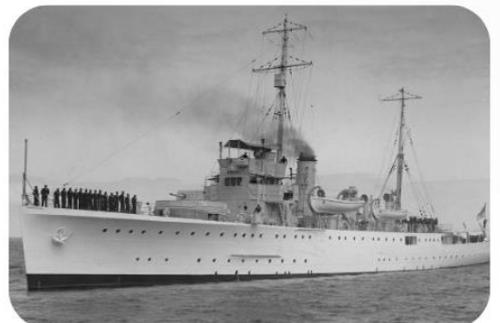
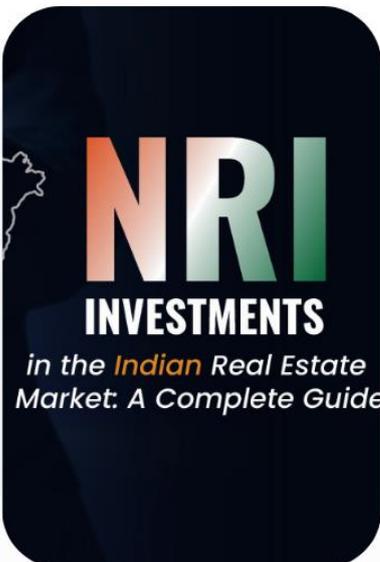
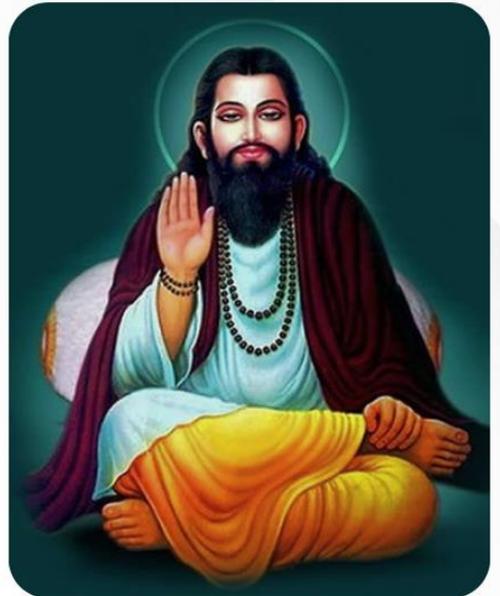
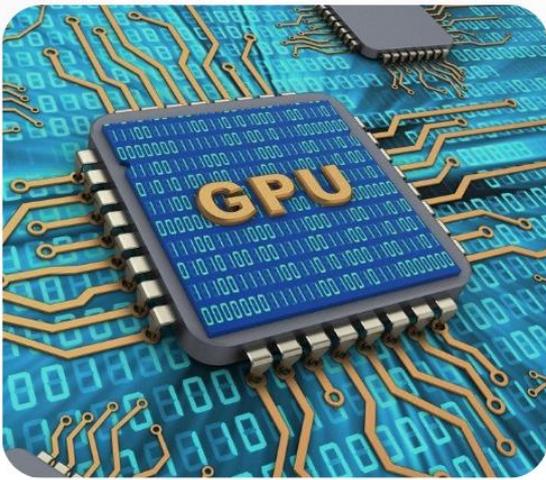


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1.1. 16th FINANCE COMMISSION

Context:

Recently, the Union Finance Minister tabled the report of the **16th Finance Commission** in Parliament along with the Union Budget 2026-27. The government has accepted the Commission's recommendation to maintain the **vertical devolution** of central taxes to States at **41%** for the five-year period starting from April 1, 2026.



1. Constitutional and Statutory Framework

- **Article 280:** The Finance Commission (FC) is a **quasi-judicial, constitutional body** constituted by the President of India every five years or earlier.
- **Article 281:** It mandates the President to lay the recommendations of the FC, along with an **Action Taken Memorandum (ATM)**, before both Houses of Parliament.
- **Article 275:** Deals with **Grants-in-aid** from the Consolidated Fund of India to specific states in need of assistance.
- **Finance Commission Act, 1951:** Provides the legal framework for the qualifications of the Chairman and members.

2. Qualifications for Members of the 16th FC

The Chairman

The Chairman must be a person having “**experience in public affairs.**” * This is a broad qualification, allowing for the appointment of eminent economists (like Dr. Arvind Panagariya), seasoned bureaucrats, or distinguished politicians.

The Four Members

The four members are selected from among people who possess the following specific qualifications:

- **Judicial Expert:** A person who is, or has been, or is qualified to be appointed as a **Judge of a High Court.**
- **Financial Expert:** A person who has specialized knowledge of the **finances and accounts of the Government.**
- **Administrative Expert:** A person who has had wide experience in **financial matters and in administration.**
- **Economic Expert:** A person who has **specialized knowledge of economics.**

3. Key Recommendations (2026-2031)

A. Vertical Devolution

- The Commission recommended retaining the share of states in the net proceeds of central taxes at **41%**.

- The remaining **59%** stays with the Centre to fund national priorities, defense, and centrally sponsored schemes.

B. Horizontal Devolution (The Distribution Formula)

The 16th FC adjusted the weights for distributing funds among states to balance “Equity” (need-based) and “Efficiency” (performance-based).

Criterion	Weightage (16th FC)	Weightage (15th FC)
Income Distance	42.5%	45%
Population (2011 Census)	17.5%	15%
Area	10%	15%
Forest and Ecology	10%	10%
Demographic Performance	10%	12.5%
Contribution to GDP (New)	10%	–
Tax & Fiscal Efforts	<i>Removed</i>	2.5%

C. Grants and Local Bodies

- **Local Body Grants:** Recommended **₹7.91 trillion** for the award period, split **60:40** between rural and urban local bodies.
- **Urbanization Premium:** Introduced a **₹10,000 crore** incentive to support states in transitioning from rural to urban governance.
- **Wastewater Management:** Allocated **₹56,100 crore** specifically for revamping drainage systems in middle-level municipalities.

D. Fiscal Road Map

- **State Deficits:** Recommended capping states’ fiscal deficits at **3% of GSDP**.
- **Cesses and Surcharges:** The Commission suggested a “grand bargain” where the Union folds a portion of cesses/surcharges into the divisible pool in exchange for state-level fiscal reforms.

1.2. REMOVAL PROCESS OF THE CHIEF ELECTION COMMISSIONER (CEC)

Context:

Recently, the political discourse in India has intensified following a series of public confrontations between the Election Commission and opposition parties over the **Special Intensive Revision (SIR)** of electoral rolls. West Bengal Chief Minister Mamata Banerjee has publicly suggested her party would support an **impeachment motion** against the current Chief Election



Commissioner, Gyanesh Kumar, alleging bias and “insulting” behavior during meetings.

1. Constitutional Basis (Article 324)

The Constitution of India ensures the independence of the Election Commission through specific tenure protections.

- **Article 324(5):** This article explicitly states that the Chief Election Commissioner shall not be removed from office except in **like manner and on the like grounds** as a Judge of the Supreme Court.
- **Grounds for Removal:** The only two grounds for removal are **“Proved Misbehaviour”** or **“Incapacity.”**

2. The Parliamentary Procedure

While the term “impeachment” is colloquially used, the technical process is a **Removal Motion** governed by the **Judges (Inquiry) Act, 1968:**

- **Initiation:** The motion must be signed by at least **100 members** in the Lok Sabha or **50 members** in the Rajya Sabha.
- **Investigation:** The presiding officer (Speaker or Chairman) may admit or refuse the motion. If admitted, a **three-member committee** (comprising a Supreme Court judge, a Chief Justice of a High Court, and a distinguished jurist) investigates the charges.
- **Voting (Special Majority):** If the committee finds the CEC guilty, the motion must be passed by **each House** of Parliament with a **Special Majority:**
 - A majority of the **total membership** of that House.
 - A majority of not less than **two-thirds of the members** of that House **present and voting.**
- **Presidential Order:** Once passed by both Houses in the same session, an address is presented to the President, who then issues an order for removal.

3. CEC vs. Other Election Commissioners

There is a significant constitutional asymmetry in the removal process:

- **The CEC:** Enjoys the “Supreme Court Judge” level of protection described above.
- **Other ECs:** Can be removed by the President simply on the **recommendation of the Chief Election Commissioner.** They do not require a parliamentary motion or a special majority.

4. Recent Legislative Framework

The **Chief Election Commissioner and Other Election Commissioners (Appointment, Conditions of Service and Term of Office) Act, 2023**, retains these removal protections. It further equates the salary, allowances, and service conditions of the CEC and ECs to that of a **Supreme Court Judge** (previously equated to a Cabinet Secretary in the initial draft of the Bill).

1.3. PRESIDENT’S RULE: ARTICLE 356 AND CONSTITUTIONAL MACHINERY

Context:

Recently, the Union Government issued a notification **revoking President’s Rule in Manipur** on February 4, 2026, following nearly a year of direct central administration. This move comes after the election of **Yumnam Khemchand Singh** as the leader of the ruling party, paving the way for the restoration of a popular elected government in the state.



1. Constitutional Provisions

- **Article 355:** Imposes a duty on the Union to protect every state against external aggression and internal disturbance and to ensure that the government of every state is carried on in accordance with the provisions of the Constitution.
- **Article 356:** Empowers the President to issue a proclamation if they are satisfied (based on a report from the Governor or "otherwise") that a situation has arisen where the state government cannot be carried on in accordance with the Constitution.
- **Article 365:** Provides that whenever a state fails to comply with or give effect to any direction from the Centre, it shall be lawful for the President to hold that a situation has arisen in which the government of the state cannot be carried on in accordance with the Constitution.

2. Parliamentary Approval and Duration

- **Approval Timeline:** A proclamation must be approved by both Houses of Parliament within **two months** from the date of its issue.
- **Majority Required:** It must be approved by a **Simple Majority** (majority of the members of that House present and voting).
- **Initial Period:** Once approved, it continues for **six months**. It can be extended for a maximum period of **three years** with repeated parliamentary approval every six months.
- **44th Amendment Act (1978) Restraint:** Extension beyond one year is only possible if:
 - A Proclamation of **National Emergency** is in operation in the whole of India or the state.
 - The **Election Commission** certifies that the holding of general elections to the legislative assembly is difficult.

3. Consequences of President's Rule

- **Executive Power:** The President dismisses the state council of ministers headed by the chief minister. The **Governor**, on behalf of the President, carries on the state administration with the help of the chief secretary or advisors appointed by the President.
- **Legislative Power:** The state legislative assembly is either **suspended or dissolved**. The Parliament passes the state legislative bills and the state budget.
- **Judicial Power:** The President **cannot** assume the powers vested in the High Court or suspend the operation of any constitutional provisions relating to High Courts.

4. Judicial Review: S.R. Bommai Case (1994)

The Supreme Court laid down several guidelines to prevent the misuse of Article 356:

- The proclamation is subject to **judicial review**.
- The satisfaction of the President must be based on **relevant material**.
- The burden of proof lies on the Centre to justify the imposition.
- If the court finds the proclamation unconstitutional, it has the power to **revive the dismissed state government** and restore the dissolved assembly.
- The state assembly should be dissolved **only after** Parliament has approved the proclamation.

5. Comparison between National Emergency and President Rule

Feature	National Emergency (Article 352)	President's Rule (Article 356)
Grounds of Imposition	War, External Aggression, or Armed Rebellion .	Failure of Constitutional Machinery in the state (Art. 356) or failure to comply with Union directions (Art. 365).
Scope	Can be applied to the entire country or a part of it.	Applied only to a specific state .
Parliamentary Approval	Must be approved within one month .	Must be approved within two months .
Majority Required	Special Majority (50% of total + 2/3rd of members present & voting).	Simple Majority (Majority of members present and voting).
Maximum Duration	Indefinite (with 6-monthly approval).	Maximum 3 years (with 6-monthly approval).
State Government	State executive and legislature continue to function , but the Centre gets concurrent power.	State Executive is dismissed ; State Legislature is suspended or dissolved .
Fundamental Rights	Affects Fundamental Rights (Art. 358 & 359). Art. 20 & 21 can never be suspended.	No effect on Fundamental Rights of citizens.
Law-making Power	Parliament can make laws on State List; power cannot be delegated to others.	Parliament can make laws on State List and can delegate this power to the President.
Revocation	Can be revoked by the President or by Lok Sabha passing a resolution for disapproval.	Can be revoked by the President alone . No specific provision for Lok Sabha to force revocation.

1.4. MOTION OF THANKS ON THE PRESIDENT'S ADDRESS

Context:

Recently, the Lok Sabha passed the **Motion of Thanks** on the President's Address through a voice vote amidst significant procedural drama. For the first time since 2004, the motion was adopted in the Lower House without the customary reply by the Prime Minister, as Speaker Om Birla advised the PM to avoid the House due to intelligence regarding planned disruptions by the Opposition.



While the Lok Sabha passed the motion amid slogans and rejected all Opposition amendments, the Prime Minister successfully concluded his reply to the debate in the Rajya Sabha on the same day.

1. Constitutional Provisions

- **Article 87(1):** It mandates the President to deliver a **“Special Address”** to both Houses of Parliament assembled together at the commencement of:
 - The first session after each general election to the Lok Sabha.
 - The first session of each year (usually the Budget Session).
- **Article 86(1):** This article gives the President the right to address either House or both Houses at any time, but unlike Article 87, this is not a mandatory “special address.”
- **Article 87(2):** It requires that the rules of the House provide time for the discussion of the matters referred to in such an address.

2. Nature of the President’s Address

- The address is prepared by the **Council of Ministers** and approved by the Cabinet; hence, it is a statement of the government’s policy and programs.
- It reviews the government’s activities/achievements of the previous year and outlines the legislative and policy agenda for the upcoming year.
- No other business is transacted by the Parliament until the President has delivered this address.

3. The Motion and Debate

- The address is followed by a discussion in both Houses on a motion termed the **“Motion of Thanks.”**
- **Proposer and Seconder:** The motion is moved by a member and seconded by another, both of whom are selected by the Prime Minister.
- **Scope of Debate:** The discussion is very broad. Members can criticize the government’s policies or mention issues that were omitted from the address.
- **PM’s Reply:** At the end of the discussion, the Prime Minister (or any other Minister) replies to the points raised.
- **Voting:** After the reply, amendments are put to vote, followed by the main motion. It must be passed by a **simple majority** (majority of members present and voting).

4. Significance and Impact

- **Accountability:** It is a vital tool for the Parliament to examine and criticize the executive’s performance.
- **Defeat of Government:** If the Motion of Thanks is defeated in the Lok Sabha, it is viewed as a **lack of confidence** in the government and leads to the **resignation of the Council of Ministers**.
- **Amendments in Rajya Sabha:** Unlike the Lok Sabha, the Rajya Sabha has adopted the Motion of Thanks with amendments on rare occasions (e.g., 1980, 1989, 2001, 2015, and 2016). This does not lead to the government’s resignation but signifies a moral or political setback.

1.5. DGP APPOINTMENT PROCESS

Context:

Recently, the Supreme Court of India expressed strong disapproval of the growing trend among State Governments to appoint "Acting DGPs" instead of regular police chiefs. The Bench, led by Chief Justice Surya Kant, authorized the Union Public Service Commission (UPSC) to issue formal reminders to States for timely proposals and directed the Commission to initiate contempt proceedings in the *Prakash Singh* case if States continue to default on these constitutional and judicial mandates.



1. The Landmark Prakash Singh Case (2006)

The appointment process is governed by the directives issued by the Supreme Court in *Prakash Singh vs. Union of India*. The court aimed to insulate the police from political interference and ensure a merit-based selection.

- **Empanelment:** The State Government must select the DGP from a panel of the three senior-most officers of the department who have been empanelled for promotion by the UPSC.
- **Tenure Security:** Once selected, the DGP should have a minimum tenure of **at least two years**, irrespective of their date of superannuation (retirement).
- **No "Acting" DGPs:** The Supreme Court has repeatedly clarified that there is no concept of an "Acting DGP." States must appoint a permanent DGP to ensure stability in the police hierarchy.

2. The Appointment Procedure

The process involves a collaboration between the State Government and the Union:

1. **Proposal Submission:** The State Government must send a proposal containing a list of eligible IPS officers to the UPSC **three months** before the incumbent DGP is due to retire.
2. **Empanelment Committee:** The UPSC convenes a committee to shortlist names. This committee typically includes:
 - Chairman or Member of the UPSC (Chairperson).
 - Union Home Secretary.
 - State Chief Secretary.
 - State DGP (Incumbent).
 - A Chief of a Central Armed Police Force (CAPF) nominated by the Center.
3. **Shortlisting:** The committee selects a panel of **three officers** based on seniority, service record, and range of experience.
4. **Final Selection:** The State Government is then mandated to "immediately" appoint one of the three persons from the UPSC-recommended panel.

3. Eligibility Criteria (As per UPSC 2023 Guidelines)

The UPSC has refined the eligibility rules to ensure only the most experienced and capable officers reach the top:

- **Length of Service:** In 2023, the UPSC reduced the minimum service requirement from 30 years to **25 years** to expand the pool of eligible candidates.
- **Residual Tenure:** To avoid “token” appointments, only officers who have at least **six months of service remaining** before retirement are considered for the panel.
- **Experience:** Preference is given to officers with at least 10 years of experience in critical areas such as Law and Order, Intelligence, or the Crime Branch.
- **Willingness:** An officer is not included in the panel unless they express their willingness to be considered for the post.

4. Key Constitutional and Statutory Points

- **State Subject:** “Police” and “Public Order” are subjects under the **State List (List II)** of the Seventh Schedule.
- **All India Services:** While the police force is a state subject, the DGP is an **IPS officer**, belonging to an All India Service, which is why the UPSC (a central body) plays a role in the selection.
- **Single Window System:** The Government of India has introduced a “Single Window System” for States to submit proposals to the UPSC to expedite the empanelment process and reduce delays.

1.6. REMOVAL PROCESS OF THE LOK SABHA SPEAKER

Context:

Recently, opposition parties in the Lok Sabha submitted a formal notice of a resolution to remove the Speaker, Shri Om Birla, from his office. This move followed days of parliamentary deadlock and was initiated after the Opposition alleged that the Speaker had acted in a partisan manner by disallowing the Leader of the Opposition from speaking and making unsubstantiated allegations against woman MPs.



1. Constitutional Provisions

- **Article 94:** This article specifies that a Speaker may be removed from office by a resolution of the House of the People (Lok Sabha) passed by a **majority of all the then members of the House**.
- **Article 96:** This article deals with the Speaker's right to participate in proceedings but prohibits them from presiding while a resolution for their removal is under consideration.

2. Procedural Requirements

The removal process is governed by both the Constitution and the **Rules of Procedure and Conduct of Business in Lok Sabha**:

- **14-Day Advance Notice:** A resolution for removal can only be moved after giving at least **14 days' notice** of the intention to move the resolution.

- **Support of 50 Members:** Under the Lok Sabha rules, the motion for leave to move the resolution must be supported by at least **50 members** before it can be listed for discussion.
- **Specific Charges:** The resolution must be specific and based on definite charges. It should not contain arguments, inferences, or defamatory statements.

3. Voting and Majority Required

- **Effective Majority:** The resolution must be passed by a majority of all the **then members** of the House. This is technically known as an **Effective Majority** (Total strength of the House minus vacancies).
- **Not Simple Majority:** It is important to note that a simple majority (majority of members present and voting) is insufficient for the removal of the Speaker.

4. Rights of the Speaker During Removal

- **Right to Speak:** The Speaker has the right to speak in and otherwise take part in the proceedings of the House while the removal resolution is being considered.
- **Right to Vote:** The Speaker can vote in the **first instance** on such a resolution.
- **No Casting Vote:** Unlike regular proceedings where the Speaker only votes to break a tie (casting vote), during a removal resolution, the Speaker **cannot exercise a casting vote** in the case of an equality of votes.
- **Restriction on Presiding:** The Speaker cannot preside over the sitting of the House while the resolution for their removal is under consideration, even if they are present in the House.

5. Summary Table: Speaker's Status During Removal Motion

Feature	Status
Presiding Power	Cannot preside over the House.
Presence in House	Can be present and participate in discussions.
First Instance Vote	Allowed (can vote as a regular member).
Casting Vote	Not allowed (cannot vote to break a tie).
Presiding Authority	Usually, the Deputy Speaker or a member from the Panel of Chairpersons.

1.7. BONDED LABOUR SYSTEM (ABOLITION) ACT, 1976

Context:

Recently, India observed **Bonded Labour Abolition Day, marking 50 years** of the **Bonded Labour System (Abolition) Act, 1976**. While states like West Bengal and Tamil Nadu held awareness drives, reports revealed that modern debt bondage still persists, highlighted by the rescue of a family from a brick kiln in Nadia trapped in second-generation bondage for 17 years, pointing to serious gaps in identification and rehabilitation.



About Bonded Labour System (Abolition) Act, 1976

The Bonded Labour System (Abolition) Act, 1976, was enacted to give effect to **Article 23** of the Constitution, which prohibits "begar" and other similar forms of forced labour.

1. Constitutional Basis

- **Article 23:** Explicitly prohibits traffic in human beings, *begar* (forced labour without payment), and other similar forms of forced labour.
- **Article 21:** The Supreme Court has interpreted the **right to life** to include the right to live with human dignity, which is fundamentally violated by bondage.
- **Directive Principles: Article 42** (humane conditions of work) and **Article 46** (protection of SCs/STs from exploitation) provide the guiding philosophy for this Act.

2. Key Definitions and Features

- **Bonded Labour System:** A system of forced or partly forced labour where a debtor enters into an agreement with the creditor in consideration of an advance, a customary obligation, or an obligation devolving by succession.
- **Automatic Discharge of Debt:** On the commencement of the Act, every bonded labourer stands freed and discharged from any obligation to render bonded labour, and all bonded debts are deemed extinguished.
- **Restoration of Property:** Any property of the bonded labourer taken by the creditor as security must be restored to the labourer.
- **Punishment:** The Act provides for imprisonment for a term which **may extend to three years** and a fine for anyone who compels a person to render bonded labour or advances a bonded debt.

3. Institutional Mechanism

- **Vigilance Committees:** The Act mandates the constitution of Vigilance Committees at the **District** and **Sub-Divisional** levels.
 - These committees consist of the District/Sub-Divisional Magistrate, persons belonging to SC/ST, social workers, and representatives of financial institutions.
 - Their role is to advise the Magistrate on implementation and provide for the economic and social rehabilitation of freed labourers.
- **Executive Powers:** The **District Magistrate (DM) is the primary authority** responsible for the identification, release, and rehabilitation of bonded labourers.

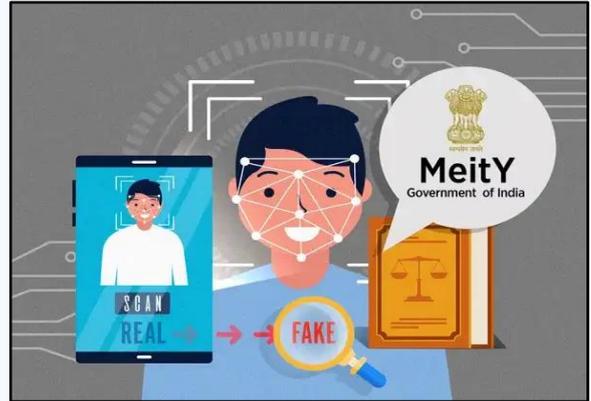
4. Rehabilitation Framework

- **Central Sector Scheme:** This scheme provides financial assistance for rehabilitation.
 - **Adult Males:** Eligible for ₹1 lakh.
 - **Special Categories:** Women, children, and transgenders are eligible for higher assistance (up to ₹3 lakh).
- **Release Certificate:** This document, issued by the DM, is the legal proof required for the victim to claim statutory benefits and protection from creditors.

1.8. IT AMENDMENT RULES, 2026

Context:

Recently, the Ministry of Electronics and Information Technology (MeitY) notified the **IT (Intermediary Guidelines and Digital Media Ethics Code) Amendment Rules, 2026**. These rules mandate the clear labeling of **photorealistic AI-generated content** (deepfakes) to prevent the spread of synthetic misinformation and enhance digital accountability.



Key Highlights of the IT Amendment Rules, 2026

1. Definition of Synthetically Generated Information (SGI)

- **Scope:** Covers audio, visual, or audio-visual data created or modified using AI/algorithms.
- **Criterion:** Information that appears **authentic/real** to a reasonable person, making it indistinguishable from actual events or persons.

2. Mandatory Labeling & Metadata

- **Prominent Labels:** Platforms must ensure AI-generated content is clearly marked as "Synthetic" or "AI-generated."
- **Provenance:** Permanent **metadata** or digital watermarks must be embedded to track the origin and prevent the removal of identifiers.

3. Intermediary Obligations

- **User Declaration:** Platforms must provide a mechanism for users to self-disclose if their content is AI-generated.
- **Verification:** Intermediaries must use **automated tools** to detect and verify synthetic content that users fail to declare.

4. Tightened Compliance Timelines

Content Type	Previous Timeline	New 2026 Timeline
Illegal/Unlawful Content	36 Hours	3 Hours
Deepfakes/NCII	24 Hours	2 Hours
Grievance Redressal	15 Days	7 Days

5. Safe Harbour & Legal Liability

- Platforms retain **Safe Harbour** (Section 79, IT Act) only if they comply with these due diligence rules.
- Failure to label or remove content within the window leads to **loss of immunity**, making the platform legally liable for user-posted content.

6. Critical Exemptions

- **Routine Editing:** Automatic smartphone post-processing (e.g., color balance, noise reduction).
- **Accessibility:** Automated translations or search-optimization tags.
- **Good-Faith Use:** Academic research and hypothetical drafts that do not misrepresent reality.

1.9. NEW SEATS OF GOVERNANCE MEANT TO MEET PEOPLE'S ASPIRATIONS

Context:

Prime Minister Narendra Modi recently inaugurated the new Prime Minister's Office (PMO), named '**Seva Teerth**', and two buildings of the Central Secretariat, named '**Kartavya Bhavan**'.

These structures are part of the broader effort to **replace colonial-era architecture** (like the South and North Blocks) with buildings that reflect the aspirations of independent India and a "Viksit Bharat".



1. Architectural Elements (Art & Culture Focus)

The buildings incorporate traditional Indian architectural motifs, making them a significant topic for cultural heritage questions:

- **Materiality:** The structures are clad in **white and red sandstone**, referencing material traditions found in historic Indian civic and institutional architecture.
- **Stupa Influence:** The metal-clad domes are inspired by the **Buddha Stupa**, introduced as contemporary accent elements.
- **Temple Architecture (Entrance Portal):** The entrance portal draws inspiration from the **stone screen-work of Chalukyan temples** dating back to the 11th and 13th centuries.
- **Temple Architecture (Plinth):** The carved stone plinth band is inspired by the base mouldings of the **12th-century Chennakeshava Temple**.

2. Governance and Policy Milestones

On the occasion of the inauguration, several key administrative decisions and commemorative items were released:

- **PM RAHAT Scheme:** The Prime Minister signed files for this scheme, which provides **cashless treatment up to ₹1.5 lakh** for accident victims.
- **Lakhpati Didis:** The target for the Lakhpati Didi scheme (empowering women in Self-Help Groups) was doubled to **six crore**.
- **Agriculture Infrastructure Fund:** The target for this fund was doubled to **₹2 lakh crore**.
- **Commemorative Items:** A special **postage stamp and coin** were released to mark the occasion.

Key Facts About Chennakeshava Temple

Commissioned by: King **Vishnuvardhana** of the Hoysala Dynasty.

Year: Construction began in **1117 CE** to commemorate his victory over the Cholas in the Battle of Talakad.

Location: Situated on the banks of the **Yagachi River** in Belur, Hassan district, Karnataka.

Deity: Lord Vishnu (Chennakeshava literally means "Handsome Keshava").

Architectural Style: The temple is a masterpiece of the **Vesara style** (a hybrid of Nagara and Dravidian styles), characterized by:

- **Material:** Built using **Soapstone (Chloritic Schist)**, which is soft when quarried but hardens over time, allowing for extremely intricate carvings.
- **Stellate Plan:** The main shrine is built on a **star-shaped (stellate)** raised platform called a **Jagati**.
- **Shikara:** Interestingly, the original tower (Shikara) is now missing, giving the temple a flat-topped appearance today.

UNESCO Status

- In **2023**, it was declared a **UNESCO World Heritage Site** as part of the "**Sacred Ensembles of the Hoysalas**," which also includes:
 1. **Hoysaleswara Temple** (Halebidu)
 2. **Keshava Temple** (Somanathapura)

1.10. RAJYA SABHA ELECTIONS

Context: Recently, the Election Commission of India (ECI) announced biennial elections for 37 Rajya Sabha seats across 10 states, including Maharashtra, Tamil Nadu, and West Bengal, with polling scheduled for March 16, 2026.



1. Constitutional Framework

- **Article 80:** Deals with the composition of the Council of States (Rajya Sabha).
- **Maximum Strength:** 250 members (238 representing States/UTs and 12 nominated by the President).
- **Current Strength:** 245 members (233 elected, 12 nominated).
- **Fourth Schedule:** Specifies the allocation of seats to each State and Union Territory based on population.

2. The Election Process

- **Electorate:** The representatives of each State are elected by the **elected members of the State Legislative Assembly (MLAs)**. Nominated members of the Assembly do not participate.
- **System of Election:** Proportional Representation by means of a **Single Transferable Vote (STV)**.
- **The Quota System:** To win, a candidate needs a specific number of votes (Quota).

$$\text{Quota} = \left(\frac{\text{Total Valid Votes}}{\text{Number of Seats to be filled} + 1} \right) + 1$$

- **Voting Method:** Each voter (MLA) marks preferences (1, 2, 3...) against the names of candidates. If a candidate reaches the quota with first-preference votes, they are elected. Surplus votes are then transferred to the next preferred candidate.

3. Key Legal Provisions (RPA 1951 & Amendments)

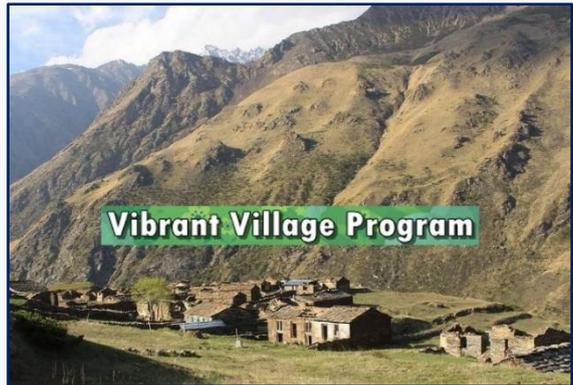
- **Open Ballot System (2003):** To curb "cross-voting" and corruption, the secret ballot was replaced with an open ballot. An MLA belonging to a political party must show their marked ballot paper to the **authorized agent** of that party.
- **Domicile Requirement:** The 2003 amendment removed the requirement that a candidate must be an elector in the same state from which they are contesting. A person can now contest from any state as long as they are a registered voter in any parliamentary constituency in India.
- **Cross-Voting & Anti-Defection:** Interestingly, the Supreme Court (Kuldip Nayar case) held that voting against the party's direction in Rajya Sabha elections does not automatically attract disqualification under the **Tenth Schedule (Anti-Defection Law)**, though the party can take disciplinary action.

4. Duration and Nature of the House

- **Permanent Body:** Unlike the Lok Sabha, the Rajya Sabha is not subject to dissolution.
- **Staggered Terms:** Members are elected for a **six-year term**, with one-third of the members retiring every two years.

1.11. VIBRANT VILLAGE PROGRAMME (VVP)

Context: Recently, the **Ministry of Home Affairs (MHA)** announced the launch of the second phase of the **Vibrant Villages Programme (VVP-II)**. The programme is expanding its reach from the northern borders to include **1,954 strategic villages** along the international land borders with Pakistan, Nepal, Bangladesh, Bhutan, and Myanmar across 15 States and 2 Union Territories. This expansion, highlighted by Home Minister Amit Shah's visit to the Bangladesh border in Assam, aims to counter demographic changes and provide a civilian "eyes and ears" deterrence against trans-border crimes and external security threats.



1. Overview and Evolution

The Vibrant Villages Programme was initially announced in the Union Budget 2022-23 to develop villages along India's northern border. It has since evolved into two distinct phases to cover the entirety of India's international land borders.

Feature	Vibrant Village Programme-I (VVP-I)	Vibrant Village Programme-II (VVP-II)
Launch/Approval	February 15, 2023	April 2, 2025
Scheme Type	Centrally Sponsored Scheme	Central Sector Scheme (100% Central Funding)
Time Period	FY 2022-23 to 2025-26	FY 2024-25 to 2028-29
Financial Outlay	₹4,800 Crore	₹6,839 Crore
Coverage	Northern Border (Arunachal, HP, Sikkim, Uttarakhand, Ladakh)	All other International Land Borders (17 States/UTs)

2. Objectives and Key Goals

- **Reversing Out-migration:** The primary goal is to provide enough livelihood opportunities and amenities so that border residents do not migrate to urban centers.
- **"Eyes and Ears" Strategy:** By encouraging a civilian presence, the government aims to turn local residents into the first line of intelligence and observation for border-guarding forces like the ITBP.
- **Saturation Model:** The programme seeks to achieve 100% saturation of all Central and State government schemes (e.g., Jal Jeevan Mission, PM-AWAS) in the identified villages.
- **Connectivity:** Ensuring all-weather road connectivity (via PMGSY-IV), 4G telecom connectivity, and 24x7 electricity including renewable energy.

3. Implementation Framework

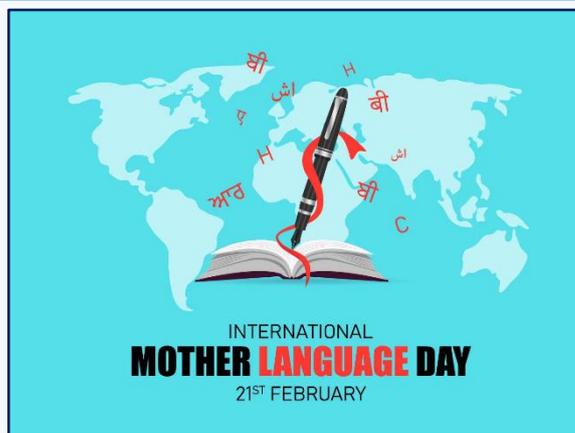
- **Village Action Plans:** These are prepared by the **District Administration** in collaboration with **Gram Panchayats** to ensure a bottom-up approach to development.
- **Hub and Spoke Model:** Growth centers are developed as "hubs" to support nearby "spoke" villages through social entrepreneurship and skill development.
- **Governance:** A **High-Powered Committee** chaired by the **Cabinet Secretary** oversees the implementation and provides necessary relaxations in schematic guidelines for remote areas.
- **Convergence:** The programme explicitly avoids duplication with the **Border Area Development Programme (BADP)** by focusing on specific village-level interventions.

4. Key Focus Interventions

- **Economic Drivers:** Development of sustainable eco-agribusinesses based on the **"One Village-One Product"** concept.
- **Tourism:** Promoting "Frontier Tourism" and cultural heritage to create local jobs in the hospitality sector.
- **Digital Integration:** Utilizing the **PM Gati Shakti** platform for integrated planning and real-time monitoring of infrastructure projects.
- **Social Infra:** Establishment of Smart Classes in schools and Ayushman Arogya Mandirs (Health & Wellness Centers) for every 1,000–1,500 people.

1.12. INTERNATIONAL MOTHER LANGUAGE DAY

Context: Recently, on February 21, 2026, the global community observed International Mother Language Day, marking the **Silver Jubilee (25th anniversary)** of its first worldwide celebration in 2000. The day was commemorated in India with high-level events emphasizing the integration of technology and mother tongues under the 2026 theme, **"Youth voices on multilingual education."** This year's observance is particularly significant as it coincides with the midpoint of the **International Decade of Indigenous Languages (2022–2032)**, prompting renewed calls for the preservation of India's 197 endangered languages.



1. Historical Evolution

- **The Origin:** The initiative to observe this day was a proposal by **Bangladesh** to honor the martyrs of the 1952 Language Movement (Bhasha Andolan).
- **The 1952 Incident:** On February 21, 1952, students in Dhaka were killed by police fire while protesting for the recognition of **Bengali** as a national language of Pakistan.
- **Recognition:** UNESCO approved the proclamation in **1999**, and the first official celebration was held in **2000**. The UN General Assembly formally recognized the day in its 2002 resolution.

2. Theme 2026: Youth & Technology

- **Theme:** "Youth voices on multilingual education."
- **Significance:** It highlights the role of young people in using digital tools and AI to revitalize underrepresented languages and ensure inclusive education.

3. Constitutional Safeguards in India

India provides extensive protection for linguistic diversity:

- **Article 29:** Protects the right of any section of citizens to conserve their distinct language, script, or culture.
- **Article 30:** Grants linguistic and religious minorities the right to establish and administer educational institutions.
- **Article 350A:** Mandates that states and local authorities provide instruction in the **mother tongue at the primary stage** of education for linguistic minority children.
- **Article 350B:** Directs the appointment of a **Special Officer for Linguistic Minorities** by the President of India.
- **Eighth Schedule:** Lists **22 recognized languages**. Currently, English is NOT included in this schedule.

4. UNESCO's Categories of Language Endangerment

UNESCO classifies languages based on their "intergenerational transmission":

- **Vulnerable:** Children speak the language, but it may be restricted to specific areas (e.g., home).
- **Definitely Endangered:** Children no longer learn the language as their mother tongue in the home.
- **Severely Endangered:** Spoken by grandparents; the parent generation may understand it but does not speak it to children.
- **Critically Endangered:** The youngest speakers are grandparents and older, and they speak it only partially and infrequently.

5. Government of India Initiatives

- **NEP 2020:** Encourages the medium of instruction to be in the mother tongue/regional language at least until Grade 5.
- **Bhashini Initiative:** An AI-led language translation platform to break language barriers in digital services.
- **SPPEL:** The "Scheme for Protection and Preservation of Endangered Languages" documents languages spoken by fewer than 10,000 people.

1.13. SANKALP SCHEME

Context: Recently, the Public Accounts Committee (PAC) of Parliament pulled up the government for the slow pace of implementation of the **SANKALP scheme**. While the government emphasized its commitment to the "Sankalp" (sacred duty) of empowering the underprivileged during the Budget 2026–27 session, the PAC flagged significant gaps in utilizing the World Bank-assisted funds and achieving targets for decentralizing the skilling ecosystem at the district level.



1. Overview of SANKALP

- **Full Form:** Skill Acquisition and Knowledge Awareness for Livelihood Promotion.
- **Nodal Ministry:** Ministry of Skill Development and Entrepreneurship (**MSDE**).
- **Type of Scheme:** It is a **Centrally Sponsored Scheme**.
- **Launch Date:** January 19, 2018 (with implementation periods recently extended to meet outcome-based targets).
- **Objective:** To strengthen institutional mechanisms at the National, State, and District levels and to increase access to quality, market-relevant training for the workforce.

2. Funding and Implementation

- **World Bank Assistance:** The scheme is supported by a loan from the **World Bank** (International Bank for Reconstruction and Development).
- **Instrument:** It uses the "**Program for Results**" (**PforR**) instrument, meaning funds are disbursed by the World Bank only upon the achievement of pre-agreed **Disbursement Linked Indicators (DLIs)**.
- **Verification:** The **Indian Institute of Management (IIM) Indore** acts as the Independent Verification Agency (IVA) to verify the achievements before fund release.

3. Key Result Areas (KRAs)

The scheme focuses on four core result areas to transform the skilling landscape:

1. **Institutional Strengthening:** Building the capacity of State Skill Development Missions (SSDMs) and District Skill Committees (DSCs).
2. **Quality Assurance:** Improving the quality of skill development programs through better trainers, standardized assessments, and certification.
3. **Inclusion:** Ensuring access to skilling for marginalized populations, including women, Scheduled Castes (SC), Scheduled Tribes (ST), and Persons with Disabilities (PwD).
4. **Expanding Skills through PPPs:** Engaging the private sector through Public-Private Partnerships to make skilling demand-driven.

4. SANKALP vs. STRIVE

- **SANKALP:** Focuses on the **institutional and governance** aspect of skilling (short-term training, district planning, and policy convergence).

- **STRIVE:** (Skills Strengthening for Industrial Value Enhancement) Focuses on improving the **relevance and efficiency of ITIs** (Industrial Training Institutes) and apprenticeship programs.

5. Key Initiatives under SANKALP

- **Mahatma Gandhi National Fellowship (MGNF):** A two-year academic program that combines classroom sessions at IIMs with intensive field immersion at the district level to help District Skill Committees (DSCs) in preparing District Skill Development Plans (DSDPs).
- **Skill India Portal:** A digital platform to aggregate and converge skill-related data across various central and state ministries.
- **Awards for Excellence in District Skill Development Planning:** An initiative to incentivize districts to prepare high-quality, data-driven skilling plans.

1.14. RENAMING KERALA TO KERALAM

Context: Recently, the Union Cabinet chaired by Prime Minister Narendra Modi approved the proposal to rename the state of "Kerala" to "**Keralam.**" This decision follows a unanimous resolution passed by the Kerala Legislative Assembly in June 2024, which urged the Central Government to align the official name with its Malayalam pronunciation and cultural heritage. The Union Cabinet has now set in motion the



Kerala (Alteration of Name) Bill, 2026, which will be referred to the State Assembly by the President before being introduced in Parliament.

1. Constitutional Provisions

The power to change the name of a state is exclusively vested in the **Parliament of India**.

- **Article 3:** This article empowers Parliament to form new states and alter the areas, boundaries, or names of existing states.
- **Procedure for Name Change:**
 - A Bill for renaming a state can be introduced in either House of Parliament only on the **prior recommendation of the President**.
 - Before recommending the Bill, the President **must refer** it to the concerned State Legislature for expressing its views within a specified time frame.
 - The views of the State Legislature are **not binding** on either the President or the Parliament; Parliament is free to accept or reject them.
- **Article 4:** It specifies that laws made under Article 3 (for renaming or boundary changes) are **not considered amendments** to the Constitution under **Article 368**. Consequently, such a Bill can be passed by a **Simple Majority** (majority of members present and voting).

2. Historical and Linguistic Roots

- **Etymology:** The word "Keralam" is believed to have originated from "**Cheram,**" referring to the Chera dynasty. In Malayalam, "alam" means region or land, making it the "land of the Cheras." Another theory suggests the root is "keram" (coconut), reflecting the state's dominant agricultural produce.

- **Ancient References:** The earliest epigraphic record of the region is found in **Emperor Ashoka's Rock Edict II (257 BCE)**, where the local ruler is referred to as "**Keralaputra**" (Sanskrit for "son of Kerala").
- **Linguistic Reorganisation:** During the 1956 reorganisation of states on a linguistic basis, the state was formed for Malayalam speakers. While the native population has always used "Keralam," the English spelling "Kerala" was an anglicized version that persisted in the **First Schedule** of the Constitution.

3. Comparison with Other States

- **Recent Precedents:** Several states have changed their names previously, including **United Provinces to Uttar Pradesh (1950)**, **Madras to Tamil Nadu (1969)**, **Mysore to Karnataka (1973)**, **Uttaranchal to Uttarakhand (2007)**, and **Orissa to Odisha (2011)**.
- **Pending Proposals:** The West Bengal government's proposal to rename the state as "**Bangla**" remains pending with the Centre, highlighting that the Union Government's "No Objection" and subsequent Cabinet approval are critical hurdles.

1.15. NCERT

Context: Recently, after a blanket and complete ban imposed by the Supreme Court of India, the National Council of Educational Research and Training (NCERT) withdrew a Class 8 Social Science textbook containing a section on "corruption in the judiciary" in the chapter titled "Role of Judiciary in Our Society."

The Court held that selective references to "corruption in judiciary" could instil institutional distrust in "impressionable minds", affecting long-term public confidence in constitutional governance.



1. Key Aspects of NCERT

- The National Council of Educational Research and Training (NCERT), established in **1961** by the Government of India, is an **autonomous organization** under the **Ministry of Education**.
- **The major objectives of NCERT:** To undertake, promote and coordinate research in areas related to school education; prepare and publish model textbooks, supplementary material, newsletters, journals and develops educational kits, multimedia digital materials, etc.
- **Role:** Acts as the nodal agency for school education, supporting policies like the National Education Policy 2020 (NEP 2020).
- **Cultural exchange:** NCERT is an implementation agency for bilateral cultural exchange programmes with other countries in the field of school education.
- **Key Organizational Structure of NCERT:**
 - The council headquarter is located at **Sri Aurobindo Marg, New Delhi**.
 - **The Union Minister of Education** is the President (ex-officio) of the General Body of NCERT.
 - **Members:** Includes Education Ministers of all States and Union Territories.

2. Educational Governance

- **Originally**, education was in the State List (prior to 1976), granting states exclusive, total control over curriculum, schools, and universities.
- **The 42nd amendment, 1976** changed the status of education by putting it on the concurrent list.
- While both Central and State governments can legislate on subjects mentioned under the Concurrent List, however, in case of any conflict, the law made by the Central Government prevails.

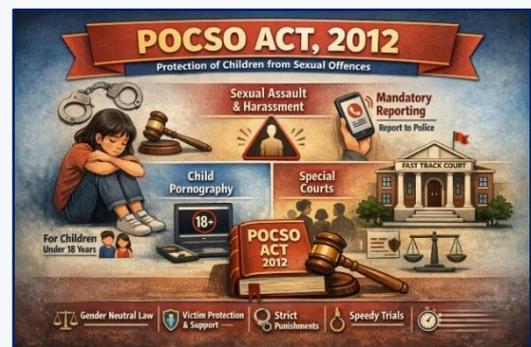
3. Constitutional and Legal Dimensions

- **Judicial independence:** It is a component of the **Basic Structure doctrine**, as established in the Kesavananda Bharati (1973) judgment, making the protection of institutional credibility constitutionally essential.
- **Freedom of Expression vs Institutional Integrity:** Article 19(1)(a) of the Indian Constitution guarantees freedom of speech and expression, enabling citizens to express views, publish, and circulate information. This right is **not absolute** and is balanced by "**reasonable restrictions**" **under Article 19(2)**, which include protecting institutional integrity against contempt of court, defamation, and public order.
- **Contempt of Court:** It is classified in India under the **Contempt of Courts Act, 1971**. It is categorized as either civil (willful disobedience of orders/undertakings) or criminal (scandalizing the court or interfering with justice).
- **Article 129** declares the Supreme Court of India a Court of Record with the power to punish for its own contempt, while High Courts exercise a similar authority under **Article 215**.

1.16. POCSO ACT AND ADOLESCENT CONSENT

Context: Recently, the Supreme Court of India highlighted concerns over the misuse of the Protection of Children from Sexual Offences (POCSO) Act in consensual adolescent relationships and urged the Centre to consider introducing a "Romeo-Juliet clause" to balance child protection with personal liberty.

Introducing a "Romeo-Juliet clause" aims to exempt genuine consensual adolescent relationships- where the age difference between the parties is minimal-from the strict application of the POCSO law.



Historical Background

- Rising child sexual abuse cases in the 1990s–2000s exposed gaps in **IPC provisions** and the lack of child-friendly procedures. India's ratification of the **UN Convention on the Rights of the Child** in 1992 created obligations to strengthen protection laws, leading to the enactment of the POCSO Act, 2012.
- **United Nations Convention on the Rights of the Child (UNCRC)** The UN Convention on the Rights of the Child (UNCRC), adopted in 1989 (came into force in 1990), is a **legally binding** international treaty outlining the civil, political, economic, social, and health rights of everyone under 18. **India ratified the convention in 1992.**

About POCSO Act

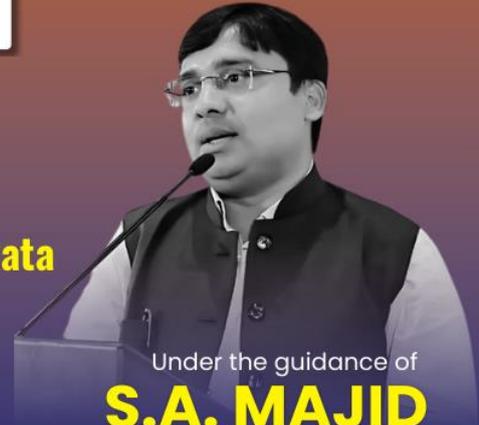
- 1. Enactment:** The POCSO Act was passed in **2012** to provide a comprehensive legal framework for protecting children (below 18 years) from sexual offences.
- 2. Objective:** To safeguard children from **sexual assault, harassment, pornography**, and ensure child-friendly justice procedures.
- 3. Gender-neutral law: Defines a child** as any person below 18 years and applies irrespective of the gender of the child or offender.
- 4. Types of offences covered:**
 - Penetrative sexual assault
 - Aggravated assault
 - Sexual harassment
 - Use of children in pornography
- 5. Not reporting abuse is an offence:** A key and widely debated feature of the POCSO Act is **mandatory reporting under Section 19**, which requires anyone who suspects or knows of a sexual offence against a child to report it to the local police or the Special Juvenile Police Unit.
- 6. No time limit for reporting abuse:** A victim can report an offence at any time, even a number of years after the abuse has been committed.
- 7. Maintaining confidentiality of the victim's identity:** Section 23 of the POCSO Act prohibits disclosure of the victim's identity in any form of media, except when permitted by the special courts established under the act.
- 8. Special Courts:** They ensure speedy, in-camera trials-ideally **within one year**-protect children from exposure to the accused or hostile questioning, and provide for compensation and rehabilitation of child victims.
- 9. The POCSO Amendment Act, 2019:**
 - It was enacted to strengthen the Protection of Children from Sexual Offences Act, 2012, introduced stricter punishments, including the death penalty, for aggravated sexual assault against children.
 - The Act defines **child pornography** as an offence and penalises storing **such material** for commercial purposes with up to three years' imprisonment, a fine, or both.

POCSO E-Courts and Fast-track Special Courts (FTSCs):

- 1.** The Fast Track Special Courts (FTSCs) Scheme has been formulated exclusively for the expeditious trial of cases related to rape and offences under the POCSO Act and is funded through the Nirbhaya Fund, which is dedicated to initiatives aimed at enhancing the safety and security of women and children.
- 2. Structure:** These courts are established under a **Centrally Sponsored Scheme** (initiated in 2019, extended to 2026) in districts with high pending cases.
- 3. Time-Bound Trial Mandate under POCSO Act:** Investigation to be completed in 1 month and trial ideally within 1 year.



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UPSC PRELIMS PRACTICE QUESTIONS

Q. In the context of the 16th Finance Commission's horizontal devolution formula, consider the following criteria:

- I. Income Distance
- II. Population (2011)
- III. Area
- IV. Forest and Ecology

How many of the above are proposed to be used as criteria for horizontal devolution among States?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All the four

Correct Answer: (d) All the four

Explanation:

Statement I – CORRECT: Income Distance continues to remain the most important criterion under the 16th Finance Commission framework as well, since fiscal equalisation among States is a core constitutional mandate under Article 280.

Statement II – CORRECT: Population based on the 2011 Census is retained in the devolution formula to reflect current demographic realities rather than historical population figures.

Statement III – CORRECT: Area is included to compensate States that face higher administrative, infrastructure and service delivery costs due to large geographical size.

Statement IV – CORRECT: Forest and Ecology is included to reward States that preserve forest cover and ecological assets that provide national and global environmental benefits.

Q. With reference to the Election Commission of India, consider the following statements:

- 1. The Chief Election Commissioner (CEC) and the other two Election Commissioners (ECs) enjoy the same constitutional protection regarding their removal from office.
- 2. A motion for the removal of the CEC can be initiated in either House of Parliament but requires a simple majority for its passage.
- 3. The grounds for the removal of the CEC are limited to "proved misbehaviour" and "incapacity" as per the Constitution.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (a) Only one

Explanation:

Statement 1 is incorrect: Only the CEC has the protection of being removed like a Supreme Court Judge. Other ECs can be removed by the President on the mere recommendation of the CEC.

Statement 2 is incorrect: The motion requires a Special Majority (majority of total membership AND 2/3rd of members present and voting), not a simple majority.

Statement 3 is correct: Under Article 324(5), the CEC is removed on the same grounds as a SC Judge, which are specifically "proved misbehaviour" or "incapacity."

Q. With reference to the imposition of President's Rule in a state under Article 356, consider the following statements:

- I. A proclamation of President's Rule must be approved by a special majority in both Houses of Parliament within two months.

- II. The President has the power to revoke the proclamation at any time through a subsequent proclamation, which does not require parliamentary approval.
- III. During President's Rule, the Parliament can delegate the power to make laws for the state to the President or any other authority specified by him.

Which of the statements given above are correct?

- (a) I and II only
- (b) II and III only
- (c) I and III only
- (d) I, II, and III

Answer: (b) 2 and 3 only

Explanation:

Statement I is incorrect: While the timeline of two months is correct, the proclamation of President's Rule requires only a Simple Majority (not a special majority) for approval in both Houses of Parliament.

Statement II is correct: Under Article 356(2), a proclamation may be revoked or varied by a subsequent proclamation by the President. This revocation does not require the approval of Parliament.

Statement III is correct: Under Article 357, when President's Rule is in force, the Parliament can confer the power of the State Legislature on the President and authorize him to delegate this power to other authorities.

Q. With reference to the 'Motion of Thanks' in the Indian Parliament, consider the following statements:

- 1. The President's Special Address is a constitutional obligation that must be delivered at the commencement of every session of Parliament.

- 2. The Motion of Thanks must be passed in both the Lok Sabha and the Rajya Sabha, and its defeat in either House necessitates the resignation of the government.
- 3. Amendments to the Motion of Thanks can be moved by members to highlight issues that were not mentioned in the President's Address.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (a) Only one

Explanation:

STATEMENT 1 IS INCORRECT: Under Article 87, the Special Address is mandatory only at the commencement of the first session after a general election and the first session of each year, not every session.

STATEMENT 2 IS INCORRECT: While the motion must be passed in both Houses, only its defeat in the Lok Sabha amounts to a lack of confidence requiring the government's resignation. Defeat/amendment in the Rajya Sabha does not force a resignation.

STATEMENT 3 IS CORRECT: Members of Parliament have the right to move amendments to the motion to include matters they believe the Address failed to mention or to criticize specific policies.

Q. With reference to the appointment of the Director General of Police (DGP) in India, consider the following statements:

- I. The DGP of a State is appointed by the Governor upon the sole recommendation of the State Cabinet.

- II. According to Supreme Court guidelines, an officer must have at least six months of service remaining to be eligible for empanelment as DGP.
- III. The Supreme Court has mandated a fixed minimum tenure of two years for the DGP, regardless of their date of retirement.

Which of the statements given above are correct?

- (a) I and II only
(b) II and III only
(c) I and III only
(d) I, II and III

Correct Answer: B

Explanation:

STATEMENT I INCORRECT: The DGP is appointed by the State Government, but they must choose from a panel of three

names prepared by the UPSC, not based on the sole recommendation of the Cabinet.

STATEMENT II CORRECT: As per the UPSC's 2023 revised guidelines, only police officers with at least six months of service left before retirement are considered for empanelment.

STATEMENT III CORRECT: The Prakash Singh judgment (2006) mandates a minimum tenure of two years for the DGP to protect the office from political whim and frequent transfers.



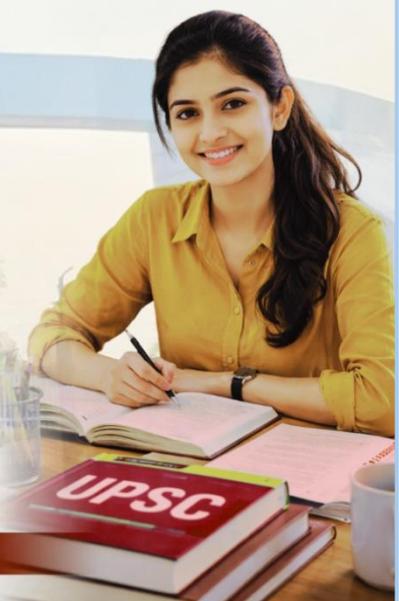
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INTERNATIONAL RELATIONS

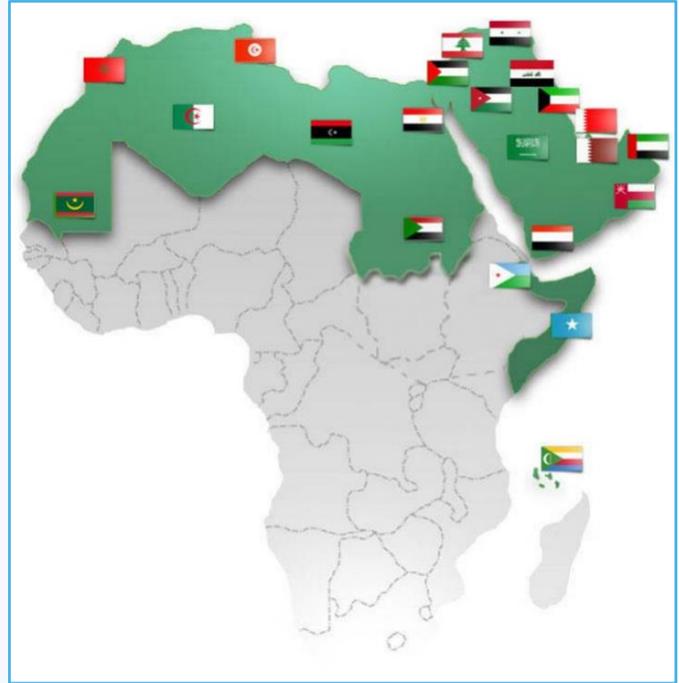
2.1. LEAGUE OF ARAB STATES (LAS)

Context:

Recently, the **League of Arab States (LAS)** and India successfully concluded the second **India-Arab Foreign Ministers' Meeting** in New Delhi, resulting in the adoption of the **"New Delhi Declaration."**

1. Overview of the League of Arab States (LAS)

- **Establishment:** The League was founded on **March 22, 1945**, in Cairo, Egypt, following the signing of the **Alexandria Protocol** (1944).
- **Headquarters:** It is permanently headquartered in **Cairo, Egypt**.
- **Nature of Organization:** It is a voluntary intergovernmental association of Arabic-speaking nations designed to strengthen ties, coordinate political activities, and safeguard the sovereignty of member states.
- **Charter:** The **Pact of the League of Arab States** serves as the founding treaty, stipulating that only independent Arab states may join.



2. Membership and Geography

- **Current Members:** There are **22 member states** spanning North Africa, the Horn of Africa, and West Asia.
- **Founding Members:** Egypt, Iraq, Jordan, Lebanon, Saudi Arabia, Syria, and Yemen (North Yemen at the time).
- **Geographic Reach:** The region extends from the **Atlantic Ocean** in the west to the **Arabian Sea** in the east, and from the **Mediterranean Sea** in the north to the **Indian Ocean** in the southeast.
- **Observation Status:** India is one of the five official **Observer States**, a status it has held since 2002 to facilitate closer diplomatic and economic coordination.

3. India and the League of Arab States

- **Institutional Framework:** Engagement is primarily conducted through the **Arab-Indian Cooperation Forum (AICF)**, established in 2008.
- **Strategic Ties:** India views the LAS as a critical partner for energy security (sourcing over 50% of its crude oil) and as a destination for its **9 million-strong diaspora**.
- **New Delhi Declaration (2026):** The latest summit emphasized a **"Zero Tolerance"** policy toward terrorism and sought a just solution for the Palestinian people based on the **1967 borders**.

- **Economic Corridors:** The League is a central stakeholder in the proposed **India-Middle East-Europe Economic Corridor (IMEC)**, aimed at enhancing global supply chain resilience.

2.2. NEW START TREATY

Context:

Recently, the global security landscape has reached a critical juncture as the **New START (Strategic Arms Reduction Treaty)**, the final remaining pillar of bilateral nuclear arms control between the United States and Russia, is set to **expire on February 5, 2026**.



1. Basic Overview

- **Full Name:** Treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms.
- **Signatories:** Signed by U.S. President **Barack Obama** and Russian President **Dmitry Medvedev** on April 8, 2010, in Prague.
- **Timeline:** It entered into force on **February 5, 2011**. Originally set for ten years, it was extended in 2021 for an additional five years, concluding in February 2026.

2. Core Limitations (The 700-800-1550 Rule)

The treaty imposes three central aggregate limits on strategic offensive arms:

- **700 Deployed:** Limit on deployed Intercontinental Ballistic Missiles (ICBMs), Submarine-Launched Ballistic Missiles (SLBMs), and heavy bombers.
- **1,550 Warheads:** Limit on nuclear warheads on deployed ICBMs, SLBMs, and heavy bombers (calculated by specific counting rules).
- **800 Launchers:** Limit on both deployed and non-deployed ICBM launchers, SLBM launchers, and heavy bombers.

3. Verification and Transparency

To ensure neither side “cheats,” the treaty includes a robust verification regime:

- **On-site Inspections:** Up to 18 inspections per year divided into two types (Type One for operational bases and Type Two for non-deployed storage).
- **Data Exchanges:** Biannual exchange of detailed data on the status and basing of treaty-accountable systems.
- **Bilateral Consultative Commission (BCC):** A dedicated body that meets at least twice a year to resolve compliance issues and technical ambiguities.
- **National Technical Means (NTM):** Permission to use satellites and other remote sensing tools for monitoring without interference.

4. Current Challenges and “Suspension”

- **Suspension by Russia (2023):** In February 2023, Russia officially announced the “suspension” of the treaty, citing U.S. involvement in the Ukraine conflict.

- **Operational Status:** While Russia stopped providing notifications and allowing inspections, both nations have largely indicated they would continue to respect the central numerical limits (the 1,550 warhead cap) until the formal expiration in 2026.

2.3. GULF COOPERATION COUNCIL (GCC)

Context:

Recently, India and the six-nation **Gulf Cooperation Council (GCC)** officially signed the **Terms of Reference (ToR)** to launch formal negotiations for a long-pending **Free Trade Agreement (FTA)**. This significant diplomatic step, announced during a high-level meeting in New Delhi, aims to revitalize trade talks that have been stalled for nearly two decades.



The move is particularly timely as the GCC has emerged as India's largest merchandise trading partner, with bilateral trade reaching approximately **\$178.5 billion** in the 2024-25 fiscal year.

1. About the GCC

- **Establishment:** The GCC is a political and economic alliance of six Middle Eastern nations established on **May 25, 1981**, in Riyadh, Saudi Arabia.
- **Member States:** It comprises **United Arab Emirates (UAE), Saudi Arabia, Qatar, Oman, Kuwait, and Bahrain**.
- **Headquarters:** The Secretariat-General is located in **Riyadh**, Saudi Arabia.
- **Objectives:** Its primary goal is to achieve coordination, integration, and interconnection between its members in all fields, including economy, finance, trade, and customs.
- **Structure:**
 - **Supreme Council:** The highest authority, composed of the Heads of State; the presidency rotates annually.
 - **Ministerial Council:** Composed of Foreign Ministers who meet every three months to implement policies.
 - **Secretariat General:** The administrative arm responsible for policy monitoring.

2. India-GCC Economic Relations

- **Largest Trade Partner:** The GCC as a bloc is India's largest trading partner. In 2024-25, trade with the GCC surpassed that with the USA (\$132.1 billion) and the European Union (\$136.5 billion).
- **Trade Deficit:** India currently faces a significant trade deficit with the region (approx. \$64.8 billion) due to heavy imports of **crude oil, LNG, and petrochemicals**.
- **Key Exports:** India primarily exports engineering goods, rice, textiles, machinery, and gems and jewelry to the Gulf nations.

- **Remittances:** The region is home to nearly **10 million Indian expatriates**, who contribute significantly to India’s foreign exchange through remittances.

3. Energy and Strategic Security

- **Energy Anchor:** The GCC countries contribute significantly to India’s energy security, accounting for roughly **35% of oil imports** and **70% of gas imports**.
- **Strategic Petroleum Reserves (SPR):** India is engaging GCC nations like Saudi Arabia and the UAE to participate in the second phase of its SPR program.
- **Strategic Partnerships:** While India maintains close ties with all six members, it has formal “Strategic Partnership” agreements with **Saudi Arabia, UAE, and Oman**.

4. Recent Initiatives

- **FTA Negotiations (2026):** The signing of the Terms of Reference (ToR) in February 2026 sets the framework for scope, objectives, and procedures for the final trade pact.
- **Unified Tourist Visa:** The GCC is working toward a “Schengen-style” unified tourist visa (expected pilot in late 2026) to allow seamless travel across all six member states.

2.4. CHABAHAR PORT

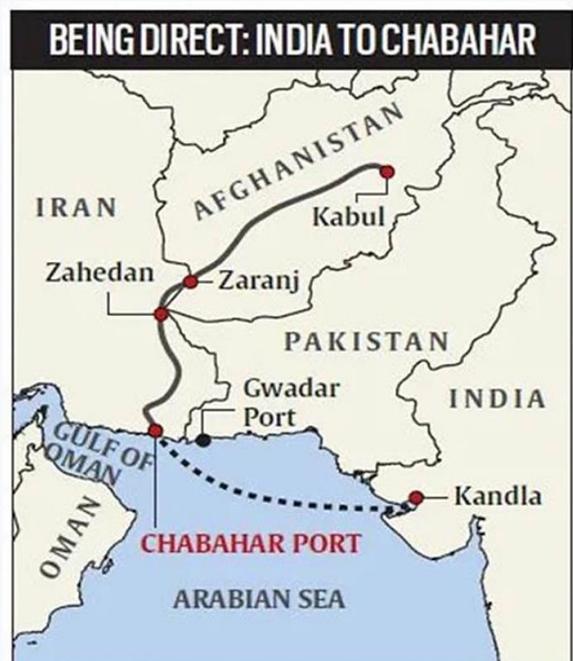
Context:

The government recently told Parliament that it has completely paid up its commitment of \$120 million for the Chabahar port, well before the U.S. sanctions waiver runs out in April 2026.

Further, the Ministry of External Affairs (MEA) said the U.S. has extended a conditional sanctions waiver for the Chabahar project until April 26, 2026, following India–U.S. discussions, and added that India remains engaged with all stakeholders amid uncertainty over any further extension.

About the Chabahar Port Project

- In January 2015, **India Ports Global Limited (IPGL)** was incorporated under the Companies Act, 2013 for the development of ports overseas.
- **April 2016:** India, Iran, and Afghanistan signed a **trilateral agreement** to develop Chabahar Port.
- **December 2017:** The **first phase of Shahid Beheshti Port** was inaugurated after rapid development by India’s Shipping Ministry.
- In December 2018, IPGL took over part of the operations at Shahid Beheshti Port.
- Two years later, Afghan exports to India passed through the port for the first time. India received four such consignments that year.



Key Geographic and Operational Features

- **Location:** Situated in the **Gulf of Oman**, it provides direct access to the Indian Ocean, bypassing the sensitive **Strait of Hormuz** choke point.

- **Structure:** The port consists of two separate complexes: **Shahid Beheshti** and **Shahid Kalantari**, each featuring five berths.
- **Infrastructure:** It is a deep-sea port capable of handling massive cargo ships that cannot be accommodated at other Iranian ports like Bandar Abbas.

Strategic Significance

- **Alternative trade route:** Provides India an alternative trade route to **Afghanistan and Central Asia**, bypassing Pakistan.
- **Regional Connectivity:** Enhances India’s connectivity to Central Asia, Russia, and Europe via the **International North–South Transport Corridor (INSTC)**.
- INSTC is a multi-modal transportation route **linking** the Indian Ocean and the Persian Gulf to the Caspian Sea via Iran and onward to northern Europe via St. Petersburg in Russia.
- **Counterbalance:** Acts as a **counterbalance to Gwadar Port (Pakistan)** developed with Chinese assistance.
- **Energy security:** The port facilitates India’s access to regional energy reserves and secures a stable supply chain by enabling direct investment in Iran’s energy infrastructure

2.5. INDIA-GREECE DEFENCE RELATIONS

Context:

Recently, on February 9, 2026, the Union Defence Minister of India, Rajnath Singh, held a high-level bilateral meeting with the Greek Minister of National Defence, Nikos Dendias, at the Manekshaw Centre in New Delhi.



1. Evolution of Strategic Ties

- **1998 MoU:** Bilateral defense cooperation is rooted in a Memorandum of Understanding signed in 1998, which was notably established despite international sanctions against India following the Pokhran-II nuclear tests.
- **Strategic Partnership (2023):** During PM Narendra Modi's visit to Athens in August 2023, the relationship was elevated to a **Strategic Partnership**, prioritizing security and defense.
- **Gateway to Europe:** Greece is increasingly viewed as India's primary strategic anchor in the Mediterranean and a gateway for the **India-Middle East-Europe Economic Corridor (IMEC)**.

2. Joint Military Exercises and Interoperability

- **Air Force Cooperation:**
 - **Exercise INIOCHOS:** The Indian Air Force (IAF) has become a regular participant in this multinational exercise hosted by the Hellenic Air Force at Andravida Air Base.
 - **Exercise Tarang Shakti (2024):** Greece participated in India's largest multinational air exercise with F-16 fighter jets, marking a significant upgrade in tactical synergy.
- **Naval Cooperation:**
 - **Maiden Maritime Exercise (2025):** The Indian Navy (represented by **INS Trikand**) and the Hellenic Navy conducted their first bilateral exercise in the Mediterranean Sea near Salamis Naval Base.
 - **Port Calls:** Regular visits of Indian warships to the **Souda Bay** in Crete, a vital NATO naval base, underscore the depth of maritime logistics cooperation.
- **Army Cooperation:**
 - **Joint Services Staff Talks:** Institutionalized in early 2026 to coordinate long-term military-to-military engagement and training programs.

3. Defense-Industrial and Technology Collaboration

- **Joint Ventures:** Both nations are exploring collaboration in **drone technology, cybersecurity, and shipbuilding**.
- **Maintenance and Repair:** Discussions are underway for India to provide maintenance support for Greece's fleet, potentially leveraging the commonality in certain aerospace platforms.
- **Innovation:** The **MCP-2026** emphasizes cooperation in "Special Operations" and defense innovation hubs.

4. Strategic and Multilateral Alignment

- **Maritime Security:** Both nations advocate for a "Free and Open Indo-Pacific" and a rule-based order in the Mediterranean, adhering strictly to the **UNCLOS (United Nations Convention on the Law of the Sea)**.
- **Mutual Interests:** Greece consistently supports India on the **Kashmir issue** and its bid for a permanent seat in the **UNSC**, while India supports Greece on the **Cyprus issue**.
- **Counter-Terrorism:** Cooperation through intelligence sharing, specifically targeting transnational terror networks in the Mediterranean region.

5. Greece – Key Map Points

- Located in **Southeastern Europe** at the junction of **Europe–Asia–Africa**.
- Surrounded by **three seas**:
 - **Aegean Sea** (east)

- **Ionian Sea** (west)
- **Mediterranean Sea** (south)
- **Borders:**
 - **North** – Albania, North Macedonia, Bulgaria
 - **East** – Turkey
- **Important Straits:**
 - **Dardanelles** (connects Aegean Sea to Sea of Marmara)
 - **Bosporus** (connects Sea of Marmara to Black Sea) (*Together called the Turkish Straits – strategically vital*)
- **Key Islands:**
 - **Crete** – largest island (southernmost)
 - **Rhodes** – near Turkey
 - **Cyclades & Dodecanese** groups (Aegean Sea)
- **Peninsulas:**
 - **Peloponnese** – separated by **Corinth Canal**
- **Strategic importance:**
 - Gateway between **Black Sea & Mediterranean trade routes**
 - NATO & EU member

2.6. INDIA-MALAYSIA RELATIONS

Context:

Recently, Prime Minister Narendra Modi concluded a high-profile two-day official visit to Malaysia (February 7–8, 2026), marking his first foreign visit of the year. During this visit, India and Malaysia reaffirmed their **Comprehensive Strategic Partnership (CSP)**—originally elevated in August 2024—and signed 11 landmark agreements **spanning semiconductors, digital technologies, and defense.**



The visit was characterized by a "special" strategic alignment, with both nations agreeing to promote trade settlement in local currencies (**Indian Rupee and Malaysian Ringgit**) and formalizing a framework for semiconductor supply chain resilience.

1. Political and Strategic Framework

- **Comprehensive Strategic Partnership (CSP):** Elevated from a "Enhanced Strategic Partnership" in 2024, focusing on high-tech sectors and maritime security.
- **ASEAN Centrality:** Malaysia is a founding member of ASEAN and will hold the **ASEAN Chairmanship in 2025**, making it a vital partner for India's **Act East Policy**.
- **Global Platforms:** Both nations collaborate in the United Nations (UN), East Asia Summit (EAS), and the Indian Ocean Rim Association (IORA). Notably, Malaysia has expressed support for India's permanent membership in a reformed **UNSC**.

2. Economic and Trade Relations

- **Trade Volume:** Malaysia is India's **3rd largest trading partner within ASEAN**. Bilateral trade stood at approximately **\$19.86 billion** in 2024-25.
- **Trade Agreements:** Economic ties are governed by the **Malaysia-India Comprehensive Economic Cooperation Agreement (MICECA)** and the **ASEAN-India Trade in Goods Agreement (AITIGA)**, the latter currently being reviewed to reduce trade deficits.
- **Local Currency Settlement:** To reduce dependence on the US Dollar, both countries have operationalized mechanisms to settle trade in **INR and Ringgit**.
- **Palm Oil:** India remains the **world's largest importer of vegetable oils**, and Malaysia is its primary source of palm oil alongside Indonesia

3. Technology and Digital Cooperation

- **Semiconductors:** Malaysia is the world's **6th largest semiconductor exporter**. A new MoU focuses on R&D, assembly, and testing (OSAT), with major Indian firms like **Tata Electronics** exploring investment.
- **Digital Payments:** Integration between India's **UPI (via NIPL)** and Malaysia's **PayNet** was prioritized to facilitate low-cost cross-border remittances.
- **Energy:** Collaborative efforts in **Green Hydrogen** and **Green Ammonia** are being led by companies like PETRONAS and Gentari.

4. Defense and Security

- **Military Exercises:**
 - **Exercise Harimau Shakti:** A bilateral joint army exercise (5th edition held in Rajasthan, Dec 2025).
 - **Exercise Samudra Laksamana:** A bilateral naval exercise.
- **Strategic Platforms:** Cooperation via the **ADMM-Plus** (ASEAN Defence Ministers' Meeting Plus) and the co-chairing of the **Counter-Terrorism Working Group (2024-2027)**.
- **Defense Industry:** India has offered maintenance and life-extension programs for Malaysia's **Su-30 aircraft** fleet, given the commonality of the platform.

5. Cultural and Diaspora Links

- **The "Living Bridge":** Malaysia hosts the **second-largest Indian diaspora** (approx. 3 million people, largely of Tamil origin).
- **Institutional Links:** Establishment of the **Thiruvalluvar Chair** at the University of Malaya and the announcement of a new **Indian Consulate General in Sabah**.

6. Malaysia: Key Map Points

- Located in Southeast Asia, **near the Equator**.
- Divided into two parts: Peninsular Malaysia & East Malaysia (on Borneo Island), separated by the South China Sea.
- **Strait of Malacca lies on its west** → major global maritime chokepoint.
- Neighbours
 - Thailand (north, land)
 - Singapore (south, across strait/causeway)
 - Indonesia (maritime + Borneo land border)

- Brunei (on Borneo, surrounded by Malaysia)
- Philippines (maritime, northeast)
- **Seas around:** South China Sea, Sulu Sea, Celebes Sea
- Highest peak: Mount Kinabalu (Sabah, Borneo)
- States on Borneo: Sabah & Sarawak
- **Capital: Kuala Lumpur**
- Administrative capital: Putrajaya

2.7. US-BANGLADESH TRADE PACT (2026)

Context:

Recently, the United States and Bangladesh have finalized a landmark **Agreement on Reciprocal Trade** on February 9, 2026. This pact follows closely on the heels of a similar Indo-US trade framework, signaling a significant shift in Washington's trade policy toward South Asia by offering Bangladesh competitive tariff advantages that directly impact India's export landscape.



Key Highlights of the US-Bangladesh Trade Pact (2026)

1. Tariff Structure and Reciprocal Rates

- **General Reduction:** The US has lowered the reciprocal tariff on Bangladeshi goods to **19%** (down from the previous 20% and the original 37%).
- **Comparison with India:** While India secured a slightly lower general rate of **18%** in its recent deal, the Bangladesh pact includes specific "carve-outs" that may offer deeper advantages in certain sectors.

2. The "Zero-Tariff" Textile Clause

- **Input-Linked Benefit:** The US will provide **zero-duty access** for a specific volume of Bangladeshi ready-made garments (RMG), provided they are manufactured using **US-produced cotton** or man-made fibers.
- **Strategic Shift:** This move is designed to incentivize Bangladesh to shift its raw material sourcing from India (traditionally its largest supplier) to the United States.

3. Market Access for US Goods

- **Agricultural Commitment:** Bangladesh has pledged to purchase approximately **\$3.5 billion** worth of US agricultural products, including wheat, soy, corn, and notably, cotton.
- **Energy Security:** The pact includes an agreement for Bangladesh to procure **\$15 billion** worth of US energy products over the next 15 years.
- **Industrial Goods:** Bangladesh will grant preferential access to US chemicals, medical devices, machinery, and automobiles, while recognizing **US FDA standards** and motor vehicle safety emissions.

4. Regulatory and Labor Reforms

- **Labor Rights:** Bangladesh has committed to an **11-point agenda** to modernize labor laws, enhance freedom of association, and prohibit forced labor, aimed at eventually regaining **GSP (Generalized System of Preferences)** benefits.
- **Digital Trade:** The agreement ensures the free transfer of data across borders and supports a moratorium on customs duties for electronic transmissions.

5. Implications for India

- **Textile Competition:** Indian exporters of garments and textiles face a "structural disadvantage" as the tariff gap between Indian and Bangladeshi goods in the US market has effectively vanished or reversed in specific categories.
- **Cotton Exports:** India, which exported nearly **\$1.6 billion** in cotton yarn to Bangladesh in 2024, may see a decline in demand as Dhaka pivots to US cotton to avail of zero-duty benefits.
- **Geopolitical Balancing:** The deal highlights Bangladesh's effort to balance its economic ties between India, China, and the US, especially following the recent cooling of India-Bangladesh bilateral relations.

2.8. INDIA AI IMPACT SUMMIT 2026

Context: The fourth AI Impact Summit 2026 commenced at the **Bharat Mandapam in New Delhi**, marking a significant step in India's leadership within the digital domain. Unlike developed nations that often focus primarily on regulatory frameworks, India is championing a "human-centric" approach that prioritizes "economic good" for all.



This summit serves as a platform for India to advocate for equitable access to AI resources and fair rule-making, particularly for developing economies in the Global South.

1. Core Pillars and Thematic Structure

- **The Three "Chakras":** The summit is structured across three thematic pillars—**People, Planet, and Progress**.
- **Scale of Participation:** The event features over **3,000 speakers** across **500 sessions**, with participation from approximately **100 countries**.
- **India AI Expo:** Prime Minister Narendra Modi inaugurated the "India AI Expo 2026," showcasing AI technology demonstrations from start-ups and pavilions from 13 countries.

2. Strategic Diplomacy and Global Leadership

- **Bilateral Engagements:** The summit facilitates high-level diplomacy, including bilateral talks between Prime Minister Modi and French President **Emmanuel Macron**, as well as engagements with Brazilian President **Luiz Inácio Lula da Silva**.

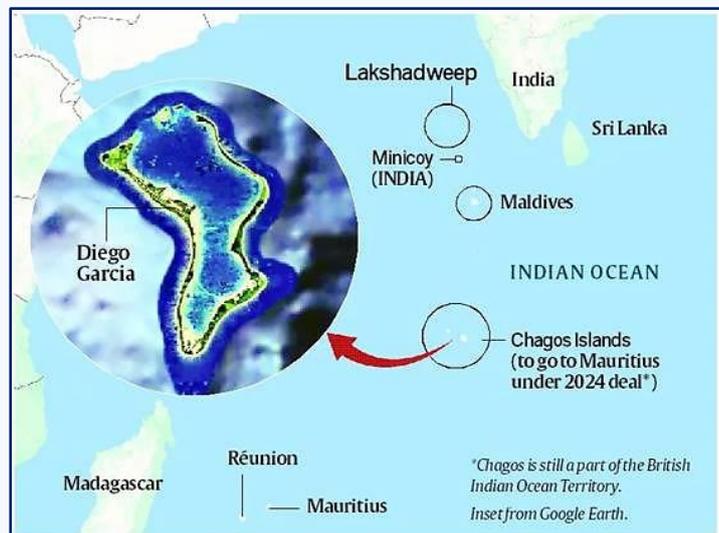
- **Tech Industry Collaboration:** Global tech leaders, including **Sundar Pichai (Google)**, **Sam Altman (OpenAI)**, and **Bill Gates**, are expected to participate, highlighting the intersection of private tech innovation and public policy.
- **UN Involvement:** UN Secretary-General **António Guterres** is among the attendees, emphasizing the summit's importance in the global governance of Artificial Intelligence.

3. Key Focus Areas for Prelims

- **Venue:** Bharat Mandapam, New Delhi (the same venue as the 2023 G-20 Summit).
- **Event Frequency:** This is the **fourth AI Summit**, following previous iterations held in the U.K., South Korea, and **France**.
- **Inclusive Innovation:** A notable feature is the scheduled **"all-woman" hackathon** aimed at fostering diversity in the AI development space.
- **The AI for ALL Global Impact Challenge:** It received over 1,350 applications from more than 60 countries, focusing on scalable AI solutions across healthcare, agriculture, climate resilience, governance, education, and financial inclusion.
- **The AI by HER:** It is Global Impact Challenge, which received over 800 applications from more than 50 countries, is dedicated to advancing women-led innovation in artificial intelligence.
- **The YUVAi Global Youth Challenge:** which received over 2,500 applications from 38 countries, showcases the innovation and problem-solving capabilities of young AI leaders aged 13 to 21.

2.9. CHAGOS ARCHIPELAGO

Context: Recently, the sovereignty dispute over the **Chagos Archipelago** has returned to the spotlight following ongoing diplomatic negotiations between the **United Kingdom and Mauritius**, as reported in major dailies. The discussions center on the historic transfer of authority over the islands, specifically addressing the status of the strategic military base at **Diego Garcia** and the right of return for the displaced Chagosian people.



1. Geography and Location

- The Chagos Archipelago is a group of seven atolls comprising more than 60 individual tropical islands in the **Indian Ocean**.
- It is situated approximately 500 kilometers south of the **Maldives** archipelago.
- The largest and most southerly island is **Diego Garcia**, which hosts a vital strategic military base operated by the United States and the United Kingdom.

2. Historical and Political Background

- Originally, the Chagos Islands were part of the French colony of Mauritius, which was later ceded to the **United Kingdom** in 1814.

- In 1965, three years before Mauritius gained independence, the UK detached the Chagos Archipelago to create the **British Indian Ocean Territory (BIOT)**.
- Between 1968 and 1973, the local population (Chagosians) was forcibly relocated to Mauritius and the Seychelles to make way for the military base on Diego Garcia.

3. Legal and Diplomatic Developments

- **ICJ Advisory Opinion (2019):** The International Court of Justice ruled that the decolonization of Mauritius was not lawfully completed and that the UK is under an obligation to end its administration of the Chagos Archipelago as rapidly as possible.
- **UN General Assembly Resolution:** Following the ICJ ruling, the UNGA passed a resolution demanding that the UK withdraw its colonial administration.
- **Current Status:** The UK has agreed to hand over sovereignty to Mauritius, provided that the long-term operation of the Diego Garcia military base is secured through a treaty.

4. Strategic Significance

- The archipelago sits at the "crossroads" of the Indian Ocean, providing a surveillance and strike capability covering the **Middle East, Africa, and South Asia**.
- It is a critical node for maintaining **maritime security** and freedom of navigation in the Indo-Pacific region.

2.10. ESCALATING CONFLICT ON THE AFGHANISTAN-PAKISTAN BORDER

Context: Recently, the Afghan military forces attacked Pakistani forces along the border, citing retaliation for deadly air strikes that occurred days earlier.

A spokesperson for the Taliban regime, Zabiullah Mujahid, stated that large-scale offensive operations were launched against Pakistani military bases and installations in response to repeated violations by the Pakistani military.



Key Aspects of Afghanistan

- Afghanistan, officially the Islamic Emirate of Afghanistan, is a landlocked, mountainous nation in **South-Central Asia** with a population of 38–50 million and Kabul as its capital.
- **Political Features:** It is a landlocked, mountainous country in Southern Asia, often referred to as the **"Gateway to Asia."**
- **Demographics & Language:** Multiethnic population with Pashtun, Tajik, and Hazara as major groups. Official languages are **Pashto and Dari**.
- **Bordering Nations:** Turkmenistan, Uzbekistan, and Tajikistan to the north, Iran to west, Pakistan to the southeast, India and China to the northeast.
- **Geographical Features:**
 - Hindu Kush Mountains: Dominant range, acting as a barrier.
 - **Wakhan Corridor:** A narrow strip in the northeast connecting Afghanistan to China's Xinjiang.
 - **Rivers:** Amu Darya (North), Helmand River (Longest, Southwest), Kabul River (East).

- **Passes:** Khyber Pass (connects to Pakistan/Indian subcontinent).
- **Desert:** The Registan Desert, also called the **Sistan Desert**, is an extremely arid plateau in southeastern Afghanistan between Helmand Province and Kandahar Province.
- **Highest Point:** Mt. Nowshak
- **Major Cities:** Kabul (capital), Kandahar, Herat, Mazar-i-Sharif
- **Climate & Extremes:** Mostly arid to semi-arid climate with cold winters and hot summers.
- **Key dams in Afghanistan:** These are critical for irrigation and hydroelectric power, include the **Salma Dam** (Afghan-India Friendship Dam), Kajaki Dam (Helmand river), Kamal Khan Dam, and Dahla Dam.
- **Economy & Resources:**
 - **Main industries:** textiles, carpets, cement, fertilizer.
 - **Agriculture:** wheat, fruits, nuts, wool, opium.
 - **Minerals:** Rich in natural resources like natural gas, lithium, copper, coal, iron ore, and precious stones.
 - **Major exports:** carpets, wool, fruits, gems.
 - **Major imports:** petroleum products, food, machinery.



Global Perspective

- **INSTC:** The International North–South Transport Corridor (INSTC) is a multi-modal trade route (ship–rail–road) connecting India with Central Asia, Russia, and Europe to reduce time and cost of transport.
 - **Regions involved:** India, Iran, Afghanistan, Azerbaijan, Russia, Central Asia and Europe.
- **BRI:** China is integrating Taliban-led Afghanistan into the Belt and Road Initiative (BRI) to secure regional stability, access mineral resources, and boost trade connectivity, particularly by extending the China-Pakistan Economic Corridor (CPEC).

2.11. KIMBERLEY PROCESS (KP)

Context:

Recently, **India formally assumed the Chairpersonship of the Kimberley Process (KP)** for the year 2026, following its selection by the KP Plenary. This marks the third time India has been entrusted with leading this global initiative (previously in 2008 and 2019).

About Kimberley Process (KP)

The Kimberley Process is a **multilateral trade regime** established to prevent the trade of 'conflict diamonds'.



1. Understanding Conflict Diamonds

- **Definition:** Conflict diamonds, also known as "**blood diamonds**," are rough diamonds used by rebel movements or their allies to finance armed conflicts aimed at undermining legitimate governments.

- **UN Connection:** This definition is strictly based on **United Nations Security Council (UNSC)** resolutions.
- **Scope Limitation:** Currently, the KP mandate does only cover diamonds used by *rebels* against *governments*; it does not officially cover diamonds linked to state-sponsored human rights abuses or environmental degradation (a point of ongoing international debate).

2. The Kimberley Process Certification Scheme (KPCS)

- **Launch:** It was established in **2003** following the Kimberley Process meeting in South Africa and the "Interlaken Declaration."
- **Mandate:** It is not an international organization but a **voluntary certification scheme** implemented through national legislations of participant countries.
- **Key Requirements:**
 - **Tamper-proof Containers:** Every shipment of rough diamonds must be transported in a tamper-proof container.
 - **Validated Certificates:** Each shipment must be accompanied by a government-validated **Kimberley Process Certificate**.
 - **Restricted Trade:** Participants can **only trade rough** diamonds with other members of the KPCS.

3. Tripartite Structure

The Kimberley Process is unique because it operates as a **tripartite coalition** involving:

1. **Governments:** Currently has 60 participants (representing 86 countries, with the EU as one participant).
2. **Diamond Industry:** Represented by the **World Diamond Council (WDC)**.
3. **Civil Society:** Represented by various NGOs like the Kimberley Process Civil Society Coalition.

4. Governance and Decision Making

- **Consensus-Based:** All decisions within the KP are made by **consensus**, meaning any single participant can veto a resolution. This often leads to "deadlocks" on sensitive issues like sanctioning major producers.
- **Rotating Chair:** The Chairmanship rotates annually; the Vice-Chair of the current year typically becomes the Chair the following year.

5. Kimberley Process and India

- **Founding Member:** India is a founding member of the KPCS.
- **Nodal Agency:** The **Department of Commerce** is the nodal department, and the **Gem & Jewellery Export Promotion Council (GJEPC)** is the designated authority for issuing certificates.
- **Strategic Importance:** India processes (cuts and polishes) nearly **90% of the world's rough diamonds**, primarily in Surat and Mumbai.
- **2026 Chair Goals:** India aims to focus on digital traceability (blockchain), strengthening compliance, and supporting the interests of the African diamond-producing nations (the "Global South").

2.12. PLACE IN NEWS

2.12.1. MAPPING SUDAN: STRATEGIC GEOGRAPHY AND CRITICAL CITIES

Context:

Recently, Sudan has witnessed a major strategic shift in its ongoing civil war between the **Sudanese Armed Forces (SAF)** and the **Rapid Support Forces (RSF)**. The Sudanese military recently claimed to have regained control over significant portions of the capital, **Khartoum**, and the strategic city of **Wad Medani**, signaling a potential turning point in the conflict.



Concurrently, the international community has raised alarms over the humanitarian blockade in **El Fasher**, the last major stronghold in the Darfur region not fully controlled by paramilitary forces, making the geographical understanding of these urban centers vital for global security analysis.

1. Geographical Location and Borders

Sudan is located in **Northeast Africa** and is the **third-largest country** on the African continent (after Algeria and the Democratic Republic of the Congo). It is **not landlocked**; it possesses a strategic coastline of approximately 853 km along the **Red Sea**.

Neighboring Countries (Clockwise from North):

- **Egypt** (North)
- **Eritrea** (Southeast)
- **Ethiopia** (Southeast)
- **South Sudan** (South) — *Seceded in 2011*
- **Central African Republic** (Southwest)
- **Chad** (West)
- **Libya** (Northwest)

2. Key Physical Features

- **The Nile River System:** The **White Nile** (flowing from Lake Victoria) and the **Blue Nile** (flowing from Lake Tana, Ethiopia) meet in the heart of **Khartoum** to form the main Nile River, which then flows north into Egypt.
- **Red Sea Hills:** A range of mountains running parallel to the Red Sea in the east.
- **Marrah Mountains (Jebel Marra):** Located in the Darfur region of the west, containing the **Deriba Caldera**, the highest point in Sudan.
- **Nubian Desert:** Covers the northeastern part of the country, situated between the Nile and the Red Sea.
- **Gezira Plain:** The fertile "peninsula" between the Blue and White Niles, south of Khartoum, known for the Gezira Scheme (one of the world's largest irrigation projects).

3. Important Cities and Their Strategic Significance

City	Significance
Khartoum	The capital city located at the confluence (<i>Al-Mugran</i>) of the Blue and White Niles.
Omdurman	Located on the west bank of the Nile, it is the country’s most populous city and a major cultural hub.
Port Sudan	The primary seaport on the Red Sea. It has become the de-facto administrative capital during the current conflict.
El Fasher	The capital of North Darfur; a critical humanitarian hub and a major site of ongoing battles.
Wad Medani	Capital of the Gezira state; a strategic agricultural and transit hub between Khartoum and Port Sudan.
Wadi Halfa	A key border town in the north near Lake Nubia, serving as a primary transit point for trade with Egypt.

2.12.2. ISRAEL MAPPING

Context: Recently, Prime Minister Narendra Modi’s high-profile visit to Israel has brought the geography and strategic mapping of the Levant region back into sharp focus. The visit emphasized the "Special Strategic Partnership" between the two nations, highlighting key geographical corridors like the **India-Middle East-Europe Economic Corridor (IMEC)** and the strategic importance of the Port of Haifa.



1. Political Geography & Borders

Israel is located at the eastern end of the **Mediterranean Sea** in West Asia, forming part of the **Levant** region.

- **Northern Border:** Lebanon (separated by the Blue Line).
- **Northeastern Border:** Syria (Golan Heights is the flashpoint).
- **Eastern Border:** Jordan and the West Bank.
- **Southwestern Border:** Egypt (Sinai Peninsula) and the Gaza Strip.
- **Coastlines:** It has a long western coastline on the **Mediterranean Sea** and a small southern exit to the **Red Sea** via the **Gulf of Aqaba**.

2. Disputed & Strategic Territories

- **West Bank:** A landlocked territory west of the Jordan River. It contains Judean **Hills** and key cities like Ramallah and Hebron.
- **Gaza Strip:** A coastal enclave on the Mediterranean, bordering Egypt at the **Rafah Crossing**.
- **Golan Heights:** A rocky plateau captured from Syria in 1967. It is strategically vital as it overlooks the Jordan River valley and provides a significant portion of Israel's freshwater.
- **Shebaa Farms:** A small, disputed strip of land at the intersection of the Lebanese-Syrian border and the Israeli-occupied Golan Heights.

3. Physical Features

- **The Negev Desert:** Occupies the southern half of the country; it is a triangular-shaped semi-desert region.
- **The Dead Sea:** The lowest point on Earth (approx. 430m below sea level), shared with Jordan. It is hyper-saline.
- **Sea of Galilee (Lake Tiberias):** The primary freshwater lake in the north, fed by the **Jordan River**.
- **Mountain Ranges:** Includes **Mount Hermon** (highest point in the north), **Mount Carmel** (near Haifa), and the **Judean Mountains**.

4. Important Cities and Ports

- **Jerusalem:** Located in the Judean Mountains; the seat of government.
- **Tel Aviv:** The economic and technological hub on the Mediterranean coast.
- **Haifa:** The largest northern port city, critical for the IMEC project.
- **Eilat:** Israel's only port on the Red Sea, located at the southern tip.
- **Ashkelon & Ashdod:** Major coastal cities and ports south of Tel Aviv.

2.12.3. BRAZIL: MAPPING PERSPECTIVE

Context: Recently, India and Brazil signed a series of landmark agreements during the state visit of President Luiz Inácio Lula da Silva to New Delhi. These agreements focus on strategic cooperation in **critical minerals** (specifically rare earths and lithium), **steel mining**, and **digital public infrastructure**.

1. Political Location and Borders

- **Vast Landmass:** Brazil is the **fifth-largest country** in the world and occupies nearly **47% of the South American continent**.
- **Latitudinal Extent:** It is the only country in the world through which both the **Equator** and the **Tropic of Capricorn** pass.
- **Neighboring Countries:** Brazil shares a border with every South American country except for **Chile and Ecuador**.
- **Coastline:** It has an extensive coastline along the **Atlantic Ocean** to the east.



2. Major Physical Features

- **The Amazon Basin (North):** This is the world's largest drainage basin, covered by the **Selvas** (equatorial rainforests). It is a major carbon sink and is often called the "Lungs of the Earth."
- **The Brazilian Highlands (South-East):** This is an ancient plateau composed of old crystalline rocks. It includes sub-ranges like the **Serra do Mar** and the **Serra da Mantiqueira**.
- **The Pantanal (West):** Located primarily in the state of Mato Grosso do Sul, the Pantanal is the **world's largest tropical wetland**. It is an internal delta where several rivers converge.

- **Mato Grosso Plateau:** This is a central upland region that acts as a water divide between the Amazon and La Plata river systems.

3. Drainage Systems

- **Amazon River:** It originates in the **Andes Mountains (Peru)** and flows into the Atlantic Ocean. Its major tributaries in Brazil include the **Rio Negro** (black water) and the **Madeira**.
- **São Francisco River:** Known as the "river of national integration," it is the longest river that runs **entirely within Brazilian territory**.
- **Paraná-Paraguay System:** These rivers flow southward and contribute to the **Itaipu Dam**, one of the world's largest hydroelectric power producers, shared with Paraguay.

4. Economic Geography & Resources

- **The Iron Quadrangle (Quadrilátero Ferrífero):** Located in the state of **Minas Gerais**, this is one of the world's richest iron-ore mining regions.
- **Carajás Mine:** Situated in the state of **Pará**, it is the world's largest iron ore mine.
- **Critical Minerals:** Brazil is a global leader in **Niobium** production and holds significant reserves of **Lithium** and **Graphite**, which are vital for India's EV battery supply chain.
- **Agriculture:** Brazil is the world's largest producer of **Coffee** (grown in "Fazendas") and a leading producer of **Soybeans** and **Sugar**.

2.12.4. MAPPING OF CANADA

Context: Recently, the visit of Canadian Prime Minister **Mark Carney** to India on February 27, 2026, has brought Canada's geographical and strategic assets into sharp focus. A central pillar of the bilateral talks involves the **India-Canada Critical Minerals Partnership**. Canada's geography is not merely a matter of topography but a repository of global resources; the Canadian Shield, often called the "Mineral House," is vital for India's transition to green energy, containing massive deposits of **uranium, potash, and nickel**.



1. Physiographic Regions

Canada is divided into seven distinct physiographic regions, each with unique geological features:

- **The Canadian Shield:** An ancient, horseshoe-shaped region of Precambrian rock surrounding **Hudson Bay**. It covers 50% of the country and is the primary source of metallic minerals (Iron, Nickel, Copper, Gold).
- **The Western Cordillera:** High, rugged mountains on the Pacific coast, including the Rockies and the Coast Mountains.
- **The Interior Plains:** The "Breadbasket of Canada," stretching between the Shield and the Cordillera, known for wheat and fossil fuels.
- **Appalachian Region:** Older, eroded mountains in the southeast (Atlantic provinces).
- **The Arctic Archipelago:** A vast group of thousands of islands in the far north.
- **St. Lawrence Lowlands:** The most densely populated region, featuring fertile land and the Great Lakes.
- **Hudson Bay Lowlands:** A flat, swampy region located on the southern shore of Hudson Bay.

2. Mountain Systems and Ranges

- **Western Cordillera (Pacific Coast):**
 - **The Rockies:** Extend from the US through British Columbia and Alberta.
 - **Coast Mountains:** Run along the Pacific shore; they are heavily glaciated.
 - **Saint Elias Mountains:** Home to **Mount Logan** (5,959m), Canada's highest point.
- **Eastern Systems:**
 - **Torngat Mountains:** Located in Labrador, part of the Canadian Shield.
 - **Appalachians:** Low, rolling mountains in Newfoundland, New Brunswick, and Nova Scotia.

3. Hydrography: Rivers and Lakes

Canada contains 7% of the world's renewable freshwater.

- **Major Rivers:**
 - **Mackenzie River:** Longest in Canada (4,241 km); flows from Great Slave Lake to the **Beaufort Sea**.
 - **St. Lawrence River:** Connects the Great Lakes to the Atlantic Ocean; a major commercial artery.
 - **Yukon River:** Flows through the Yukon Territory into Alaska.
 - **Nelson River:** Drains Lake Winnipeg into Hudson Bay.
- **Key Lakes:**
 - **The Great Lakes:** Superior, Huron, Erie, and Ontario (Shared with the US). **Lake Michigan** is entirely in the US.
 - **Great Bear Lake:** Largest lake entirely within Canada (Northwest Territories).
 - **Great Slave Lake:** Deepest lake in North America (Northwest Territories).
 - **Lake Winnipeg:** Located in Manitoba; a remnant of the glacial Lake Agassiz.

4. Strategic Islands and Straits

- **Arctic Archipelago Islands:** **Baffin Island** (largest), Victoria Island, and Ellesmere Island (northernmost).
- **Strategic Straits:**
 - **Davis Strait:** Between Greenland and Baffin Island; connects Baffin Bay and the Labrador Sea.
 - **Hudson Strait:** Connects Hudson Bay to the Atlantic Ocean.

- **Strait of Belle Isle:** Separates Newfoundland from the Labrador Peninsula.
- **Juan de Fuca Strait:** Between Vancouver Island and Washington State (US).

5. Major Minerals Found in Canada

Metallic Minerals

- **Uranium:** A globally significant resource. Canada possesses one of the world's largest high-grade uranium reserves, primarily centered in the **Athabasca Basin** in northern Saskatchewan.
- **Nickel:** Extensive deposits are mined around **Sudbury** and **Timmins** in Ontario, making Canada a leading global producer.
- **Potash:** Essential for global agriculture. Canada is the world's largest producer of potash, with major mines located across Saskatchewan.
- **Iron Ore:** Heavily concentrated in the **Labrador Trough** (the border region of Quebec and Newfoundland and Labrador).
- **Copper, Gold, and Zinc:** Widely distributed, with notable production centers in Ontario (Sudbury, Timmins) and Quebec.

Energy Minerals

- **Crude Petroleum:** Concentrated in Western Canada, specifically the **Athabasca Oil Sands** in Alberta. The **Hibernia** oil field off the coast of Newfoundland is also a major offshore producer.
- **Natural Gas:** Found extensively in British Columbia, Alberta, and Saskatchewan.
- **Coal:** Mined primarily in British Columbia, Alberta, and Saskatchewan.

2.12.5. WEST BANK

Context: Recently, the West Bank has dominated global headlines as 85 countries issued a joint statement at the United Nations strongly condemning Israel's latest plan to begin a massive land registration process in the territory.

1. Geographical Overview

- **Location:** The West Bank is a landlocked territory in West Asia, located on the western bank of the **Jordan River**.
- **Borders:** It is bordered by **Jordan** and the **Dead Sea** to the east, and by **Israel** to the north, west, and south along the "Green Line" (1949 Armistice Line).
- **Terrain:** The region is characterized by a north-south orientation of limestone hills, namely the **Samaritan Hills** in the north and the **Judean Hills** in the south.
- **Key Water Bodies:** The Jordan River serves as the primary freshwater source and the natural eastern boundary, while the Dead Sea is the lowest point on Earth.



2. The Oslo Accords and Administrative Divisions

- **Oslo II Accord (1995):** This interim agreement divided the West Bank into three distinct administrative zones to facilitate a gradual transition to Palestinian self-rule.

- **Area A (18%):** Full civil and security control lies with the **Palestinian Authority (PA)**; it includes major cities like Ramallah and Nablus.
- **Area B (22%):** The PA handles civil administration (health, education), while security is jointly controlled by Israel and the PA.
- **Area C (60%):** Israel retains full civil and security control; this area contains the vast majority of Israeli settlements and is the current focus of land registration disputes.

3. Strategic Cities and Locations

- **Ramallah:** Serves as the de facto administrative capital of the Palestinian Authority.
- **Hebron (Al-Khalil):** A major flashpoint city containing the **Cave of the Patriarchs**, a site holy to both Jews and Muslims.
- **Jericho:** Located in the Jordan Valley, it is one of the oldest continuously inhabited cities in the world and lies below sea level.
- **Jenin:** Home to a significant refugee camp and a frequent center for security operations.

4. International Legal Framework

- **Status:** The United Nations and the International Court of Justice (ICJ) categorize the West Bank as **occupied territory** rather than a part of Israel.
- **Resolutions:** **UNSC Resolution 242** (1967) and **Resolution 338** (1973) form the legal basis for the "Land for Peace" principle, calling for Israeli withdrawal from territories occupied in the Six-Day War.

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UPSC PRELIMS PRACTICE QUESTIONS

Q. With reference to the League of Arab States (LAS), consider the following statements:

1. Every member state has one vote in the Council, and decisions are binding on all members regardless of whether they voted in favor.
2. India holds the status of a Permanent Observer in the League of Arab States.
3. The "Alexandria Protocol" of 1944 provided the foundational framework for the establishment of the League.
4. All member states of the Gulf Cooperation Council (GCC) are also members of the League of Arab States.

Which of the statements given above are correct?

- (a) Only one statement
- (b) Only two statements
- (c) Only three statements
- (d) All four statements

Correct Answer: (c) Only three statements

Explanation:

STATEMENT 1 IS INCORRECT: According to the LAS Charter, decisions made by the Council are binding only on those states that have voted for them. If a decision is made by consensus, it is binding on all.

STATEMENT 2 IS CORRECT: India was granted Observer Status in 2002, making it the first non-Arab country to have such a formal link with the organization.

STATEMENT 3 IS CORRECT: The Alexandria Protocol signed in 1944 by Egypt, Iraq, Lebanon, Syria, and Transjordan (Jordan) laid the groundwork for the formal Pact signed in 1945.

STATEMENT 4 IS CORRECT: All six members of the GCC (Saudi Arabia, UAE, Qatar, Kuwait, Oman, and Bahrain) are integral members of the 22-nation League of Arab States.

Q. With reference to the 'New START Treaty', which was recently in the news, consider the following statements:

1. It is a multilateral treaty signed under the aegis of the United Nations to eliminate all tactical and strategic nuclear weapons.
2. The treaty limits the number of deployed strategic nuclear warheads for both the United States and Russia to 1,550 each.
3. Under the treaty's provisions, a state party can only extend the agreement once for a maximum period of five years.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: (b) Only two

Explanation:

STATEMENT 1 IS INCORRECT: The New START is a bilateral treaty specifically between the United States and the Russian Federation, not a multilateral UN-led treaty. It focuses on strategic (long-range) weapons, not tactical ones.

STATEMENT 2 IS CORRECT: One of the core pillars of the treaty is the cap of 1,550 deployed strategic warheads for each side.

STATEMENT 3 IS CORRECT: According to the treaty text, it allowed for one single extension for a period of up to five years, which was exercised by Presidents Biden and Putin in early 2021.

Q. With reference to the Gulf Cooperation Council (GCC), consider the following statements:

1. It is a regional intergovernmental union comprising all the littoral states of the Persian Gulf.

2. The Supreme Council is the highest authority of the GCC, and its presidency rotates periodically among the Member States.
3. As of 2025, the GCC as a bloc has surpassed the United States and the European Union to become India's largest merchandise trading partner.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Correct Answer: (b) Only two

Explanation:

STATEMENT 1 IS INCORRECT: While the GCC countries are located around the Persian Gulf, the council does not include all littoral states. Specifically, Iran and Iraq are littoral states of the Persian Gulf but are not members of the GCC.

STATEMENT 2 IS CORRECT: The Supreme Council, consisting of the Heads of State, is the top decision-making body, and its presidency rotates among members in alphabetical order.

STATEMENT 3 IS CORRECT: According to the latest trade data (2024-25), India's total bilateral merchandise trade with the GCC stood at \$178.5 billion, which is higher than its trade with the EU (\$136.5 billion) and the US (\$132.1 billion).

- Q. With reference to the Chabahar Port, consider the following statements:
- I. Chabahar Port is Iran's only oceanic port with direct access to the Indian Ocean.
 - II. India operates the Shahid Beheshti terminal at Chabahar through India Ports Global Limited (IPGL).

III. The port provides India a direct land route to Afghanistan and Central Asia bypassing Pakistan.

IV. The project is part of the International North–South Transport Corridor (INSTC).

Which of the statements given above are correct?

- (a) I, II and III only
- (b) I, II and IV only
- (c) I, III and IV only
- (d) I, II, III and IV

Correct Answer: (d) I, II, III and IV

Explanation:

Statement I is correct: Chabahar is Iran's only oceanic port, located on the Gulf of Oman, giving it direct access to the Indian Ocean.

Statement II is correct: India operates the Shahid Beheshti Terminal through India Ports Global Limited (IPGL) under an agreement with Iran.

Statement III is Correct: Chabahar provides India a direct connectivity route to Afghanistan and Central Asia, bypassing Pakistan, which is strategically significant.

Statement IV is correct: The port is a key component of the International North–South Transport Corridor (INSTC), linking India with Central Asia, Russia, and Europe.

- Q. With reference to the defense relations between India and Greece, consider the following statements:
1. The first-ever bilateral maritime exercise between the Indian Navy and the Hellenic Navy was conducted in the Mediterranean Sea in 2025.
 2. Greece is a signatory to the International Solar Alliance (ISA) and supports India's permanent membership in the UN Security Council.

3. 'Exercise INIOCHOS' is a bilateral army exercise conducted annually between the Indian and Greek special forces.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2, and 3

Answer: (a) 1 and 2 only

Explanation:

STATEMENT 1 CORRECT: In September 2025, the Indian Navy (INS Trikand) and the Hellenic Navy successfully conducted their maiden bilateral naval exercise in the Mediterranean Sea.

STATEMENT 2 CORRECT: Greece has ratified the ISA framework and consistently backs India's core foreign policy objectives, including UNSC reforms and the Kashmir issue.

STATEMENT 3 INCORRECT: 'Exercise INIOCHOS' is a multinational air force exercise hosted by Greece, not a bilateral army exercise. India participated in it with Su-30 MKI aircraft to enhance aerial combat interoperability.



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3.1. COCONUT PROMOTION SCHEME

Context:

- **Recently**, Union Finance Minister Nirmala Sitharaman, while presenting the **Union Budget 2026–27**, proposed a dedicated “**Coconut Promotion Scheme**” aimed at enhancing the competitiveness of India’s coconut sector.
- The scheme prioritizes increasing productivity through interventions such as replacing old, senile, and non-productive trees with high-yielding saplings in major coconut-growing states.
- This initiative is part of a broader shift toward supporting high-value plantation crops like coconut, cashew, and cocoa to diversify farm outputs and enhance farmers’ incomes.



Basic of Coconut

1. Production Status and Ranking

- **Global Position:** India is the **third-largest producer** of coconuts in the world, following Indonesia and the Philippines.
- **Livelihood:** Approximately **30 million people** and nearly **10 million farmers** in India depend on coconut cultivation for their livelihoods.
- **Major Producing States:** The four southern states—**Karnataka, Tamil Nadu, Kerala, and Andhra Pradesh**—collectively account for about **90%** of India’s total coconut production.
- **Expansion:** Cultivation is expanding to non-traditional areas, including the North-Eastern states (Assam and Tripura) and coastal regions of Odisha and West Bengal.

2. Climatic and Geographical Requirements

- **Nature of Crop:** It is essentially a **tropical plant**, typically grown between **20°N and 20°S latitudes**.
- **Temperature:** It requires an ideal mean annual temperature of **22°C–32°C**. Reproductive growth is hindered if temperatures fall below **10°C**.
- **Rainfall:** A well-distributed annual rainfall of **1300 mm to 2300 mm** is preferred. In areas with uneven rainfall, irrigation is essential.
- **Sunlight:** The palm requires plenty of sunlight (roughly **2000 hours** of sunshine annually) and **does not thrive in heavily shaded or cloudy regions**.
- **Soil:** It can grow in diverse soil types including laterite, coastal sandy, alluvial, and saline soils. A pH range of **5.0 to 8.0** is tolerable, provided there is proper drainage.

3. Institutional and Regulatory Framework

- **Coconut Development Board (CDB):** It is a **statutory body** established in 1981 under the **Ministry of Agriculture and Farmers Welfare**. Its headquarters is located in **Kochi, Kerala**.
- **Mandate:** The CDB focuses on integrated development, productivity increase, product diversification, and providing technical advice to the coconut industry.
- **Minimum Support Price (MSP):** The government fixes the MSP for **Milling Copra** and **Ball Copra**.
 - **Nodal Agencies: NAFED** and **NCCF** act as the central nodal agencies for procurement under the **Price Support Scheme (PSS)**.

4. Key Highlights: Coconut Promotion Scheme

- **Primary Goal:** Transform India from the 3rd largest producer to a global leader in yield and quality.
- **Rejuvenation:** Financial support to replace **senile and non-productive palms** with high-yielding, early-bearing varieties.
- **Cluster Development:** Part of a **₹350 crore** allocation for high-value crops (Coconut, Cashew, Cocoa, Sandalwood).
- **Processing Hubs:** Establishing dedicated facilities for **Value Addition** (Virgin Coconut Oil, Coconut Water, Coir Pith).
- **Digital Integration:** Linking coconut farmers to the **Bharat-VISTAAR** (AI-Advisory) platform for real-time pest and nutrient management.
- **Export Branding:** Positioning Indian coconut as a premium global brand to compete with Indonesia and the Philippines

3.2. COCOA CULTIVATION

Context:

Recently, the Union Finance Minister announced a dedicated mission for **cocoa** and cashew in the Union Budget 2026-27 to make India self-reliant in production and processing by 2030. According to *The Hindu* and *The Indian Express*, cocoa has gained significant attention due to a 2025-26 global price surge- reaching record highs of over **USD 10,000 per tonne**-triggered by severe supply deficits in West Africa.



The "Cocoa Promotion Scheme" aims to boost domestic productivity through the replacement of old trees and integration with the "Link South" agri-policy, particularly in coastal and hilly regions of Southern India.

1. Geographical and Climatic Requirements

- **Origin:** The cocoa tree (*Theobroma cacao*) is native to the **Amazon rainforest of South America**.
- **The Cocoa Belt:** It thrives in a narrow band known as the "Cocoa Belt," located within **20 degrees north and south of the Equator**.
- **Temperature:** It requires high temperatures ranging between **18°C and 32°C**. It is highly sensitive to frost and extreme heat above 35°C.
- **Rainfall:** Optimal growth occurs with well-distributed annual rainfall between **1500 mm and 2000 mm**.
- **Humidity:** A hot and humid atmosphere is essential, with relative humidity levels often reaching **100% during the day**.
- **Shade Requirement:** Cocoa is traditionally an **under-storey crop** (shade-loving) and requires about 40–50% shade, which is why it is often intercropped with coconut and arecanut.
- **Soil:** It prefers deep, well-drained, nutrient-rich soils with a pH between **6.5 and 7.0**.

2. Global Production Status (2025-26)

- **Leading Producers:** West Africa accounts for approximately 70% of global production. The top three producers are **Ivory Coast (Côte d'Ivoire), Ghana, and Indonesia**.
- **Rising Contenders:** **Ecuador** has recently emerged as a significant player, overtaking traditional rankings due to better productivity.
- **The 2026 Crisis:** Production in West Africa has been hit by the **Swollen Shoot Virus, Black Pod disease**, and extreme weather (El Niño), leading to a global supply shortage and record-high prices.

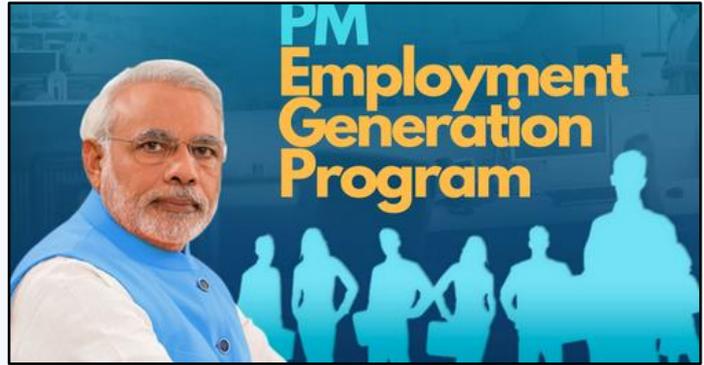
3. Cocoa in India

- **Major Producing States:** India is the 15th largest producer globally. Within India, **Andhra Pradesh** is the largest producer (accounting for over 40% of production), followed by **Kerala, Karnataka, and Tamil Nadu**.
- **Intercropping Model:** In India, cocoa is predominantly grown as an **intercrop** in coconut and arecanut plantations, providing farmers with an additional income stream.
- **Trade Position:** India is a **net importer** of cocoa. Domestic production meets only about 20–25% of the total industry demand of 50,000 MT per annum, with the remainder imported from West Africa and Southeast Asia.
- **Varieties:** The three main varieties cultivated are:
 - **Forastero:** Most common (90% of global production), hardy and high-yielding.
 - **Criollo:** Premium quality, delicate, and prone to disease.
 - **Trinitario:** A hybrid of the two.

3.3. PM EMPLOYMENT GENERATION PROGRAMME (PMEGP)

Context:

Recently, the RBI amended the MSME lending directions, doubling the **collateral-free loan** limit from ₹10 lakh to ₹20 lakh for Micro and Small Enterprises (MSEs). Banks have been instructed not to demand collateral for such loans and to mandatorily extend this benefit to all units financed under the Prime Minister's Employment Generation Programme



Employment Generation Programme (PMEGP), with the **objective** of improving **last-mile credit access** for entrepreneurs lacking tangible assets.

About PMEGP

The PMEGP is a flagship **Central Sector Scheme** aimed at generating self-employment opportunities through the establishment of micro-enterprises in the non-farm sector.

1. Origin and Administration

- **Genesis:** It was launched in **2008** by merging two erstwhile schemes: the **Prime Minister's Rojgar Yojana (PMRY)** and the **Rural Employment Generation Programme (REGP)**.
- **Nodal Ministry:** It is administered by the **Ministry of Micro, Small and Medium Enterprises (MoMSME)**.

2. Implementation Framework

- **National Level:** The **Khadi and Village Industries Commission (KVIC)** serves as the single nodal agency for implementation across the country.
- **State Level:** Implementation is carried out through State KVIC Directorates, State **Khadi and Village Industries Boards (KVIBs)**, **District Industries Centres (DICs)**, and banks.
- **Recent Update:** All implementing agencies (KVIC, KVIB, DIC) are now permitted to receive and process applications for both rural and urban areas.

3. Eligibility Criteria

- **Age:** Any individual above **18 years** of age is eligible.
- **Educational Qualification:** For projects costing above **₹10 lakh** in the manufacturing sector and above **₹5 lakh** in the business/service sector, the beneficiary **must have** passed at least **Class VIII**.
- **Income Limit:** There is **no income ceiling** for setting up projects under PMEGP.
- **Entities:** Self-help Groups (SHGs), Institutions registered under the Societies Registration Act, 1860, Production Co-operative Societies, and Charitable Trusts are also eligible.
- **New Projects Only:** Assistance is provided only for setting up **new** units; existing units **are not eligible** for the first loan.

4. Financial Assistance and Subsidy (Margin Money)

The scheme is a **credit-linked subsidy** program. The government provides "Margin Money" (subsidy) which is routed through banks.

Category of Beneficiary	Beneficiary Contribution	Subsidy (Urban)	Subsidy (Rural)
General Category	10%	15%	25%
Special Category*	05%	25%	35%

Special Category Includes: SC/ST, OBC, Minorities, Women, Ex-servicemen, Differently-abled, NER (North Eastern Region), Hilly and Border areas.

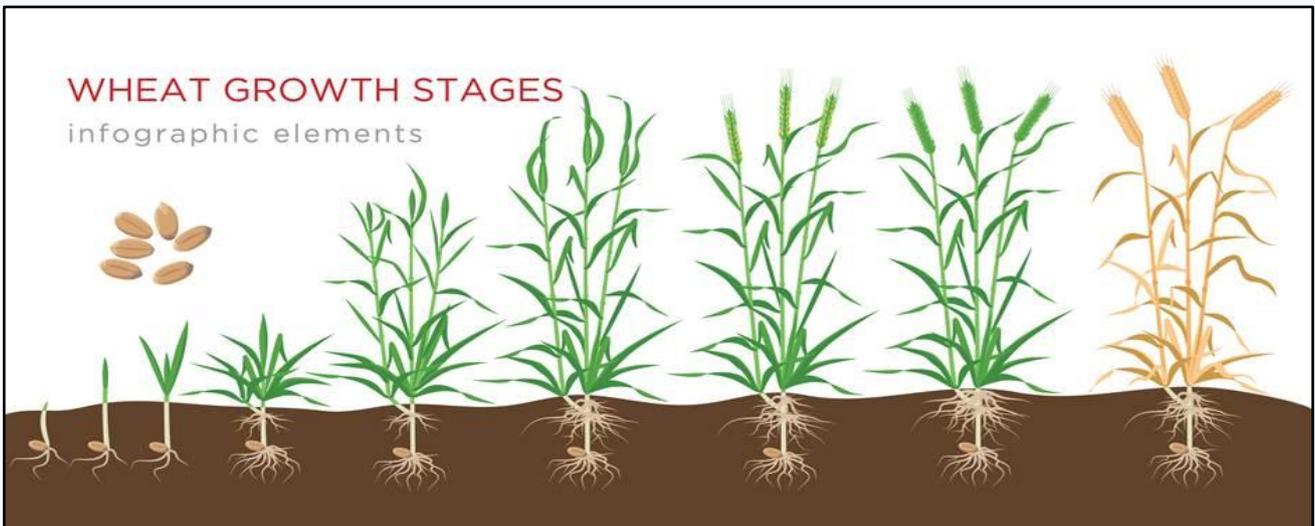
5. Maximum Project Cost

- **Manufacturing Sector:** Up to ₹50 lakh.
- **Service Sector:** Up to ₹20 lakh.
- **Upgradation (2nd Loan):** For well-performing existing PMEGP/MUDRA units, a second loan of up to ₹1 crore (Manufacturing) and ₹25 lakh (Service) is available with a 15% subsidy (20% for NER/Hilly areas).

3.4. WHEAT: FROM SOIL REQUIREMENTS TO INDIA'S EXPORT STRATEGY

Context:

Recently, the Government of India announced a significant policy shift by approving the export of **25 lakh tonnes of wheat** and 5 lakh tonnes of wheat products for the early 2026 season. This decision, stems from a projected record harvest and robust central stocks of **182 LMT**, which far exceed the mandatory buffer requirements. The move marks the end of a long-standing export restriction and aims to help Indian farmers tap into global demand while stabilizing local wholesale prices.



1. Wheat Cultivation in India: Climate and Soil Requirements

- **Crop Category:** Wheat is the **second most important cereal crop** in India, following rice, and is the staple food for most of North and West India.
- **Season:** It is primarily a **Rabi crop**, sown in winter (October–December) and harvested in spring (February–May).
- **Ideal Temperature:** It requires a cool growing season (**10°C to 15°C** at sowing) and a warm, sunny ripening period (**21°C to 26°C** at harvest).
- **Rainfall Patterns:** The crop thrives with **50-75 cm** of annual rainfall. Winter drizzles caused by **Western Disturbances** are particularly beneficial for higher yields.

- **Soil Suitability:** Well-drained, fertile **loams and clayey loams** are preferred. The alluvial soils of the Indo-Gangetic plains and the black soils of the Deccan are primary cultivation zones.

2. India's Position as a Global Producer and Exporter

- **Production Ranking:** India is the **world's second-largest producer** of wheat, contributing nearly **14% of the total global output**, second only to **China**.
- **Top Producers Globally:** The top five producers are China, India, Russia, the United States, and France.
- **Export Dimension:** Although India is a top producer, it is often a "swing" exporter due to its massive domestic consumption requirements.
- **Global Export Leaders:** **Russia** remains the world's largest wheat exporter. India's re-entry into the market in 2026 targets key deficit regions in **West Asia, Southeast Asia (Indonesia, Philippines), and North Africa (Egypt)**.

3. Key Government Policies and Economic Support

- **MSP for 2026-27:** The government fixed the Minimum Support Price (MSP) for wheat at **₹2,585 per quintal**.
- **Farmer Profits:** This price ensures a return of **109%** over the estimated cost of production, providing the highest profit margin among all Rabi crops.
- **Stock Management:** The Food Corporation of India (FCI) manages the "Central Pool" to supply grains for the **National Food Security Act (NFSA)** and the **PM-GKAY** scheme.

4. Challenges: Climate Change and Biosecurity

- **Terminal Heat Stress:** Rising temperatures in March (during the grain-filling stage) are a major threat, potentially reducing yields by **6-25%** by 2100.
- **Wheat Blast:** This fungal disease (*Magnaporthe oryzae*) is an emerging threat to South Asian food security, causing sudden bleaching of the wheat heads.
- **Climate-Resilient Varieties:** Researchers have developed varieties like **HD-3385** (early sowing/heat tolerant) and **PBW RS1** (high amylose for health benefits) to combat these challenges.

3.5. LEAD BANK SCHEME

Context:

Recently, the Reserve Bank of India (RBI) released a comprehensive draft circular to overhaul the **Lead Bank Scheme (LBS)** to align it with the National Strategy for Financial Inclusion 2025–30.

1. Genesis and Evolution of Lead Bank Scheme

- **Introduction:** The Lead Bank Scheme was introduced by the Reserve Bank of India in **December 1969**.
- **Aim:** To coordinate banks and development agencies to increase bank credit flow to priority sectors and strengthen banks' role in rural development.
- **Gadgil Study Group (1969):** It recommended the **"Area Approach"** to evolve coordinated plans for banking and credit structure in rural areas.



- **Nariman Committee (1969):** A Committee of Bankers headed by **F.K.F. Nariman** endorsed this approach, suggesting that each district be allotted to a specific "Lead Bank" to act as a pace-setter.
- **Usha Thorat Committee (2009):** This panel recommended the revitalization of the scheme to focus on **100% financial inclusion** and strengthen the role of the Lead District Manager.

2. Core Mechanism: The Area Approach

- **District as a Unit:** Under the scheme, a district is the primary unit for planning and coordination of banking activities.
- **Consortium Leader:** One commercial bank (Public or Private) is designated as the **Lead Bank** for a specific district.
- **Non-Monopoly Role:** The Lead Bank does not have a monopoly over banking business in the district; rather, it acts as a **coordinator** for all financial institutions (Commercial Banks, RRBs, Co-operatives) and government agencies.

3. Institutional Architecture

The scheme operates through a hierarchy of committees to ensure coordination between banks and the government:

Level	Committee	Chairperson	Frequency
State Level	State Level Bankers' Committee (SLBC)	CMD/Executive Director of Convenor Bank	Quarterly
District Level	District Consultative Committee (DCC)	District Collector	Quarterly
District Level	District Level Review Committee (DLRC)	District Collector (includes MPs/MLAs)	Half-yearly
Block Level	Block Level Bankers' Committee (BLBC)	Lead District Manager (LDM)	Quarterly

Key Functionary: Lead District Manager (LDM)

- The Lead Bank appoints a senior officer as the **LDM** to oversee the implementation of the **District Credit Plan (DCP)**.
- The LDM acts as a liaison between the banking sector and the district administration to resolve operational bottlenecks.

4. Key Concepts for Prelims

- **Service Area Approach (SAA):** Introduced in 1989 as a part of LBS, it assigned a group of villages to a specific bank branch to ensure planned credit deployment.
- **District Credit Plan (DCP):** It is an annual plan prepared by the Lead Bank indicating the sector-wise and block-wise credit targets for the district.
- **Credit-Deposit (CD) Ratio:** It measures the credit disbursed by banks in a region relative to the deposits mobilized there. RBI monitors this to ensure that rural deposits are reinvested locally rather than being diverted to metropolitan areas.

3.6. TOBACCO TAXATION REFORM 2026: STRATEGIC TRANSITION

Context: The Union Finance Ministry has notified a comprehensive restructuring of the tobacco taxation regime effective **February 1, 2026**, following the passage of the **Central Excise (Amendment) Act, 2025**. This marks a shift from general revenue compensation to a dedicated health-cum-security fiscal framework.



1. Structural Changes in Levies

I. Phase-out of GST Compensation Cess

- The GST compensation cess on tobacco products has officially ended, as the original objective of bridging state revenue gaps has been fulfilled.
- This temporary instrument is replaced by a permanent levy under the **Health Security-cum-National Security Act, 2025**.
- The new cess creates a non-lapsable revenue stream specifically for long-term security preparedness and health capacity building.

II. Revised GST Slabs and Divergent Rates

- **Standard Tobacco Products:** Cigarettes and chewing tobacco have been moved to the **40% GST slab** to reduce affordability.
- **Beedi Taxation:** Beedis are categorized in a significantly lower **18% GST slab**.
- **Demerit Goods:** All tobacco products remain classified as "demerit goods," justifying higher tax brackets compared to essential items.

III. Retail Sale Price (RSP) Valuation Mechanism

- For smokeless tobacco (gutkha, khaini, jarda), GST is now calculated based on the **Retail Sale Price (RSP)** declared on the packaging.
- This mechanism aims to curb under-reporting and tax evasion prevalent in the unorganized tobacco sector.

2. Socio-Economic and Health Facts

I. Consumption Patterns and Demographics

- **Rural Prevalence:** Beedi smoking is twice as prevalent in rural areas (8.3%) compared to urban centers (4.5%) among men.
- **Wealth Correlation:** Beedi use is inversely proportional to wealth; consumption is highest among the poorest 20% of the population.
- **Intensity of Use:** Over **80% of beedi smokers** consume more than five sticks daily, surpassing the frequency observed among cigarette users.

II. Comparative Health Risks

- **Respiratory Impact:** Beedi smokers are **2.87 times** more likely to suffer from asthma, compared to 1.82 times for cigarette smokers.
- **Mortality Risks:** Beedi consumption is associated with a **2.6 times** higher risk of tuberculosis mortality.

- **Cancer Profile:** Beedi smoking is linked to elevated risks for lung and laryngeal cancers, often exceeding the risks associated with cigarettes.

3.7. EXPORT PROMOTION MISSION

Context: Recently, the Ministry of Commerce and Industry launched seven additional interventions under the **Export Promotion Mission (EPM)**, a comprehensive ₹25,060-crore initiative aimed at strengthening India's export ecosystem until 2030-31.



1. Export Promotion Mission (EPM)

Announced in the Union Budget 2025-26, the EPM serves as an umbrella framework to consolidate various fragmented schemes into a single, result-oriented mechanism.

- **Structure:** It operates through two categories:
 - **Niryat Protsahan (Financial):** Focuses on interest subvention, credit guarantees, and export factoring to lower the cost of credit.
 - **Niryat Disha (Non-Financial):** Focuses on market readiness, international branding, quality compliance, and logistics support.
- **Key Interventions:** Includes the **Direct E-commerce Credit Facility** (up to ₹50 lakh with 90% guarantee) and support for **Overseas Warehousing** (up to 30% of project cost).

2. RoDTEP Scheme (Remission of Duties and Taxes on Exported Products)

The RoDTEP scheme replaced the Merchandise Exports from India Scheme (MEIS) to ensure Indian exports are **WTO-compliant**.

- **Objective:** To refund "embedded" central, state, and local duties (like Mandi tax, coal cess, and electricity duty) that are not rebated under GST.
- **Mechanism:** Rebates are issued as **transferable e-scrips** maintained in an electronic ledger by the CBIC.
- **Extension:** The scheme is currently valid for all sectors, including SEZ and EOU units, until **March 31, 2026**.

3. EPCG Scheme (Export Promotion Capital Goods)

- **Feature:** Allows the import of **capital goods** (machinery) at **zero customs duty**.
- **Obligation:** The exporter must fulfill an **Export Obligation (EO)** equivalent to **6 times the duty saved**, within a period of 6 years.
- **Target:** Primarily aimed at technological upgradation and modernization of the manufacturing and service sectors.

4. Advance Authorization Scheme (AAS)

- **Feature:** Allows **duty-free import of inputs** (raw materials) that are physically incorporated into an export product.
- **Requirement:** It requires a minimum **15% value addition**.
- **Condition:** Inputs are subject to "Actual User" condition and are not transferable even after the export obligation is met.

3.8. INDIA'S NEW GDP DATA

Context:

- Recently, the Ministry of Statistics and Programme Implementation (MoSPI) has officially transitioned the Indian economy to a new GDP series by shifting the base year from 2011–12 to 2022–23. This change aims to capture the structural transformations of the Indian economy, particularly the rapid growth of the digital economy, gig work, and updated consumption patterns.
- Along with the rebasing, the National Statistical Office (NSO) has released the Second Advance Estimates for FY 2025-26, projecting a real GDP growth rate of approximately 7.4-7.6%.



Key Highlights of India's New GDP Data

1. Revision of Base Year (2022-23)

- The base year for Gross Domestic Product (GDP) and the Index of Industrial Production (IIP) has been updated to **2022–23** to replace the decade-old 2011–12 series.
- The Consumer Price Index (CPI) base year is also being aligned to **2023–24** to better reflect the modern consumption basket of Indian households.
- Rebasing is a standard statistical practice recommended by the United Nations System of National Accounts (SNA) to ensure that economic data remains relevant to current market realities.

2. Methodological Upgrades

- Double Deflation:** One of the most significant changes is the adoption of the "Double Deflation" method, where output and intermediate inputs are deflated separately to calculate Real Gross Value Added (GVA) more accurately.
- New Data Sources:** The NSO is now leveraging big data from the **Goods and Services Tax Network (GSTN)**, digital payment portals (though UPI value is used cautiously), and the **Vahan dashboard** for vehicle registrations.
- MCA-21 Database:** Enhanced use of the Ministry of Corporate Affairs' digital filings (MCA-21) allows for better coverage of the organized corporate sector compared to earlier survey-based methods.

3. Macroeconomic Projections (FY 2025-26)

- Real GDP Growth:** The economy is estimated to grow at **7.4% to 7.6%** in real terms, maintaining India's status as the fastest-growing major economy.
- Nominal GDP Growth:** Projected at approximately **8.0%**, reflecting a narrowing gap between real and nominal growth due to easing inflationary pressures (GDP Deflator).
- Sectoral Performance:**
 - Services:** Expected to grow at a robust **9.1%**, driven by financial and professional services.
 - Manufacturing:** Estimated to rebound to **7.0%** growth from lower levels in previous years.
 - Agriculture:** Anticipated to see a moderate growth of **3.1%**.

4. Impact on Fiscal Indicators

- **Denominator Effect:** A potential upward revision in the absolute size of the GDP due to rebasing often leads to a statistical reduction in the **Fiscal Deficit as a % of GDP** and the **Debt-to-GDP ratio**, even if the absolute debt remains the same.
- **Investment Rates:** Indicators like Gross Fixed Capital Formation (GFCF) as a percentage of GDP may appear lower if the GDP base expands significantly.

3.9. INDIA'S ENERGY SHIFT THROUGH THE GREEN AMMONIA

Context: At the inaugural session of India Energy Week (IEW) in January 2026, India announced a shift from **energy security to energy independence** and positioned **\$500 billion investment opportunities** across the energy sector.

The strategy emphasizes clean energy transition, with **green hydrogen** as a key pillar and **green ammonia** identified as a critical derivative for decarbonizing **fertilizers, clean energy, and marine fuel**.



1. About Green Ammonia

- Green ammonia, also known as **renewable ammonia**, is a form of ammonia that is produced using renewable energy sources and which is proposed as a **sustainable, emission-free alternative** with a multitude of applications in industry and other sectors.
- Unlike traditional "**grey**" ammonia that uses fossil fuels, green ammonia **emits zero carbon**, offering a sustainable solution for environment.

2. Production and Technology Process:

- **Green hydrogen** is first produced through **water electrolysis**, where water is split into **hydrogen and oxygen** using renewable electricity.
- The process relies on clean energy sources like **solar or wind power to keep it carbon-free**.
- The hydrogen is then combined with **atmospheric nitrogen** using the **Haber-Bosch process** under **high pressure, temperature, and a catalyst**.
- This results in the production of green ammonia made **entirely from green hydrogen and nitrogen**.

3. What are the main uses/importance of green ammonia?

- **Efficient Hydrogen Carrier:** Green ammonia is produced by combining nitrogen with green hydrogen. Ammonia has a much **higher volumetric energy density** than hydrogen gas, making it an excellent medium for storing and releasing hydrogen for various industrial applications.
- **Power generation fuel:** Can be burned or co-fired in thermal power plants with low emissions.
- **Marine fuel:** Emerging zero-carbon fuel option for ships and the shipping industry.
- **Industrial decarbonization:** Used in chemicals, steel, and other hard-to-abate sectors.
- **Ease of Storage and Transport:** Hydrogen gas is difficult to handle because it requires extremely high pressure or cryogenic temperatures. Ammonia, however, can be liquefied at

much more modest pressures and temperatures, making it significantly easier to store and transport using existing infrastructure

4. Comparison of Types: Blue Ammonia vs Green Ammonia

Feature	Blue Ammonia	Green Ammonia
Hydrogen Source	Natural Gas (Fossil Fuel)	Water (Electrolysis)
Energy Source	Fossil Fuels + CCS	Renewable Energy (Solar/Wind)
Carbon Status	Low-Carbon (Carbon Captured)	Zero-Carbon
Cost	Lower cost than green, utilizes existing infrastructure	Currently more expensive

5. India’s Green Ammonia Auction Model

- **Implementing Agency:** Solar Energy Corporation of India (SECI) under the National Green Hydrogen Mission.

6. Challenges

- **Costs:** Currently, green ammonia is more expensive to produce than conventional ammonia, though costs are decreasing with advancements.
- **Energy-intensive process:** Electrolysis and Haber-Bosch synthesis require large amounts of energy.
- **Infrastructure gaps:** Limited facilities for storage, transport, and large-scale handling.
- **Safety concerns:** Ammonia is toxic and requires strict safety measures.

3.10. BHARAT TAXI

Context: Recently, the Union Home Minister launched ‘Bharat Taxi’, a **cooperative-led** ride-hailing platform for auto drivers from Delhi-NCR and Gujarat, aimed at providing a more democratic and profitable alternative to private aggregators.



1. Bharat Taxi: The "Amul Model" of Transportation

- **Operational Philosophy:** The platform follows the successful 'Amul model', which transformed India's dairy sector by returning maximum value to the primary producers (drivers).
- **Profit Sharing:** Unlike private aggregators that retain high commissions, Bharat Taxi will distribute **80% of its profits to the drivers** based on the kilometers driven.
- **Cooperative Capital:** The remaining **20% of the profits** will be retained as cooperative capital to sustain and grow the organization.
- **Fixed Base Rate:** To ensure fair earnings, the platform guarantees a **minimum base rate per kilometer** for all its associated drivers.

2. Ownership and Governance Structure

- **Representation:** As the membership grows, seats on **Bharat Taxi's Board of Directors** will be specifically reserved for driver representatives.
- **Self-Governance:** This structure allows driver representatives to challenge policies that might be unfavorable to the workforce, ensuring the board remains accountable to the workers.

3. 'Saarathi Didi' and Safety Features

- **Women's Empowerment:** The app features a dedicated '**Saarathi Didi**' mode, which prioritizes **female drivers** for women passengers traveling alone.
- **Safety and Livelihood:** This feature is a "collective responsibility" to ensure both the safety of female commuters and increased livelihood opportunities for women in the transport sector.

3.11. NRI INVESTMENT REFORMS (BUDGET 2026-27)

Context:

Recently, the Union Budget 2026–27 announced a significant liberalization of investment norms for Non-Resident Indians (NRIs) and Persons Resident Outside India (PROIs), yet data from the National Stock Exchange (NSE) reveals a stark contrast in actual participation.

While the finance minister doubled the individual NRI investment limit to **10%** and the aggregate cap to **24%** to "ease doing business," reports highlight that NRIs currently hold a mere **0.62%** of the total equity in NSE-listed firms.



Key Highlights: NRI Investment Reforms (Budget 2026-27)

1. New Investment Thresholds

The government has substantially increased the "headroom" for the diaspora to participate in India Inc. through the Portfolio Investment Scheme (PIS):

- **Individual Limit:** Raised from **5% to 10%** of the total paid-up equity capital of a listed Indian company.
- **Aggregate Limit:** The total share that all NRIs/PROIs combined can hold in a single company has jumped from **10% to 24%**.
- **Approval Mechanism:** These increases are now permitted without the prior approval of the Reserve Bank of India (RBI), aiming to reduce bureaucratic friction.

2. The 0.6% Paradox

Despite these expansive limits, current data paints a picture of under-utilization:

- **Ownership Stagnation:** NRIs hold only **0.62%** of the shares of NSE-listed companies as of Q3 FY 2025–26.
- **Historical Trend:** This figure has remained below 1% for the past three fiscal years, fluctuating between 0.57% and 0.64% regardless of market performance.
- **Nifty 50 Absence:** None of the top 50 representative companies of corporate India (Nifty 50) are among the firms with the highest NRI shareholding.

3. FPI vs. NRI: Regulatory Distinction

- **FPI (Foreign Portfolio Investment):** Institutional entities (mutual funds, etc.) or individuals registered with SEBI. NRIs are generally **not** allowed to register as FPIs but can be part of an FPI "investor group" with specific caps (less than 25% individual or 50% aggregate contribution to the corpus).

- **NRI Route (PIS):** A direct route for non-resident individuals to buy/sell shares on stock exchanges through a designated bank branch.

4. Other Diaspora-Friendly Measures

- **Property Transactions:** Resident buyers purchasing property from NRIs no longer need a **TAN** (Tax Deduction Account Number); the buyer **PAN** is now sufficient for TDS compliance.
- **TCS Rationalization:** Tax Collected at Source (TCS) for overseas education and medical remittances has been slashed to **2%** (from 5%).
- **Foreign Asset Disclosure:** A one-time, six-month window was announced to allow NRIs and professionals to regularize undisclosed foreign assets with immunity from prosecution.

3.12. DECODING THE NEW CPI SERIES: FROM 2012 TO 2024

Context:

Recently, the Ministry of Statistics and Programme Implementation (MoSPI) released the first set of retail inflation data under the **new Consumer Price Index (CPI) series with 2024 as the base year**.

This major statistical overhaul, replaces the decade-old 2012 series to better reflect contemporary Indian consumption patterns, characterized by increased spending on services, digital products, and a relative decline in the share of food expenditure.



New CPI Series (Base 2024)

1. Shift in Base Year and Data Source

- **New Base Year:** The base year has been officially shifted from **2012 to 2024**.
- **Primary Data Source:** The weights for the new series are derived from the **Household Consumption Expenditure Survey (HCES) 2023-24**.

2. Adoption of International Framework (COICOP 2018)

- The new series moves away from the older structure of 6 broad groups to **12 Divisions** based on the UN's **Classification of Individual Consumption According to Purpose (COICOP) 2018**.
- This alignment enhances the **global comparability** of India's inflation data.

3. Changes in the Consumption Basket

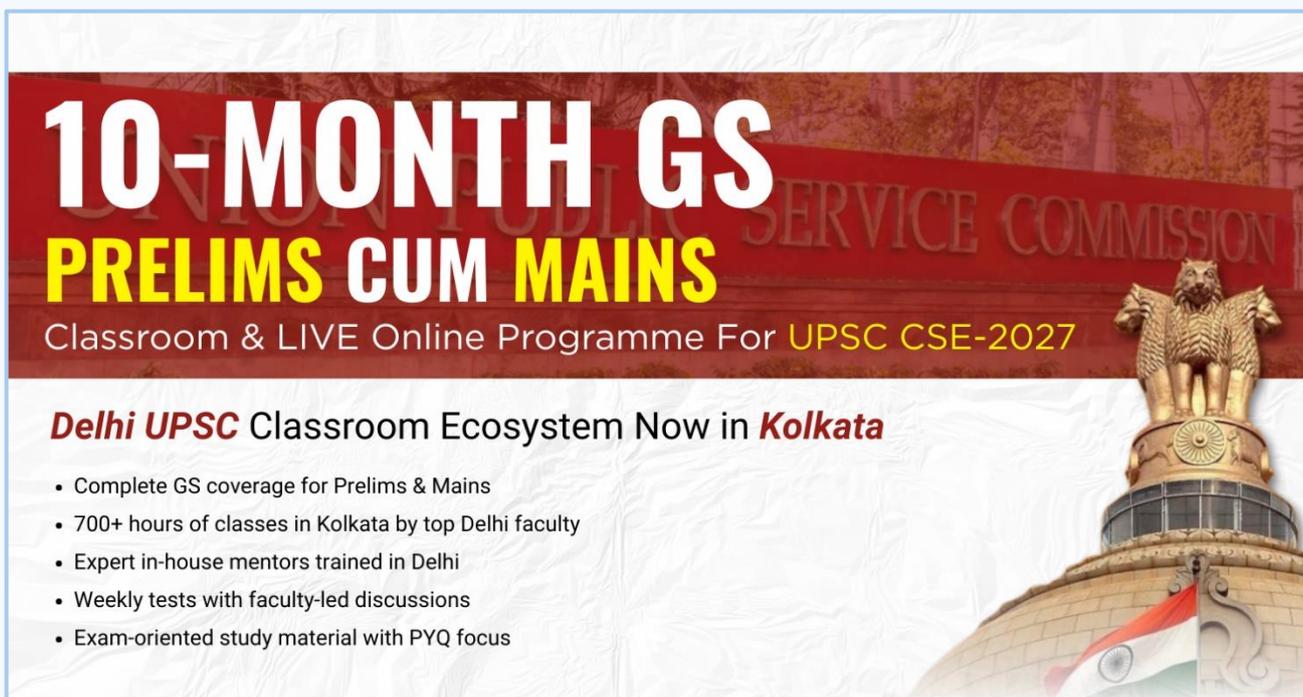
- **Expansion of Items:** The total number of items in the basket has increased from **299 to 358**.
- **New Additions:** Reflecting a modern lifestyle, the series now includes **Rural House Rent, Online Streaming Services, Babysitters, Exercise Equipment, Pen-drives, and Value-added Dairy Products**.
- **Exclusions:** Obsolete items like **VCR/VCD players, Radios, Tape recorders, and CDs/DVDs** have been removed.

4. Significant Weightage Revisions

The most critical change for economic policy is the redistribution of weights:

Category	Old Weight (2012 Base)	New Weight (2024 Base)
Food and Beverages	~45.86%	~36.75%
Housing & Utilities	~10.07%	~17.67%
Transport & Comm.	~8.59%	~12.41%

Note: The sharp reduction in food weight is expected to reduce the volatility of headline inflation, as food prices are highly seasonal and prone to supply shocks.



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UPSC PRELIMS PRACTICE QUESTIONS

Q. With reference to coconut cultivation and its status in India, consider the following statements:

1. India is currently the largest producer of coconuts globally, surpassing Indonesia and the Philippines.
2. The Coconut Development Board is a statutory body headquartered in Chennai, Tamil Nadu.
3. The Union Budget 2026-27 has proposed a scheme to replace senile and unproductive trees with high-yielding varieties.
4. NAFED is one of the nodal agencies for the procurement of copra under the Price Support Scheme.

How many of the statements given above is/are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Answer: (b) Only two

Explanation:

STATEMENT 1 INCORRECT: While the Budget speech highlighted India's prominence, according to global data (FAO), India is the third-largest producer, behind Indonesia and the Philippines.

STATEMENT 2 INCORRECT: The Coconut Development Board is indeed a statutory body, but its headquarters is in Kochi, Kerala, not Chennai.

STATEMENT 3 CORRECT: The Union Budget 2026-27 explicitly introduced the Coconut Promotion Scheme to rejuvenate old plantations with high-yielding saplings.

STATEMENT 4 CORRECT: NAFED (along with NCCF) serves as the central nodal agency for the procurement of copra.

Q. With reference to the cultivation of Cocoa in India, consider the following statements:

1. In India, Andhra Pradesh is currently the leading producer of cocoa, surpassing traditional growers like Kerala.
2. Cocoa is primarily grown as a monoculture crop in the hilly regions of the North East to maximize sunlight exposure.
3. The Union Budget 2026-27 has proposed a dedicated mission to make India self-reliant in cocoa production by 2030.
4. India is a net exporter of cocoa beans, significantly contributing to the foreign exchange reserves through its premium "Criollo" variety.

Which of the statements given above are correct?

- (a) Only one statement
- (b) Only two statements
- (c) Only three statements
- (d) All four statements

Answer: (b) Only two statements

Explanation:

STATEMENT 1 IS CORRECT: Andhra Pradesh has emerged as the leading producer of cocoa in India, leveraging its extensive coconut and arecanut plantations for intercropping.

STATEMENT 2 IS INCORRECT: Cocoa is a shade-loving crop and is primarily grown as an intercrop (not monoculture) in Southern India. While the government is exploring the North East, the crop requires protection from direct wind and intense sun.

STATEMENT 3 IS CORRECT: The Union Budget 2026-27 explicitly announced a

program for cocoa to enhance domestic production and processing.

STATEMENT 4 IS INCORRECT: India is a net importer of cocoa, as domestic production satisfies only a small fraction of the total demand from the chocolate industry.

Q. With reference to the Prime Minister's Employment Generation Programme (PMEGP), consider the following statements:

1. It is a Centrally Sponsored Scheme implemented by the Ministry of Rural Development.
2. Under this scheme, there is no income ceiling for beneficiaries to set up new micro-enterprises.
3. For special category beneficiaries in rural areas, the government provides a margin money subsidy of 35% of the project cost.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: (b) Only two

Explanation:

- **STATEMENT 1 INCORRECT:** PMEGP is a **Central Sector Scheme** (not Centrally Sponsored) and is administered by the **Ministry of Micro, Small and Medium Enterprises (MSME)**, not the Ministry of Rural Development.
- **STATEMENT 2 CORRECT:** There is **no income ceiling** for assistance in setting up projects under the PMEGP guidelines.
- **STATEMENT 3 CORRECT:** Special category beneficiaries (SC/ST, Women, etc.) are entitled to a **35% subsidy** in rural areas and a 25% subsidy in urban areas.

Q. Consider the following statements regarding the wheat sector in India:

1. India is currently the world's largest exporter of wheat, mainly supplying markets in North Africa and the Middle East.
2. The 'Wheat Blast' disease is caused by a fungal pathogen that primarily affects the grain-bearing head of the plant.
3. The Minimum Support Price (MSP) for wheat in the 2026-27 season provides a return of over 100% on the cost of production.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2, and 3

Answer (b)

Explanation:

- **STATEMENT 1 INCORRECT:** While India is the second-largest **producer**, it is not the largest **exporter**; Russia currently holds that position. India's exports are carefully regulated based on domestic needs.
- **STATEMENT 2 CORRECT:** Wheat Blast is a devastating fungal disease (*Magnaporthe oryzae*) that attacks the "spikes" or heads of the wheat, leading to empty or shriveled grains.
- **STATEMENT 3 CORRECT:** The approved MSP of ₹2,585 per quintal for the 2026-27 season represents a margin of 109% over the cost of production.

Q. With reference to the Lead Bank Scheme (LBS) in India, consider the following statements:

- I. The scheme was introduced in 1969 based on the recommendations of the Narasimham Committee on Banking Sector Reforms.
- II. The Lead Bank of a district enjoys exclusive rights to conduct government banking

business and provide credit within that specific district.

III. The State Level Bankers' Committee (SLBC) is an inter-institutional forum chaired by the Governor of the Reserve Bank of India.

IV. As per the recent 2026 draft guidelines, banks are required to maintain a minimum Credit-Deposit (CD) ratio of 60% for their rural and semi-urban branches.

Which of the statements given above is/are correct?

- (a) I and III only
- (b) V only
- (c) II and IV only
- (d) I, II, and IV only

Answer (b)

Explanation:

- **STATEMENT I INCORRECT:** The Lead Bank Scheme was based on the recommendations of the **Gadgil Study Group** and the **Nariman Committee**, not the Narasimham Committee (which came later in 1991/1998).

- **STATEMENT II INCORRECT:** The Lead Bank does **not have a monopoly** or exclusive rights. It only acts as a coordinator or consortium leader for all banks in the district.
- **STATEMENT III INCORRECT:** The SLBC is chaired by the **Chairman/Managing Director/Executive Director of the Convenor Bank** of that state, not the RBI Governor.
- **STATEMENT IV CORRECT:** The 2026 RBI draft guidelines explicitly mandate a **60% CD ratio** for rural and semi-urban branches to ensure adequate local credit deployment.



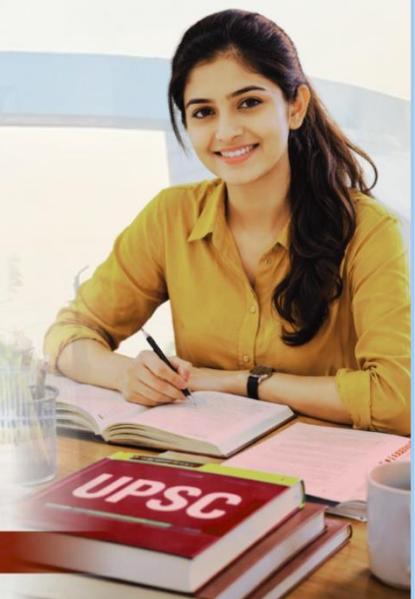
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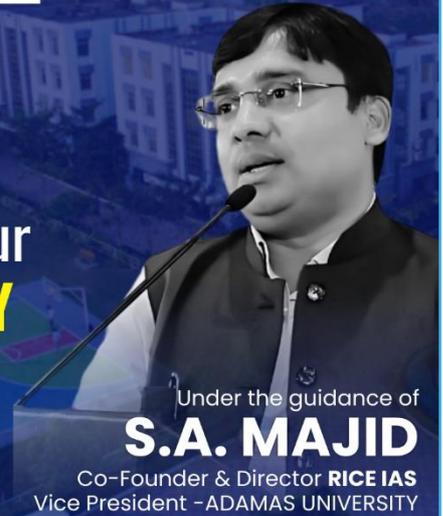
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Subject – Geography



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Subject – AMC

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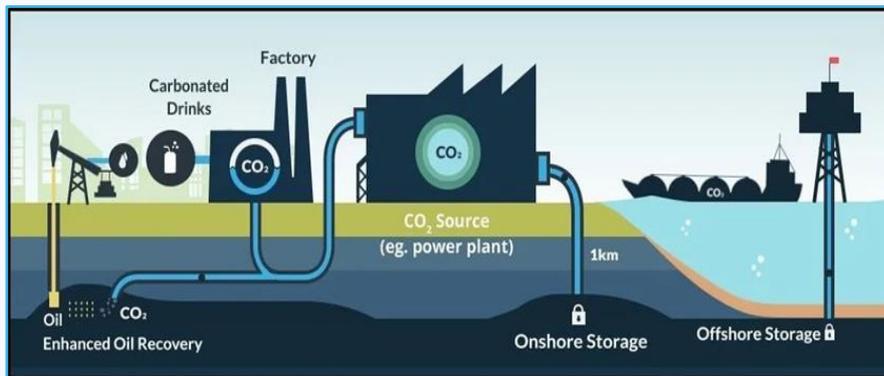
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ENVIRONMENT & GEOGRAPHY

4.1. CARBON CAPTURE, UTILISATION, AND STORAGE (CCUS)

Context:

Recently, while presenting the **Union Budget 2026–27**, Finance Minister Nirmala Sitharaman announced a significant financial outlay of **₹20,000 crore** over the next five years to accelerate the development and deployment of **Carbon Capture, Utilisation, and Storage (CCUS)** technologies.



Details About CCUS

1. Fundamental Concept

- **Definition:** CCUS is a suite of technologies designed to capture carbon dioxide emissions from large point sources (like power plants or factories) or directly from the atmosphere, and either reuse it or store it permanently underground.
- **Objective:** To prevent CO₂ from entering the atmosphere and contributing to global warming, especially where switching to renewable energy is technically difficult.

2. The Three Stages of CCUS

- **Capture:** CO₂ is separated from other gases produced at industrial facilities.
 - **Post-combustion:** Capturing CO₂ from flue gases after burning fossil fuels (most common for existing plants).
 - **Pre-combustion:** Trapping CO₂ before the fuel is fully burned (used in coal gasification).
 - **Oxy-fuel combustion:** Burning fuel in nearly pure oxygen, resulting in a residue of almost pure CO₂ and water vapor.
- **Transport:** The captured CO₂ is compressed into a liquid-like state and moved via **pipelines, ships, or trucks** to a storage or utilization site.
- **Utilisation or Storage:**
 - **Utilisation (CCU):** Converting CO₂ into value-added products like **Green Urea**, synthetic fuels (methanol), building materials (carbonated concrete), or for **Enhanced Oil Recovery (EOR)**.
 - **Storage (CCS):** Injecting CO₂ into deep geological formations such as **depleted oil and gas fields, saline aquifers, or unmineable coal seams** for permanent sequestration.

3. Budget 2026 Highlights & India's Strategy

- **Outlay:** ₹20,000 crore allocated for the next five years (2026–2031).
- **Target Sectors:** Power, Steel, Cement, Refineries, and Chemicals.

- **Technology Readiness Levels (TRL):** The budget aims to move Indian innovations from **TRL 3/4** (laboratory/pilot) to **TRL 9** (commercial deployment).
 - **Blue Hydrogen:** CCUS is the critical enabler for producing **Blue Hydrogen** (hydrogen produced from natural gas where the resulting CO₂ is captured).
- #### 4. Key Challenges for India
- **High Cost:** CCUS is currently capital-intensive; CO₂ capture alone can account for 70–80% of the total cost.
 - **Energy Penalty:** Running a capture plant requires significant energy, which can reduce the net power output of a station.

4.2. TURTLE TRAILS

Context:

Recently, the Union Finance Minister announced the development of “**Turtle Trails**” along the coastal areas of **Odisha, Karnataka, and Kerala** during the presentation of the Union Budget 2026-27.



Key Highlights of the Turtle Trail Initiative (2026)

1. Strategic Objectives

- **Sustainable Eco-Tourism:** The trails are designed to offer world-class, ecologically sensitive tourism experiences without disturbing the sensitive nesting habitats.
- **Habitat Protection:** By formalizing tourism “trails,” the government aims to regulate visitor movement, thereby reducing the impact of unregulated beach tourism on nesting sites.
- **Livelihood Generation:** The project includes training local youth as “**Turtle Guardians**” and professional tour guides through a pilot project in collaboration with the Indian Institutes of Management (IIMs).

2. Geographic Focus Areas

- **Odisha Coast:** Focuses on the world-renowned “Rookeries” at **Gahirmatha Marine Sanctuary, Rushikulya River mouth, and the Devi River mouth.**
- **Karnataka Coast:** Focuses on the districts of **Uttara Kannada and Dakshina Kannada**, where nesting frequency has significantly increased in recent years.
- **Kerala Coast:** Aims to preserve the sporadic nesting sites along the Malabar coast, integrating them into the larger maritime heritage circuit.

3. Technological Integration: Satellite Telemetry

- **Tracking Migration:** To support these trails with scientific data, India has intensified **satellite tagging**. Recent studies showed a turtle tagged in Odisha traveled as far as the **Sri Lankan shore.**
- **Bycatch Mitigation:** Data from these “trails” and tags help the Fisheries Department identify high-risk zones where fishing activity may be regulated to prevent accidental entanglement in trawl nets.

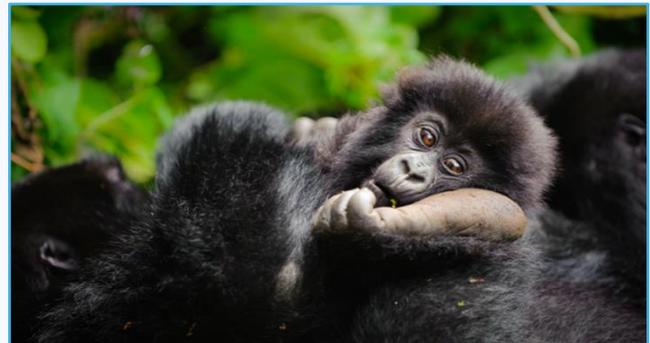
Olive Ridley Sea Turtles: Basic Details

Feature	Details
Scientific Name	<i>Lepidochelys olivacea</i>
IUCN Status	Vulnerable
Legal Protection	Schedule I of the Wildlife Protection Act, 1972 (Highest protection).
Unique Behavior	Arribada: Mass nesting where thousands of females come ashore simultaneously to lay eggs.
Diet	Carnivorous (jellyfish, snails, crabs, and shrimp).
Major Threats	Marine pollution, plastic ingestion, coastal lighting (disorients hatchlings), and trawling.

4.3. GORILLA

Context:

Recently, the “**Gorilla Conservation Action Plan 2026-2030**” was discussed at a global wildlife summit, with reports highlighting the critical role of conservation leaders like **Gladys Kalema-Zikusoka** in protecting the world’s largest primates.



1. Classification and Distribution

Gorillas are the largest living primates and share approximately **98.3% of their DNA with humans**. They are divided into two distinct species, each with two recognized subspecies:

A. Western Gorilla (*Gorilla gorilla*)

- **Western Lowland Gorilla:** The most numerous subspecies; found in the rainforests of Cameroon, Gabon, and the Congo Basin.
- **Cross River Gorilla:** The rarest subspecies, limited to a small mountainous border region between Nigeria and Cameroon.

B. Eastern Gorilla (*Gorilla beringei*)

- **Mountain Gorilla:** Inhabits high-altitude montane forests in Rwanda, Uganda, and the DRC.
- **Eastern Lowland Gorilla (Grauer’s Gorilla):** Found only in the eastern Democratic Republic of the Congo.

2. Key Biological and Physical Features

- **Size and Weight:** Adult males can weigh up to **200 kg** and stand **1.7 meters** tall. They are roughly twice the size of females—a phenomenon known as **sexual dimorphism**.
- **The Silverback:** Mature males develop a saddle of **silver-grey hair** on their backs. They serve as the undisputed leaders and protectors of their social groups (troops).
- **Locomotion:** Gorillas are primarily terrestrial and move using “**knuckle-walking**,” where they support their weight on the third and fourth phalanges of their hands.
- **Diet:** They are predominantly **herbivorous**. Their diet consists of bamboo shoots, stems, fruits, and occasionally insects like ants.

3. Social Behavior and Intelligence

- **Troop Dynamics:** A typical troop consists of one dominant silverback, several females, and their offspring. Groups are cohesive and non-territorial, often with overlapping home ranges.
- **Nesting:** Every evening, gorillas construct **new sleeping nests** on the ground or in trees using foliage. This behavior is used by researchers to estimate population density.
- **Communication:** They utilize a wide range of vocalizations, facial expressions, and physical displays such as **chest-beating** to convey dominance or warn of threats.
- **Tool Use:** Gorillas have been observed using sticks to measure water depth and as “walking sticks” to support their weight while crossing swamps.

4. Conservation Status and Threats

Species/Subspecies	IUCN Status	Primary Habitat
Western Lowland Gorilla	Critically Endangered	Lowland Swamps/Forests
Cross River Gorilla	Critically Endangered	Montane Forests
Eastern Lowland Gorilla	Critically Endangered	Tropical Rainforests
Mountain Gorilla	Endangered	High-altitude Cloud Forests

Major Threats:

- **Poaching:** For the illegal bushmeat trade and trophies.
- **Habitat Loss:** Due to mining (especially for **Coltan** used in electronics), agriculture, and logging.
- **Disease:** Their genetic similarity makes them highly susceptible to human diseases like **Ebola** and respiratory infections.

4.4. KHEJRI TREE: THE LIFELINE OF THE DESERT

Context:

Recently, the **Khejri tree** has come into the spotlight due to the escalating ‘**Khejri Bachao Andolan**’ (Save Khejri Movement) in Rajasthan’s Bikaner district. Environmental activists and members of the **Bishnoi community** have launched massive protests and hunger strikes against the large-scale felling of these trees by solar power companies.



1. Botanical Profile and Characteristics

- **Scientific Name:** *Prosopis cineraria*. It belongs to the **Fabaceae** (Pea) family.
- **Common Names:** Known as **Shami** in Sanskrit, **Jand** in Punjab, **Ghaf** in the Middle East (National tree of UAE), and **Jammi** in Telangana.
- **Physical Features:** It is a small, thorny, evergreen tree that typically grows to a height of 3–5 meters. It possesses a **bipinnate leaf** structure and deep taproots that can reach water tables at great depths.
- **Hardiness:** The tree is exceptionally drought-resistant and can survive in areas with as little as 15 cm of annual rainfall. It can withstand extreme temperatures ranging from below **0°C to 50°C**.

2. Ecological Significance

- **Nitrogen Fixation:** Like other legumes, it has a symbiotic relationship with bacteria that fix atmospheric nitrogen, thereby **enhancing soil fertility**.
- **Soil Binder:** It acts as an effective stabilizing agent for sandy soils, preventing desertification and soil erosion.
- **Keystone Species:** It provides shade, shelter, and food for various desert wildlife, including the Blackbuck, Chinkara, and numerous bird species.

3. Socio-Cultural and Historical Importance

- **State Tree:** It was officially declared the **State Tree of Rajasthan** in 1983. It is also the state tree of **Telangana**.
- **The Khejarli Sacrifice (1730 AD):** Led by **Amrita Devi Bishnoi**, 363 members of the Bishnoi community sacrificed their lives to protect Khejri trees from being cut by the Maharaja of Jodhpur's men. This event served as the primary inspiration for the **Chipko Movement** of the 1970s.
- **Religious Significance:** Mentioned in the *Ramayana* and *Mahabharata*, the tree is worshipped during the **Dussehra** festival. It is also associated with Lord Krishna and worshipped on Janmashtami.

4. Economic Utility

- **Sangri:** The unripe pods, known as *Sangri*, are a staple in Rajasthani cuisine (e.g., *Ker Sangri*). Efforts are currently underway to secure a **Geographical Indication (GI) tag** for Sangri.
- **Loom/Fodder:** The leaves, locally called *Loom*, serve as highly nutritious fodder for camels, goats, and cattle.
- **Medicine:** Different parts of the tree are used in Ayurveda to treat ailments like skin disorders, asthma, and rheumatism.

4.5. THWAITES GLACIER

Context:

Recently, a major international scientific expedition led by the **British Antarctic Survey (BAS)** and South Korean researchers commenced a high-stakes drilling mission on the **Thwaites Glacier** to investigate its rapid melting from beneath.

1. Geographical Profile

- **Location:** It is an unusually broad and vast glacier located in **West Antarctica**.
- **Drainage:** It flows into **Pine Island Bay**, which is part of the **Amundsen Sea**.
- **Size:** The glacier is approximately **120 km wide** (the widest in the world) and covers an area of **1.9 lakh sq km**, roughly the size of Great Britain or the state of Florida.



- **Basin:** It is a key component of the **West Antarctic Ice Sheet (WAIS)**, acting as a "cork" that prevents interior ice from flowing rapidly into the ocean.

2. Why the "Doomsday" Label?

- **Sea Level Contribution:** Currently, Thwaites contributes about **4%** to the annual global sea-level rise.
- **Potential Rise:** If the glacier collapses entirely, it contains enough ice to raise global sea levels by approximately **65 cm (over 2 feet)**.
- **Chain Reaction:** Its collapse could destabilize neighboring glaciers (like Pine Island Glacier), potentially leading to a total sea-level rise of up to **3 meters (10 feet)**, which would submerge major coastal cities like Mumbai, New York, and Shanghai.

3. International Collaboration

- **ITGC:** The **International Thwaites Glacier Collaboration** is a multi-year, multi-million dollar joint project between the US (National Science Foundation) and the UK (Natural Environment Research Council) to study the glacier's fate.

4.6. THE LOOMING CRISIS OF INVASIVE ALIEN PLANTS

Context:

- **Recently**, environmental scientists have sounded an alarm on a burgeoning **ecological crisis**: as the Arctic warms at nearly four times the global average—a phenomenon known as **Arctic Amplification**—it is becoming increasingly hospitable to **invasive plant species**.



Key Concepts

1. Arctic Amplification & The "Thermal Niche"

- **Definition:** The phenomenon where the Arctic warms at a significantly faster rate than the global average due to the **Albedo-Feedback Loop** (melting white ice exposes dark ocean/land, which absorbs more heat).
- **Thermal Niche Expansion:** Warmer temperatures allow temperate species (e.g., *Cow Parsnip*, *Sticky Ragwort*) to survive and reproduce in areas previously too hostile for their seeds to germinate.

2. Pathways of Invasion (The Human Vector)

- **Shipping:** The melting of sea ice has opened the **Northern Sea Route (NSR)** and the **Northwest Passage**. Ballast water and hull fouling are primary vectors for marine and coastal invasive species.
- **Tourism & Research:** Seeds "hitchhike" on the clothing, hiking boots, and equipment of visitors to Arctic "hotspots" like **Svalbard** (Norway) and **Western Alaska**.
- **Construction:** Infrastructure development for oil and gas extraction often uses imported soil or equipment contaminated with non-native seeds.

3. "Sleeper Species" Phenomenon

- These are alien species that have been present in the Arctic for years in small, dormant populations.
- **The Trigger:** Once a specific temperature threshold is crossed, these species "wake up," exhibiting rapid, aggressive growth that outcompetes native flora.

4. Ecological Feedbacks: The Invasive-Fire-Permafrost Link

- **Altered Fire Regimes:** Invasive grasses (e.g., *Smooth Brome*) create a more continuous and flammable fuel load than native tundra plants.
- **Permafrost Impact:** Frequent wildfires strip away the insulating organic layer of the soil. This exposes the **permafrost**, accelerating its thaw and releasing stored **Methane** and **Carbon Dioxide**.

International Governance & Frameworks

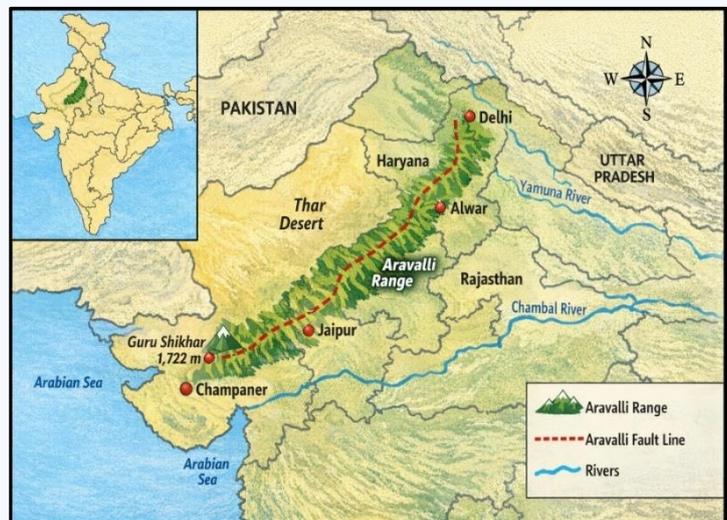
- **ARIAS (Arctic Invasive Alien Species) Strategy:** A specialized action plan by the **Arctic Council** (Working Groups: CAFF & PAME) to prevent, detect, and respond to biological invasions.
- **Kunming-Montreal Global Biodiversity Framework (Target 6):** Aims to reduce the rate of introduction and establishment of invasive alien species by at least **50% by 2030**.
- **India's Role:** As an **Observer** in the Arctic Council, India's **Arctic Policy (2022)** emphasizes "Environmental Protection" and monitoring climate-induced biological changes that impact global weather (including the Indian Monsoon).

4.7. SUPREME COURT HALTS ARAVALLI SAFARI PROJECT

Context:

The Supreme Court of India has refused to allow the Haryana government to proceed with its proposed Aravalli **jungle safari project** until experts **clearly define** the official boundary ("range") of the Aravalli hills.

This safari project aims to set up big cat zones and house hundreds of species of birds, reptiles and butterflies in an area of 10,000 acres in the eco-fragile Aravalli range in Gurugram and Nuh districts.



Ongoing Debate

- The Supreme Court of India (Nov–Dec 2025) reviewed a **committee led by Ministry of Environment, Forest and Climate Change** to frame a **uniform definition** of the Aravalli range for mining regulation, stressing its role in preventing desertification, recharging groundwater, and conserving biodiversity.
- **Aravalli Hills Definition:** Any landform rising **100 metres** or more above the surrounding local terrain.
- **Aravalli Ranges Definition:** Clusters of two or more such hills located **within 500 metres** of each other.

What are the Criticisms Regarding the New Definition of Aravalli Hills?

- **Major Exclusion:** A 100-m threshold may exclude over 90% of the Aravalli landscape, raising ecological concerns.
- **Mining Risk:** Unprotected areas could face mining, construction, and urban expansion.
- **Ecological Break:** Peak-centric definition ignores foothills, valleys, and ridges.
- **Water Threat:** Damage to slopes may reduce groundwater recharge.
- **Desertification Risk:** Weakening the barrier could accelerate Thar Desert spread, affecting India's commitments under the UN Convention to Combat Desertification.

About the Aravalli Hills:

- The Aravalli Hills and Ranges are among **India's oldest geological formations**, stretching from Delhi through Haryana, Rajasthan, and into Gujarat.
- **Type:** An ancient **fold mountain chain**, now worn down into residual hills (300–900 m).
- **Highest Peak:** Guru Shikhar (1,722 m) on **Mount Abu**.
- **Hydrological Role:** The Aravalli range, located in a semi-arid region (500–700 mm rainfall), acts as a major watershed separating **the Ganga–Indus drainage divide** and river systems flowing toward the Bay of Bengal and the Arabian Sea.

Significance of the Aravalli Range

- **River Source:** Several rivers originate in the Aravallis, including **Luni, Banas, Sahibi and Sabarmati**.
- **Barrier Against Desertification:** Acts as a natural wall preventing the eastward spread of the Thar Desert.
 - **Aravalli Green Wall Initiative:** A project to develop a 1,400 km long, 5 km wide green buffer across 29 districts in Gujarat, Rajasthan, Haryana, and Delhi to curb desertification, reduce land degradation, and prevent the eastward spread of the Thar Desert.
- **Aquifer Recharge:** Fractured and weathered Aravalli rocks allow rainwater percolation, enabling recharge of underground aquifers.
- **Mineral Resources:** Rich in marble, granite, copper, zinc, and lead ores.
- **Cultural and Heritage Significance:** The Aravalli range houses **UNESCO World Heritage Sites** like **Chittorgarh and Kumbhalgarh forts**.

4.8. LOGGERHEAD SEA TURTLES

Context: Recently, a 17-year study published in the journal *Animals* (2026) has highlighted that **Loggerhead sea turtles (*Caretta caretta*)** are shrinking in size and producing fewer eggs due to the dual pressures of **warming oceans** and declining marine productivity.



1. Physical Characteristics

- **Appearance:** They are named for their **massive heads** and exceptionally strong jaws, which allow them to crush hard-shelled prey.

- **Size:** They are the **world's largest hard-shelled turtles**. In terms of overall size, they are second only to the leatherback turtle (which has a soft shell).

2. Habitat and Distribution

- **Global Range:** They have a **cosmopolitan distribution**, inhabiting the temperate and subtropical waters of the Atlantic, Pacific, and Indian Oceans, as well as the Mediterranean Sea.
- **Indian Context:** While five species of sea turtles are found in Indian waters (Olive Ridley, Green, Hawksbill, Leatherback, and Loggerhead), the **Loggerhead is not known to nest on Indian beaches**. It is occasionally spotted in the Gulf of Mannar and offshore waters during migration.

3. Unique Behavioral Traits

- **Diet:** They are **omnivorous but primarily carnivorous**, feeding on bottom-dwelling invertebrates like crabs, clams, mussels, and jellyfish.
- **Magnetoreception:** These turtles use the **Earth's geomagnetic field** as both a map and a compass to navigate thousands of kilometers during trans-oceanic migrations.
- **Temperature-Dependent Sex Determination (TSD):** Like many reptiles, the sex of the hatchlings is determined by the temperature of the sand. **Warmer temperatures** produce females, while cooler temperatures produce males.

4. Conservation Status and Protection

- **IUCN Red List: Vulnerable.**
- **CITES: Appendix I** (prohibits international trade).
- **Wildlife Protection Act (WPA), 1972: Schedule I** (highest level of legal protection in India).

5. Threats

- **Climate Change:** Rising temperatures lead to a "feminization" of the population (excessive female hatchlings) and reduced body size.
- **Bycatch:** Accidental entanglement in fishing gear (trawls and longlines) is a leading cause of mortality.
- **Pollution:** Ingestion of marine debris, particularly plastics which are mistaken for jellyfish.
- **Light Pollution:** Artificial lights on beaches disorient hatchlings, preventing them from finding the ocean.

6. Major turtle species in India

Species Name	IUCN Status	Key Characteristics	Presence in India
Olive Ridley (<i>Lepidochelys olivacea</i>)	Vulnerable	Smallest and most abundant; famous for Arribada (mass nesting).	Major nesting: Odisha (Gahirmatha, Rushikulya, Devi River).
Green Turtle (<i>Chelonia mydas</i>)	Endangered	Only strictly herbivorous species as adults; named for the color of its fat.	Major nesting: Gujarat, Lakshadweep, and Andaman & Nicobar.
Hawksbill (<i>Eretmochelys imbricata</i>)	Critically Endangered	Distinctive hawk-like beak; hunted for its beautiful shell (tortoiseshell).	Found in coral reefs of Andaman, Nicobar, and Lakshadweep.

Leatherback (<i>Dermochelys coriacea</i>)	Vulnerable	Largest of all sea turtles; has a rubbery shell instead of a hard one.	Nesting restricted to Andaman and Nicobar Islands .
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4.9. NILGIRI TAHR

Context: Recently, on February 20, 2026, the **Tamil Nadu Forest Department**, in collaboration with the Kerala Forest Department, released the findings of the **First Synchronised Nilgiri Tahr Survey 2026**, which revealed a 21% increase in the species' population over the last two years.



1. Biological & Behavioral Profile

- **Endemicity:** It is the only mountain ungulate endemic to the **Western Ghats** of India (found only in Tamil Nadu and Kerala).
- **Saddlebacks:** Adult males develop a light grey or white patch on their backs as they mature, leading to the nickname "Saddlebacks."
- **Physical Traits:** They are diurnal (active during the day), stocky goats with curved horns and specialized hooves with a rubbery core for gripping steep, slippery cliffs.
- **State Symbol:** It is the **State Animal of Tamil Nadu**.

2. Habitat & Ecosystem

- **Shola-Grassland Mosaic:** They reside in high-altitude **montane grasslands** (1,200m to 2,600m) interspersed with stunted evergreen forests known as **Sholas**.
- **Preferred Terrain:** They are highly adapted to steep cliffs and rocky outcrops, which serve as crucial escape routes from predators like tigers, leopards, and dholes.
- **Key Populations:**
 - **Eravikulam National Park (Kerala):** Holds the largest and densest single population globally.
 - **Mukurthi National Park (Tamil Nadu):** Established specifically for the conservation of the Nilgiri Tahr.
 - **Anamalai Tiger Reserve (Grass Hills):** Another significant stronghold.

3. Conservation Status & Threats

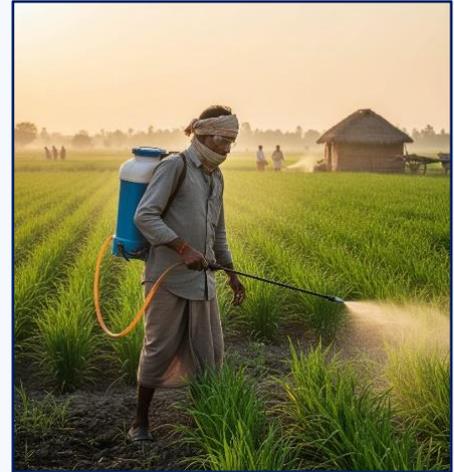
- **IUCN Red List: Endangered.**
- **Wildlife (Protection) Act, 1972: Schedule I** (Highest level of legal protection in India).
- **Primary Threats:**
 - **Habitat Fragmentation:** Caused by invasive species (Wattle, Eucalyptus), hydroelectric projects, and monoculture plantations.
 - **Climate Change:** Scientists predict a loss of nearly 60% of their suitable habitat by the 2030s due to rising temperatures.
 - **Infectious Diseases:** Vulnerability to diseases transmitted from domestic livestock.

4. Project Nilgiri Tahr (2022–2027)

- **Launch:** Inaugurated by the Tamil Nadu government with an outlay of ₹25 crore.
- **Objectives:** Radio-telemetry studies, reintroduction to historical habitats, and clearing invasive species from grasslands.

4.10. TOTAL APPLIED TOXICITY

Context: Recently, a high-profile study published in the journal *Science* has brought the concept of **Total Applied Toxicity (TAT)** to the forefront of environmental discourse. The research reveals a concerning global trend where, despite stable or slightly declining volumes of pesticide use in some regions, the actual ecological harm—measured as TAT—is rising. This is particularly significant as the **United Nations Biodiversity Conference (COP15)** set a target to reduce pesticide-related risks by **50% by 2030**, yet current TAT data suggests that most nations are moving in the opposite direction.



What is Total Applied Toxicity (TAT)?

Total Applied Toxicity (TAT) is a comprehensive environmental indicator used to assess the potential impact of pesticides on biodiversity. Unlike traditional metrics that merely track the **weight/volume** of pesticides applied, TAT integrates two critical factors:

1. **Pesticide Use Data:** The quantity (kilograms or tons) of specific active ingredients applied to crops.
2. **Toxicity Metrics:** The inherent toxicity of those chemicals to specific non-target species groups (e.g., honeybees, fish, aquatic invertebrates).

Why the Shift to TAT?

For decades, regulators focused on the **amount** of pesticides used. However, the industry has shifted toward high-potency chemicals. This means a farmer might use a smaller volume of a "new generation" pesticide, but that small amount could be thousands of times more toxic to the environment than the larger volume of an older chemical. **TAT captures this "decoupling" of volume and toxicity.**

Key Findings & Global Trends

- **Species-Specific Impact:** Recent data shows that while toxicity to vertebrates (like birds and mammals) has generally decreased due to stricter regulations, the TAT for **invertebrates** (like pollinators and aquatic insects) and **terrestrial plants** has increased significantly.
- **The Global Leaders:** Countries with the highest TAT intensities include **Brazil, China, Argentina, and the United States**, largely driven by intensive monoculture farming and the use of highly toxic herbicides and insecticides.
- **Pest Resistance:** As pests develop resistance, farmers often increase the frequency of application or use more toxic mixtures, further driving up the TAT.
- **The 50% Target:** The **Kunming-Montreal Global Biodiversity Framework (Target 7)** aims to reduce the risk of pesticides by half. Currently, TAT is the primary indicator proposed to track progress toward this goal.

India's Regulatory Framework: 1968 vs. 2025

India is currently overhauling its domestic laws to align with modern toxicity standards and farmer safety.

1. The Insecticides Act, 1968 (Current)

- **Focus:** Regulating the import, manufacture, sale, and distribution of insecticides to prevent risk to human beings or animals.
- **Limitation:** Enacted during the Green Revolution, it prioritizes "availability" and "efficacy" over environmental "toxicity" and long-term ecological health.
- **Institutions:** Established by the **Central Insecticides Board (CIB)** and **Registration Committee (RC)**.

2. The Pesticides Management Bill, 2025 (Proposed)

The 2025 Bill (replacing earlier 2020 and 2008 drafts) seeks to modernize the sector:

- **Broader Scope:** Covers "Pesticides" (including biologicals) rather than just "Insecticides."
- **Risk-Based Governance:** Introduces a formal definition of "risk" (aligning with TAT concepts), allowing regulators to ban substances based on environmental harm even if they are effective for crops.
- **Farmer Welfare:** Includes provisions for **compensation** to farmers in case of poor-quality pesticides and establishes a **Pesticide Management Fund**.
- **Stricter Penalties:** Heavy fines (up to ₹40 lakh) and imprisonment for selling spurious or unregistered pesticides.
- **Digital Traceability:** Mandatory use of QR codes and digital portals to track pesticides from factory to farm.

Global Conventions & India's Obligations

Convention	Focus Area	India's Status
Stockholm Convention	Eliminating Persistent Organic Pollutants (POPs) like DDT and Endosulfan.	Party (Ratified). Recently banned 7 additional POPs.
Rotterdam Convention	Prior Informed Consent (PIC) procedure for trading hazardous chemicals.	Party. Helps India decide whether to allow the import of toxic chemicals.
Basel Convention	Regulating the transboundary movement of hazardous waste (including pesticide containers).	Party. Focuses on safe disposal of chemical waste.
Kunming-Montreal GBF	Target 7: Reduce pollution risk from pesticides by 50% by 2030 .	Committed. TAT is the indicator for this target.

4.11. EURASIAN DIVING DUCKS

Context: Recently, the seventh waterbird census at the **Kaziranga National Park and Tiger Reserve** in Assam spotlighted a rare avian guest—the **Smew** (*Mergellus albellus*), a striking **Eurasian diving duck**. This first-ever recorded sighting of the Smew in the Kaziranga landscape occurred at the **Rowmari-Donduwa beels** in the Laokhowa-Burhachapori Wildlife Sanctuaries. While the sighting is a testament to the health of Assam's wetlands, ornithologists have expressed concern that such sporadic sightings of "vagrant" species may be linked to **climate-driven range shifts** and the degradation of traditional wintering habitats.



1. Biological Profile of the Smew (*Mergellus albellus*)

- **Appearance:** They are medium-sized ducks. Males are distinctively white with a "black mask" and fine black lines on the body, while females (often called 'redheads') have a chestnut-colored head and mottled grey body.
- **Feeding Behavior:** As a diving duck, it specializes in catching small fish, aquatic insects, and crustaceans. Their presence typically indicates a **fish-rich, sheltered water body**.
- **Breeding Grounds:** They primarily breed in the **Eurasian Taiga** (northern coniferous forests) and are rare winter visitors to the Indian subcontinent.

2. Habitat and Distribution

- **Global Range:** They are found across the Palearctic region, from Scandinavia across Siberia.
- **In India:** They are considered **vagrants** or rare winter migrants. Previous sightings have been recorded in northern and central India, such as the **Haiderpur wetland** in Uttar Pradesh.
- **Recent Sighting:** The discovery in the **Rowmari-Donduwa beels** (floodplain lakes) within the Kaziranga landscape highlights the importance of the **Central Asian Flyway**.

3. Conservation Status

- **IUCN Red List:** The Smew is currently categorized as **Least Concern** globally, but its population is declining due to habitat loss and human activities.
- **Other Related Species:** The **Common Pochard** (another Eurasian diving duck found in India) is listed as **Vulnerable**, emphasizing the precarious state of migratory diving ducks.

4. Ecological Indicators

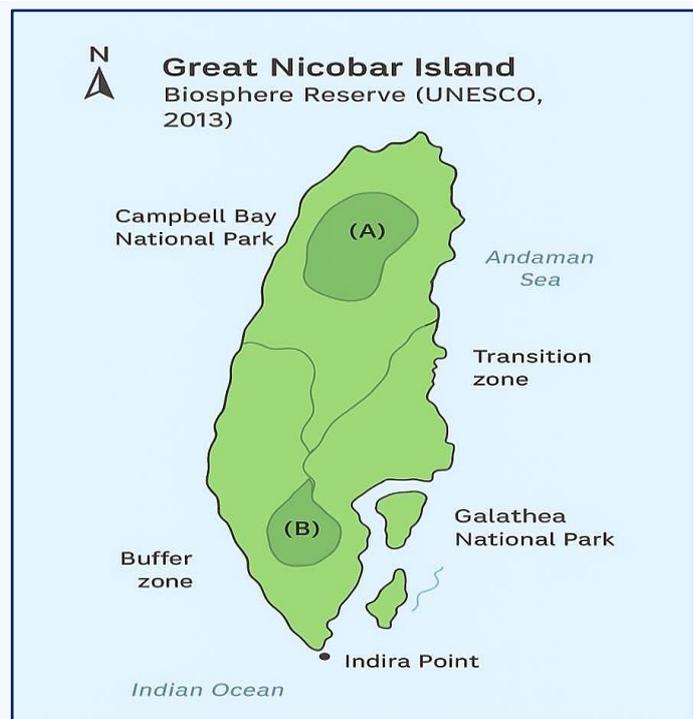
- The arrival of rare diving ducks underscores the **resilience of floodplains**.
- They serve as **bio-indicators**; their presence signals a healthy aquatic food chain and relatively low levels of human disturbance in the wetland.

4.12. NGT CLEARS ₹92,000-CR. GREAT NICOBAR PROJECT

Context: The **National Green Tribunal (NGT)** recently cleared the path for the ₹92,000-crore mega-infrastructure project on Great Nicobar Island. The tribunal dismissed petitions challenging the project's **Environmental Clearance (EC)**, noting the project's "strategic importance" and the adequacy of existing environmental safeguards.

1. Components of the Project

- The integrated project is designed to transform the island into a major hub through the following developments: **International Transshipment Port, International Airport, Power Plant, Greenfield Township**.
- **Promoting Body:** NITI Aayog
- **Implementing Agency:** Andaman and Nicobar Islands Integrated Development Corporation Limited (ANIIDCO)



- o ANIIDCO was incorporated on 28th June 1988 under the Companies Act 1956 for rapid economic growth of the Islands.

- **Operates under:** Ministry of Home Affairs

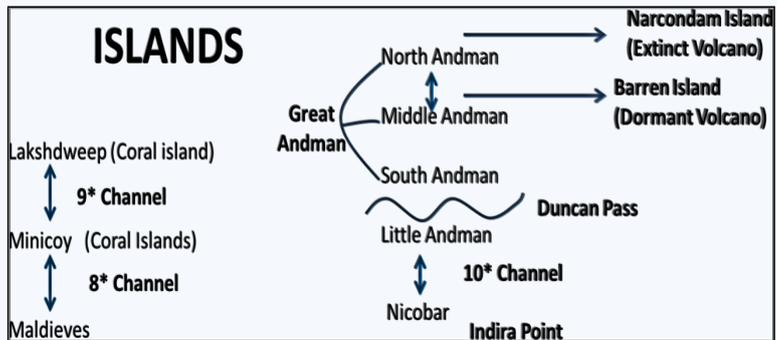
2. Environmental Safeguards and Directions

The NGT and the Ministry of Environment have laid down specific conditions to mitigate ecological damage:

- **Coral Reef Protection:** The Ministry is directed to protect existing coral reefs and undertake **coral regeneration** through proven scientific methods.
- **Shoreline Management:** The Environment Ministry is responsible for ensuring that constructions do not lead to **shoreline erosion** or changes in the coast.
- **Species Protection:** Specific focus is placed on protecting the nesting sites of **Leatherback turtles** and avoiding the loss of turtle nesting beaches.
- **Implementation Plan:** The Ministry must prepare and approve a formal "implementation plan" for these conservation efforts

3. About Andaman and Nicobar Islands (ANI)

- ANI is a UT with 572 islands (Bay of Bengal), of which 38 are inhabited.
- **Comprises two groups:** Andaman Islands and Nicobar Islands, divided by the 10° Channel.



- **Duncan Passage** separates Little Andaman from South Andaman.
- **Closer to equator:** Located between 6° to 14°
- Separated from Thailand and Myanmar by the **Andaman Sea**.
- Island chain is a submerged extension of the **Arakan Mountains**.
- **Dugong** (sea mammal) is the official animal, endemic to the Indo-Pacific coast, especially Andaman.
- In 2018, three islands were renamed to honour **Subhas Chandra Bose**:
 - o Ross → Netaji Subhash Chandra Bose Island
 - o Neil → Shaheed Island
 - o Havelock → Swaraj Island
- In September 2024, the capital of the ANI (Port Blair) was renamed **Sri Vijaya Puram**.

4. PVTGs in Andaman & Nicobar Islands (ANI)

- ANI has **five PVTGs**: Great Andamanese, Jarawa, Onge, Sentinelese, and Shompen.
- They are geographically isolated, depend on hunter-gathering or simple horticulture, have very small populations, and are **highly vulnerable**.

- **Recently**, members of the **Shompen tribe voted for the first time** in the ANI Lok Sabha constituency.

5. Hotspot Status and biodiversity:

- Nicobar fall under the Sundaland Biodiversity Hotspot.
- **Great Nicobar Biosphere Reserve:** It covers 885 km² across **Campbell Bay and Galathea National Parks (core zone).**

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UPSC PRELIMS PRACTICE QUESTIONS

Q. With reference to the "Turtle Trail" initiative and sea turtle conservation in India, consider the following statements:

1. The Turtle Trail initiative was specifically announced in the Union Budget 2026 to be developed along the coasts of Odisha, Karnataka, and Kerala.
2. Olive Ridley turtles are the only sea turtle species in the world that exhibit the unique mass nesting behavior known as "Arribada."
3. Under the Wildlife Protection Act, 1972, Olive Ridley turtles are placed under Schedule II, allowing for regulated community harvesting of eggs.
4. Satellite telemetry studies in India have confirmed that Olive Ridley turtles nesting in Odisha can migrate as far as the coast of Sri Lanka.

Which of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Correct Answer: (b) Only two

Explanation:

STATEMENT 1 IS CORRECT: The Union Budget 2026-27 explicitly named Odisha, Karnataka, and Kerala as the primary states for the development of ecologically sustainable Turtle Trails.

STATEMENT 2 IS INCORRECT: While Olive Ridleys are most famous for it, the Kemp's Ridley sea turtle also exhibits the Arribada mass nesting behavior.

STATEMENT 3 IS INCORRECT: Olive Ridleys are protected under Schedule I (not Schedule II) of the Wildlife Protection Act, 1972, which prohibits any form of harvesting or trade.

STATEMENT 4 IS CORRECT: Recent satellite tagging programs conducted by the Odisha Forest Department and the Wildlife Institute of India (WII) have successfully tracked turtles migrating from the Odisha coast to the Tamil Nadu coast and Sri Lankan waters.

Q. With reference to the "Gorilla" species found in the wild, consider the following statements:

1. Both the Western and Eastern species of gorillas are currently classified as "Critically Endangered" under the IUCN Red List.
2. Gorillas are primarily nocturnal animals that construct permanent nests in the canopy to avoid ground-based predators.
3. The "Cross River Gorilla" is considered the rarest subspecies and is found exclusively along the border of Nigeria and Cameroon.
4. Sexual dimorphism is a prominent feature in gorillas, with adult males significantly larger than females.

Which of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Correct Answer: (c)

STATEMENT 1 IS CORRECT: While the Mountain Gorilla was recently moved to "Endangered," both species (Gorilla gorilla and Gorilla beringei) as a whole remain Critically Endangered.

STATEMENT 2 IS INCORRECT: Gorillas are diurnal (active during the day) and they build new nests every single night, usually on the ground or in low branches, rather than permanent canopy nests.

STATEMENT 3 IS CORRECT: The Cross River Gorilla is the most endangered subspecies with fewer than 300 individuals left in the wild, restricted to the Nigeria-Cameroon border.

STATEMENT 4 IS CORRECT: Gorillas show high levels of sexual dimorphism; males are nearly twice the weight of females and possess distinct sagittal crests.

Q. With reference to the Khejri tree (*Prosopis cineraria*), consider the following statements:

1. It is a nitrogen-fixing tree that helps in improving the fertility of arid soils.
2. It is the state tree of both Rajasthan and Telangana.
3. The historical Khejarli sacrifice, which inspired the Chipko Movement, was dedicated to protecting this tree.

How many of the statements given above are correct?

- A) Only one
- B) Only two
- C) All three
- D) None

Answer: C) All three

Solution:

STATEMENT 1 IS CORRECT: As a member of the Fabaceae family, the Khejri tree fixes atmospheric nitrogen through its root nodules, making it a natural fertilizer for the desert ecosystem.

STATEMENT 2 IS CORRECT: Khejri (*Prosopis cineraria*) is indeed the designated state tree for Rajasthan (since 1983) and Telangana (where it is called Jammi Chettu).

STATEMENT 3 IS CORRECT: The 1730 massacre in Khejarli village involving Amrita Devi Bishnoi was specifically to save Khejri trees, and this non-violent resistance became the ideological blueprint for the modern Chipko Movement.

Q. With reference to the Thwaites Glacier, often mentioned in the news, consider the following statements:

- I. It is the widest glacier in the world and is located in the East Antarctic region.
- II. The "grounding line" of the glacier refers to the point where the ice starts floating over the ocean instead of resting on the seabed.
- III. The melting of this glacier is primarily driven by "warm water infiltration" beneath its ice shelf rather than just atmospheric warming.

Which of the statements given above are correct?

- A) I and II only
- B) II and III only
- C) I and III only
- D) I, II, and III

Correct Answer: B

Explanation:

- **STATEMENT I INCORRECT:** While it is the widest glacier in the world, it is located in **West Antarctica**, not East Antarctica.
- **STATEMENT II CORRECT:** The grounding line is the critical junction where the glacier transitions from resting on the bedrock to becoming a floating ice shelf. Its retreat is a primary indicator of glacial instability.
- **STATEMENT III CORRECT:** Recent scientific findings emphasize that relatively warm ocean water (Circumpolar Deep Water) reaching the base of the glacier is the dominant cause of its rapid thinning and retreat.

Q. With reference to the Union Budget 2026–27 and NRI investment regulations in India, consider the following statements:

- I. The individual investment limit for a Non-Resident Indian (NRI) in a listed company has been doubled to 10%.

- II. NRIs are classified as Foreign Portfolio Investors (FPIs) under the latest SEBI guidelines to simplify market entry.
- III. For the sale of immovable property by an NRI, the resident buyer is now required to obtain a Tax Deduction Account Number (TAN) to deposit TDS.

Which of the statements given above is/are correct?

- A) I only
B) I and II only
C) II and III only
D) I, II, and III

Correct Answer: A

Explanation

- **STATEMENT I IS CORRECT:** The Union Budget 2026–27 officially hiked the individual NRI/PROI limit from 5% to 10%.

- **STATEMENT II IS INCORRECT:** NRIs do not come under the FPI category; they invest via the Portfolio Investment Scheme (PIS) regulated under FEMA. While they can contribute to an FPI fund, they cannot be registered as an FPI individual.
- **STATEMENT III IS INCORRECT:** The Budget 2026 **removed** the TAN requirement for resident buyers, allowing them to use their PAN for simpler compliance when buying from NRIs.



Scan to attempt more questions

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5.1. SUBORBITAL TOURISM

Context:

Recently, the global space tourism industry has gained renewed momentum following the successful completion of several high-profile civilian missions by private aerospace firms like **Blue Origin** and **Virgin Galactic**, alongside the Government of India's increased budgetary focus on **IN-SPACE** to regulate private space participation.



1. Defining Suborbital Flight

A suborbital flight is a spaceflight in which the spacecraft reaches **outer space** but its trajectory intersects the atmosphere or surface of the Earth, preventing it from completing one full orbital revolution.

- **Mechanism:** The vehicle is launched to a high altitude but does not reach the **orbital velocity** (approx. 28,000 km/h) required to stay in orbit around the Earth.
- **Trajectory:** It follows a **parabolic path**, looping up into space and then falling back down, similar to a high-toss ball.
- **Experience:** Passengers experience **3 to 5 minutes of weightlessness** (microgravity) and can view the curvature of the Earth against the blackness of space.

2. The Karman Line: The Boundary of Space

The **Karman Line** is an imaginary boundary located at an altitude of **100 km (62 miles)** above mean sea level.

- **Scientific Basis:** It represents the altitude where the atmosphere becomes too thin to support traditional aeronautical flight (wings can no longer provide lift).
- **Legal Significance:** It is widely accepted by the **Federation Aeronautique Internationale (FAI)** as the boundary separating Earth's atmosphere from outer space, used to distinguish between aircraft and spacecraft.
- **Varying Standards:** While the FAI uses 100 km, agencies like **NASA** and the **US Air Force** consider 80 km (50 miles) as the edge of space.

3. Comparison: Suborbital vs. Orbital

Feature	Suborbital Flight	Orbital Flight
Velocity	Lower than Orbital Velocity	Must reach ~28,000 km/h
Duration	10–15 minutes (Total)	Days to Months
Altitude	Reaches ~100 km (Edge of Space)	400 km+ (Low Earth Orbit/ISS)
Cost	Relatively lower (Lakhs to Crores)	Very High (Hundreds of Crores)

4. Major Players and Indian Perspective

- **Global Players: Blue Origin** (New Shepard) and **Virgin Galactic** (SpaceShipTwo) are the leaders in suborbital trips, while **SpaceX** focuses primarily on orbital missions.
- **Indian Ambition: ISRO** is reportedly working on its own space tourism module, aiming for a domestic capability by **2030**.
- **Commercial Arm: NewSpace India Limited (NSIL)** and the regulator **IN-SPaCe** are facilitating private Indian startups to enter the suborbital launch segment.

5.2. SOLID FUEL DUCTED RAMJET (SFDR) TECHNOLOGY

Context:

Recently, the Defence Research and Development Organisation (DRDO) has made significant strides in the flight testing and refinement of the **Solid Fuel Ducted Ramjet (SFDR)** propulsion system, with recent reports highlighting its integration into future long-range air-to-air missiles (LRAAM) to ensure air superiority.

1. What is SFDR?

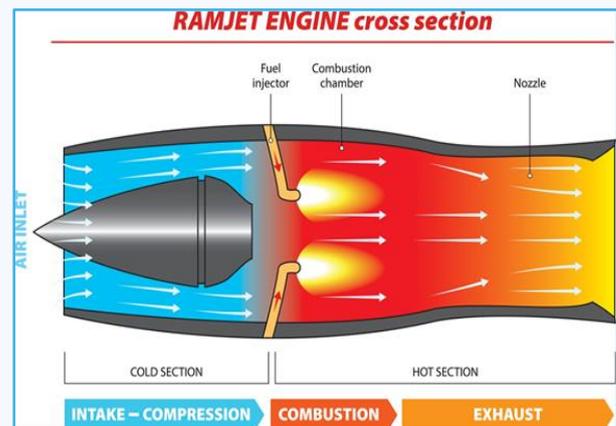
The SFDR is a missile propulsion system based on the **Ramjet** engine principle. Unlike standard rockets that carry both fuel and an oxidizer, the SFDR takes oxidizer (oxygen) from the atmosphere during flight. This significantly reduces the weight of the missile, allowing it to carry a larger payload or achieve a much longer range.

2. How it Works

- **Air-Breathing Mechanism:** The missile uses its forward motion to compress incoming air into the engine (the "ram" effect).
- **Solid Fuel Component:** It utilizes a solid fuel propellant that reacts with the compressed atmospheric oxygen to create thrust.
- **No Moving Parts:** Ramjets are unique because they have no rotating compressors or turbines, making them simpler yet highly efficient at supersonic speeds.
- **Boost-Sustain Phase:** The missile is initially launched using a conventional solid rocket motor to reach supersonic speeds, after which the SFDR takes over for the sustained long-range cruise.

3. Key Technical Features

- **Thrust Modulation:** SFDR technology allows the missile to throttle its thrust based on the altitude and speed requirements, which is difficult to achieve with standard solid motors.
- **Supersonic Speed:** It is designed to operate optimally at speeds between **Mach 2 and Mach 5**.
- **No-Escape Zone:** Because the engine can maintain high speeds for a longer duration, it significantly increases the "No-Escape Zone" for enemy aircraft, making the missile much harder to evade.



4. Comparison with Conventional Systems

Feature	Conventional Solid Rocket	SFDR (Ramjet)
Oxidizer	Carried on board	Taken from the atmosphere
Weight	Heavier (due to oxidizer)	Lighter and more efficient
Range	Limited	Significantly Extended
Speed	Decelerates after fuel burnout	Maintains high speed longer

5.3. INDIA'S AIRCRAFT FLEET

Context:

Recently, in light of the official visit of French President Emmanuel Macron to India this February 2026, the Defence Acquisition Council (DAC) is set to convene to grant the final Acceptance of Necessity (AoN) for the mega-deal involving 114 Multi-Role Fighter Aircraft (MRFA). This follows the landmark Inter-Governmental Agreement signed in April 2025 for 26 Rafale-Marine (Rafale-M) jets for the Indian Navy.

1. Combat Aircraft (Fighters)

- Sukhoi Su-30MKI:** Type: 4.5-Generation Multirole Air Superiority Fighter.

 - Features:** Twin-engine, two-seater aircraft equipped with **Thrust Vectoring Control (TVC)** and canards for extreme maneuverability (e.g., Pugachev's Cobra maneuver).
 - Key Weapons:** BrahMos supersonic cruise missile, Astra BVRAAM, and R-77 missiles.
- Dassault Rafale:** Type: 4.5-Generation "Omnirole" Fighter.

 - Features:** Equipped with **AESA Radar (RBE2)**, SPECTRA electronic warfare suite, and "cold start" capability for high-altitude airbases.
 - Key Weapons:** Meteor (Long-range air-to-air), **SCALP** (Deep-strike cruise missile), and **HAMMER** (Precision-guided munitions).
- HAL Tejas (LCA):** Type: Indigenous Light Multirole Fighter.

Indian Active Fighter Aircraft

<p>Total in Service</p> <p>Variants Fulcrum-UPG - 52 Fulcrum B - 7</p>	 <p>MIG-29</p>
<p>Variant Flanker H - 242 [12 more on order]</p>	 <p>Su-30 MKI</p>
<p>Variants Mk.1 - 31 Mk.1A - 170 [in production]</p>	 <p>Tejas</p>
<p>Variants DH - 8 EH - 25</p>	 <p>Rafale</p>
<p>Variants 2000H - 36 2000TH - 10</p>	 <p>Mirage 2000</p>

- **Features:** World's smallest lightweight multi-role supersonic fighter; features a glass cockpit, **Fly-By-Wire (FBW)** system, and extensive use of composite materials (45% of airframe).
- **Variants:** Mk1 (Initial), Mk1A (Advanced radar/jammer), and Trainer.
- **Mirage 2000: Type:** Single-engine Multirole Fighter.
- **Features:** Known for its delta-wing design and high accuracy in bombing; played a pivotal role in the Kargil War and Balakot airstrikes.
- **MiG-29 (UPG): Type:** Twin-engine Air Superiority Fighter.
- **Features:** Highly agile; the UPG variant includes modern avionics, a refined radar, and mid-air refueling capabilities.

2. Transport Aircraft

- **C-17 Globemaster III: Role:** Strategic Heavy-lift Transport.
- **Details:** Can carry 77 tonnes of cargo; capable of landing on short, unpaved runways (STOL) and transporting tanks like the T-90 or Arjun.
- **C-130J Super Hercules: Role:** Tactical Special Operations Transport.
- **Details:** Ideal for landing on "Advanced Landing Grounds" (ALGs) in rough terrain like Daulat Beg Oldie (DBO).
- **C-295: Role:** Tactical Airlifter.
- **Details:** Replacing the Avro-748; features a 9-tonne capacity and rear ramp for rapid loading. It is the first military aircraft project in India involving a private-sector final assembly line (Tata-Airbus).

3. Rotary Wing (Helicopters)

- **HAL Prachand (LCH): Role:** Indigenous Light Combat Helicopter.
- **Details:** The only attack helicopter in the world capable of taking off and landing at an altitude of **5,000 meters** (Siachen Glacier) with a significant weapon load.
- **AH-64E Apache: Role:** Multi-role Attack Helicopter.
- **Details:** Features "Longbow" Fire Control Radar; armed with **Hellfire** missiles and a 30mm chain gun slave-linked to the pilot's helmet.
- **CH-47 Chinook: Role:** Heavy-lift Transport Helicopter.
- **Details:** Recognizable by its tandem rotors; used for transporting heavy artillery (like M777 howitzers) and troops to high-altitude zones.

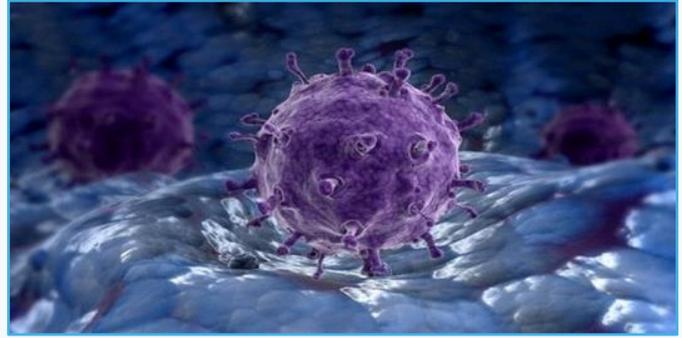
4. Special Mission Aircraft

- **Netra AEW&C: Details:** Indigenous system developed by DRDO on an Embraer-145 platform; provides 240-degree radar coverage to detect incoming threats.
- **Phalcon AWACS: Details:** Israeli radar mounted on Russian IL-76 aircraft; provides a **360-degree** "eye in the sky" coverage over a range of 400 km.
- **IL-78 MKI: Role:** Mid-air Refueller (Tanker).
- **Details:** Extends the combat radius of fighter jets by providing fuel during flight.

5.4. H5N1 AVIAN INFLUENZA VIRUS

Context:

Recently, the Union Ministry of Fisheries, Animal Husbandry and Dairying confirmed an outbreak of the **Highly Pathogenic Avian Influenza (HPAI) H5N1** in Chennai, Tamil Nadu, following the mass death of crows in the Adyar region. Laboratory tests conducted at the **ICAR-National Institute of High Security Animal Diseases (NIHSAD)** in Bhopal



confirmed the presence of the virus, prompting the state government to issue a public health advisory and intensify surveillance in wet markets and poultry farms.

1. What is H5N1?

- **Definition:** Avian Influenza, commonly known as **Bird Flu**, is a highly contagious viral infection caused by **Influenza Type A** viruses.
- **Pathogenicity:** H5N1 is classified as "Highly Pathogenic" (HPAI) because it causes severe disease and high mortality rates (up to 90–100%) in domestic poultry.
- **Origin:** The current lineage (Goose/Guangdong) was first detected in **1996** in China.

2. Biological Structure

- **Subtyping:** Influenza A viruses are classified based on two surface proteins:
 - **Hemagglutinin (H):** Responsible for the virus's ability to **attach and enter** a host cell. There are 18 known H subtypes.
 - **Neuraminidase (N):** Facilitates the **release** of new viral particles from the host cell to spread the infection. There are 11 known N subtypes.
- **Combination:** H5N1 is just one of 198 possible combinations (e.g., H5N8, H1N1, H3N2).

3. Transmission Dynamics

- **Natural Reservoirs:** Wild aquatic birds (especially ducks and geese) are the natural hosts. They often carry the virus without showing symptoms but can spread it via saliva, nasal secretions, and feces.
- **Spillover to Mammals:** The virus has increasingly been detected in mammals such as foxes, bears, sea lions, and recently, **dairy cattle** and captive wildlife (tigers/leopards) in India.
- **Human Transmission:** Human infection is **rare** and usually occurs through direct contact with infected birds or contaminated environments. **Human-to-human transmission** remains extremely uncommon and inefficient.

4. Global and National Governance

- **WHO (Global Influenza Surveillance and Response System – GISRS):** Monitors circulating strains to provide risk assessments.
- **WOAH (World Organisation for Animal Health):** Coordinates international efforts to improve animal health.
- **India's Response:** Governed by the **National Action Plan for Prevention, Control, and Containment of Avian Influenza (revised 2021)**.

5.5. INDIA'S ASTRONOMY & SPACE RESEARCH ECOSYSTEM

Context: Union Budget 2026–27 has earmarked ₹13,416.20 crore for the Department of Space, with a major thrust on deep-space exploration, astrophysics and large telescope infrastructure. This marks a strategic shift towards strengthening India's frontier science capacity and reducing dependence on foreign observatories.



1. Key Budget Announcements & Infrastructure

Initiative	Location	Significance
30-m National Large Optical-Infrared Telescope (NLOT)	India (site under development)	Will place India among global leaders in optical astronomy
National Large Solar Telescope (NLST)	Near Pangong Lake, Ladakh	High-resolution solar studies, space weather monitoring
Himalayan Chandra Telescope (HCT)	Hanle, Ladakh	Control system upgrades
COSMOS-2 Planetarium	Amaravati, Andhra Pradesh	Public science outreach
Giant Metrewave Radio Telescope (GMRT)	Near Pune	World's largest low-frequency radio telescope array

2. India's Present Challenges

- **Underutilisation of funds:** Actual expenditure often falls below budget estimates, causing project delays.
- **Dependence on foreign facilities** for:
 - High-resolution optical astronomy
 - High-frequency radio observations
 - **Sub-millimetre astronomy** (India has **no telescope** in this range)
- **Restricted access** to international telescopes as nations prioritise domestic researchers.
- **Bureaucratic resistance** to innovative models like **buying fractional telescope time** abroad.
- **Brain drain** due to lack of comparable facilities within India.

3. Global Context

Only **USA, China, Japan, and the European Union** heavily prioritise astronomy and continuously upgrade **space-based and terrestrial telescopes**.

4. Strategic Vision

Astronomy & Astrophysics Mega Science Vision 2035

- Proposes:
 - **Sub-millimetre telescope** (proposal in pipeline)
 - Next-generation observatories
 - AI-driven data processing centres

5.6. HbA1c (GLYCATED HAEMOGLOBIN) TEST

Context:

Indian diabetologists cautioned against over-reliance on the HbA1c test for diabetes care, noting that widespread anaemia, iron deficiency and genetic blood disorders in India can distort results. They recommended a multiparametric diagnostic approach—combining HbA1c with OGTT and continuous glucose monitoring (CGM)—to ensure accurate assessment and management of India’s 101+ million diabetics.



About HbA1c (Glycated Haemoglobin) Test

The HbA1c test has long been considered the "gold standard" for assessing long-term blood sugar control.

1. What is HbA1c?

- **Definition:** HbA1c stands for **glycated haemoglobin**. It is formed when glucose (sugar) in the blood sticks to haemoglobin, the protein in red blood cells (RBCs) responsible for carrying oxygen.
- **Mechanism:** The process of glucose binding to haemoglobin is called **glycation**. The more sugar there is in the blood, the higher the percentage of haemoglobin that becomes glycated.
- **Timeframe:** Because red blood cells have an average lifespan of approximately **120 days (3 to 4 months)**, the HbA1c test reflects the average blood sugar levels over the preceding **8 to 12 weeks**.

2. Advantages over Traditional Tests

- **Stability:** Unlike Fasting Plasma Glucose (FPG) or Post-Prandial (PP) tests, HbA1c is not affected by recent meals, physical activity, or short-term stress.
- **Convenience:** The test can be performed at any time of the day and does **not require fasting**.
- **Complication Correlation:** High HbA1c levels are directly linked to an increased risk of long-term diabetic complications such as **retinopathy** (eye damage), **nephropathy** (kidney disease), and **neuropathy** (nerve damage).

3. Interpretation of Results

The results are typically reported as a percentage. According to the American Diabetes Association (ADA) and WHO:

Result Range	Category
Below 5.7%	Normal
5.7% to 6.4%	Prediabetes
6.5% or Higher	Diabetes

4. Limitations and Factors Affecting Accuracy

Several biological factors can lead to falsely high or low readings, making the test unreliable in specific populations:

- **Haemoglobin lifespan:** Any condition that changes the lifespan of RBCs (like certain types of anaemia) will alter the result.
- **Anaemia:** Iron-deficiency anaemia can lead to **falsely elevated** HbA1c levels.
- **Blood Disorders:** Haemoglobinopathies such as **sickle cell disease** or **thalassaemia** interfere with the measurement of glycated haemoglobin.
- **Other Conditions:** Kidney failure, liver disease, pregnancy (especially in the 2nd and 3rd trimesters), and recent blood transfusions can significantly distort results.

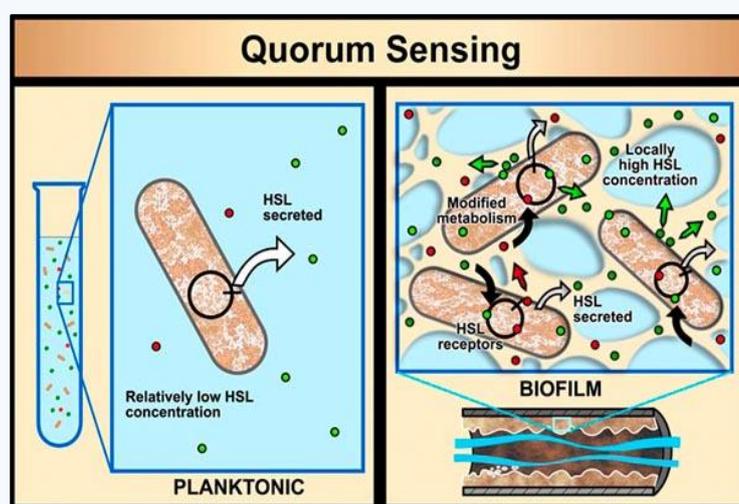
5.7. UNDERSTANDING THE SCIENCE OF MICROBIAL COORDINATION

Context:

Recently, the renowned molecular biologist Prof. Bonnie Bassler, while delivering a lecture at the Indian Institute of Science (IISc) in Bengaluru, highlighted how bacteria use a "chemical language" to coordinate collective behavior.

This phenomenon, known as Quorum Sensing, is being hailed as a critical frontier in medical science, particularly for developing "anti-quorum sensing" therapies. These therapies aim to disrupt

bacterial communication to treat infections like Cholera without the use of traditional antibiotics, thereby providing a potential solution to the global crisis of Anti-Microbial Resistance (AMR).



More About Bacterial Communication (Quorum Sensing)

1. What is Quorum Sensing?

- **Definition:** It is a process of **cell-to-cell communication** that allows bacteria to share information about their population density and adjust their gene expression accordingly.
- **Collective Behavior:** It enables single-celled organisms to act like a multicellular entity. This ensures that energy-expensive processes (like toxin production) are only performed when there are enough bacteria present to successfully overwhelm a host's immune system.

2. The Mechanism of Communication

Bacterial communication relies on the production and detection of signaling molecules called Autoinducers. The process follows four distinct stages:

- **Production:** Bacteria continuously produce a low level of autoinducer molecules.
- **Accumulation:** As the bacterial population grows, the concentration of these molecules in the environment increases.
- **Detection:** Once the concentration reaches a specific threshold (a "quorum"), the molecules bind to receptors on or inside the bacterial cells.

- **Response:** This binding triggers a synchronized change in gene expression across the entire population.

3. Key Traits Controlled by Quorum Sensing

- **Virulence:** The release of toxins (e.g., *Vibrio cholerae*).
- **Biofilm Formation:** Creating sticky, protective layers on surfaces like medical implants or teeth, which makes them highly resistant to antibiotics.
- **Bioluminescence:** Producing light in response to high density (e.g., *Vibrio fischeri* in a symbiotic relationship with the Hawaiian bobtail squid).

4. Quorum Quenching: The Future of Medicine

- **Concept:** Instead of killing bacteria (as antibiotics do), Quorum Quenching focuses on "silencing" them by disrupting their communication.

5.8. DAC APPROVAL FOR 114 RAFALES & P-8I

Context:

Recently, the Defence Acquisition Council (DAC), chaired by Union Defence Minister Rajnath Singh, accorded the **Acceptance of Necessity (AoN)** for capital acquisition proposals worth approximately **₹3.60 lakh crore**.

The most prominent approvals include the procurement of **114 Multi-Role Fighter Aircraft (MRFA)**, specifically the **Rafale**, for

the Indian Air Force and **six additional Boeing P-8I Poseidon** long-range maritime reconnaissance aircraft for the Indian Navy.



1. The 114 Rafale (MRFA) Project

- **Operational Need:** The Indian Air Force (IAF) currently operates about **29-30 squadrons**, far below the sanctioned strength of **42 squadrons**.
- **Procurement Model:** Out of the 114 jets, approximately **18 will be in fly-away condition** from France, while the remaining **96 will be manufactured in India** through a collaboration between **Dassault Aviation and Indian partners** (HAL/Private sector).
- **Indigenous Content:** The deal mandates nearly **50-60% indigenous content**, supporting the *Atmanirbhar Bharat* initiative.
- **Capabilities:** The Rafale is a **4.5-generation** "omni-role" aircraft equipped with the **Meteor** (Beyond Visual Range air-to-air), **SCALP** (cruise missile), and **MICA** missile systems.

2. P-8I Poseidon Maritime Aircraft

- **Function:** The P-8I is a Long-Range Maritime Reconnaissance and **Anti-Submarine Warfare (LRMR-ASW)** aircraft.
- **Manufacturer:** It is manufactured by **Boeing (USA)** and is a variant of the P-8A Poseidon used by the US Navy.

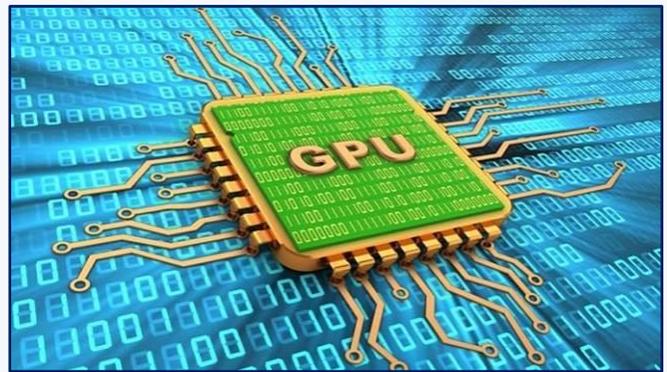
- **Equipment:** It features a **Magnetic Anomaly Detector (MAD)** (specific to the Indian version), AGM-84 Harpoon anti-ship missiles, and Mk-54 lightweight torpedoes.
- **Strategic Role:** These aircraft are "force multipliers" in the Indian Ocean Region (IOR), used for surveillance, search and rescue, and tracking enemy submarines.

3. Defence Acquisition Council (DAC)

- **Authority:** The DAC is the highest decision-making body in the Ministry of Defence for new acquisitions.
- **Composition:** It is chaired by the **Union Minister of Defence** and includes the Chief of Defence Staff (CDS) and the three Service Chiefs.
- **The AoN Step:** The **Acceptance of Necessity (AoN)** is the initial regulatory hurdle. It does not mean a contract is signed but signals that the government agrees the equipment is a necessity.

5.9. GRAPHICS PROCESSING UNIT (GPU)

Context: Recently, during the **IndiaAI Impact Summit** in New Delhi, the Government of India announced plans to triple the country's sovereign GPU capacity to **100,000 units** by the end of the year. This initiative, part of the **₹10,372-crore IndiaAI Mission**, aims to provide subsidized high-performance computing to startups and researchers, reducing India's dependence on global technology giants like Nvidia while fostering a domestic ecosystem for Large Language Models (LLMs) and deep learning.



1. Architectural Philosophy: Serial vs. Parallel

- **Central Processing Unit (CPU):** It is designed as a "General Purpose" processor that excels at **Sequential (Serial) Processing**. It contains a few powerful cores (typically 4 to 64) optimized for low-latency, complex logical branching, and system management.
- **Graphics Processing Unit (GPU):** It is a "Specialized" processor designed for **Parallel Processing**. It houses thousands of smaller, more efficient cores that can handle multiple independent tasks simultaneously.

2. How a GPU Works: The Technical Mechanism

- **SIMD Architecture:** GPUs operate on the **Single Instruction, Multiple Data (SIMD)** principle, where a single command is executed across thousands of data points (pixels or parameters) at once.
- **The Rendering Pipeline:** For visual tasks, GPUs use a four-step process:
 - **Vertex Processing:** Calculating 3D positions using matrix mathematics.
 - **Rasterization:** Converting geometric shapes into a grid of pixels.
 - **Shading:** Determining color, light, and texture for each pixel.
 - **Output:** Writing the final frame to the **Video RAM (VRAM)**.

- **AI Transformation:** In AI training, the GPU skips the visual steps and uses its cores for **Matrix Multiplication**, which is the mathematical foundation of neural networks.

3. Key Internal Components

- **Cores:** Standard units like **CUDA Cores** (Nvidia) or **Stream Processors** (AMD) handle general math. Specialized **Tensor Cores** are designed specifically for the "deep learning" math required by AI.
- **VRAM (Video RAM):** Unlike system RAM, VRAM (e.g., GDDR6X or HBM3) has massive **bandwidth**, allowing it to feed huge amounts of data to the thousands of cores without creating a bottleneck.
- **Thermal Design:** High-end GPUs in 2026 consume over **1000W** of power, necessitating advanced liquid cooling systems in modern data centers.

4. Strategic Modern Applications

- **Artificial Intelligence:** Training Large Language Models (LLMs) and running real-time "inference" for chatbots and autonomous vehicles.
- **Cryptocurrency:** Performing "Proof of Work" (PoW) hashing at high speeds (though being phased out by some blockchains like Ethereum).
- **Scientific Simulation:** Modeling climate change, molecular dynamics for drug discovery, and genomic sequencing.
- **Digital Twins:** Creating real-time virtual replicas of factories or cities for industrial optimization.

5.10. RARE EARTH MAGNETS

Context: Recently, on February 19, 2026, Union Minister for Mines G. Kishan Reddy announced that India is set to commence domestic production of **Rare Earth Permanent Magnets (REPMs)** by the end of this year.

This move follows the Union Cabinet's earlier approval of a **₹7,280-crore scheme** aimed at establishing an integrated manufacturing ecosystem to reduce the country's near-total (100%) dependence on imports, particularly from China, which currently controls over 90% of the global processing and manufacturing capacity for these critical components.



1. What are Rare Earth Magnets?

- **Definition:** These are powerful permanent magnets made from alloys of **Rare Earth Elements (REEs)**—a group of 17 metallic elements (15 lanthanides plus scandium and yttrium).
- **Properties:** They are known for having extremely high magnetic strength (energy density) and high coercivity (resistance to being demagnetized) compared to traditional magnets.
- **Vulnerability:** While physically strong in magnetic terms, they are often brittle and highly susceptible to corrosion, which is why they are typically coated with protective layers like **Nickel-Copper-Nickel plating**.

2. Two Primary Types Rare Earth Magnets:

- **Neodymium Magnets (NdFeB):** Composed of Neodymium, Iron, and Boron. They are the strongest type of permanent magnet commercially available and are essential for electric vehicle (EV) motors.
- **Samarium-Cobalt Magnets (SmCo):** These were the first rare earth magnets developed. Although slightly weaker than neodymium magnets, they have a higher **Curie temperature** (can operate at up to 700°C) and superior resistance to oxidation, making them vital for aerospace and missile systems.

3. Strategic Importance for India

- **Clean Energy:** They are indispensable for the "direct drive" generators in wind turbines and traction motors in Electric Vehicles.
- **Defence:** Used in precision-guided munitions, drones, radar systems, and communication equipment.
- **Economic Security:** India possesses the world's **5th largest reserves** of rare earths (approx. 6.9 million tonnes), yet it currently imports almost all its finished magnets.
- **China Factor:** China's recent export restrictions on rare earth technology and minerals have created a "supply chain squeeze," necessitating India's push for "Atmanirbharta" (self-reliance).

4. The Rare Earth Magnet Scheme (2025-26)

- **Outlay:** ₹7,280 crore over a 7-year period.
- **Target:** To create a domestic capacity of **6,000 Metric Tonnes Per Annum (MTPA)**.
- **Focus:** Integrated manufacturing that covers the entire value chain: **Rare Earth Oxides → Metals → Alloys → Finished Sintered Magnets**.
- **Incentives:** Includes ₹6,450 crore as sales-linked incentives and ₹750 crore as capital subsidies.

5.11. BIO-BASED CHEMICALS AND ENZYMES

Context: Recent policy deliberations and government strategies have emphasized the need to scale up **bio-based manufacturing** as a key component of **India's bio-economy** agenda, with the objective of reducing dependence on **fossil-fuel-derived chemicals** and advancing environmentally sustainable industrial development.

1. Core Concepts: Definitions & Applications

- **Bio-based Chemicals:** These are chemicals **made from renewable biological sources** or feedstocks like (e.g., sugarcane, corn, starch, biomass residues). They are produced mainly through fermentation or biological processing and are considered environmentally friendly.
- **Examples:** Organic acids (lactic acid), **bio-alcohols**, solvents, surfactants, and intermediates for plastics, cosmetics, and pharmaceuticals.



- **Enzymes:** Enzymes are **natural biological catalysts** that speed up **chemical reactions**.
- **Environmental Benefit:** They function at **lower temperatures and pressures**, significantly **reducing energy consumption** and emissions compared to traditional methods.

2. India’s Strategic Position and Policy

- **Policy Framework:** India has designated bio-based chemicals and enzymes as a priority area under the **Department of Biotechnology’s BioE3 policy**.
- **Economic Drivers:** Scaling this sector aims to reduce import dependence on petrochemicals (e.g., India imported approximately **\$479.8 million** worth of acetic acid in 2023) and create new markets for agricultural produce.

About BioE3 Policy

- The Government of India has introduced (in 2024-25 budget) the BIO-E3 Policy to accelerate the growth of the country’s **bio-economy** by promoting **bio-based innovation, entrepreneurship, and environmentally sustainable manufacturing**.
- **Aims and objective:** It aims to achieve a **\$300 billion bioeconomy by 2030**, utilizing AI, biofoundries, and hubs to drive innovation in climate-resilient agriculture, precision biotherapeutics, and green chemicals.
- **Strategic Sectors:** The policy focuses on six thematic areas, including high-value **bio-based chemicals and enzymes**, smart proteins, **precision biotherapeutics**, carbon capture & utilization, climate resilient agriculture, and futuristic marine and space research.
- **Policy Impact and Goals:** It supports India’s commitment to net-zero carbon emissions by 2070 and Viksit Bharat @2047.

3. Global Perspectives: International Strategies

Region/Country	Key Strategy/Program	Focus Area
European Union (EU)	Bioeconomy Strategy and Action Plan	Coordinated support linking industrial transformation to climate goals and waste reduction.
United States (U.S.)	USDA BioPreferred Program	Mandates federal procurement preference for certified bio-based products to create early markets.
China	Bioeconomy Development Plans	Explicitly prioritizes high-value bio-based chemicals and enzyme technologies as strategic sectors.
Japan	METI/NARO Projects	Integrates bio-based chemical research with manufacturing readiness.

4. Challenges and Risks to Scale-up

- **Cost Disadvantage:** High comparative cost of bio-based products relative to established petrochemical alternatives creates a significant entry barrier for private investment.
- **Resource Availability:** Issues regarding the availability of reliable feedstocks and the supporting infrastructure required for large-scale production.

- **Market Adoption:** Challenges in seamlessly substituting existing inputs in manufacturing pipelines and the willingness of downstream manufacturers to switch.

5.12. LAUNCH VEHICLE DEBRIS FOUND IN MALDIVES

Context: Recently, debris carrying the logo of ISRO and India's National Emblem was discovered on an uninhabited island of the Maldives. The debris is believed to have originated from India's heavy-lift launch vehicle **LVM-3**, highlighting issues related to space missions and debris management.

1. Technical Identification

- **Launch Vehicle Mark-3 (LVM3):** The debris—specifically a **payload fairing (PLF)**—is believed to be from ISRO's **heaviest rocket**, the LVM3.
- **Mission Links:** The debris likely originated from the **LVM3-M6/BlueBird Block-2 Mission** launched in December 2025 or the **CMS-03 communication satellite** launch in November 2025.
- **Rocket Configuration:** The **LVM3 is a three-stage vehicle** comprising two solid strap-on motors, a liquid core stage, and a cryogenic upper stage.



2. Different types of launch vehicles

Launchers or Launch Vehicles are used to carry spacecraft to space. India has three active operational launch vehicles: Polar Satellite Launch Vehicle (PSLV), Geosynchronous Satellite Launch Vehicle (GSLV), Geosynchronous Satellite Launch Vehicle Mk-III (LVM3).

I. PSLV (Polar Satellite Launch Vehicle)

- It is the Indian Space Research Organisation's (ISRO) reliable third-generation, 4-stage "**workhorse**" launch vehicle, first successful in 1994
- Has **four variants** based on strap-on boosters: 6, 4, 2, and Core-Along.
- Used for launching:
 - Earth Observation satellites
 - Navigation satellites
- **Key Missions:** Successfully launched India's first space observatory, Astrosat, Chandrayaan-1 in 2008, and Mangalyaan in 2013.

II. GSLV (Geosynchronous Satellite Launch Vehicle)

- It is a **three-stage**, 49–52m tall, 420-tonne rocket developed by ISRO to launch heavy communication satellites (up to ~2.5 tonnes) into **Geostationary Transfer Orbit (GTO)**.
- Uses **indigenous Cryogenic Upper Stage**.
- **Key missions** include launching NavIC navigation satellites (NVS-01, NVS-02)

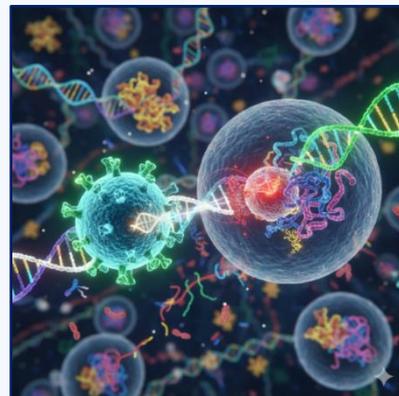
III. Launch Vehicle Mark III (LVM-III)

- The Launch Vehicle Mark III (LVM3), formerly known as **GSLV Mk III**, is ISRO's **most powerful, three-stage** medium-lift launch vehicle designed for heavy satellite deployment.
- **Key Missions:** LVM3 successfully launched the Chandrayaan-2 and Chandrayaan-3 missions.
- Can launch:

- **4-tonne satellites to Geostationary Transfer Orbit (GTO).**
- **10-tonne payloads to Lower Earth Orbit (LEO)**
- Selected for **Gaganyaan Human Space Mission.**

5.13. ADVANCEMENT IN GENETIC THERAPY: THE PERT STRATEGY

Context: Genetic disorders often stem from small errors in the DNA sequence, such as **nonsense mutations**, which account for approximately **one-quarter of all known disease-causing genetic changes**. These mutations insert a premature "stop signal" in the DNA, causing protein production to end too early and leaving the body without essential functional proteins. Traditionally, each disorder required a unique, expensive, and slow-to-develop therapy.



1. The PERT Strategy: A Unified Approach

Researchers from the Broad Institute, Harvard, and the University of Minnesota have developed a single genome-editing strategy called **Prime-Editing-mediated Readthrough of premature Termination codons (PERT)**.

- **Mechanism:** PERT "reprogrammes" one of the cell's own genes into a tool that overrides premature stop signals, allowing the cell to ignore the faulty instruction and complete the protein.
- **Gene Repurposing:** The technique utilizes **tRNA (transfer RNA)** genes. Human cells contain 448 tRNA genes, many of which are redundant.
 - tRNA act as critical adaptor molecules in translation by carrying specific amino acids to the ribosome and matching them to corresponding codons on the mRNA.
- **The "Suppressor tRNA":** Using **prime editing**, researchers converted a non-essential natural tRNA gene into a **suppressor tRNA**—a molecule that reads through premature stop signals and inserts an amino acid where there should have been a "stop".

2. Key Components and Innovation

- **Prime Editing (The Tool):** This precise genome-editing approach uses a specialized molecule called a **prime-editing guide RNA (pegRNA)** to lead the editing machinery to the exact spot on the DNA.
 - **Prime-editing guide RNA (pegRNA)** is a specially engineered RNA used in **prime editing**, a precise CRISPR-based genome editing method.
 - It combines the roles of a **guide RNA** (like in CRISPR-Cas9) and a **template for reverse transcription** to introduce specific edits without making double-strand breaks.
- **Selection Process:** Researchers identified four specific tRNAs- leucine, arginine, tyrosine, and serine—that showed the most promise for therapeutic use.
- **Efficiency:** In cultured human cells, this combination achieved **60-80% editing efficiency**, which is significantly higher than the standard **10-20% efficiency** of traditional precision gene insertion methods like **homology-directed repair**.

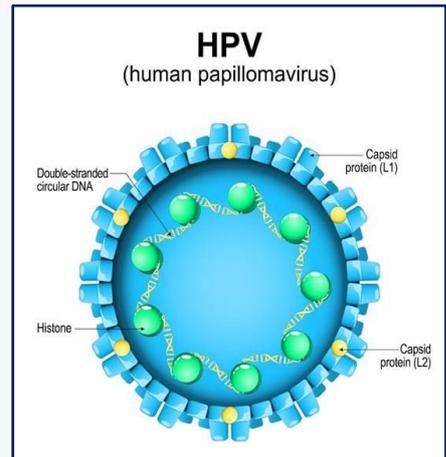
3. Experimental Success and Results

The PERT strategy was tested on models of several rare diseases caused by **nonsense mutations**:

- **Hurler Syndrome:** Restored 1.7-7% of normal enzyme activity in the brain, heart, and liver, which is known to meaningfully reduce disease severity.
- **Tay-Sachs & Batten Disease:** Enzyme activity rose to **17-70% of normal levels** in these models.
- **Niemann-Pick C1:** Cells produced measurable amounts of the full-length NPC1 protein, which is otherwise entirely absent in these patients.

5.14. HPV AND VACCINATION

Context: Recently, the Union Ministry of Health and Family Welfare announced the launch of a nationwide, free Human Papillomavirus (HPV) vaccination campaign targeting adolescent girls aged **14 years** to combat cervical cancer. The government will initially utilize the quadrivalent **Gardasil** vaccine, secured through a partnership with **Gavi, the Vaccine Alliance**, and will track the rollout via the digital **U-WIN** platform.



1. Understanding Human Papilloma virus (HPV)

- **Definition:** HPV is a group of more than 200 related viruses, primarily transmitted through skin-to-skin or sexual contact.
- **Disease Burden:** While most infections are cleared by the immune system, persistent infection with "high-risk" types leads to cancers.
- **High-Risk Strains:** **HPV types 16 and 18** are responsible for nearly 70-80% of cervical cancer cases globally and in India.
- **Other Conditions:** Low-risk types like **HPV 6 and 11** cause genital warts and respiratory papillomatosis but are rarely oncogenic.

2. National HPV Vaccination Drive (2026)

- **Target Group:** The campaign specifically targets girls aged **14 years** to provide maximum preventive benefit before potential exposure to the virus.
- **Implementation:** The vaccination is **voluntary and free of cost** at government facilities, including Ayushman Arogya Mandirs (Health and Wellness Centers).
- **The Single-Dose Regimen:** Based on recommendations from the **National Technical Advisory Group on Immunisation (NTAGI)** and the WHO, India has adopted a single-dose schedule, which scientific evidence shows provides robust and durable protection.
- **Tracking:** The **U-WIN digital platform** (modeled after Co-WIN) will be used to register beneficiaries and track vaccination events.

3. Types of HPV Vaccines

Vaccine	Type	Strains Covered	Developer/Manufacturer
CERVAVAC	Quadrivalent	6, 11, 16, 18	Serum Institute of India (SII)
Gardasil	Quadrivalent	6, 11, 16, 18	MSD (Merck & Co.)
Gardasil 9	Nonavalent	6, 11, 16, 18, 31, 33, 45, 52, 58	MSD (Merck & Co.)
Cervarix	Bivalent	16, 18	GSK

- **Note: CERVAVAC** is India's first indigenous quadrivalent HPV vaccine, developed through a partnership between SII and the Department of Biotechnology (DBT).

4. WHO "90-70-90" Targets by 2030

India is aligning its health goals with the WHO Global Strategy to eliminate cervical cancer:

1. **90%** of girls fully vaccinated with the HPV vaccine by age 15.
2. **70%** of women screened with a high-performance test by age 35 and again by 45.
3. **90%** of women identified with cervical disease receive treatment.

5.15. INS ANJADIP

Context: Recently, the Indian Navy formally commissioned **INS Anjadip**, the fourth indigenously built **Anti-Submarine Warfare Shallow Water Crafts (ASW-SWC)**, at the Chennai Port. This vessel is designed specifically to detect and neutralize underwater threats in the littoral (shallow) waters of the Indian Ocean Region, marking a major milestone in India's quest for **Aatmanirbharta** (self-reliance) in defense manufacturing.



Classification of Naval Ships in India

The Indian Navy operates a diverse fleet designed for "Blue Water" (deep sea) and "Brown Water" (coastal) operations.

1. Aircraft Carriers (The Capital Ships)

These are seagoing airbases that allow a nation to project power far beyond its shores.

- **Role:** Command and control of the fleet, providing air cover, and conducting long-range strikes.
- **Examples:**
 - **INS Vikramaditya:** A modified Kiev-class carrier of Russian origin.
 - **INS Vikrant:** India's first indigenous aircraft carrier (IAC-1).

2. Destroyers (The Frontline Escorts)

Large, fast, and heavily armed with missiles to protect the fleet from surface and air attacks.

- **Role:** Escorting larger vessels (like carriers), offensive anti-surface warfare, and area air defense.
- **Examples:**
 - **Visakhapatnam Class (Project 15B):** Most advanced stealth destroyers (e.g., **INS Visakhapatnam**, **INS Mormugao**).
 - **Kolkata Class (Project 15A):** Features advanced AESA radars and BrahMos missiles (e.g., **INS Chennai**).
 - **Rajput Class:** Older Soviet-era destroyers primarily used for escort duties.

3. Frigates (Multi-Role Workhorses)

Slightly smaller than destroyers, they are optimized for versatility in anti-submarine and air-defense roles.

- **Role:** General-purpose combat, protecting merchant convoys, and specialized anti-submarine warfare.

- **Examples:**
 - **Nilgiri Class (Project 17A):** Next-gen stealth frigates (e.g., **INS Himgiri**, **INS Udaygiri**).
 - **Shivalik Class (Project 17):** India's first stealth frigates (e.g., **INS Satpura**).
 - **Talwar Class:** Multi-role stealth frigates used for long-range patrols.

4. Corvettes (Coastal Guardians)

Small, maneuverable warships for coastal defense. **INS Anjadip** is a specialized variant of this class.

- **Role:** Coastal surveillance, shallow-water anti-submarine warfare, and search and rescue (SAR).
- **Examples:**
 - **Kamorta Class:** Specialized ASW stealth corvettes (e.g., **INS Kiltan**).
 - **Arnala Class (ASW-SWC):** The new "Shallow Water" specialists, including **INS Arnala** and **INS Anjadip**.
 - **Kora & Khukri Classes:** Primarily focused on surface-to-surface missile warfare.

5. Submarines (The Silent Killers)

- **Nuclear-Powered (SSBN/SSN):**
 - **Role:** Strategic deterrence (second-strike capability) and long-endurance underwater combat.
 - **Examples:** **INS Arihant**, **INS Arighaat**.
- **Conventional (SSK):**
 - **Role:** Infiltrating enemy waters and destroying surface ships and submarines.
 - **Examples:** **Kalvari Class** (Scorpene design), **Sindhughosh Class** (Kilo-class).

6. Amphibious Warfare & Support Ships

- **Role:** Transporting troops/tanks for beach landings and providing fuel/supplies to the fleet.
- **Examples:** **INS Jalashwa** (Amphibious Transport Dock), **INS Deepak** (Fleet Tanker), and **INS Nistar** (Diving Support Vessel).

INS Anjadip: The "Dolphin Hunter"

Technical & Strategic Details

- **Role:** Known as the "Dolphin Hunter," it is optimized for the detection and neutralization of enemy submarines in shallow, coastal waters where larger ships struggle to operate.
- **Propulsion:** Utilizes a high-speed Water-Jet Propulsion system, enabling a top speed of 25 knots.
- **Sensors:** Equipped with the indigenous Sonar Abhay and sophisticated combat management systems.
- **Construction:** Built by Garden Reach Shipbuilders & Engineers (GRSE) in collaboration with L&T Shipyard, utilizing high-grade steel from SAIL.

UPSC PRELIMS PRACTICE QUESTIONS

Q. With reference to 'Suborbital Space Tourism', consider the following statements:

1. A suborbital vehicle travels at a speed higher than the Earth's escape velocity to ensure it reaches the Karman line.
2. The Karman line is the internationally recognized boundary of space located approximately 100 kilometers above sea level.
3. Passengers on a suborbital flight experience weightlessness because they are in a region where Earth's gravity is zero.

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: A) Only one

Explanation:

STATEMENT 1 IS INCORRECT: A suborbital vehicle travels at a speed lower than the orbital velocity (and much lower than escape velocity). If it reached escape velocity (11.2 km/s), it would leave Earth's gravity entirely and never return.

STATEMENT 2 IS CORRECT: The Karman Line is the most widely accepted conventional boundary (100 km) used to define where outer space begins.

STATEMENT 3 IS INCORRECT: Weightlessness is experienced not because gravity is zero (gravity at 100 km is still about 90% of that on the surface), but because the vehicle and passengers are in freefall while following the parabolic trajectory.

Q. With reference to the 'Solid Fuel Ducted Ramjet (SFDR)' technology, consider the following statements:

1. It is a propulsion system that eliminates the need for an onboard oxidizer by using atmospheric oxygen.

2. The SFDR-based missiles are primarily used for low-speed, subsonic cruise flight to ensure fuel efficiency.
3. The technology has been developed indigenously by the Defence Research and Development Organisation (DRDO).

How many of the statements given above are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

Answer: B) Only two

Explanation:

STATEMENT 1 IS CORRECT: SFDR is an air-breathing engine that uses a ramjet to suck in atmospheric oxygen, negating the need for an internal oxidizer.

STATEMENT 2 IS INCORRECT: SFDR technology is specifically designed for supersonic speeds (typically Mach 2 to Mach 5); ramjets do not function efficiently at subsonic speeds as they require high velocity to compress incoming air.

STATEMENT 3 IS CORRECT: The SFDR system is an indigenous project led by DRDO's Defence Research and Development Laboratory (DRDL) in Hyderabad.

Q. With reference to Indian military aircraft, consider the following statements:

- I. The C-295 aircraft project is the first instance of a military aircraft being manufactured in India by a private sector consortium.
- II. The HAL Prachand is currently the only attack helicopter globally capable of landing at altitudes exceeding 5,000 meters.
- III. The Netra Airborne Early Warning & Control (AEW&C) system provides 360-degree radar coverage using a rotodome antenna.

Which of the statements given above is/are correct?

- (a) I and II only
- (b) II and III only
- (c) I and III only
- (d) I, II, and III

Correct Answer: (a) I and II only

Explanation:

STATEMENT I CORRECT: The C-295 is being manufactured by a partnership between Airbus and Tata Advanced Systems, marking the first private-sector military aircraft assembly line in India.

STATEMENT II CORRECT: The HAL Prachand (LCH) was specifically designed for high-altitude operations, making it the only attack helicopter that can operate at the Siachen Glacier heights.

STATEMENT III INCORRECT: The Netra system provides 240-degree coverage using an Active Electronically Scanned Array (AESA) radar fixed on the fuselage. It is the Phalcon AWACS that provides 360-degree coverage via a rotodome.

Q. With reference to the H5N1 Avian Influenza, consider the following statements:

1. It is caused by the Influenza Type B virus, which primarily affects domestic poultry.
2. The Hemagglutinin protein on the virus surface is responsible for the release of viral progeny from the host cell.
3. While it is highly lethal for birds, sustained human-to-human transmission has not yet been established.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Correct Answer: (b)

Explanation:

STATEMENT 1 INCORRECT: Avian Influenza is caused by Influenza Type A viruses, not Type B. Type B viruses almost exclusively infect humans and do not cause pandemics.

STATEMENT 2 INCORRECT: The Neuraminidase (N) protein is responsible for the release of progeny; Hemagglutinin (H) is responsible for entry/attachment.

STATEMENT 3 CORRECT: H5N1 has a high fatality rate in birds and humans, but it has not yet acquired the mutations necessary for efficient or sustained human-to-human spread.

Q. Consider the following statements regarding India's astronomy and space research ecosystem:

- I. The Giant Metrewave Radio Telescope (GMRT) is the world's largest low-frequency radio telescope array.
- II. India currently possesses a fully operational sub-millimetre wavelength telescope.
- III. The National Large Solar Telescope is being set up near Pangong Lake in Ladakh.
- IV. IN-SPACE was established to promote public-private partnerships in the space sector.

Which of the statements given above are correct?

- (a) I, III and IV only
- (b) I and II only
- (c) II, III and IV only
- (d) I, II, III and IV

Correct Answer: (a)

Explanation:

Statement I Correct: The Giant Metrewave Radio Telescope (GMRT) located near Pune is the world's largest radio telescope array operating at low radio frequencies. It attracts astronomers from across the world and plays a crucial role in studying pulsars, galaxies, and the early universe, making the statement correct.

Statement II not Correct: India does not currently have any telescope operating in the sub-millimetre wavelength range, which is considered a critical window for studying dusty galaxies and proto-stellar disks. Such a facility is only at the proposal stage under the Astronomy

& Astrophysics Mega Science Vision 2035, hence this statement is incorrect.

Statement III correct: The Union Budget 2026–27 has allocated funds for the construction of the National Large Solar Telescope (NLST) near Pangong Lake in Ladakh, aimed at high-resolution solar studies and space weather research. Therefore, this statement is correct.

Statement IV Correct: The Indian National Space Promotion and Authorisation Centre (IN-SPACe) was established in 2020 by the Department of Space to promote and regulate public-private partnerships and encourage private sector participation in India's space ecosystem, making this statement correct.



Scan to attempt more questions



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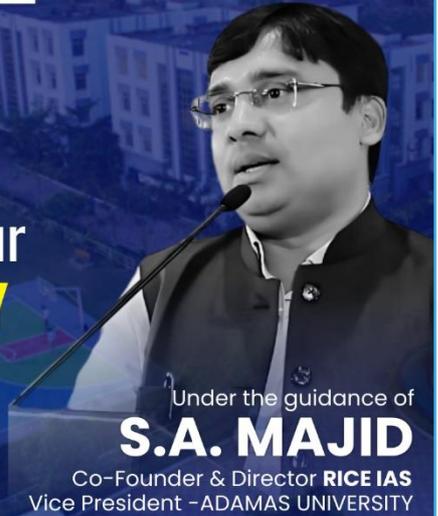
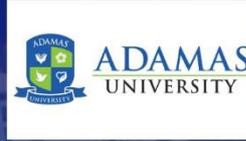
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HISTORY & CULTURE

6.1. SANT GURU RAVIDAS

Context:

Recently, the nation observed the **649th birth anniversary** of Sant Guru Ravidas on **February 1, 2026** (Magh Purnima), marked by high-profile visits and state-level celebrations. Prime Minister Narendra Modi visited **Dera Sachkhand Ballan** in Jalandhar, Punjab—a prominent spiritual center for the Ravidassia community—to offer prayers and emphasize the government's commitment to the saint's vision of an egalitarian society.



1. General Profile and Life

- **Era:** He was a 15th–16th century mystic poet-saint of the **Bhakti Movement**.
- **Birth:** He was born in **Seer Goverdhanpur** near Varanasi, Uttar Pradesh. His birthplace is now a major pilgrimage site known as **Shri Guru Ravidas Janam Asthan**.
- **Lineage:** He belonged to a family of leather workers (**Chamar** community), and he continued to take pride in his profession as a symbol of the dignity of labor (*Kirat*).
- **Contemporary Figures:** He was a contemporary of **Saint Kabir** and is widely believed to be a disciple of the Brahmin Bhakti poet **Ramananda**.

2. Philosophy and Teachings

- **Nirguna Bhakti:** Guru Ravidas was a prominent figure of the **Nirguna Sampradaya**, emphasizing the worship of a formless, omnipresent God rather than idol worship or ritualistic orthodoxy.
- **Equality:** He was one of the earliest advocates for the **abolition of the caste system** and gender discrimination, teaching that God resides in every human soul regardless of birth.
- **Sahaj:** He used the term "Sahaj" to describe a mystical state where the individual soul and the Divine unite in a state of spiritual harmony.
- **Association with Meera Bai:** Sant Guru Ravidas is traditionally considered the spiritual guide (**Guru**) of the famous Rajput princess and poetess **Meera Bai**.

3. The Concept of "Begumpura"

- **Definition:** Derived from "Be-gham" (without sorrow) and "Pura" (city), it represents a **Utopian city** envisioned by Ravidas in one of his famous hymns.
- **Characteristics:** He described it as a land where there is no suffering, no taxes, no private property, and no social hierarchy.
- **Constitutional Link:** Modern scholars and political leaders often draw a parallel between the vision of **Begumpura** and the principles of **Social Justice** and **Equality** enshrined in the Indian Constitution.

4. Literary Contributions

- **Guru Granth Sahib:** His spiritual influence is immortalized in the Sikh holy scripture, which contains **41 of his hymns (Shabads)**. He is one of the 36 contributors (Bhagats) to the Adi Granth.

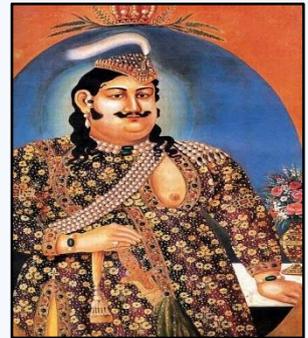
- **Panch Vani:** His verses are also found in the **Dadu Panthi** tradition of Rajasthan.
- **Amritbani Guru Ravidas Ji:** This is the primary holy book of the **Ravidassia religion**, which emerged as a distinct faith in the 21st century.

6.2. NAWAB WAJID ALI SHAH

Context

Recently, the 19th-century Nawab of Awadh, Wajid Ali Shah, returned to the limelight following the release of a new biography by his great-grandson, which challenges the long-held historical narrative that he was forcibly "exiled" to Calcutta by the British.

The book argues that the Nawab moved to Calcutta of his own volition to prepare for a journey to London to petition Queen Victoria against the annexation of his kingdom, a plan that was ultimately thwarted by the British.



Details About Nawab Wajid Ali Shah

1. The Tenth and Last Nawab of Awadh

- Wajid Ali Shah ascended the throne in 1847 at a time when the British East India Company (EIC) had already turned Awadh into a **buffer state**.
- Despite British claims of his "maladministration," records show he introduced reforms in the **military and judicial systems** based on both Mohammedan and Hindu laws.

2. Annexation of Awadh (1856)

- **Pretext:** Lord Dalhousie annexed Awadh on February 7, 1856, citing "**maladministration**" or misgovernance, rather than the Doctrine of Lapse (as the Nawab had heirs).
- **Justification:** The decision was largely based on a biased report by the British Resident, **Colonel Sleeman**, and later **James Outram**.
- **Impact:** The annexation was a primary spark for the **Revolt of 1857**, as Awadh was the main recruiting ground for the EIC's sepoys.

3. Patron of Culture and Arts

Wajid Ali Shah is often credited with the revival and refinement of North Indian art forms:

- **Kathak:** He was a disciple of **Thakur Prasad** and **Durga Prasad**. Under his patronage, the **Lucknow Gharana** of Kathak emerged, characterized by *Nazakat* (elegance) and *Abhinaya* (expression).
- **Thumri:** He is considered a pioneer of the light classical music form, **Thumri**. He composed numerous pieces under the pseudonym '**Akhtarpiya**'.
- **Theatre:** He established the '**Parikhana**' (a school for music and dance) and staged elaborate dance-dramas called '**Rahas**' (inspired by Rasleela).

4. Legacy in Calcutta (Metiabruz)

Following the annexation, he shifted to **Metiabruz** (Kolkata). He recreated the culture of Lucknow there, introducing:

- **Cuisine:** The addition of the **potato** to Biryani is famously attributed to the financial constraints of his exiled court in Calcutta.
- **Pastimes:** He popularized **kite-flying** and exotic animal collections (zoos) in Bengal.

5. Notable Literary Works

Wajid Ali Shah was a prolific writer in Urdu, Persian, and Braj Bhasha.

- **Bani:** A comprehensive treatise on music and dance.
- **Huzn-i-Akhtar:** An autobiographical work detailing his emotional suffering after losing his kingdom.
- **Sawat-ul-Qalub:** A massive collection of over 44,000 couplets.

6.3. THE DISCOVERY OF TAMIL-BRAHMI AND SANSKRIT INSCRIPTIONS AT LUXOR

Context:

Recently, researchers discovered nearly **30 inscriptions** in Indian languages, including **Tamil Brahmi (Tamili)**, **Prakrit**, and **Sanskrit**, within the rock-cut tombs of the **Valley of the Kings** in Luxor, Egypt. The inscriptions date back to the **1st to 3rd centuries CE** and provide conclusive evidence of the deep-seated presence of Indian merchants and travelers in the heart of the Roman-era Nile Valley, extending beyond the previously known coastal trade hubs.



Key Highlights of the Discovery

1. Geographical Location and Context

- **Site:** The inscriptions were found in six rock-cut tombs in the **Theban Necropolis (Valley of the Kings)**, a UNESCO World Heritage site.
- **Significance of Location:** Earlier, most Indian inscriptions were found at Red Sea ports like **Berenike and Quseir al-Qadim**; their discovery in the Nile Valley suggests that Indian traders traveled beyond the ports into Egypt's interior for trade or other activities.

2. Major Inscriptions and Decipherment

- **Cikai Korran:** This name appears **eight times** across five different tombs.
 - 'Cikai' is linked to the Sanskrit *shikha* (tuft/crown).
 - 'Korran' is a distinct Tamil name derived from *korram* (victory), often associated with the goddess **Korravai**.
- **Kopan Varata Kantan:** Another inscription translated as "**Kopan came and saw,**" which mirrors the formulaic style of Greek graffiti found in the same tombs. This suggests the visitors were literate and possibly multilingual.
- **Other Names:** Inscriptions also mentioned names like **Catan** and **Kiran**, which are common in Tamil Sangam literature.

3. Linguistic and Historical Significance

- **Two-Way Trade:** The discovery proves that trade was not merely a "one-way" Roman venture to India but involved active participation and physical presence of Indian mercantile communities in the Roman Empire.

- **Script Variety:** While 20 inscriptions are in **Tamil Brahmi**, others are in **Sanskrit** and **Prakrit**. One Sanskrit inscription mentions a *duta* (envoy) of a **Kshaharata king** (Western Kshatrapas), highlighting official diplomatic or trade missions from Western India.
- **Timeline:** The 1st to 3rd century CE timeframe aligns perfectly with the peak of the **Indo-Roman trade** mentioned in Sangam literature and by Roman chroniclers like **Ptolemy** and **Pliny the Elder**.

4. Comparative Table: Indian Inscriptions in Egypt & Middle East

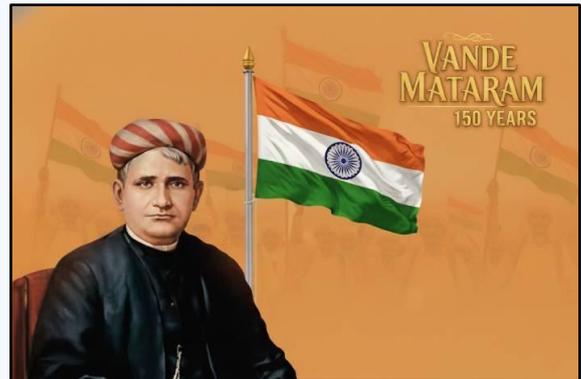
Site Name	Location	Key Discovery	Script / Language
Valley of the Kings	Nile Valley, Egypt	Graffiti on tomb walls (Cikai Korran)	Tamil Brahmi, Prakrit, Sanskrit
Berenike	Red Sea Coast, Egypt	Potsherd mentioning <i>Korrapuman</i>	Tamil Brahmi
Quseir al-Qadim	Red Sea Coast, Egypt	Storage jar with <i>Paanai ori</i> (pot in a rope net)	Tamil Brahmi
Khor Rori (Sumhuram)	Dhofar, Oman	Potsherd mentioning <i>Nantai Kiran</i>	Tamil Brahmi

6.4. PLAYING VANDE MATARAM BEFORE THE NATIONAL ANTHEM

Context:

Recently, a fresh administrative and political discourse has emerged following new guidelines issued by the Ministry of Home Affairs (MHA) regarding the protocol for the National Song, **Vande Mataram**.

Centre has mandated that the **complete six-stanza version** of the song be played or sung at official government functions, award ceremonies, and civil investiture ceremonies. Crucially, the directive stipulates that when both the National Song and the National Anthem are performed together, **Vande Mataram must precede Jana Gana Mana**.



Historical Evolution of Vande Mataram

1. Composition and Publication

- **Author:** Composed by **Bankim Chandra Chattopadhyay** in the 1870s (specifically 1875).
- **Language:** Written in a mixture of **Sanskrit and Bengali**.
- **Literary Source:** It was later included in his famous novel **Anandamath**, published in **1882**, which depicts the **Sannyasi Rebellion**.

2. Role in the Freedom Movement

- **1896 Congress Session:** **First sung** publicly by **Rabindranath Tagore** at the Calcutta session of the **Indian National Congress**.
- **1905 Swadeshi Movement:** It became the primary rallying cry and a symbol of resistance during the protests against the **Partition of Bengal**.

- **1907 Global Recognition: Madam Bhikaji Cama** unfurled the first version of the Indian flag in Stuttgart, Germany, with "**Vande Mataram**" inscribed on it.

Constitutional and Legal Status

1. National Song vs. National Anthem

- **Adoption:** On **January 24, 1950**, the President of the Constituent Assembly, **Dr. Rajendra Prasad**, declared *Jana Gana Mana* as the National Anthem and *Vande Mataram* as the National Song.
- **Equality of Status:** Dr. Prasad stated that *Vande Mataram* shall be honored equally with *Jana Gana Mana* and shall have **equal status** with it.

2. Legal Protections

- **National Anthem:** Explicitly protected under the **Prevention of Insults to National Honour Act, 1971**. Disrespecting or intentionally preventing the singing of the anthem is a punishable offense.
- **National Song:** While the government maintains it deserves equal respect, it is **not explicitly mentioned** in the 1971 Act or **Article 51A** (Fundamental Duties) of the Constitution. Article 51A(a) only mentions the National Flag and the National Anthem.

Comparison: Jana Gana Mana vs. Vande Mataram

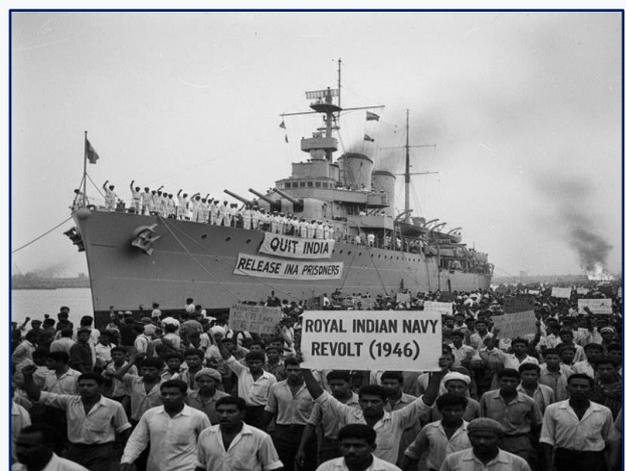
Feature	National Anthem (Jana Gana Mana)	National Song (Vande Mataram)
Composer	Rabindranath Tagore	Bankim Chandra Chattopadhyay
First Performance	1911 (Congress Session, Calcutta)	1896 (Congress Session, Calcutta)
Official Duration	Approximately 52 seconds	New guidelines: 3 mins 10 secs (Full version)
Legal Mandate	Prevention of Insults to National Honour Act, 1971	Guidelines (MHA), No specific penal law yet
Fundamental Duty	Explicitly mentioned in Article 51A(a)	Not explicitly mentioned in Article 51A

6.5. ROYAL INDIAN NAVY (RIN) REVOLT: 80 YEARS OF A FORGOTTEN UPRISING

Context: The year 2026 marks the **80th anniversary** of the Royal Indian Navy (RIN) Revolt, a watershed moment in India’s struggle for independence that transcended communal divides and shook the foundations of British colonial rule.

1. Genesis of the Uprising

The revolt began on **February 18, 1946**, at the shore establishment **HMIS Talwar** in Bombay. What started as a hunger strike by naval ratings quickly escalated into a widespread insurrection. The primary catalysts included:



- **Inhumane Conditions:** Protest against sub-standard food and low wages.
- **Racial Discrimination:** Systematic mistreatment by British officers.
- **Political Undercurrents:** Influence of the **Indian National Army (INA)** trials and the charismatic leadership of Subhas Chandra Bose.

2. Scale and Spread of the Revolt

The uprising was not a localized "mutiny" but a coordinated naval and civilian defiance:

- **Geographical Reach:** Spread from Bombay to Karachi, Madras, Cochin, Vishakhapatnam, and Kolkata.
- **Participation:** Involved nearly **20,000 naval ratings**, 78 ships, and 20 shore establishments.
- **Symbolism:** Ratings hoisted the flags of the **Congress, Muslim League, and Communist Party** simultaneously on naval masts, signaling unprecedented unity.
- **Central Strike Committee:** Led by **M.S. Khan**, the committee demanded the release of political prisoners and the withdrawal of Indian troops from Indonesia and Egypt.

3. Popular Mobilization

The revolt triggered a massive civilian surge in Bombay, particularly within the mill districts (Kamatipura and Madanpura).

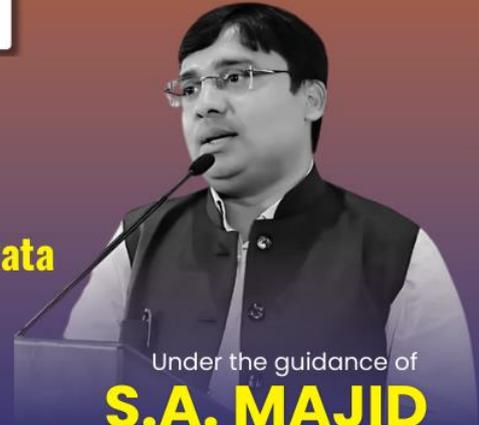
- **Hindu-Muslim Solidarity:** Protesters from both communities jointly organized *hartals* and engaged in pitched battles against British machine guns.
- **Casualties:** Over 200 civilians were killed as the British utilized armored vehicles and heavy ammunition to suppress the street-level uprising.
- **Surrender:** On the advice of **Sardar Vallabhbhai Patel** and **Muhammad Ali Jinnah**, who provided assurances against victimization (which were later largely ignored), the ratings surrendered on February 23, 1946.

4. Historical Significance & Legacy

- **Impact on British Rule:** The revolt convinced the British that the Indian Armed Forces could no longer be relied upon to maintain the Empire.
- **Decolonization Catalyst:** It accelerated the dispatch of the **Cabinet Mission** to India to negotiate the transfer of power.



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UPSC PRELIMS PRACTICE QUESTIONS

Q. With reference to Sant Guru Ravidas, consider the following statements:

1. He was a prominent proponent of the Saguna tradition of Bhakti, focusing on the worship of personal avatars of God.
2. The concept of "Begumpura," a sorrowless and casteless society, was first articulated in his hymns.
3. His devotional poems are included in the Guru Granth Sahib, the central scripture of Sikhism.
4. He is traditionally regarded as the spiritual guru of the Bhakti saint Meera Bai.

How many of the statements given above are correct?

- A) Only one
- B) Only two
- C) Only three
- D) All four

Correct Answer: C) Only three

Explanation:

STATEMENT 1 INCORRECT: Guru Ravidas belonged to the Nirguna (formless) tradition of Bhakti and generally rejected idol worship and Saguna forms.

STATEMENT 2 CORRECT: Begumpura is a unique socio-spiritual utopia envisioned by him to describe a just and equal society.

STATEMENT 3 CORRECT: 41 hymns of Guru Ravidas are part of the Guru Granth Sahib, making him a highly revered figure in the Sikh tradition.

STATEMENT 4 CORRECT: Historical and hagiographical accounts, particularly in Rajasthan, identify him as the Spiritual Guru of Meera Bai.

Q. With reference to Nawab Wajid Ali Shah and the annexation of Awadh, consider the following statements:

- I. Awadh was annexed by Lord Dalhousie under the provisions of the Doctrine of Lapse as the Nawab had no natural heir.
- II. The Nawab composed several Thumris and musical treatises under the pen name 'Akhtarpiya'.
- III. The Lucknow Gharana of Kathak reached its peak of refinement under his direct patronage and artistic guidance.

Which of the statements given above is/are correct?

- A) I and II only
- B) II and III only
- C) III only
- D) I, II, and III

Correct Answer: B

Explanation:

- **STATEMENT I IS INCORRECT:** Awadh was annexed on the grounds of **maladministration** (misgovernance), not the Doctrine of Lapse, because Wajid Ali Shah had several heirs (including Birjis Qadr).
- **STATEMENT II IS CORRECT:** The Nawab was a gifted musician and used '**Akhtarpiya**' as his pseudonym for musical compositions.
- **STATEMENT III IS CORRECT:** He was a dedicated patron of Kathak; he studied under gurus Thakur and Durga Prasad and popularized the **Lucknow Gharana**.

Q. With reference to the recently discovered Tamil Brahmi inscriptions in Egypt's Valley of the Kings, consider the following statements:

- I. These inscriptions provide the first evidence of Indian merchant presence in the Red Sea port cities of Egypt.

- II. The inscriptions include the name 'Cikai Korran', which shows linguistic influences from both Sanskrit and Tamil.
- III. The presence of Sanskrit inscriptions mentioning an envoy of the Kshaharata dynasty suggests diplomatic links between Western India and the Roman-Egyptian region.

Which of the statements given above is/are correct?

- A) I and II only
 B) II and III only
 C) I and III only
 D) I, II, and III

Correct Answer: B

Explanation:

- **STATEMENT I INCORRECT:** Evidence of Indian presence in Egypt (at Berenike and Quseir al-Qadim) has been known since the 1990s; the Valley of the Kings find is significant because it is located in the **interior Nile Valley**, not a coastal port.
- **STATEMENT II CORRECT:** 'Cikai' is derived from the Sanskrit shikha, and 'Korran' is a classical Tamil name, demonstrating a blend of linguistic traditions among the traveling community.
- **STATEMENT III CORRECT:** Researchers identified a Sanskrit inscription mentioning a *duta* (envoy) of a Kshaharata king, confirming that rulers from Western India (the Kshatrapas) had representatives visiting Egypt during the 1st century CE.

Q. With reference to the National Song and the National Anthem of India, consider the following statements:

1. The song 'Vande Mataram' was first sung at a public political occasion by Rabindranath Tagore in 1896.

2. Both the National Anthem and the National Song are explicitly mentioned as symbols to be respected under the Fundamental Duties (Article 51A).
3. According to the latest 2026 MHA guidelines, the National Song must be played before the National Anthem at official government ceremonies.

Which of the statements given above is/are correct?

- A) 1 and 2 only
 B) 2 and 3 only
 C) 1 and 3 only
 D) 1, 2, and 3

Answer: C

Explanation:

- **STATEMENT 1 CORRECT:** Rabindranath Tagore set the tune for Vande Mataram and sang it at the 1896 Calcutta session of the Indian National Congress.
- **STATEMENT 2 INCORRECT:** Article 51A(a) of the Indian Constitution requires citizens to respect the "National Flag and the National Anthem." It **does not** explicitly mention the "National Song."
- **STATEMENT 3 CORRECT:** The new protocol issued by the Ministry of Home Affairs in early 2026 mandates that Vande Mataram precede the National Anthem during official state functions.

Q. With respect to the Royal Indian Navy (RIN) Revolt of 1946, consider the following statements:

- I. The uprising initially commenced at the shore establishment HMIS Talwar as a protest against racial discrimination and poor food quality.
- II. The Naval Central Strike Committee was led by B.C. Dutt and exclusively demanded the improvement of service conditions.

- III. The revolt received unified support from the top leadership of the Indian National Congress and the Muslim League, who encouraged the ratings to continue the strike.
- IV. The uprising was characterized by a rare display of communal harmony, with protesters hoisting flags of the Congress, Muslim League, and the Communist Party together.

Which of the statements given above are correct?

- (a) I and II only
 (b) I and IV only
 (c) II and III only
 (d) I, II, and IV only

Ans. (b)

Explanation:

- **Statement I is correct:** The revolt began on February 18, 1946, at HMIS Talwar in Bombay, primarily triggered by racial insults and poor living conditions.
- **Statement II is incorrect:** While B.C. Dutt was an early protagonist, the Naval Central Strike Committee was headed by M.S. Khan.

Furthermore, their demands were not "exclusive" to service conditions; they included political demands like the release of INA prisoners.

- **Statement III is incorrect:** The senior leadership of both the Congress (Sardar Patel) and the Muslim League (Jinnah) did not support the violent nature of the mutiny and advised the ratings to surrender.
- **Statement IV is correct:** One of the most striking features of the 1946 revolt was the communal unity among the ratings and the public, symbolized by the tri-color, the crescent, and the hammer-and-sickle flags flying together.



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