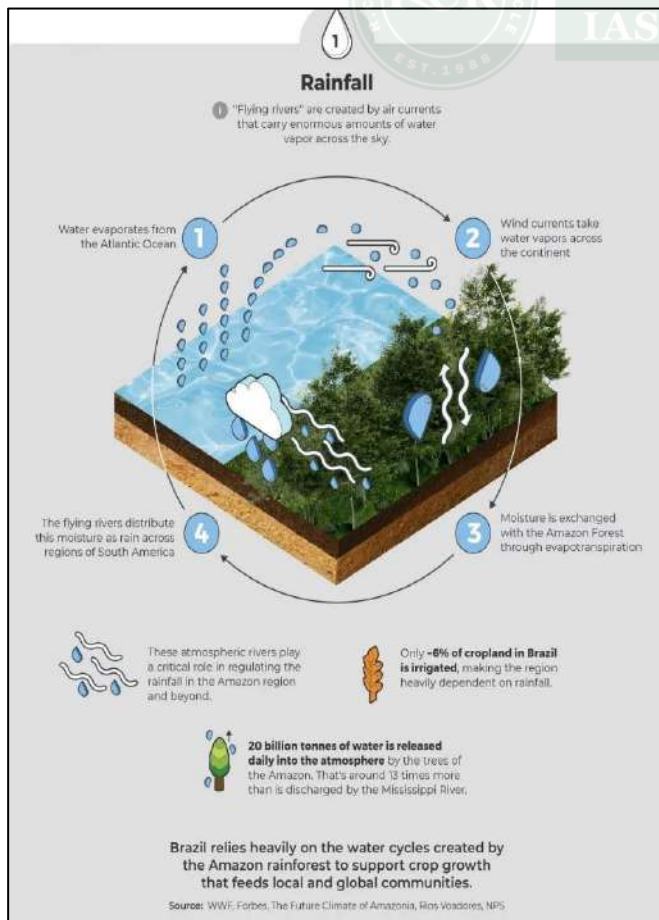
- The **Kushiyara**, **Muhuri**, **Feni**, and **Ichamati** rivers are **Indo–Bangladesh transboundary rivers**.
- They are part of the **54 rivers shared between India and Bangladesh**, many of which are under discussions for **water-sharing and joint management**.
- For instance:
 - Kushiyara River:** Subject of a **recent water-sharing MoU (2022)** between India and Bangladesh.
 - Feni River:** Agreement signed in **2019** for withdrawal of water by India (Tripura).
 - Muhuri & Ichamati Rivers:** Important for **border management and flood control cooperation**.

4. Flying Rivers

Context: The Amazon rainforest plays a critical role in South America's water cycle through the phenomenon called "flying rivers".

About Flying Rivers

- "Flying rivers" are massive streams of water vapour carried in the atmosphere, invisible to the eye.
- **Process:**
 - Moisture originates from the Atlantic Ocean.
 - Trade winds push moist air westward across the equator.
 - Amazon trees act as a "biological pump" – absorb water from soil → transpire it back into the air → release huge amounts of water vapour.
 - This recycled water forms clouds and rainfall further inland, supplying regions as far as the Andes and southern South America.



5. Neighbours of Switzerland

Context: Swiss glaciers lost 3% of their total ice mass in 2024–25, marking the fourth-largest reduction on record, according to GLAMOS.

Neighbours of Switzerland:

Switzerland is a **landlocked country** in Central Europe. It shares borders with **five countries**:

1. **France** – to the west
2. **Germany** – to the north
3. **Austria** – to the east
4. **Liechtenstein** – to the east
5. **Italy** – to the south



6. Mar Del Plata Canyon

Context: A groundbreaking expedition to Argentina's Mar del Plata Canyon uncovered over 40 potential new deep-sea species, including glass squids and pink lobsters.

About Mar Del Plata Canyon

- It is located at the continental margin off the coast of Buenos Aires Province, Argentina.
- It lies about 250-300 km offshore from the city of Mar del Plata.
- It is one of Argentina's largest submarine canyons.
- The area is characterised by fine sand with a mixture of terrigenous material and planktonic foraminifera substrate.

- It is highly productive and influenced by the permanent Argentine Shelf-break Front.
- This front marks the boundary where subantarctic shelf waters meet the cooler, more saline waters of the Falkland-Malvinas Current, creating a significant thermohaline front.

Submarine Canyons:

- **Submarine canyons** are large, steep-sided valleys that cut into the continental slope and sometimes the continental shelf. They are primarily carved and maintained by **turbidity currents** (dense, sediment-laden flows of water) that rush down the continental margin.
- **Zhemchug Canyon, Monterey Canyon, and Perth Canyon** are all well-known examples of submarine canyons.

7. Neighbours of Poland

Context: A quarter of a century after it joined NATO and amid rising tension on its eastern frontier, Poland will finally join the alliance's fuel pipeline network, the government said on October 3.

Neighbours of Poland:

- Poland shares land borders with **Germany, Czech Republic, Slovakia, Ukraine, and Belarus** — totaling **five countries**.



8. Somalia

Context: Millions of people in Somalia face worsening hunger as major cuts to donor aid leave the World Food Programme with a critical funding shortfall, the UN agency warned on October 3.

Somalia:

- Somalia, officially known as the Federal Republic of Somalia, is a strategically located nation along the Horn of Africa with a long and complex history shaped by trade, colonialism, internal conflict, and ongoing political reconstruction.

Geography

Somalia occupies the easternmost position in continental Africa, bordered by:

- Kenya to the southwest
- Ethiopia to the west
- **Djibouti to the northwest. (Eritrea does not have border with Somalia)**
- Gulf of Aden to the north
- Indian Ocean to the east

It has the longest mainland coastline in Africa (around 3,333 km). The terrain includes vast plateaus, plains, and mountains, with an arid to semi-arid climate, irregular rains, and frequent droughts.



9. Spain

Context: Spain's leftist government on October 3 proposed anchoring the right to abortion in the constitution following a move by Madrid city hall to inform women about a supposed "post-abortion syndrome".

Spain:

- Spain, officially the Kingdom of Spain, is a country in Southern and Western Europe situated predominantly on the Iberian Peninsula.
- It is the largest country in Southern Europe and the fourth-most populous member state of the European Union.
- Spain includes several territories beyond the peninsula such as the Canary Islands in the Atlantic Ocean, the Balearic Islands in the Mediterranean, and the autonomous cities of Ceuta and Melilla in North Africa.

Geography and Location

- Spain borders Portugal to the west, France and Andorra to the northeast, and shares maritime borders with the Mediterranean Sea and the Atlantic Ocean.
- Its diverse geography includes mountain ranges like the Pyrenees and Sierra Nevada, extensive coastlines, and fertile plains.
- The country's varied climate ranges from Mediterranean to oceanic and semi-arid in different regions.



10. Neighbours of Serbia

Context: Twenty-five years on, one of Otpor's founders, Srdja Popovic, sees a connection to the "brave, intelligent and highly creative" new generation marching under another emblem — the bloodied hand — in some of the largest demonstrations ever witnessed in the Balkan nation.

Neighbours of Serbia:

- Serbia shares land borders with Croatia, Bosnia and Herzegovina, Hungary, Romania, Bulgaria, Montenegro, and North Macedonia.



11. Baratang Island

Context: Recently, India's only mud volcano at Baratang in Andaman and Nicobar Islands has again erupted.

About Baratang Island

- Location:** It is located in the North and Middle Andaman district, and it is nearly 150 km away from Port Blair.

- It is a very popular tourist spot because it is India's only mud volcano.
- It erupted recently in 2005 owing to the oceanic seismic shifts.
- The mud volcanoes in Baratang Islands are the only known volcanoes in the Indian sub-continent.
- It is also home to the Jarawa tribe, one of the indigenous tribes of the Andaman and Nicobar Islands.

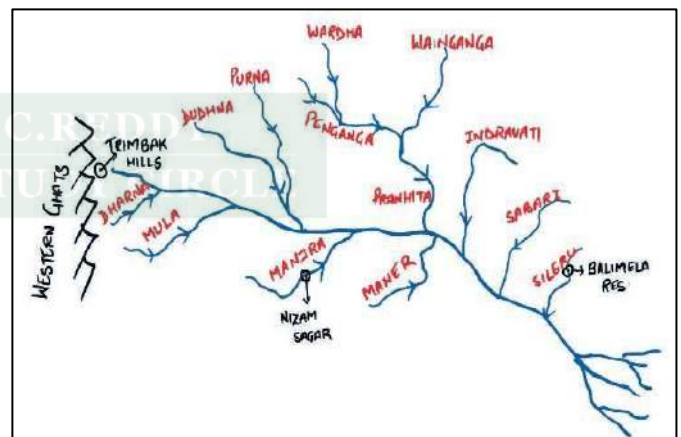
What is Mud Volcano?

- Mud volcanoes, also called 'Mud Domes,' are formed by the eruption of mud slurries, water, and gases involving a series of geological processes.
- Unlike actual ingenious volcanoes, mud volcanoes don't throw out lava when they erupt.
- It is a geological formation where a mixture of mud, water, and gases (mainly methane, sometimes carbon dioxide or nitrogen) erupts to the surface, creating cone-like structures that resemble true volcanoes without molten lava.
- The sizes of mud volcanoes lie between one and two meters to 700 meters high and between one and two meters to 10 kilometers wide.
- Mud volcanoes also exist on the floor of the sea and can form islands and banks that alter the topography and shape of the coastline.
- Mud volcanoes are geological structures created by the expulsion of a slurry of fine-grained sediments (mud), water, and gases (primarily **methane**, often with some carbon dioxide and other hydrocarbons) from subterranean pressures. They are not magmatic.
- The formation of mud volcanoes is driven by **tectonic compression** and the resulting **overpressure** of fluids (water and gas) in deeply buried sediment layers, often associated with areas like subduction zones or hydrocarbon basins. They are **cold** systems; they do not involve the movement or heat of molten magma, which is the defining characteristic of true **igneous volcanoes**.

12. Manjira river

Context: In a dramatic rescue operation near Edupayala temple in Medak, two youths from Kukatpally were saved after being swept away by the swollen Manjeera river.

River Name	Notes
Pranhita	Formed by the confluence of Wardha and Wainganga; the largest tributary.
Sabari	Joins the Godavari near Kunavaram (Andhra Pradesh/Telangana).
Manjira	A major right bank tributary, joins the Godavari near Kandakurthi.
Indravati	Joins the Godavari at the border of Chhattisgarh, Maharashtra, and Telangana.



13. Ortolan Bunting

Context: The rare European bird, the Ortolan Bunting, with just a single recorded sighting in Bengal, was spotted at Baruipur, situated in the southern periphery of the city, recently.

About Ortolan Bunting

- It is a small Palearctic migrant songbird.
- **Scientific Name:** Emberiza hortulana
- **Distribution:** The bird is found in most of Europe, with populations found as far west as Mongolia and as far north as the Arctic Circle.

Ortolan Bunting Habitat

- Its habitat consists of open, cultivated, or uncultivated areas with sparse woody vegetation, up to an altitude of 2500 metres locally.
- It absolutely avoids forested areas, including during migration.
- The oceanic climate is not suitable for it.

Ortolan Bunting Features

- It is small, with a length of 6.3 to 6.7 inches and a wingspan of about 10 inches.
- The males have a greenish-gray head along with a yellow throat, swooping mustache, and ring around the eye.
- Its belly is brown and its back and rump are brown and streaked.
- The females and juveniles are smaller, have spots on the belly, and are duller overall.
- Like most buntings, the ortolan has a conical beak that's good for cracking seeds.
- Ortolan Bunting is a **migratory songbird** breeding in **Europe and Western Asia**, migrating to **sub-Saharan Africa** in winter.
- It is **listed under Appendix II of CITES**, not Appendix I.
- It faces **decline due to illegal hunting and consumption** as a gourmet dish in parts of France, leading to **protection under EU law**.
- The Ortolan Bunting primarily inhabits **dry, open agricultural and steppe landscapes**, not wetlands. Its diet consists mainly of **seeds and terrestrial insects**, particularly during the breeding season.

14. Namchik-Namphuk Coal Block

Context: Arunachal Pradesh has launched its first commercial coal mining project at the Namchik-Namphuk coal block in Changlang district, marking a milestone in Northeast India's resource development and energy self-reliance.

About Namchik-Namphuk Coal Block

- **Location:** Changlang district, southeastern Arunachal Pradesh, part of the Upper Assam coal belt region.

- **Reserves:** Estimated 1.5 crore tonnes of coal, enabling long-term production viability.
- **Economic Impact:** Expected to generate ₹100 crore annual revenue for the state.
- **Environmental Features:** Operates under Mission Green Coal Regions, focusing on land reclamation, afforestation, and eco-responsible mining.
- **Social Impact:** Creation of local employment; reduction of illegal mining activities.
- **Strategic Alignment:** Supports the PM EAST vision — Empower, Act, Strengthen, Transform — for balanced Northeast development.

15. Georgia

Context: Georgia's Prime Minister Irakli Kobakhidze vowed opposition arrests on October 5 after police used force against opposition protesters who tried to enter the presidential palace in what he termed was a coup bid during a controversial election. The protest prompted riot police to use tear gas and water cannons to repel the crowd.

Georgia:

- Georgia is a country located at the crossroads of Eastern Europe and Western Asia, in the South Caucasus region along the eastern coast of the Black Sea.
- It shares borders with Russia to the north and northeast, Azerbaijan to the east, Armenia to the south, and Turkey to the southwest.
- Georgia encompasses an area of about 67,900 square kilometers and has a population of over 3.6 million people as of 2024.

Geography

- Georgia is a predominantly mountainous country, divided between the Greater Caucasus Mountains in the north and the Lesser Caucasus Mountains in the south.
- The Likhi Range separates the eastern and western parts of the country. Its highest peak is Mount Shkhara, part of the Greater Caucasus, standing at 5,203 meters.

- Georgia's terrain also includes fertile plains like the Kartli Plain, river valleys such as the Kura (Mtkvari) River basin, and coastal lowlands near the Black Sea.
- The country has diverse climates ranging from subtropical on the coast to alpine in the mountains.



16. Mig La Pass

Context: Recently, Project Himank of the Border Roads Organisation (BRO) has constructed the world's highest motorable road at Mig La Pass, 19,400 feet above sea level in Ladakh.

About Mig La Pass

- Mig La Pass is located on the Changthang Plateau in Ladakh.
- World Record Altitude:** At 19,400 ft, Mig La Pass is the highest motorable road in the world.
- Strategic Axis:** It connects Likaru–Mig La–Fukche, creating the third vital corridor from Hanle to Fukche near the Indo-China border.
- All-Weather Road:** Built with advanced features to withstand harsh winters, shifting glaciers, and oxygen-thin air, making it the highest all-season road globally.

	Passes	States/UTs
1	Mig La Pass	Ladakh
2	Shipki La Pass	Himachal Pradesh
3	Jelep La Pass	Sikkim
4	Bomdi La	Arunachal Pradesh

17. Black Sea

Context: Russia recently reported destroying 251 Ukrainian drones overnight, mostly over its southwest and the Black Sea, with one targeting Moscow.

About Black Sea

- It is a large inland sea situated at the southeastern extremity of Europe.
- It is one of the marginal seas of the Atlantic Ocean.
- The roughly oval-shaped body of water has a surface area of 436,000 sq.km.
- Bordering Regions:
 - West:** Balkan Peninsula (Southeastern Europe).
 - East:** Caucasus Mountains.
 - North:** East European Plains (Russia & Ukraine).
 - South:** Anatolia (Turkey, Western Asia).
- Countries bordering the Black Sea are Turkey to the south, Bulgaria and Romania to the west, Ukraine to the north, Russia to the northeast, and Georgia to the east. The Crimean Peninsula juts into the Black Sea from the north.
- Russia has the longest coastline (2,300 km), followed by Turkey (1,329 km) and Ukraine (1,282 km).
- It connects to the Aegean Sea (Mediterranean) via the Bosphorus Strait, the Sea of Marmara, and the Dardanelles Strait.
- To its east, the Kerch Strait links the Black Sea to the smaller Sea of Azov.
- The Black Sea has lower salinity than the world's oceans due to isolation from the Mediterranean.
- Major rivers flowing into it include the Danube, Dnieper, Southern Bug, Rioni, and Dniester.

- Romania and Bulgaria are Black Sea countries that are members of both the EU and NATO
- Russia and Ukraine are Black Sea countries, and the **Kerch Strait** connects the Black Sea to the **Sea of Azov**
- The **Danube River** empties into the Black Sea through its delta in Romania and Ukraine



18. Supermoon

Context: The Supermoon, also known as the Harvest Moon, was observed recently.

About the Supermoon

- A supermoon occurs when a **full moon or new moon** coincides with the moon's closest approach to the earth in its elliptical orbit — a point known as the **perigee**.
- Because the moon's orbit is not a perfect circle, its distance from the earth varies throughout the month by around 50,000 km.
- When the moon is near its perigee and also directly opposite the sun, the full moon appears about **14% larger and 30% brighter** than when it is at its farthest point. This is the supermoon.
- Culturally, supermoons have long captured human imagination, inspiring folklore and spiritual observances across civilisations.
- The term "supermoon" was first used by astrologer **Richard Nolle** in the 1970s and is now common in astronomy and the media.



19. Damodar River

Context: In what locals have described as a miraculous escape, a 65-year-old woman who was swept away by the swollen Damodar River was rescued nearly 45 km downstream in West Bengal recently.

About Damodar River

- The Damodar River flows through the states of Jharkhand and West Bengal.
- Located in the eastern part of the Indian subcontinent, it is an important part of the Ganges River System.
- The river is also known as the "Sorrow of Bengal" because of its devastating floods in the plains of West Bengal.
- Total Length: 592 km
- The basin has a total catchment area of 25,820 sq.km.
- The Damodar River has several tributaries, including:
 - Barakar River
 - Konar River
 - Jamunia River
 - Bokaro River
 - Sali River
 - Ghari River
 - Guaia River
 - Khadia River
 - Bhera River

20. Madagascar

Context: The youth-led movement behind nearly two weeks of anti-government protests in Madagascar rejected dialogue with President Andry Rajoelina and called a strike and new demonstration for October 9.

Madagascar:

- Madagascar is a large island nation located off the southeastern coast of Africa in the Indian Ocean.
- It is globally renowned for its extraordinary biodiversity, unique cultural heritage, and complex political history.

Geographic Overview

- Madagascar is the world's fourth-largest island, covering about 592,800 square kilometers.
- It lies east of Mozambique, separated by the Mozambique Channel, with neighboring islands including Réunion, Mauritius, Comoros, and Mayotte.
- The country has a varied geography—narrow eastern coastal plains, central highlands with rice terraces, and drier regions to the west.
- The highest point is Maromokotro (2,876 m).
- The Tropics of Capricorn passes through Madagascar.



21. Atacama Desert

Context: A rare burst of winter rains has triggered the “desierto florido” phenomenon in Chile’s Atacama Desert, turning one of Earth’s driest landscapes into sweeping carpets of fuchsia wildflowers visible from space.

About the Atacama Desert

- The Atacama Desert is the world’s driest non-polar desert, located in northern Chile, stretching approximately 1,000–1,100 km between the Pacific Ocean and the Andes Mountains.
- The Atacama is used by NASA and ESA as an Earth analog for Martian terrain due to its extreme aridity, hyper-arid soils, and high ultraviolet radiation.

The Fuchsia Flower Bloom (Desierto Florido)

- Native to Chile’s Atacama Desert, where it is locally known as “pata de guanaco”. It thrives in one of the driest places on Earth.
- *Cistanthe longiscapa* is an annual herb that completes its life cycle rapidly following sporadic rains. Seeds remain dormant underground for years, germinating quickly after rare precipitation, enabling it to take full advantage of brief moisture availability.
- The species employs Crassulacean Acid Metabolism (CAM) photosynthesis, a highly efficient water-conserving process. Unlike typical plants, it opens its stomata at night to capture carbon dioxide and stores it as malic acid.

22. Peru

Context: Lawmakers in Peru removed President Dina Boluarte from office just after midnight on October 10, ending a stint plagued by protests, corruption probes and rampant crime. Congress chief Jose Jeri, who assumed the South American country’s presidency, will lead a transitional government until elections in April 2026.

Peru:

- Peru is a large and ecologically diverse country located on the western coast of South America, known for its Andean peaks, Amazon rainforest, and rich cultural heritage rooted in ancient civilizations such as the Inca Empire.

Geographic Overview

- Peru is located entirely in the Southern Hemisphere.¹ Its northernmost point is very close to the Equator, reaching to about 1.8 minutes of latitude, or approximately 3.3 kilometers (2.1 miles) south of the line.
- It borders Ecuador and Colombia to the north, Brazil to the east, Bolivia to the southeast, Chile to the south, and the Pacific Ocean to the west.
- It is the third-largest country in South America (after Brazil and Argentina) and among the 20 largest in the world.

Lake Titicaca:

- Lake Titicaca is located in the Andes Mountains on the border between Peru and Bolivia.
- The western part of the lake lies within Peru's Puno Region and the eastern part lies within Bolivia's La Paz Department.
- It is the highest navigable lake in the world, situated approximately 3,810 meters above sea level.

**23. Neighbours of Austria**

Context: Austria's data protection authority has determined that Microsoft "illegally" tracked students using its education software and must grant them access to their data, privacy campaign group Noyb said on October 10. It had complained that the Microsoft 365 education software violated EU data protection rights for children.

Neighbours of Austria:

- Austria is a landlocked country in Central Europe sharing its borders with **Germany and Czech Republic (north), Slovakia and Hungary (east), Slovenia and Italy (south), and Switzerland (west).**
- Switzerland lies to Austria's west, and Italy lies to the south and southwest. Liechtenstein (a very small country) also lies between Austria and Switzerland.
- Hungary lies east of Austria, and Slovakia lies to the northeast, separated mainly by the Danube and Morava rivers.
- The Czech Republic lies to the north of Austria, not south. Moreover, Austria's longest border is with Germany (approximately 784–801 km), while its border with the Czech Republic is shorter (about 402–466 km).
- Germany lies to the north and northwest, and Slovenia lies directly to the south of Austria.



24. Palau

Context: Palau recently hosted the world's first-ever live underwater interview.

Palau:

- Palau is an island nation in Micronesia, part of Oceania, known for its archipelago of coral and volcanic islands, thriving marine ecosystems, and close ties with the United States under the Compact of Free Association.

Geographic Overview

- Palau lies in the western Pacific Ocean, about 500 miles southeast of the Philippines, 814 miles southwest of Guam, and slightly north of the equator.
- The country comprises about 340–500 islands, forming the westernmost part of the Caroline Islands chain. Its land area is 459 sq. km (177 sq. miles), with a coastline over 1,500 km long.
- The archipelago extends about 650 km (400 miles) along a north–south axis and is surrounded by vast coral reefs.
- Babeldaob** (also spelled **Babelthuap**) is the largest island, accounting for nearly three-fourths of Palau's total land area and hosting the nation's highest point, Mount Ngerchelchuus (242 m).



25. Spratly Islands

Context: A Chinese coast guard ship and a Philippine government vessel collided near Thitu Island, part of the Spratly Islands.

About the Spratly Islands

- The Spratly Islands are a group of over **100 small islands, reefs, and atolls** located in the **South China Sea**.
- Thitu Island**, also known as **Pag-asa Island**, is the **second-largest** naturally occurring island in the Spratly Islands archipelago within the South China Sea.
- The Permanent Court of Arbitration (PCA) in The Hague** ruled that China's "**Nine-Dash Line**" has no legal basis under the **United Nations Convention on the Law of the Sea (UNCLOS)** and it had violated the Philippines' sovereign rights within its EEZ.
 - However, China has refused to recognize the decision.



26. Neighbours of Cameroon

Context: Cameroon voted in an election on October 12 that could see Africa's oldest leader extend his rule by another seven years.

Neighbours of Cameroon:

- Cameroon shares **land borders** with **six countries** — **Nigeria, Chad, Central African Republic, Republic of Congo, Gabon, and Equatorial Guinea.**



27. Port Pasni

Context: Pakistan has recently offered the United States the opportunity to develop and operate Port Pasni as a commercial terminal, enabling US access to Pakistan's critical minerals.



About Port Pasni

- **Location:** Pasni Port is situated in the Gwadar district of Balochistan, alongside the Arabian Sea. It is approximately 113 km east of the China-operated Gwadar Port and roughly about 286 km from Iran's Chabahar Port.

- **Facilities:** The port currently hosts a fish harbour, cargo jetty, and base for the Pakistan Maritime Security Agency (PMSA).
- **Natural Depth:** Its deep-water harbour makes it suitable for major shipping and mineral export operations.

28. Mongolia

Context: India and Mongolia inked 10 Memoranda of Understanding (MoUs) during a bilateral meeting between Prime Minister Narendra Modi and Mongolian President Khurelsukh Ukhnaa in New Delhi.

Mongolia:

- Mongolia is a vast, (second largest in the world after Kazakhstan) landlocked country situated in East Asia, bordered by Russia to the north and China to the south, southeast, and west.
- It is renowned for its sweeping steppes, dramatic mountains, and the Gobi Desert, and stands as the second-largest landlocked country after Kazakhstan.

Geography and Climate

- Covers around 1,564,116 sq km, making it the 18th-largest country in the world and the least densely populated sovereign state.
- The terrain varies from grassy steppe and forested north to the arid expanses of the Gobi Desert in the south.
- Mongolia's average elevation is high, and it is known for harsh continental climate, with cold winters and warm summers.

Society and Population

- Mongolia's population is roughly 3.5 million.
- **The largest city and capital, Ulaanbaatar, hosts nearly half the population.**
- About 30% of Mongolians remain nomadic or semi-nomadic, maintaining traditions of herding livestock and horse culture.

- The dominant ethnic group is Mongol, with minorities including Kazakhs and Tuvans, mainly in the west.



29. Neighbours of South Sudan

Context: South Sudan experiencing heavy rains and rising water levels along the Nile River.



Neighbours of South Sudan:

- South Sudan is a **landlocked country** in East-Central Africa. It shares borders with:
- Sudan** to the north,
- Ethiopia** to the east,
- Kenya** to the southeast,
- Uganda** to the south,
- Democratic Republic of the Congo (DRC)** to the southwest, and
- Central African Republic (CAR)** to the west.

30. Cambodia

Context: South Korea has issued its most serious travel warning for parts of Cambodia, issuing a “code black” ban that orders citizens to leave areas in which the government has identified surging employment scams and detention cases targeting its nationals.

Cambodia:

- Cambodia is a country in mainland Southeast Asia, distinguished by its river-fed lowlands, tropical climate, and rich cultural heritage centered around ancient Khmer civilization.

Geography and Borders

- Cambodia covers approximately 181,035 sq km, situated between latitudes 10°–15°N.
- It shares land borders with Thailand (west/northwest), Laos (north/northeast), and Vietnam (east/southeast), and has a 443-km coastline along the Gulf of Thailand.
- The dominant physical feature is the central lowland plain, embracing the basin of the Tonlé Sap Lake (the largest freshwater lake in Southeast Asia), the floodplains of the Mekong and Bassac Rivers, and extensive wetlands.
- The bowl-shaped lowlands are bounded by uplands: the Dangrek Mountains (north, near Thailand/Laos), Cardamom Mountains (southwest), Elephant Mountains (south), and Annamite Range (northeast, toward Vietnam).
- The Cardamom Mountains (or Krâvanh Mountains) are located entirely within

southwestern Cambodia, close to the border with Thailand and along the coast of the Gulf of Thailand.

- The boundary between Cambodia and Laos is instead defined by the Annamite Range (or the Annam Highlands), specifically the southern portion of this range, which runs along the border area.



31. Uruguay

Context: Recently, Uruguay's senate has passed a law decriminalising euthanasia.

About Uruguay

- It is a country located on the southeastern coast of South America.
- It is the only South American nation to be situated entirely south of the Tropic of Capricorn. Bordered by: Argentina (west and southwest), Brazil (north and east); and by the South Atlantic Ocean to the southeast.

Geographical Features of Uruguay

- Climate:** It is characterized as a humid subtropical climate.

- Terrain:** It is influenced by the Pampas, these grasslands traditionally used for extensive livestock farming. It also consists of rolling plains, low plateaus, and hills.
- It also consists of Haedo Ridge (Cuchilla de Haedo) in the north and Grande Ridge (Cuchilla Grande) in the southeast.
- Major Rivers:** Rio de la Plata/Parana River, Uruguay river (It forms the border between Uruguay and Argentina).
- Uruguay's coast is influenced by the Brazil Current (warm, northward) and Malvinas (Falkland) Current.
- Highest Point:** Mount Catedral (located in the southeast of the country).
- Capital city:** Montevideo.



32. Argentina

Context: Argentine thermos company Lumilagro was forced to drastically scale back local production and cut its workforce due to President Javier Milei's radical economic reforms.

Argentina:

- Argentina is a large, diverse country located in the southern part of South America, renowned for its

striking natural landscapes, vibrant culture, and influential history. It is the eighth largest country in the world and the second largest in South America, after Brazil, covering an area of about 2,780,400 sq km.

Geographic Overview

- **Borders and Location:** Argentina is bordered by Chile to the west, Bolivia and Paraguay to the north, Brazil and Uruguay to the northeast, and the Atlantic Ocean to the east. The Andes Mountains form its lengthy western boundary, providing a natural border with Chile.
- **Regions:** The country's geography is grouped into four main regions:
 - The Andes (west) — high mountains, including Aconcagua (6,960 m), the tallest peak in South America.
 - The Pampas (central-east) — flat, fertile grasslands famed for agriculture and cattle ranching.
 - The North — subtropical forests and wetlands, including the Iberá Wetlands and Iguazu Falls.
 - Patagonia (south) — plateaus, steppe, and glaciers, ranging from arid to subantarctic climates.
- The Río de la Plata (River Plate) is generally considered an estuary (a wide, funnel-shaped mouth where a river meets the sea) formed by the confluence of the Paraná River and the Uruguay River. It forms part of the border between Argentina and Uruguay, meaning it is not entirely within Argentina's territory. The longest river system that flows through Argentina is the Paraná River, but it also flows through Brazil and Paraguay.
- The **Pampas** are indeed vast, fertile **grasslands** and plains in South America, covering much of central-eastern Argentina (including the provinces of Buenos Aires, Córdoba, and Santa Fe).



33. Taftan Volcano

Context: New research shows that Taftan volcano in Iran seems to be waking up after a 700,000-year-long sleep.

About Taftan Volcano

- It is a 12,927-foot (3,940 meters) semi-active stratovolcano located in southeastern Iran, 56 km from the Pakistan border.
- It is the only active volcano in the Makran continental volcanic arc.
- It is situated among a rumple of mountains and volcanoes that was formed by the subduction of the Arabian ocean crust under the Eurasian continent.
- It hosts an active hydrothermal system and smelly, sulfur-emitting vents called fumaroles.

- The volcano contains two summits (Narkuh and Matherkuh).
- It isn't known to have erupted in human history.

What is a Stratovolcano?

- It is a tall, steep, and cone-shaped type of volcano.
- Unlike flat shield volcanoes, they have higher peaks.
- They are typically found above subduction zones, and they are often part of large volcanically active regions, such as the Ring of Fire that frames much of the Pacific Ocean.
- Stratovolcanoes comprise the largest percentage (~60%) of the Earth's individual volcanoes, and most are characterized by eruptions of andesite and dacite, lavas that are cooler and more viscous than basalt.
- These more viscous lavas allow gas pressures to build up to high levels. Therefore, these volcanoes often suffer explosive eruptions.
- They are usually about half-half lava and pyroclastic material, and the layering of these products gives them their other common name of composite volcanoes.
- At the peak, stratovolcanoes usually have a small crater.
- stratovolcanoes (also called composite volcanoes) have **steep, conical profiles** formed from **alternating layers** of lava, ash, and pyroclastic material.
- their eruptions are **explosive** due to **high-viscosity, silica-rich magma** that traps gases, leading to pressure buildup.
- Most stratovolcanoes occur along **subduction zones** (e.g., Andes, Japan, Cascades), where **partial melting** of the subducted plate generates magma.

34. Cape Verde

Context: India's inability to feature even in an expanded, 24-team Asian Cup — despite a far bigger population, more players, better grounds and a lucrative league — points to a hopeless situation and an alarming slide in football.

Cape Verde:

- Cape Verde, officially the Republic of Cabo Verde, is an island country located in the central Atlantic Ocean off the coast of West Africa.
- It consists of a group of ten volcanic islands and several islets, covering a total land area of approximately 4,033 square kilometers.
- **The archipelago lies about 600 to 850 kilometers west of the African mainland, near countries like Senegal and Mauritania, and forms part of the Macaronesia ecoregion alongside the Azores, Canary Islands, and Madeira.**

Geography and Demography

Cape Verde comprises two island groups:

- The Barlavento (windward) islands including Santo Antão, São Vicente, Santa Luzia, São Nicolau, Sal, and Boa Vista.
- The Sotavento (leeward) islands including Maio, Santiago, Fogo, and Brava.

Language and Culture

- Portuguese is the official language, while Cape Verdean Creole is widely spoken among the population.
- **Cape Verde's culture is a blend of African and Portuguese influences, reflected in its music, cuisine, and traditions.**



35. Fiji

Context: In Fiji, the Chinese language is surging in popularity. But here, it's understood as far more than just a subject — it's a vital bridge to new opportunities.

Fiji:

- Fiji is an island country in the South Pacific Ocean, located about 1,770 km north of New Zealand.
- It consists of an archipelago of over 330 islands and more than 500 smaller islets, of which about 110 are permanently inhabited, covering a total land area of approximately 18,274 square kilometers.

Geography and Environment

- The two main islands, Viti Levu and Vanua Levu, account for nearly 87% of Fiji's population and land area.
- The islands are mostly of volcanic origin and exhibit mountainous terrain, with Mount Tomanivi on Viti Levu rising to 1,324 meters, the highest point in Fiji.
- Fiji's landscape includes volcanic cones, calderas, lava flows, coral reefs, and tropical forests, making it rich in biodiversity.
- The climate is tropical marine, marked by a wet season from November to April with heavy rains and cyclones, and a dry season from May to October with milder weather.



36. Volcanoes in Indonesia

Context: Indonesia's Mount Lewotobi Laki-laki erupted recently, shooting volcanic ash 10 kilometres (6.21 miles) into the sky.

	Volcanoes	Locations
1	Lewotobi	Indonesia
2	Popocatepetl	Mexico
3	Sangay	Ecuador
4	Bagana	Papua New Guinea

37. Tuvalu

Context: Tuvalu has officially become the 90th State Member of the International Union for Conservation of Nature (IUCN), strengthening its global commitment to biodiversity conservation and climate resilience.



Tuvalu:

- Tuvalu is an island country located in the Pacific Ocean.
- It is part of the Polynesian sub-region of Oceania.
- It is geographically situated roughly midway between Hawaii and Australia (about 4,000 kilometers northeast of Australia).
- Tuvalu is composed of nine small coral islands, which include three reef islands and six atolls.
- The capital of Tuvalu is Funafuti, which is a large coral atoll enclosing a lagoon.
- The Funafuti atoll itself is comprised of numerous small islets.

- The administrative and government offices are concentrated in the village of Vaiaku, which is located on the largest and most populated islet of the atoll, called Fongafale.

38. Italy

Context: A prominent Italian journalist threatened by the mafia had his parked car blown up by a bomb overnight, causing no injuries but sparking widespread outrage on Friday. Sigfrido Ranucci's vehicle was destroyed by the explosion in Pomezia, near Rome, which also damaged the family's other car and the house next door.

Italy:

- Italy's land borders are with France, Switzerland, Austria, and Slovenia, plus the two enclaves of San Marino and Vatican City.
- Italy does not share a land border with Croatia. The two countries are separated by the Adriatic Sea and by the country of Slovenia, which forms a barrier between them. They share only a maritime border.
- Among the countries Italy shares a long international land border with (France, Switzerland, Austria, Slovenia), **Slovenia** has the shortest border (approx. 218 km or 135 miles).
- The **shortest land border** Italy shares overall is with one of its enclaves: **Vatican City** (approx. 3.2 km or 2.1 miles) or **San Marino** (approx. 39 km or 24 miles).

Tiber River:

- The **Tiber River** (Italian: Tevere), famous for flowing through the city of Rome, rises in the Apennine Mountains.
- It flows in a generally southerly direction and empties into the Tyrrhenian Sea (part of the Mediterranean Sea) near Ostia Antica.
- The **Gulf of Venice** is part of the Adriatic Sea, and the major Italian river that empties into the Adriatic is the **Po River**.



39. Neighbours of Mozambique

Context: Three Indian nationals were killed, one was injured, and five were rescued after a boat accident off the coast of Beira in Mozambique on October 16, the Indian High Commission said on October 18.

Neighbours of Mozambique:

- Mozambique, located on the southeast coast of Africa, shares land borders with six countries: **Tanzania** (north), **Malawi** and **Zambia** (northwest), **Zimbabwe** (west), and **Eswatini & South Africa** (southwest).
- It also has a long **Indian Ocean** coastline to the east.



40. Oman Geography and Borders

Context: The West Bengal government has sought the repatriation of 11 migrant workers allegedly stranded in Oman, Trinamool Congress MP and chairperson of the Migrant Welfare Board Samirul Islam said.

Oman Geography and Borders

Location:

- Oman is located on the southeastern coast of the Arabian Peninsula, strategically situated at the crossroads of the Middle East and South Asia. It is bordered by the Arabian Sea to the south and east and the Gulf of Oman to the northeast.

Land Borders

Oman shares land borders with three countries:

- Saudi Arabia to the west, marking the border line along desert and mountainous terrain.
- United Arab Emirates (UAE) to the northwest, where Oman's coastline stretches along the Arabian Gulf.
- Yemen to the southwest, across rugged desert and mountainous regions.



Deserts: Rub' al Khali (Empty Quarter)

- The Rub' al Khali desert, known as the Empty Quarter, is one of the largest continuous sand deserts in the world.
- It covers a significant portion of Saudi Arabia, parts of the UAE, and Yemen.
- While it reaches near Oman's border areas, the desert does not extensively cover the southern region of Oman.
- Instead, southern Oman features a mix of arid plains, mountains, and coastal areas rather than vast sandy deserts.

41. Neighbours of Bolivia

Context: Bolivians voted in an unprecedented presidential run-off between two conservative, capitalist candidates, after 20 years of rule by the Movement Toward Socialism party. Voters are choosing between former right-wing President Jorge "Tuto" Quiroga and centrist Sen. Rodrigo Paz during their worst economic crisis in decades.

Neighbours of Bolivia:

Bolivia is a **landlocked country** in the heart of South America. It shares its borders with **five countries** —

- North and West:** Peru
- Southwest:** Chile
- South:** Argentina
- Southeast:** Paraguay
- East and North:** Brazil



42. Neighbours of Ivory Coast

Context: In the Ivory Coast town of Daloa, tales of dreams shattered overseas are common. The small town in the west African country is well known as a transit point for Ivorians looking to migrate.

Neighbours of Ivory Coast:

- Ivory Coast shares land borders with **five countries: Liberia, Guinea, Mali, Burkina Faso, and Ghana.**



43. Neighbours of Brazil

Context: Brazilian President Luiz Inacio Lula da Silva has announced plans to form a “strategic alliance” with India aimed at fostering political, economic, and technological cooperation between the two nations.

Neighbours of Brazil:

- Brazil shares land borders with **10 countries — Argentina, Bolivia, Peru, Colombia, Venezuela, Guyana, Suriname, French Guiana, Paraguay, and Uruguay.**



44. Carabid Beetle

Context: Recently, researchers found that carabid ground beetles act as potential bio indicators to track soil micro plastics.

About Carabid Beetle

- They are commonly known as ground beetles due to their habitat and behavior.
- Ground beetles (Carabidae) are an important family of invertebrates known to strongly influence food web structure, often as key predators or prey species.
- It belongs to the family Carabidae.
- Habitat:** Carabid beetles are found in a wide variety of habitats, including forests, grasslands, agricultural fields, wetlands, and even urban areas.
- They are adapted to diverse climatic conditions, from temperate to tropical regions.
- Features of Carabid Beetle
- Appearance:** They are known for their long legs and powerful mandibles which enable them to be voracious predators.
- They are infamous for their pungent smell, which they emit when they're threatened.

- **Diet:** They are mainly dependent on garden pests, including snails, caterpillars, slugs, and other small invertebrates.
- **Life cycle:** Ground beetles have four distinct life stages: egg, larva, pupa, and adult.
- **Reproduction:** Reproduction in carabids is typically sexual, with internal fertilization.
- **Ecological Role:** They are important for the biological control of insect pests on farms.
- Carabid beetles (ground beetles) are widely used as bioindicators because they are abundant, easily sampled, sensitive to environmental changes (like pesticide use and soil management), and play key roles in the food web.
- The vast majority of Carabid beetles are **predators (carnivorous)**, feeding on small invertebrates, insect eggs, and larvae. Some species are omnivorous, and only a small number are genuinely phytophagous. Their primary role in agriculture is pest control, not feeding on roots and stems to promote fertility.

45. Georgia

Context: Mass rallies have gripped the Black Sea nation since a disputed parliamentary election last October plunged capital Tbilisi into turmoil and prompted the European Union to freeze its accession bid.

Georgia:

- Georgia is a country located in the South Caucasus region, situated at the crossroads of Eastern Europe and Western Asia.
- It shares borders with Russia to the north, Turkey and Armenia to the south, Azerbaijan to the southeast, and the Black Sea to the west.
- **The capital and largest city is Tbilisi., situated along the banks of the Kura River.**

Geography and Physical Features

- Georgia spans 69,700 square kilometres and has a population of approximately 3.7 million people.
- Its landscape is largely mountainous, with the Greater Caucasus Mountains forming the

northern boundary and the Lesser Caucasus Mountains in the south.

- The highest peak, Mount Shkhara, rises to 5,068 meters.
- The country enjoys diverse climate zones, ranging from subtropical to mild continental.



46. Mount Etna

Context: Researchers recently analysed changes over time in the ratio of small earthquakes to bigger ones beneath Mount Etna and found a strong correlation with the volcano's activity over the past 20 years.

About Mount Etna

- It is an active stratovolcano located on the island of Sicily in the Mediterranean Sea. (Sicily is a part of Italy.)
- It lies above the convergent plate margin between the African Plate and the Eurasian Plate.
- It is the tallest active volcano in Europe.
- It is the highest mountain in Italy south of the Alps.
- It is about 11,000 feet (3,350 meters) high.

- It covers an area of 1,190 sq.km. with a basal circumference of 140 km.
- The eruptive history of the volcano can be traced back 500,000 years, and at least 2,700 years of this activity has been documented.
- The ancient Greeks created legends about it.
- It is a UNESCO World Heritage Site.

	Volcanoes	Convergent plates
1	Mount Fuji	Philippine and Eurasian Plates
2	Mount St. Helens	Juan de Fuca and North American Plates
3	Cotopaxi	Nazca and South American Plates
4	Mount Etna	African and Eurasian Plates

47. Tropic of Capricorn and South Africa

Context: BirdLife South Africa estimates that every year an average 4.25 birds are killed per wind turbine, most often when they fly into blades that can reach speeds of up to 280 km per hour. With more than 1,400 turbines operating across South Africa, an estimated 6,000 birds die this way a year, the group says. Ten percent are endangered species.

Tropic of Capricorn and South Africa:

- The Tropic of Capricorn (23.5° S latitude) passes through the northern part of South Africa, specifically through the Limpopo Province.
- It also crosses neighboring countries such as **Namibia, Botswana, and Mozambique** before entering the Indian Ocean.
- This line marks the **southern limit of the tropics**, meaning the northern regions of South Africa experience a **semi-arid to tropical climate** in some zones.

Drakensberg Mountains:

- The Drakensberg Mountains (meaning “Dragon Mountains” in Afrikaans) run roughly northeast to southwest along South Africa’s eastern escarpment.
- They are the **highest mountain range in Southern Africa**, forming part of the **Great Escarpment**.

- The range marks the **boundary between KwaZulu-Natal and Lesotho** and is a crucial **watershed** for major rivers like the **Tugela and Orange**.
- The region receives significant rainfall and supports **grasslands, montane forests, and alpine flora**.



48. Timor Leste

Context: Recently, Timor Leste (East Timor) formally admitted to the Association of Southeast Asian Nations (ASEAN) in the group’s first expansion since the 1990s.

About Timor Leste

- East Timor occupies the eastern half of the island of Timor and includes the exclave Oecusse on the northwest side of the island.
- It also includes an exclave on this island's northwestern side that is bounded by West Timor of Indonesia.

- It is bounded by the Wetar Strait in the north and the Ombai Strait in the northwest, Timor Sea to southeast and Western Timor to the southwest.
- **Climate and biodiversity:** The area has a dry tropical climate and moderate rainfall. Hilly areas are covered with sandalwood.
- Scrub and grass grow in the lowlands, together with coconut palms and eucalyptus trees.
- **Highest Point:** Mount Tatamailau
- **Rivers:** The most significant rivers are the Lakla, Lies and Seical.
- **Natural resources:** Gold, petroleum, natural gas, manganese, marble
- **Population:** Most of the people are of Papuan, Malayan, and Polynesian origin
- **Capital City:** Dili.



49. Thailand

Context: Thailand's beloved Queen Mother Sirikit, known for her work on rural development, traditional crafts, and environmental conservation, passed away at 93 in Bangkok.

Thailand

Geographical position:

- Thailand lies in the **center of mainland Southeast Asia**, acting as a geographical bridge between the **Indochina Peninsula** and the **Malay Peninsula**.

Bordering countries:

- **North & West:** Myanmar (Burma)
- **Northeast & East:** Laos
- **Southeast:** Cambodia
- **South:** Malaysia.

Coastlines:

- **Gulf of Thailand** (to the south-east)
- **Andaman Sea** (to the south-west)

Chao Phraya River

- The **Chao Phraya River** is the **most important river system** in Thailand.
- **Formed by the confluence of Ping and Nan Rivers** near Nakhon Sawan, it flows southward through Bangkok before emptying into the Gulf of Thailand.
- It drains the **fertile central plain**, often called the **"Rice Bowl of Thailand"**, which sustains intensive agriculture.



50. Trinidad and Tobago

Context: A United States warship has arrived in Trinidad and Tobago, an island nation close to Venezuela, as tensions between Washington and Caracas continue to mount.

Trinidad and Tobago:

- **Trinidad and Tobago** is a twin-island archipelagic nation located in the southern Caribbean, just off the northeastern coast of Venezuela and south of Grenada.
- It consists mainly of:
 - **Trinidad** (the larger island)
 - **Tobago** (the smaller island)
 - plus several small islets.
- It lies **outside the hurricane belt** and serves as a geographical link between **South America and the Caribbean**.
- Capital: **Port of Spain** (on Trinidad)
- Government: **Republic within the Commonwealth**
- The island of Trinidad is separated from the Venezuelan coast by the **Gulf of Paria**.
- The **Gulf of Paria** connects to the open sea via two narrow straits:
 - **Bocas del Dragón** (Spanish for "Dragon's Mouths" or "Dragon's Mouth") in the north.
 - **Boca del Serpiente** (Spanish for "Serpent's Mouth") in the south.

**51. Climatic Conditions for Coffee Cultivation**

Context: Recently, the Prime Minister of India said that Indian coffee is gaining popularity globally.

Required Climatic Conditions for Coffee Cultivation

- It is grown on hill slopes at elevations from 600 to 1,600 metres above sea level.
- **Climate:** It requires a hot and humid climate for its growth.
- **Temperature:** 15°C and 28 °C
- **Rainfall:** It requires 150 to 250 cm of rainfall.
- **Soil:** Well-drained, loamy soil containing a good deal of humus and minerals like iron and calcium are ideal for coffee cultivation.
- Dry weather is necessary at the time of ripening of the berries.

52. Countries sharing a land border with Tanzania

Context: A priest attacked after a meeting about democracy with faith leaders, an Opposition official's corpse found doused in acid, an ex-ambassador missing from his blood-stained home — this is the "new normal" in Tanzania, say critics.



Countries sharing a land border with Tanzania:

- **Kenya** — to the northeast
- **Uganda** — to the north (across Lake Victoria)
- **Rwanda** — to the northwest
- **Burundi** — to the northwest
- **Democratic Republic of the Congo (DRC)** — to the west (across Lake Tanganyika)
- **Zambia** — to the southwest
- **Mozambique** — to the south

53. AmazonFACE Experiment

Context: Scientists in Brazil have launched the AmazonFACE “climate time machine” experiment near Manaus to study how the Amazon rainforest will respond to future levels of atmospheric carbon dioxide.

About AmazonFACE Experiment:**What It Is?**

- AmazonFACE (Free-Air CO₂ Enrichment) is a **large-scale climate simulation project** designed to assess how **tropical rainforests**—especially the Amazon—will react to elevated CO₂ levels expected by **2050–2060**. It is the **first experiment of its kind in tropical forests**.

How It Works?

- Six **steels tower rings** are installed around groups of **50–70 mature trees**.
- In three rings, trees are **fumigated with CO₂ concentrations matching future climate forecasts**, while the remaining serve as control plots.
- Continuous sensors record data on **photosynthesis, oxygen release, and water vapor exchange** every 10 minutes.
- The goal is to recreate the **“atmosphere of the future”** and observe ecosystem-level responses.

Key Features:

- **Location:** Conducted near Manaus, Brazil, supported by INPA (National Institute for Amazon Research) and Universidade Estadual de

Campinas, with collaboration from the UK government.

- **Scientific Innovation:** First large-scale FACE experiment in a **natural tropical forest**, extending earlier FACE trials in temperate regions like the U.S.
- **Continuous Monitoring:** Real-time environmental data tracking rain, storms, CO₂ absorption, and respiration.
- **Climate Modelling Application:** Helps predict changes in forest carbon storage, biodiversity, and resilience under future atmospheric conditions.
- **Policy Linkage:** Provides crucial input for climate policy deliberations at COP30, especially regarding rainforest conservation and carbon budgeting.

54. Cyprus**Cyprus:**

- **Geographic Location:** Cyprus is situated in the **Eastern Mediterranean Sea**, closest to the landmasses of Turkey, Syria, and Lebanon, placing it geographically within the region often defined as the **Middle East** or West Asia.
- **EU Membership:** Despite its geographic proximity to Asia, the Republic of Cyprus (the internationally recognized entity) is a full member state of the European Union (EU), having joined in 2004.
- The island has been de facto divided since the **Turkish invasion of 1974**, which followed a Greek-sponsored coup aiming to unite the island with Greece.
- The division is marked by the **"Green Line"** (a UN Buffer Zone).
- The **southern** part is controlled by the **Republic of Cyprus**, which is predominantly inhabited by **Greek Cypriots**.
- The **northern** part is controlled by the **Turkish Republic of Northern Cyprus (TRNC)**, which is predominantly inhabited by **Turkish Cypriots**. The TRNC is recognized only by Turkey.



55. Kyrgyzstan's Neighboring Countries

Context: Kyrgyzstan has labelled three media outlets critical of the government as “extremist,” making it illegal for anybody to read them amid an intensifying crackdown on free speech.

Kyrgyzstan's Neighboring Countries:

Kyrgyzstan, a landlocked country, shares its borders with the following four nations:

1. **Kazakhstan:** To the **North**.
2. **China:** To the **East and Southeast**.
3. **Tajikistan:** To the **Southwest**.
4. **Uzbekistan:** To the **West**.



56. Cuba

Context: Hundreds of thousands of people were evacuated in eastern Cuba and a hurricane warning was in effect for the provinces of Granma, Santiago de Cuba, Guantanamo, Holguin and Las Tunas as Hurricane Melissa made landfall as a Category 3 storm early October 29.

Cuba:

- **Capital:** Havana
- **Official Language:** Spanish
- **Political System:** Socialist republic led by the Communist Party of Cuba
- **Major Exports:** Nickel, tobacco, sugar, and pharmaceuticals
- **Famous Event:** The **Cuban Missile Crisis (1962)** — a major Cold War confrontation between the U.S. and the Soviet Union.
- **Havana is located on the northwestern coast of Cuba, facing the Straits of Florida, just about 150 km from Key West, USA.**

Note: Cuba is an island nation and does not share any land borders. It lies west of Hispaniola (Haiti & Dominican Republic), separated by the Windward Passage.



57. Romania

Context: Washington has told Romania, which neighbours war-torn Ukraine, and allies it will reduce the number of U.S. troops deployed on NATO's eastern flank, Romania's Defence Ministry said on October 29, a move some officials downplayed while analysts warned it could embolden Russia.



Romania:

- **Location:** Southeastern Europe
- **Coastline:** Along the **Black Sea** (southeast)
- **Capital:** Bucharest
- **Terrain:** Carpathian Mountains in the center, plains to the south and west
- **Neighbours:** Ukraine, Moldova, Hungary, Serbia, and Bulgaria



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

1. Thumri Music

Context: Recently, Thumri lost a towering voice with the demise of Pandit Chhannulal Mishra (1936–2025), Padma Vibhushan awardee and one of the last great exponents of the Purab Ang of Banaras Gharana.

About Thumri Music

- Thumri is a semi-classical vocal form of Hindustani music, often called the “lyric of Indian classical music”.
- It originated in Eastern Uttar Pradesh (mainly Lucknow and Benares) during the 18th century CE, developed by Sadiq Ali Shah.
- **Themes:** Primarily about love, separation, and devotion, often centered on Radha-Krishna episodes.
- **Language:** Usually sung in Braj Bhasha, Awadhi, and Hindi dialects, with touches of Urdu and Sanskrit.
- **Distinct Feature:** Freedom in improvisation; emphasis on bhava (emotion) over strict adherence to raga grammar.
- **Associated Dance Form:** Closely linked with Kathak, enhancing its narrative expression.
- **Influences:** Draws from Hori, Kajri, Dadra, Jhoola, Chaiti, etc.
- **Types of Thumri:**
 - **Purbi Thumri (Eastern/Slow tempo):** More emotional and lyrical, usually associated with Banaras Gharana.
 - **Punjabi Thumri (Fast tempo):** Energetic, lively, linked with Patiala Gharana.
- **Major Gharanas of Thumri:**
 - **Banaras Gharana** – Girija Devi, Rasoolan Bai, Siddheshwari Devi, Chhannulal Mishra.
 - **Lucknow Gharana** – Courtly refinement under Nawabs, Begum Akhtar.
 - **Patiala Gharana** – Vibrant style with rhythmic play.

- Thumri is a light classical form known for its emotional and lyrical expression and allows for more freedom in raga presentation compared to the stricter classical Khayal style.
- Thumri commonly portrays themes of love and devotion, with a strong emphasis on radha-krishna romantic and devotional narrative.
- The Banaras gharana is well-known for its Thumri tradition. However, the Gwalior gharana is mainly famous for Khayal, not Thumri. The Gwalior gharana is not especially noted for Thumri, whereas the Lucknow gharana is more associated with Thumri.
- Thumri is typically performed in a slow (vilambit) or medium tempo, with emphasis on the emotional mood and lyrical beauty rather than fast tempo or complex rhythm.

2. Khayal music

Context: The Prime Minister has expressed deep sorrow at the passing away of Padma Vibhushan Pandit Chhannulal Mishra ji.

Khayal:

- Khayal (or Khyal) is the most prominent form of Hindustani classical vocal music, known for its depth, freedom, and emotional richness. The term “Khayal” originates from the Persian word for “imagination,” reflecting its improvisational and inventive nature.

Origins and Evolution

- The Khayal style evolved from the older Dhrupad tradition during the medieval period, especially under the cultural patronage of the Mughal courts where musical and poetic traditions blended. While Dhrupad emphasized discipline and devotion, Khayal introduced freedom, improvisation, and ornamentation, making it more expressive and accessible to wider audiences. Prominent gharanas (musical lineages)

such as Gwalior, Agra, and Kirana helped shape and preserve this tradition over centuries.

Structure and Components

A typical Khayal performance is based on a raga (melodic framework) and tala (rhythmic cycle). It usually features two compositions in the same raga:

- **Bada Khayal (Vilambit Khayal):** A slow composition that allows elaborate improvisations through alaap (melodic elaboration) and tan patterns.
- **Chhota Khayal (Drut Khayal):** A faster composition with brisk rhythmic patterns and embellishments, providing a lively conclusion to the performance.

Each composition has two main sections:

- **Sthayi:** The initial portion, generally in the middle or lower octave.
- **Antara:** The concluding section, which typically moves into the higher octave.

Musical Features and Techniques

Khayal singing is characterized by techniques such as:

- **Meend:** Smooth gliding between notes.
- **Gamak:** Vibrations or oscillations on a single note.
- **Tan:** Fast, virtuosic runs of notes.
- **Khatka and Murki:** Graceful ornamentations that enhance lyrical expression.

These improvisations are not random but are developed systematically to explore the chosen raga's emotional essence.

Instrumentation

- A Khayal performance typically includes a tabla for rhythm and a tanpura for drone accompaniment. Occasionally, instruments like the sarangi or harmonium support the vocalist by providing melodic cues.

3. UNESCO's new Virtual Museum of Stolen Cultural Objects

Context: UNESCO officially launched the Virtual Museum of Stolen Cultural Objects at MONDIACULT 2025.

UNESCO's new Virtual Museum of Stolen Cultural Objects

- It was developed in response to Member States' call for coordinated action against illicit trafficking and it is the first global initiative of its kind.
- It offers a globally accessible, immersive digital platform to raise awareness about stolen heritage.
- It currently showcases around 240 missing objects from 46 countries, with the goal of gradually "emptying itself" as items are recovered and returned to their countries of origin.
- It was introduced by architect **Francis Kéré** and uses 3D modelling and virtual reality to digitally reconstruct stolen cultural items submitted by Member States.
- It features interactive tools, educational content, community testimonies, and a dedicated space for showcasing successful restitution cases.
- It is financially supported by Saudi Arabia and implemented with INTERPOL.

4. Bathouism

Context: The Bathou religion of the Bodo community in Assam has been officially granted a separate code in the upcoming national census.

About

- Bathouism is the indigenous religion of the Bodo community, primarily concentrated in Assam and parts of North Bengal, where it serves as a core marker of cultural identity and community life.
- The term "Bathou" denotes "Five Principles," a cosmology wherein the universe is constituted by five elements—Ha (Earth), Dwi (Water), Or (Fire), Bar (Air), and Okhrang (Sky)—a framework often

explained as five deep principles or thoughts in Bodo tradition.

- Rooted in nature-veneration, Bathouism emphasizes reverence for the environment and maintaining equilibrium in human–nature relations through household and community rituals centered on sacred plants (Sijou plant) and elemental symbolism.

5. Gallantry Awards

Context: President Droupadi Murmu approved 127 Gallantry awards and 40 Distinguished Service awards to the Armed Forces.

About Gallantry Awards

- **Gallantry Awards** are given by the Government of India to honour acts of bravery, sacrifice, and exceptional courage by **members of the armed forces, paramilitary forces, and civilians**.
- They are classified as **wartime (gallantry in the face of enemy) and peacetime awards**.
- **Administered by:** Ministry of Defence (for armed forces) and Ministry of Home Affairs (for police and civilians).
- **Awarded by:** President of India.
- These gallantry awards are announced twice in a year – first on the occasion of the Republic Day and then on the occasion of the Independence Day.
- **Wartime Gallantry Awards:** Param Vir Chakra (PVC), Mahavir Chakra (MVC) and Vir Chakra.
 - These were instituted on 26 January 1950, and were deemed to have effect from 15 August 1947, the date of India's independence.
- **Peacetime Gallantry Awards:** Ashok Chakra (highest), Kirti Chakra (second highest), Shaurya Chakra.
 - The Government instituted three more gallantry awards on 4 January 1952, also with retrospective effect from 15 August 1947.

- Originally, they were named as: Ashoka Chakra Class-I, Ashoka Chakra Class-II and Ashoka Chakra Class-III.

- **Order of Precedence:** Param Vir Chakra (PVC), Ashoka Chakra (AC), Maha Vir Chakra (MVC), Kirti Chakra (KC), Vir Chakra (VrC), Shaurya Chakra (SC).
- All six awards can be conferred posthumously.

6. Vande Mataram – 150 Years Celebration

Context: Prime Minister, in his Mann Ki Baat address, called for nationwide participation to celebrate the 150th anniversary of “Vande Mataram”, describing it as a “mantra that unites 140 crore Indians”.

About Vande Mataram – 150 Years Celebration:

What it is?

- Vande Mataram (meaning “I bow to thee, Mother”) is **India's national song**, symbolizing reverence to the motherland and evoking patriotism and unity among citizens.

Written by:

- Composed in **Sanskritised Bengali** by **Bankim Chandra Chattopadhyay** in the **1870s**, it was first published in his novel Anandamath (1882).

History:

- The song's first public rendition was by **Rabindranath Tagore** at the **1896 Congress Session**.
- It became the **anthem of India's freedom struggle**, sung in protests and revolutionary gatherings despite being banned by the British.
- The **Indian National Congress (1937)** adopted its first two stanzas as the **National Song**, balancing inclusivity and secular appeal.
- On **January 24, 1950**, the **Constituent Assembly** accorded Vande Mataram equal honour to the **National Anthem “Jana Gana Mana.”**

7. Dilmun Civilization

Context: Kuwait's Failaka Island has just yielded one of its most significant secrets in decades: a 4,000-year-old temple belonging to the powerful Bronze Age Dilmun civilization.

About Dilmun Civilization

- Dilmun (Telmun) was a civilization located in the eastern part of the Arabian Peninsula.
- Dilmun was mainly located on the islands of Bahrain and Failaka Island in Kuwait.
- It also had a presence in parts of Saudi Arabia, Qatar, Oman, and the nearby Iranian coast in the Persian Gulf.
- Although this was quite an old civilization, it is much less famous than the four cradles of civilization of the Old World, i.e., Mesopotamia, Ancient Egypt, the Indus Valley Civilization, and the Yellow River Civilization.

	Civilizations	Locations
1	Minoan	Greece
2	Olmec	Mexico
3	Inca	Peru
4	Dilmun	Kuwait, Bahrain, Saudi Arabia



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MISCELLANEOUS

1. Indian Council for Research on International Economic Relations

Context: IMF Economist Shekhar Aiyar will join the Indian Council for Research on International Economic Relations (ICRIER) as its new Director and Chief Executive in November, according to a statement.

Indian Council for Research on International Economic Relations (ICRIER):

- The Indian Council for Research on International Economic Relations (ICRIER) is one of India's leading independent public policy think tanks, dedicated to promoting economic research that informs policymaking and improves India's engagement with the global economy.

Establishment and Nature

- ICRIER was established in August 1981 as an autonomous, not-for-profit research institution, registered under the Societies Registration Act, 1860.
- It was created to strengthen India's capacity to respond to global economic changes through policy-oriented and analytical research.
- The institution functions as a vital bridge between academia, government, industry, and civil society, fostering evidence-based policymaking.
- ICRIER was established in **1981** as an **autonomous, not-for-profit research institution** with initial support from the **Ministry of Finance** and **industry leaders**, aimed at strengthening India's interface with the global economy.
- It is **not a government think tank**; it is **independent**, though it often collaborates with ministries, NITI Aayog, and international organizations.
- Its research spans **trade, investment, agriculture, digital economy, urbanization, and climate change policy**.

- The Chairperson may be a distinguished economist or policymaker, not necessarily a former RBI Governor.

2. MY Bharat-National Service Scheme (NSS) Awards

Context: Recently, the President of India presented the MY Bharat-National Service Scheme (NSS) Awards for the year 2022-23 at Rashtrapati Bhavan.

About MY Bharat-National Service Scheme (NSS) Awards

- It was instituted by the Ministry of Youth Affairs and Sports in 1993-94.
- Objective: To honour and celebrate the outstanding contributions of youth in the fields of social service, community development and nation-building.
- It is given every year to recognise and reward outstanding contributions towards voluntary community service made by the Programme Officers/NSS Units and NSS Volunteers.

Key Facts about National Service Scheme

- NSS is a Central Sector Scheme which was launched in the year 1969 during the birth centenary celebrations of Mahatma Gandhi.**
- Objective: The primary objective of developing the personality and character of the student youth through voluntary community service.
- The ideological orientation of the NSS is inspired by the ideals of Mahatma Gandhi.
- It provides an opportunity to the student youth of the 11th & 12th Class of schools at +2 Board level and student youth of Technical Institution, Graduate & Post Graduate at colleges and University level of India to take part in various Government led community service activities & programmes.**

3. 2025 Nobel Peace Prize

Context: The 2025 Nobel Peace Prize has been awarded to María Corina Machado, the Venezuelan opposition leader, for her efforts in promoting democracy and driving political change.

About the Peace Prize

- It is awarded by a committee elected by the Norwegian Parliament (Stortinget). Peace was the fifth and final prize area that Alfred Nobel mentioned in his will.
- Since 1901 the Nobel Peace Prize has been awarded 105 times, to 139 laureates: 92 men, 19 women and 28 organizations.
- Mahatma Gandhi, despite being nominated five times, never won, though his ideals closely align with the UN Charter.
- In 2024, the Nobel Peace Prize was awarded to Japanese organisation Nihon Hidankyo, a grassroots movement of atomic bomb survivors from Hiroshima and Nagasaki, also known as Hibakusha.

Do you know?

- The Nobel Peace Prize cannot be awarded posthumously.
- It has been skipped 19 times, mostly due to wars or absence of a suitable candidate, including during 1914–16, 1918, 1923, 1924, 1928, 1932, 1939–43, 1948, 1955–56, 1966–67, and 1972.

4. Abel Prize

Context: Japanese mathematician Masaki Kashiwara was awarded the Abel Prize 2025 for contributions to algebraic analysis and representation theory.

About Abel Prize

- The Abel Prize is an international award recognizing outstanding scientific work in mathematics, often considered the equivalent of a Nobel Prize for mathematicians.
 - It is named in honor of the 19th-century Norwegian mathematician Niels Henrik Abel.

- **Awarded by:** The Norwegian Academy of Science and Letters on behalf of the Government of Norway.
- **Selection process:** An expert committee of five internationally recognized mathematicians recommends the laureate(s) to the Norwegian Academy of Science and Letters.
- **The prize was established** by the Norwegian Parliament in 2002 and first awarded in 2003.
 - It can be awarded to mathematicians of any age and nationality.

Some Notable Laureates

- **Jean-Pierre Serre:** First laureate (2003) for contributions in algebraic geometry and topology.
- **Srinivasa S. R. Varadhan:** Indian-origin mathematician, won in 2007.
- **Michel Talagrand (France)** For contributions to probability theory and functional analysis won in 2024.

5. International Maritime Organization

Context: At the International Maritime Organization (IMO) meeting in London, 57 nations voted to delay the adoption of a framework for carbon-free global shipping by one year after U.S. opposition.

About International Maritime Organization (IMO):

What it is?

- The IMO is a specialized agency of the United Nations responsible for regulating international shipping safety, security, and environmental performance, ensuring uniform global maritime standards.
- **Established in:** Created by a UN convention in 1948, the IMO came into force in 1958 and held its first meeting in 1959, marking the start of global cooperation on maritime governance.
- **Headquarters:** The organization is headquartered in London, United Kingdom.
- **Aim:** Its primary aim is to promote safe, secure, efficient, and environmentally responsible shipping and to ensure that no country gains an

unfair economic advantage by neglecting safety or environmental standards.

Functions:

- Formulates and updates global maritime conventions such as SOLAS (Safety of Life at Sea) and MARPOL (Prevention of Pollution from Ships).
- Regulates ship design, construction, operation, and disposal for safety and pollution control.
- Develops rules to prevent marine and air pollution caused by ships.
- Oversees seafarer training, certification, and management standards.
- Supports UN Sustainable Development Goals (SDGs), especially SDG-14 (Life Below Water), by promoting sustainable maritime transport.

Note: India is currently elected as a **Category B member of the IMO Council**, which includes countries with significant interests in international maritime trade.

6. Sakharov Prize for Freedom of Thought

Context: Two imprisoned journalists Andrzej Poczobut in Belarus and Mzia Amaghlobeli in Georgia -have won the 2025 Sakharov Prize.

About the Prize

- The **Sakharov Prize for Freedom of Thought** is the European Union's highest human rights award, established in **1988** and named after **Soviet dissident and Nobel Peace laureate Andrei Sakharov**.
- It honours individuals or 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.
- The Sakharov Prize is awarded **exclusively by the European Parliament**. It is not jointly awarded with the Council of Europe.
- The prize is indeed named after **Andrei Sakharov**, a Soviet nuclear physicist, dissident, and human rights activist who was awarded the **Nobel Peace Prize in 1975**.
- While several Sakharov Prize laureates have subsequently won the Nobel Peace Prize (like Nelson Mandela and Malala Yousafzai), the award **does not result in an automatic nomination** for the Nobel Peace Prize by the European Union or any of its bodies.

7. Children's Booker Prize

Context: The Booker Prize Foundation announced the launch of the **Children's Booker Prize**, a new global award for fiction written for children aged 8 to 12, to debut in 2027 with a prize.

About Children's Booker Prize:

What it is?

- The **Children's Booker Prize** is a new global literary award recognising fiction written for children aged 8–12 years, either in English or translated into English.
- It marks the first time children's fiction will be recognised under the Booker brand.

Organisation Involved:

- **Established by the Booker Prize Foundation (UK) and funded by the AKO Foundation**, a non-profit supporting arts, education, and environment.

Aim:

- To inspire reading among children and nurture a new generation of lifelong readers and writers.
- To expand the global influence of literary excellence beyond adult fiction and encourage storytelling for younger audiences.

Key Features:

- **Eligibility:** Open to fiction from any country, written for ages 8–12, published in the UK or Ireland.
- **Languages:** Both original English works and translations are eligible.
- **Prize Money:** (same as the adult Booker), funded by the AKO Foundation.

8. Rashtriya Vigyan Puraskar

Context: The Centre recently announced the Rashtriya Vigyan Puraskar (RVP) — its Padma-style national awards for scientific achievement — with 24 individual awards and one team award.

About Rashtriya Vigyan Puraskar

- **Modelled on the Padma awards, the Rashtriya Vigyan Puraskar is one of the highest recognitions in the field of science, technology, and innovation in India.**
- **Objective:** To recognize the notable and inspiring contribution made by the scientists, technologists, and innovators individually or in teams in various fields of science, technology, and technology--led innovation.
- **Eligibility:**
 - **Scientists/technologists/innovators working in government or private sector organizations or any individual working outside any organization, who have made distinguished contributions in terms of path-breaking research or innovation or discovery in any field of science, technology, or technology-led innovation shall be eligible for the awards.**
 - **People of Indian Origin staying abroad with exceptional contributions benefiting the Indian communities or society shall also be eligible for the awards.**
- The awards shall be given in the following four categories:
 - Vigyan Ratna (VR) award will recognize lifetime achievements & contributions made in any field of science and technology.

- Vigyan Shri (VS) award will recognize distinguished contributions in any field of science and technology.
- Vigyan Yuva-Shanti Swarup Bhatnagar (VY-SSB) award will recognize & encourage young scientists up to the age of 45 years who made an exceptional contribution in any field of science and technology.
- Vigyan Team (VT) award to be given to a team comprising three or more scientists/researchers/innovators who have made an exceptional contribution working in a team in any field of science and technology.
- It shall be given in the 13 domains, namely Physics, Chemistry, Biological Sciences, Mathematics & Computer Science, Earth Science, Medicine, Engineering Sciences, Agricultural Science, Environmental Science, Technology & Innovation, Atomic Energy, Space Science and Technology, and Others.
- The representation from each domain/field, including gender parity will be ensured.

9. World Federation for Medical Education

Context: The National Medical Commission (NMC), India has achieved the remarkable feat of being granted the coveted World Federation for Medical Education (WFME) Recognition Status for a remarkable tenure of 10 years. This recognition is a testament to NMC's unwavering commitment to the highest standards in medical education and accreditation.

About World Federation for Medical Education (WFME)

- **WFME is a global organization concerned with the education and training of medical doctors.**
- WFME's mission is to strive for better health care for all mankind.
- WFME's primary objective is to enhance the quality of medical education worldwide, with the promotion of the highest scientific and ethical standards in medical education.
- This objective is met through

- The development of standards in medical education;
- The promotion of accreditation of medical schools;
- The development of databases on medical education;
- Projects on the future of medicine and medical education;
- Publications and partnerships;
- **It was founded in 1972 and is headquartered in Ferney-Voltaire, France.**
- **It is the organisation that officially and globally represents medical teachers and medical teaching institutions before the World Health Organization (WHO).**
- WFME's accreditation program plays a pivotal role in ensuring that medical institutes meet and uphold the highest international standards of education and training

Importance of WFME Recognition Status to NMC:

- It will enable Indian medical graduates to practice or pursue post-graduation in countries including the US, Canada, Australia and New Zealand, where WFME recognition is a prerequisite.
- All 706 existing medical colleges in India have received WFME accreditation. Any new medical colleges established in the next 10 years

will also automatically gain WFME accreditation status.

- It will enable the commission to enhance the quality and standards of medical education in India by aligning it with global best practices and benchmarks.
- It will also augment the international recognition and reputation of Indian medical institutions and professionals, foster academic collaborations and exchanges, and promote ongoing improvements and innovation in medical education.



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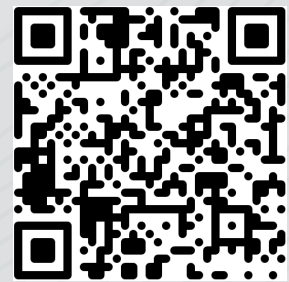
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