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Weekly EXPECTED CURRENT AFFAIRS

for

IAS EXAMINATION



From

20th April to 25th April 2026

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1.1. DELIMITATION IN INDIA

Context:

Recently, the Union Government convened a special session of Parliament to introduce a landmark suite of legislations: the **Constitution (131st Amendment) Bill, 2026**, the **Delimitation Bill, 2026**, and the **Union Territories Laws (Amendment) Bill, 2026**. This move follows the mandate of the **Nari Shakti Vandan Adhiniyam (106th Amendment)**,

which tied the implementation of 33% women's reservation to the completion of a fresh delimitation exercise. In light of the delayed 2021 Census, these bills propose to utilize the **2011 Census** data to increase the Lok Sabha strength to **850 seats**, aiming to resolve the long-standing freeze on parliamentary seats while ensuring electoral parity across the nation.



1. Definition and Objective

- **Definition:** Delimitation is the act of redrawing boundaries of Lok Sabha and State Assembly seats to reflect changes in population.
- **Primary Objective:** To provide equal representation to equal segments of the population, ensuring "One Vote, One Value."

2. Constitutional Framework

- **Article 81:** Specifies the composition of the Lok Sabha. It mandates that the ratio between the number of seats allotted to each State and the population of the State is, so far as practicable, the same for all States.
- **Article 82:** The Parliament enacts a **Delimitation Act** after every Census. Once the Act is in force, the President appoints a Delimitation Commission.
- **Article 170:** Similar to Article 82, but applies to the readjustment of constituencies for **State Legislative Assemblies**.
- **Article 327:** Empowers Parliament to make provisions with respect to all matters relating to elections, including delimitation.
- **Article 329(a):** Bars the judiciary from interfering in the delimitation of constituencies.

3. The Delimitation Commission (The Boundary Commission)

- **Nature:** A high-power body whose orders have the force of law.
- **Composition:**
 - **Chairman:** A serving or retired Judge of the **Supreme Court**.
 - **Ex-officio:** The Chief Election Commissioner (or an EC nominated by them) and the State Election Commissioner of the concerned State.
 - **Associate Members:** 10 members (5 Lok Sabha MPs and 5 State MLAs) are appointed for each state. **Note:** They have no right to vote or sign the final report.

- **Finality of Orders:** Orders are laid before the Lok Sabha/Assembly. However, these houses **cannot** make any modifications to the orders.

4. The History of the "Freeze"

- **1952, 1963, 1973, 2002:** The years Delimitation Commissions were constituted.
- **42nd Amendment (1976):** Froze the allocation of seats based on the 1971 Census until the 2001 Census to ensure states' family planning efforts didn't reduce their political clout.
- **84th Amendment (2001):** Extended the freeze on the **number of seats** until the first census after **2026** (originally intended to be the 2031 census). However, it allowed the redrawing of **internal boundaries** within states based on the 1991 (later 2001) census.
- **87th Amendment (2003):** Provided for delimitation on the basis of the **2001 Census** without changing the total number of seats.

5. Current 2026 Proposal & The Federal Crisis

- **The 850-Seat Plan:** The 2026 Bills propose increasing seats to **850** to ensure that no state loses its current number of seats, even as northern states gain more due to higher population growth.
- **The Population Paradox:** Southern states (Kerala, Tamil Nadu, etc.) argue that delimitation based purely on population penalizes them for succeeding in national population control goals.
- **New Criteria:** Experts and the NITI Aayog have suggested that the new Commission may consider "additional markers" alongside population, such as economic contribution or social indicators, to maintain federal balance.

Q. With reference to the Delimitation Commission, consider the following statements:

1. The Constitution mandates that the Delimitation Commission must use the data from the most recent Census completed before the date of the Commission's appointment.
2. The President of India determines the final boundaries of constituencies after reviewing the recommendations of the Delimitation Commission.
3. The 106th Constitutional Amendment Act makes the implementation of women's reservation contingent upon the delimitation exercise conducted after the first census taken after the Act's commencement.

How many of the above statements are correct?

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

Answer: (b) Only two

Solution:

- **STATEMENT 1 IS CORRECT:** Articles 82 and 170 specify that readjustment happens "upon the completion of each census." The 2026 Bill is a specific amendment to utilize the 2011 data because the 2021 census was delayed.

- **STATEMENT 2 IS INCORRECT:** The President appoints the Commission, but the Commission itself determines the boundaries. Its orders are final and cannot be modified by the President, the Parliament, or the Judiciary.
- **STATEMENT 3 IS CORRECT:** This is the "Sunset Clause/Trigger Clause" of the Nari Shakti Vandan Adhiniyam, linking reservation to the delimitation process.

1.2. ONLINE GAMING REGULATION IN INDIA

Context

- **Recently**, the Ministry of Electronics and Information Technology (MeitY) notified the **Promotion and Regulation of Online Gaming Rules, 2026**, which are set to come into effect from May 1, 2026. These rules act as subordinate legislation to operationalize the **Promotion and Regulation of Online Gaming Act, 2025**.
- The notification marks a significant shift toward a "light-touch" regulatory framework that mandates registration for e-sports while keeping casual social games largely optional, alongside a strict ban on real-money gambling platforms.



1. The Legal Framework: PROG Act, 2025

- **Objective:** To provide a uniform national framework for the growth of e-sports and social games while prohibiting harmful "online money games."
- **Scope:** Applies to all online gaming services offered within India or operated from abroad but accessible to Indian users.
- **Prohibition:** It imposes a **complete ban** on online money games, including those based on "games of skill," "games of chance," or a hybrid of both, if they involve financial stakes or rewards that can be monetized outside the game.

2. The Online Gaming Authority of India (OGAI)

- **Status:** Established as an **attached office** under MeitY.
- **Composition:** A multi-sectoral body chaired by the **Additional Secretary, MeitY**. It includes ex-officio members from the Ministries of Home Affairs, Finance, Information & Broadcasting, Youth Affairs and Sports, and Legal Affairs.
- **Powers:** * Functions as a quasi-judicial body with powers of a **civil court** to summon individuals and conduct inquiries.
 - Issues **Digital Certificates of Registration** (valid for up to 10 years).
 - Empowered to direct banks and payment gateways to block financial transactions linked to prohibited games.

3. Classification and Registration Rules

The 2026 Rules introduce a three-tier trigger for "determination" (classification) of games:

- **Mandatory Registration:** Strictly required for all **e-sports** titles and any specific categories of games notified by the Centre due to risks of addiction or financial loss.

- **Voluntary/Optional Registration:** Most online social games (casual/educational) do not require mandatory registration unless the publisher seeks regulatory clarity.
- **Determination Process:** Once an application is filed, the OGAI must deliver a decision within **90 days**.

4. Age Classification and Standards

- **BIS Standard (IS 19690:2026):** The Bureau of Indian Standards has introduced six age bands: **U/A 0+, 3+, 7+, 13+, 16+, and A (Adults Only)**.
- **Content Regulation:** The rules allow the government to notify mandatory age classifications if deemed necessary to address gaming addiction or psychological risks.

5. Enforcement and Penalties

- **Blocking Power:** Section 69A of the IT Act is leveraged to block illegal betting/gambling sites.
- **Penalties:** Offering prohibited money games can lead to **3 years imprisonment** and a fine of up to **₹1 crore**.
- **Grievance Redressal:** A two-tier system where users first approach the service provider and then appeal to the OGAI within 30 days.

Q. With reference to the Online Gaming Authority of India (OGAI) notified in 2026, consider the following statements:

1. It is an independent statutory body established under the Ministry of Youth Affairs and Sports.
2. Registration with the OGAI is mandatory for all online social games and e-sports operating in India.
3. The OGAI has the power to coordinate with financial institutions to block funds related to prohibited online money games.

How many of the statements given above are correct?

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

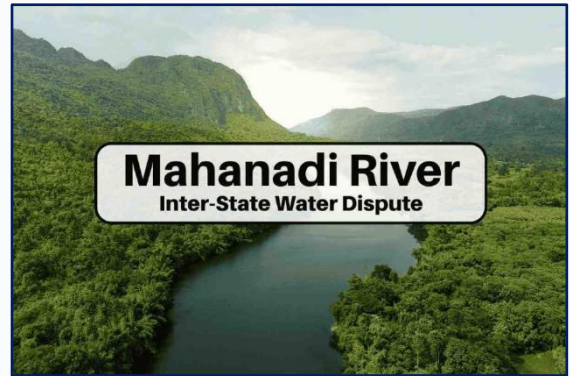
Solution: A

- **STATEMENT 1 IS INCORRECT:** The OGAI is an **attached office** under the **Ministry of Electronics and Information Technology (MeitY)**, not a standalone statutory body under the Sports Ministry.
- **STATEMENT 2 IS INCORRECT:** Under the "light-touch" framework, registration is **mandatory for e-sports** but generally **optional/voluntary for social games** unless specifically notified by the government.
- **STATEMENT 3 IS CORRECT:** The rules explicitly empower the OGAI to issue directions to banks and payment companies to halt financial flows to platforms determined to be "online money games."

1.3. INTER-STATE RIVER WATER DISPUTES: THE MAHANADI CRISIS

Context:

- The Mahanadi Water Disputes Tribunal (MWDT) has issued a final ultimatum to the states of Odisha and Chhattisgarh to present a mutual water-sharing settlement by May 2. Failing this, the tribunal has stated it will proceed to deliver a judgment on the merits of the case.



The Mahanadi River System

- **Nomenclature:** Derived from Sanskrit words "Maha" (great) and "Nadi" (river).
- **Characteristics:** A major east-flowing peninsular river recognized for its high silt load, historical flood cycles, and immense agricultural importance.
- **Origin:** Nagri Sihawa Hills near Pharsiya village, Dhamtari district, Chhattisgarh (altitude: ~442m).
- **Length & Outflow:** Travels approximately 900 km (560 miles), emptying into the Bay of Bengal via distributaries near Paradip, Odisha.
- **Catchment Area:** Spans roughly 1.32 lakh sq. km.
- **Basin States:** Primary flow through Chhattisgarh (upper and middle basin) and Odisha (lower basin and delta), with minor catchments in Jharkhand, Maharashtra, and Madhya Pradesh.
- **Left Bank Tributaries:** Seonath (Shivnath), Hasdeo, Mand, and Ib.
- **Right Bank Tributaries:** Ong, Tel, and Jonk

Key feature

- **Hirakud Dam:** Situated in Odisha, it is the world's longest earthen dam, functioning for flood control, irrigation, and hydropower generation.
- **Satkosia Gorge:** An ecologically sensitive and scenic geographical formation cutting through the Eastern Ghats.
- **Delta Region:** One of India's largest delta systems, shared with the Brahmani River, acting as a crucial base for agriculture, fisheries, and port operations.
- **Biodiversity:** The ecosystem sustains over 130 avian species, diverse fish populations, and key tiger reserve zones.

The Mahanadi River Water Dispute

The conflict between Odisha and Chhattisgarh centers on the equitable sharing of the Mahanadi River's water resources.

Odisha's Grievances

- Reports a severe reduction in river flow entering its territory, resulting in harm to its population and environment.
- Attributes this decline to Chhattisgarh's construction of upstream dams and barrages, alongside its increased water consumption.
- Cites severe downstream impacts on state irrigation, drinking water supply, and coastal ecology.

Chhattisgarh's Defense

- Asserts its right to utilize the river water to meet state requirements based on its geographical share.
- Constitutes 52.9% of the river's total basin catchment area.
- Encompasses nearly 90% of the river's catchment area situated upstream of the Hirakud Dam.

Tribunal Intervention

- In 2018, following a petition filed by Odisha, the Supreme Court directed the Central Government to intervene.
- The Mahanadi Water Disputes Tribunal (MWDT) was formally constituted on March 12, 2018.
- The MWDT was established under the provisions of the Inter-State River Water Disputes Act, 1956.

Inter-State Water Disputes in India

- **Nature of Conflicts:** Disputes arise between neighboring states over the sharing of inter-state river waters, directly impacting basic water needs, agriculture, and public livelihoods.
- **Constitutional Authority:** Article 262 of the Constitution empowers Parliament to legislate the adjudication of any dispute or complaint regarding the use, distribution, or control of inter-state river or river valley waters.
- **Statutory Mechanism:** To formally settle these conflicts, Parliament enacted the Inter-State River Water Disputes Act, 1956, pursuant to the powers granted under Article 262.

Q. Consider the following statements:

- I. The Seonath River is the largest tributary of the Mahanadi River.
- II. The Ib River originates in the state of Chhattisgarh.
- III. The Tel River is a right bank tributary of the Mahanadi River.

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: (c) I and III only

Solution:

Statement I is correct. The Seonath River is the largest tributary of the Mahanadi River, joining it near Shivrinarayan, and plays a major role in the drainage system of central India.

Statement II is incorrect. The Ib River does not originate in Chhattisgarh; rather, it rises in the hills of Jharkhand and flows through Chhattisgarh and Odisha before joining the Mahanadi.

Statement III is correct. The Tel River is indeed a right bank tributary of the Mahanadi River, joining it in Odisha and contributing significantly to its water volume.

1.4. ANTI-DEFECTION LAW

Context

- **Recently**, the Anti-Defection Law has regained national prominence following the resignation of several high-profile legislators from the Aam Aadmi Party (AAP) in Delhi and Punjab to join the Bharatiya Janata Party (BJP). These political shifts, have triggered fresh legal debates regarding the potential disqualification of Rajya Sabha members and State MLAs under the **Tenth Schedule**.
- Furthermore, the Supreme Court has recently intensified its scrutiny of the "time-bound" disposal of disqualification petitions, emphasizing that Speakers cannot indefinitely delay decisions to favor a particular political faction.



1. Introduction and Constitutional Basis

The Anti-Defection Law was introduced to curb the "Aya Ram, Gaya Ram" culture of frequent floor-crossing which destabilized governments.

- **52nd Amendment Act, 1985:** This amendment inserted the **Tenth Schedule** into the Constitution.
- **Articles Affected:** It amended Articles 102(2) and 191(2), which deal with the disqualification of Members of Parliament and State Legislatures, respectively.

2. Grounds for Disqualification

The law specifies three categories of members who can be disqualified:

1. Members of Political Parties:

- a. If they **voluntarily give up** the membership of their political party. (Note: Resignation is not mandatory; "conduct" can also imply giving up membership).
- b. If they vote or abstain from voting in the House **contrary to the direction (whip)** issued by the party without prior permission, and the act is not condoned by the party within **15 days**.

2. Independent Members:

- a. If an independent candidate joins **any** political party after the election.

3. Nominated Members:

- a. If they join a political party **after the expiry of six months** from the date they take their seat. (They can join a party within the first six months without penalty).

3. Key Exceptions

Legislators are protected from disqualification in the following scenarios:

- **Merger (2/3rd Rule):** If at least **two-thirds** of the members of a party's legislative wing agree to a merger with another party.
- **Presiding Officers:** If a member is elected as the Speaker or Chairman, they may resign from their party and rejoin it after they demit office without being disqualified.

4. The 91st Amendment Act, 2003

This amendment significantly strengthened the law by:

- **Removing the "Split" Provision:** Earlier, a "split" by one-third of the members protected them from disqualification; this was abolished to prevent frequent breaks in parties.
- **Limiting the Cabinet Size:** The total number of ministers, including the PM/CM, cannot exceed **15%** of the total strength of the Lok Sabha/Legislative Assembly (State minimum is 12).
- **De-barring from Office:** Any member disqualified for defection is also disqualified from being appointed as a **Minister** or holding any **remunerative political post** until the end of their term or until they are re-elected.

5. The Deciding Authority and Judicial Review

- **The Presiding Officer:** The Speaker or Chairman of the House has the final authority to decide on disqualification.
- **Kihoto Hollohan Case (1992):** The Supreme Court ruled that while the Speaker decides, the decision is subject to **Judicial Review**. The Speaker acts as a "Tribunal" in such cases.
- **Timeline:** While the law does not specify a timeline, the SC in the **Keisham Meghachandra Singh Case (2020)** suggested that disqualification petitions should ideally be decided within **three months**.

Q. With reference to the Tenth Schedule of the Constitution of India, consider the following statements:

Statement I: A nominated member of a House becomes disqualified for being a member if he joins any political party after the expiry of six months from the date on which he takes his seat.

Statement II: The law specifies that the Presiding Officer must decide on a disqualification petition within a period of six months from the date of its filing.

Which one of the following is correct in respect of the above statements?

- A) Both Statement I and Statement II are correct and Statement II is the correct explanation for Statement I.
- B) Both Statement I and Statement II are correct and Statement II is not the correct explanation for Statement I.
- C) Statement I is correct but Statement II is incorrect.
- D) Statement I is incorrect but Statement II is correct.

Answer: C

- **STATEMENT I IS CORRECT:** Under the Tenth Schedule, a nominated member has a window of six months to join a party; joining after that results in disqualification.
- **STATEMENT II IS INCORRECT:** The Tenth Schedule **does not specify any time limit** for the Presiding Officer to decide. While the Supreme Court has "suggested" a 3-month timeline in various judgments, the law itself remains silent on the duration.

INTERNATIONAL RELATIONS

2.1. INDIA-AFRICA FORUM SUMMIT (IAFS)

Context

Recently, External Affairs Minister S. Jaishankar launched the official logo, theme, and website for the upcoming **4th India-Africa Forum Summit (IAFS-IV)**, scheduled to be held in New Delhi from May 28 to 31, 2026. This summit returns after a decade-long hiatus since the third edition in 2015, signaling a renewed strategic push to solidify India's role as a reliable partner for the Global South amidst global energy crises and geopolitical shifts.



1. Evolution of the Summit

- **IAFS-I (2008)**: Held in New Delhi; adopted the **Delhi Declaration** and the Africa-India Framework for Cooperation.
- **IAFS-II (2011)**: Held in **Addis Ababa, Ethiopia**; focused on the "Enhanced Partnership" model.
- **IAFS-III (2015)**: Held in New Delhi; saw the largest-ever participation with all 54 African nations invited.
- **IAFS-IV (2026)**: Theme: "**IA SPIRIT: India Africa Strategic Partnership for Innovation, Resilience, and Inclusive Transformation**".

2. Diplomatic and Institutional Footprint

- **Mission Expansion**: India has significantly increased its diplomatic presence, opening **17 new missions** in Africa since 2018, bringing the total to **46**.
- **G20 Integration**: Under India's 2023 Presidency, the **African Union (AU)** was admitted as a permanent member of the G20, a landmark achievement for South-South cooperation.
- **Educational Institutions**: India has established offshore campuses like **IIT Zanzibar** (Tanzania) and the National Forensic Science University (Uganda).

3. Economic and Strategic Pillars

- **Energy Security**: Amidst disruptions in the Gulf, India is diversifying its energy and fertilizer imports, targeting North African nations like **Algeria, Tunisia, Libya, and Morocco** for phosphates and gas.
- **Development Assistance**: Africa is the second-largest recipient of India's concessional **Lines of Credit (LoC)**.
- **Digital Public Infrastructure (DPI)**: Deployment of the "India Stack" (UPI, Cowin, DigiLocker) to help African nations build e-governance systems.
- **Maritime Security**: Cooperation through the **SAGAR doctrine** (Security and Growth for All in the Region) and joint exercises like **AFINDEX**.

4. The "Living Bridge"

- The **3 million-strong Indian diaspora** in Africa acts as a socio-economic bridge, contributing to trade, healthcare, and education sectors across the continent.

Q. With reference to the India-Africa Forum Summit (IAFS), consider the following statements:

1. The first India-Africa Forum Summit was held in Addis Ababa, Ethiopia, in 2008.
2. The African Union was granted permanent membership in the G20 during India's Presidency.
3. India currently maintains more than 50 full-fledged diplomatic missions across the African continent.

Which of the statements given above is/are correct?

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

Answer: B

Solution:

- **STATEMENT 1 IS INCORRECT:** The first IAFS was held in **New Delhi**, India, in 2008. The second summit (2011) was held in Addis Ababa.
- **STATEMENT 2 IS CORRECT:** In a historic move during the 18th G20 Summit in New Delhi (2023), the African Union was made a **permanent member** of the group.
- **STATEMENT 3 IS INCORRECT:** As per the latest official updates in April 2026, India has a total of **46 diplomatic missions** in Africa, having added 17 new ones recently. It has not yet crossed the 50 mark.

2.2. INS NIREEKSHAK & DIVEX 2026

Context

Recently, the Indian Navy's Diving Support and Submarine Rescue Vessel, **INS Nireekshak**, arrived at the Port of Colombo, Sri Lanka, to participate in the fourth edition of the **India-Sri Lanka Diving Exercise (DIVEX 2026)**. The week-long exercise (April 21–27, 2026) aims to strengthen interoperability between the diving teams of both navies and involves the handover of essential humanitarian and security aid to Sri Lanka.



1. About INS Nireekshak (A15)

- **Type of Vessel:** It is a sophisticated **Diving Support Vessel (DSV)** that also serves as an interim **Submarine Rescue Vessel (SRV)**.
- **Manufacturer:** Built by **Mazagon Dock Limited (MDL)**, Mumbai, and commissioned in 1989.
- **Core Capabilities:** * Equipped with two **Deep Submergence Rescue Vehicles (DSRV)** capable of rescue operations at depths up to 300 meters.
 - Features a **Diving Bell**, recompression chambers, and dynamic positioning systems to maintain a steady station during deep-sea operations.
- **Record Holder:** In 2013, its saturation divers set a national record by diving to a depth of **257 meters** in the Arabian Sea.

2. India-Sri Lanka DIVEX 2026

- **Edition:** 4th Edition.
- **Objective:** To undertake specialized underwater operations, enhance operational cohesion, and exchange "Best Practices" in diving and submarine rescue.
- **Strategic Alignment:** The exercise is part of India's **MAHASAGAR** (Mutual and Holistic Advancement for Security and Growth Across Regions) initiative—a high-level virtual interaction for maritime security in the IOR.

3. Humanitarian Outreach & Security Assistance

During this visit, India extended support under its "Neighbourhood First" policy:

- **Project BHISHM (Bharat Health Initiative for Sahyog Hita & Maitri):** India presented two **BHISHM Cubes** to Sri Lanka. These are portable, integrated medical units (part of **Aarogya Maitri**) capable of treating up to 200 emergency cases, including trauma and fractures, in remote areas.
- **Ammunition Handover:** The Indian Navy handed over **50,000 rounds of 9mm ammunition** to the Sri Lankan Navy to bolster their security capabilities.

4. Broader Strategic Frameworks

- **SAGAR (Security and Growth for All in the Region):** India's vision to deepen economic and security cooperation with its maritime neighbors.
- **Submarine Rescue Treaties:** India is one of the few nations with advanced DSRV capabilities, often providing "Submarine Rescue Provider" status to friendly foreign navies in the Indian Ocean.

Q. Consider the following statements regarding INS Nireekshak:

1. It is an indigenously built Diving Support Vessel that can also perform submarine rescue operations.
2. It is currently participating in the 4th edition of the bilateral diving exercise (DIVEX 2026) with the Sri Lankan Navy.
3. As part of Project BHISHM, it is equipped with portable medical units called 'BHISHM Cubes' for humanitarian assistance.

How many of the above statements are correct?

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

Solution: C

- **STATEMENT 1 IS CORRECT:** INS Nireekshak was built by Mazagon Dock Limited and serves as the Navy's primary diving support and interim submarine rescue vessel.
- **STATEMENT 2 IS CORRECT:** The vessel arrived in Colombo in April 2026 specifically for the 4th edition of the DIVEX exercise.
- **STATEMENT 3 IS CORRECT:** Under the 'Aarogya Maitri' initiative, the ship is involved in delivering BHISHM cubes (portable hospitals) to Sri Lanka.

2.3. SHANGHAI COOPERATION ORGANISATION (SCO)

Context

- **Recently**, India's Defence Minister Rajnath Singh has been scheduled to travel to Bishkek, Kyrgyzstan, on April 27-28, 2026, to participate in the Shanghai Cooperation Organisation (SCO) Defence Ministers' meeting.
- This high-level visit aims to address pressing regional security challenges, including terrorism and extremism, amidst rapidly shifting global alignments. The meet is significant as it provides a platform for India to engage in bilateral discussions with member states to enhance strategic partnerships and reinforce its commitment to Eurasian stability.



1. Overview and Evolution

The SCO is a permanent intergovernmental international organization established to ensure security and maintain stability across the vast Eurasian region.

- **Genesis:** It evolved from the **Shanghai Five** (1996), which consisted of China, Russia, Kazakhstan, Kyrgyzstan, and Tajikistan.
- **Establishment:** The SCO was officially founded on **June 15, 2001**, in Shanghai, with the addition of **Uzbekistan**.
- **Charter:** The SCO Charter was signed in 2002 and entered into force in 2003, serving as the organization's fundamental legal document.

2. Membership and Expansion

The SCO has transitioned from a Central Asian centric group to a major Eurasian power bloc.

- **Current Members (10):** China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, India, Pakistan, **Iran** (joined 2023), and **Belarus** (joined 2024).
- **India and Pakistan:** Both countries became permanent members during the Astana Summit in **2017**.
- **The 2025 Reform:** The summit in Tianjin streamlined the organization by merging "Observer States" and "Dialogue Partners" into a single **Partner Status** category to enhance operational efficiency.

3. Institutional Structure

The SCO operates through several specialized bodies to handle political and security mandates.

- **Council of Heads of State (CHS):** This is the supreme decision-making body that meets annually to define the organization's primary goals.
- **Secretariat:** Based in **Beijing**, China, it provides administrative and technical support.
- **Regional Anti-Terrorist Structure (RATS):** Headquartered in **Tashkent**, Uzbekistan, it is a permanent organ focused on combating the "three evils": terrorism, separatism, and extremism.
- **Official Languages:** The working languages of the organization are **Russian** and **Chinese**.

4. Key Principles and Strategic Focus

- **Shanghai Spirit:** The organization is guided by principles of mutual trust, mutual benefit, equality, and respect for cultural diversity.
- **Security Focus:** A major portion of SCO's activity involves intelligence sharing and joint military exercises, such as the "Peace Mission" series.
- **Economic Connectivity:** The SCO serves as a platform for discussing energy security and the development of transit corridors, though India remains cautious of projects like the Belt and Road Initiative (BRI).

5. Current Leadership (2025–2026)

- **Chairmanship:** The **Kyrgyz Republic** currently holds the chairmanship for the 2025–2026 period.
- **Theme:** The motto for the current tenure is "25 Years of the SCO: Together Towards Sustainable Peace, Development, and Prosperity."

Q. Consider the following statements regarding the Shanghai Cooperation Organisation (SCO):

Statement I: The Regional Anti-Terrorist Structure (RATS), a permanent organ of the SCO, is headquartered in the same city as the SCO Secretariat.

Statement II: Belarus became the tenth full member of the SCO during the summit held in 2024.

Which one of the following is correct in respect of the above statements?

- A) Both Statement I and Statement II are correct and Statement II is the correct explanation for Statement I.
- B) Both Statement I and Statement II are correct and Statement II is not the correct explanation for Statement I.
- C) Statement I is incorrect but Statement II is correct.
- D) Statement I is correct but Statement II is incorrect.

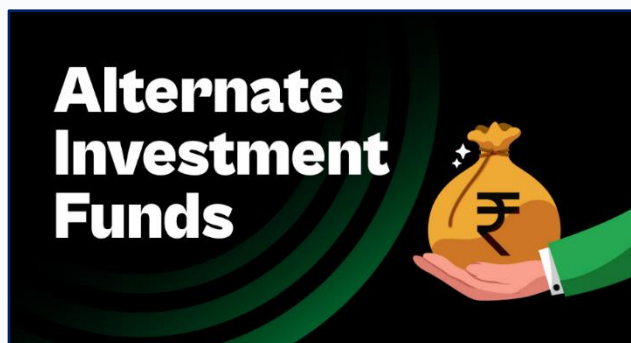
Solution: C

- **STATEMENT I IS INCORRECT:** While the SCO Secretariat is located in **Beijing**, China, the RATS executive committee is headquartered in **Tashkent**, Uzbekistan.
- **STATEMENT II IS CORRECT:** Belarus officially joined as the 10th full member in 2024, following Iran's induction in 2023, expanding the organization's footprint into Eastern Europe.

3.1. ALTERNATIVE INVESTMENT FUND (AIF)

Context

- **Recently**, the Securities and Exchange Board of India (SEBI) sharply reduced the minimum investment threshold for individual investors in **Social Impact Funds (SIFs)** from ₹2 lakh to just **₹1,000**.
- This amendment aims to democratize access and widen retail participation on the **Social Stock Exchange (SSE)** by aligning the minimum application size with Zero Coupon Zero Principal (ZCZP) instruments.



What is an AIF?

An Alternative Investment Fund is a pooled investment vehicle that collects money from investors to invest in non-traditional asset classes. Unlike mutual funds (which invest in stocks and bonds), AIFs often target startups, private equity, or social ventures.

- **Regulator:** SEBI (Alternative Investment Funds) Regulations, 2012.
- **Legal Structure:** Can be a trust, company, LLP, or body corporate.
- **Target Audience:** Traditionally aimed at high-net-worth individuals (HNIs) due to high entry costs, though recent rules are lowering bars for "Social" categories.

Comprehensive Classification of AIFs

SEBI regulates AIFs under three distinct categories. Each category has a specific "flavor" based on where the money goes and how the fund operates.

1. Category I AIF: Socially and Economically Desirable

These funds invest in sectors that the government and regulators want to promote because they create jobs or improve infrastructure.

- **Venture Capital Funds (VCF):** Focus on new, high-growth potential startups that face a capital crunch in their early stages.
- **Angel Funds:** A sub-category of VCF where "Angel Investors" provide very early-stage funding to startups.
- **Infrastructure Funds:** Invest in public assets like roads, rail, and power plants.
- **Social Impact Funds (SIF):** Formerly known as Social Venture Funds, these invest in NPOs or social enterprises. As per recent rules, they now allow small-ticket entry (₹1,000) for social causes.
- **SME Funds:** Dedicated to investing in Small and Medium Enterprises that are listed or unlisted.

2. Category II AIF: The "Residual" Category

This is the most common category. These funds do not get special tax incentives like Category I, nor do they use high-risk strategies like Category III. They cannot borrow money except for basic operational needs.

- **Private Equity (PE) Funds:** Invest in unlisted private companies. They usually take a management stake to help the company grow before selling it for a profit.
- **Debt Funds:** Instead of buying shares (equity), these funds lend money to companies. They are preferred for companies with high capital needs but lower credit ratings.
- **Fund of Funds (FoF):** A fund that does not invest in companies directly but instead invests in other AIFs.
- **Distressed Asset Funds:** These invest in "sick" companies or those undergoing bankruptcy to turn them around.

3. Category III AIF: Complex and Leveraged

These are the most "aggressive" funds. They aim for high short-term returns and are allowed to borrow money (leverage) to make larger bets.

- **Hedge Funds:** These use pooled funds and various strategies (like short-selling or derivatives) to earn active returns regardless of whether the market is going up or down.
- **Private Investment in Public Equity (PIPE) Funds:** These funds buy large chunks of shares in publicly traded companies at a discounted price.

Understanding the Recent Change (Social Impact Funds)

- **The "Social" Angle:** Social Impact Funds are a sub-category of Category I AIFs. They invest in securities of Not-for-Profit Organizations (NPOs) or social enterprises.
- **Retail Inclusion:** By dropping the minimum investment from **₹2 lakh to ₹1,000**, SEBI is allowing regular individuals (retail investors) to support social causes through the Social Stock Exchange.
- **ZCZP Instruments:** These are "Zero Coupon Zero Principal" instruments. They are like donations; you don't get interest (Zero Coupon) and you don't get the initial money back (Zero Principal), but you get a certificate showing you funded a social project.

Q. With reference to Alternative Investment Funds (AIFs) in India, consider the following statements:

Statement-I: SEBI has recently reduced the minimum investment threshold for individual investors in Social Impact Funds to ₹1,000 to encourage retail participation.

Statement-II: Social Impact Funds are classified under Category III AIFs because they utilize complex derivatives to hedge against market volatility.

Which one of the following is correct in respect of the above statements?

- Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.
- Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I.
- Statement-I is correct but Statement-II is incorrect.
- Statement-I is incorrect but Statement-II is correct.

Answer: (C)

- **STATEMENT-I IS CORRECT:** As per the recent SEBI notification, the threshold was reduced from ₹2 lakh to ₹1,000 to align with ZCZP instruments on the Social Stock Exchange.
- **STATEMENT-II IS INCORRECT:** Social Impact Funds are classified under **Category I AIFs** (economically/socially desirable), not Category III. Category III is reserved for Hedge Funds and complex trading strategies.

3.2. COTTON: THE "WHITE GOLD" OF INDIA

Context

- **Recently**, domestic cotton prices in India have surged by **8.5%** in April 2026, with the popular **Shankar-6 variety** reaching ₹60,500 per candy. This price rally is driven by a combination of a **0.42% drop in Indian production** (estimated at 291 lakh bales) and a significant global supply crunch in major producing nations like the U.S. and Brazil due to lower rainfall.
- Furthermore, the ongoing geopolitical tensions—specifically the **U.S.-Israel-Iran conflict**—have inflated crude oil prices, making synthetic alternatives like polyester more expensive and causing a strategic shift in demand back toward natural cotton fiber.



1. Geographical and Climatic Requirements

Cotton is a **subtropical Kharif crop** that requires specific environmental conditions to thrive:

- **Temperature:** It grows best in temperatures ranging between **21°C and 30°C**. High temperatures are beneficial during the ripening and bursting of bolls.
- **Frost-Free Days:** A critical requirement for cotton is at least **210 frost-free days**. A hard frost is fatal to the crop.
- **Rainfall:** Moderate rainfall of **50 to 100 cm** is ideal. However, heavy rain during the boll-opening stage is harmful as it can ruin the fiber.
- **Soil:** The **Black Soil (Regur)** of the Deccan Plateau is the most suitable due to its high moisture-retention capacity. It also grows well in the alluvial soils of the Satluj-Ganga plain and red soils of South India.
- **Sunshine:** Bright, clear sunshine is necessary during the harvesting period to ensure high-quality fiber.

2. Cotton Production: The Indian Scenario

- **Global Rank:** India is the **second-largest producer** of cotton globally, following China, and is also the largest consumer.
- **Acreage vs. Productivity:** While India has the **largest area** under cotton cultivation in the world, its **productivity (yield per hectare)** remains significantly lower than the global average, ranking around 36th globally.
- **Major Producers:** The leading states are **Gujarat, Maharashtra, and Telangana**. Gujarat is generally the top producer due to better irrigation facilities.

- **Species:** India is the only country that grows all four cultivated species of cotton: *Gossypium arboreum*, *G. herbaceum* (Desi cotton), *G. hirsutum* (American cotton), and *G. barbadense* (Egyptian/Sea Island cotton).

3. Key Government Initiatives (2025-2026)

- **Kasturi Cotton Bharat:** A joint initiative by the Ministry of Textiles, CCI, and industry bodies to provide a **unique brand identity** to Indian cotton. It focuses on "Fiber to Fashion" traceability using **Blockchain technology**.
- **Mission on Cotton Productivity (2025-26):** A five-year mission focusing on **Extra Long Staple (ELS)** cotton to reduce import dependence. It promotes **High-Density Planting Systems (HDPS)** to increase yields.
- **KapasKisan App:** Launched by the CCI for digital self-registration and smooth procurement under the Minimum Support Price (MSP).
- **Cotton Zones:** India is divided into three zones: **North** (Punjab, Haryana, Rajasthan), **Central** (Gujarat, Maharashtra, MP), and **South** (Telangana, Andhra Pradesh, Karnataka, TN).

4. Pests and Biotechnology

- **Bt Cotton:** The only **Genetically Modified (GM)** crop approved for commercial cultivation in India. It contains the *Cry1Ac* and *Cry2Ab* genes from *Bacillus thuringiensis* to resist the American Bollworm.
- **The Pink Bollworm (PBW) Crisis:** Recently, the Pink Bollworm has developed resistance to **Bollgard-II (Bt cotton)**, leading to significant crop losses in Punjab and Haryana. This has prompted the government to push for **Integrated Pest Management (IPM)** and new seed technologies.

Q. Consider the following statements regarding cotton cultivation in India:

1. India is the only country in the world that grows all four species of cultivated cotton.
2. The "Kasturi Cotton Bharat" initiative aims to provide 100% traceability of premium Indian cotton using blockchain technology.
3. Cotton requires a minimum of 150 frost-free days and thrives best in waterlogged alluvial soils.

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

Solution:

Correct Answer: A

Statement 1 is CORRECT: India possesses a unique botanical diversity and is the only nation to commercially cultivate all four species of cotton (Arboreum, Herbaceum, Hirsutum, and Barbadense).

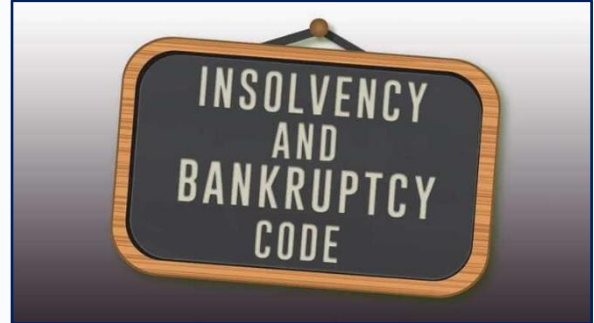
Statement 2 is CORRECT: The Kasturi Cotton Bharat brand, managed by TEXPROCIL and the Ministry of Textiles, uses a QR-code based blockchain platform to ensure full traceability from farm to gin.

Statement 3 is INCORRECT: Cotton requires at least **210 frost-free days**, not 150. Furthermore, it is extremely sensitive to waterlogging; it requires well-drained soil, particularly the moisture-retentive Black Soil.

3.3. INSOLVENCY AND BANKRUPTCY CODE (IBC), 2016

Context

Recently, the State Bank of India (SBI) has moved a review petition in the Supreme Court against its February 13 judgment. The apex court had previously ruled that **telecom spectrum**, being a finite public resource owned by the Union of India in trust for the people, cannot be treated as an "asset" owned by Telecom Service Providers (TSPs) during IBC proceedings. This development is significant for the banking sector as it challenges the ability of lenders to recover dues from bankrupt telecom groups like Aircel, potentially impacting future bank financing and risk assessment for companies reliant on natural resource licenses.



Core Pillars of IBC 2016

The IBC was enacted to consolidate the existing framework (like SICA, SARFAESI) into a single law for time-bound insolvency resolution.

1. The Four Pillars of Institutional Infrastructure

- **Insolvency Professionals (IPs):** Licensed professionals who take over the management of the debtor during the resolution process.
- **Insolvency Professional Agencies (IPAs):** Regulatory bodies that enroll and monitor IPs.
- **Information Utilities (IUs):** Centralized repositories that maintain electronic records of contractual liabilities and evidence of default (e.g., NeSL).
- **Insolvency and Bankruptcy Board of India (IBBI):** The apex regulator overseeing the entire ecosystem.

2. Adjudicating Authorities

- **National Company Law Tribunal (NCLT):** Handles insolvency for **Companies and Limited Liability Partnerships (LLPs)**.
- **Debt Recovery Tribunal (DRT):** Handles insolvency for **Individuals and Partnership Firms**.

Key Provisions & 2026 Amendments

1. Corporate Insolvency Resolution Process (CIRP)

- **Initiation:** Can be triggered by a Financial Creditor (banks), Operational Creditor (suppliers), or the Corporate Debtor itself upon a minimum default of **₹1 Crore**.
- **The 2026 Shift:** Admission is now **mandatory** within 30 days if the default is proven via Information Utilities, removing the discretionary power of NCLT that previously caused years of delay.

2. Creditor-Initiated Insolvency Resolution Process (CIIRP)

- **New Mechanism:** Introduced in 2026, this allows financial creditors with **51% approval** to initiate out-of-court resolutions. This reduces the burden on the NCLT and accelerates the rescue of stressed firms.

3. The Waterfall Mechanism (Section 53)

This dictates the order of priority for payout during liquidation:

1. Insolvency resolution process costs.
2. Secured creditors and workmen's dues (up to 24 months).
3. Other employee wages.
4. Unsecured creditors.
5. **Government dues** (The 2026 Amendment clarifies these are placed lower than secured creditors to encourage private investment).
6. Equity shareholders (Last).

4. Group and Cross-Border Insolvency

- The 2026 law introduces a framework to handle **interconnected companies** (Group Insolvency) and provides a mechanism to coordinate with foreign jurisdictions for assets located abroad (based on the UNCITRAL Model Law).

Q. With reference to the Insolvency and Bankruptcy Code (IBC) in India, consider the following statements:

1. Under the IBC (Amendment) Bill 2026, the NCLT is required to admit an insolvency application automatically if the default is recorded with an Information Utility.
2. Operational creditors are treated at par with secured financial creditors in the "waterfall mechanism" of liquidation.
3. The "Pre-packaged Insolvency Resolution Process" (PIRP) is exclusively available for Micro, Small, and Medium Enterprises (MSMEs).

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

Correct Answer: C

Solution:

- **STATEMENT 1 IS CORRECT:** The 2026 Amendment makes admission mandatory once a default is proven via Information Utility (IU) records to prevent procedural delays.
- **STATEMENT 2 IS INCORRECT:** In the priority of claims (waterfall mechanism), secured financial creditors are ranked significantly higher than operational creditors. Operational creditors often receive minimal amounts during liquidation.
- **STATEMENT 3 IS CORRECT:** PIRP was introduced specifically to provide a faster, cost-effective resolution for MSMEs, allowing them to retain management while negotiating a resolution plan.

3.4. INDIA'S RICE EXPORT LANDSCAPE

Context

Recently, data released by the Ministry of Commerce and Industry indicated that India's rice exports declined by **7.5%**, falling to **\$11.53 billion** in the 2025-26 financial year compared to \$12.5 billion in the previous year. This contraction is primarily attributed to the escalating **U.S.-Israel-Iran conflict**, which has severely disrupted trade routes through the Strait of Hormuz, impacted payment cycles for Indian exporters, and caused a sharp 15.36% dip in shipments during the month of March 2026 alone.



1. Export Performance and Trends (2025-26)

- **Quantitative Decline:** After reaching a peak of approximately **20.1 million tonnes** in 2024-25, exports faced a downward trend due to regional instability.
- **Major Destinations:** West Asian nations, including **Iran, Saudi Arabia, the UAE, and Oman**, remain the top destinations for Indian Basmati rice.
- **The Iran Factor:** Iran is traditionally the largest buyer of Indian Basmati rice. Current geopolitical stress has led to "payment cycle" delays and high freight costs, hampering order flows.

2. Institutional Framework: APEDA

- **Status:** The Agricultural and Processed Food Products Export Development Authority (APEDA) is a **statutory body** established under the APEDA Act, 1985.
- **Administrative Control:** It functions under the **Ministry of Commerce and Industry**.
- **Functions:** Registration of exporters.
 - Fixing standards and specifications for scheduled products.
 - Monitoring the export of **Basmati Rice** (listed under the Second Schedule of the Act).
 - Implementing the National Programme for Organic Production (NPOP).

3. Export Policy and Categories

- **Basmati Rice:** High-value, long-grain rice primarily grown in the GI-tagged regions of the Indo-Gangetic plains. Its export is generally "Free," subject to a **Minimum Export Price (MEP)** or specific registration requirements by APEDA.
- **Non-Basmati Rice:** Includes parboiled rice, broken rice, and white rice. The government often uses **Export Duties** or "Prohibited/Restricted" status on these to ensure domestic food security and control inflation.
- **Recent Changes:** In April 2026, the DGFT mandated a **Certificate of Inspection** from the Export Inspection Council (EIC) for rice exports to EU member states and certain European countries to ensure quality compliance.

4. Challenges: The "West Asia Crisis"

- **Logistics:** The closure or disruption of the **Strait of Hormuz** has forced rerouting, leading to "war-risk surcharges" and a spike in ship fuel prices.

- **Input Costs:** Rising crude oil prices have increased the cost of fertilizers and diesel, indirectly affecting the cost of production for export-oriented rice varieties.

Rice: Essential Geographical & Environmental Features

Climate and Soil

- **Temperature:** Requires high temperatures, ideally between **22°C and 32°C**.
- **Rainfall:** High moisture is mandatory; thrives in areas with **>100 cm** annual rainfall.
- **Soil:** Best grown in **alluvial, clayey, and loamy soils** that can retain standing water.

Sowing Seasons in India

- **Kharif (Main):** Sown in June-July (Southwest Monsoon); harvested in Nov-Dec.
- **Rabi (Winter):** Grown in southern/eastern India (e.g., TN, AP, WB) under irrigation.
- **West Bengal Variants:** Three crops grown annually—**Aus, Aman, and Boro**.

Environmental Dimension

- **Methane:** Submerged paddies produce methane via anaerobic decomposition; rice accounts for ~12% of global agricultural CH_4 .
- **Water Footprint:** Requires **3,000–5,000 liters** for 1 kg of rice; causing massive groundwater depletion in the Northwest.
- **Stubble Burning:** Post-harvest residue burning in Punjab/Haryana contributes to severe air pollution (PM2.5) in the NCR.

Sustainable Solutions

- **SRI (System of Rice Intensification):** Uses 25–50% less water and fewer seeds by keeping soil moist but not flooded.
- **DSR (Direct Seeded Rice):** Sowing seeds directly into the field, saving water, labor, and reducing methane.
- **AWD (Alternate Wetting and Drying):** Periodically drying fields to stop methanogenesis.

Trade & Governance

- **Global Share:** India holds ~40% of the global rice trade.
- **Institutional Body:** **APEDA** (Statutory body under the **Ministry of Commerce**) handles export promotion and quality standards.

Q. With reference to India's agricultural exports, consider the following statements:

1. The Agricultural and Processed Food Products Export Development Authority (APEDA) is a statutory body under the Ministry of Agriculture and Farmers Welfare.
2. Iran is the largest destination for India's Basmati rice exports.
3. All varieties of non-Basmati rice are currently kept under the 'Prohibited' category for export to maintain domestic price stability.

Which of the statements given above is/are correct?

- A) 1 and 2 only

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

Correct Answer: B

Solution:

- **STATEMENT 1 IS INCORRECT:** APEDA is a statutory body, but it functions under the **Ministry of Commerce and Industry**, not the Ministry of Agriculture.
- **STATEMENT 2 IS CORRECT:** Despite recent geopolitical tensions, **Iran** remains the single largest destination for Indian Basmati rice, followed by Saudi Arabia and the UAE.
- **STATEMENT 3 IS INCORRECT:** While the government occasionally imposes restrictions or duties on non-Basmati rice, not all varieties are 'Prohibited'. For instance, **Parboiled rice** and certain broken rice varieties are often allowed under specific duty structures or "Free" categories to balance trade and domestic supply.

3.5. FOREIGN DIRECT INVESTMENT (FDI)

Context

- Recent data released by the Reserve Bank of India (RBI) for February 2026 shows that Net Foreign Direct Investment (FDI) into India has turned positive, reaching **\$4.6 billion**. This marks a significant recovery after a six-month period of negative net inflows, representing the highest level since May 2022.



1. Key Highlights from the February 2026 Data

- **Negative net FDI:** India experienced negative net FDI for six consecutive months (August 2025 – January 2026) due to high outflows. February 2026 reversed this slump.
- **Gross FDI Surge:** Gross inflows grew by **61.6%** to reach nearly **\$9 billion**, a seven-month high.
- **Reduced Outflows:** A primary driver for the net increase was a sharp decrease in "repatriation and disinvestment" by foreign companies, which fell to \$1.7 billion (a 30% year-on-year drop).
- **Sectoral Leaders:** Manufacturing, computer services, financial services, and communication services accounted for over two-thirds of total equity inflows in FY 2025-26.
- **Source Countries:** Singapore, the U.S., Mauritius, Japan, and the Netherlands remain the top sources, accounting for roughly 75% of total inflows.
- **Greenfield Projects:** While the RBI maintains India is an attractive destination for new (Greenfield) projects, data shows a slight 11% dip in project announcements for the April-January period compared to the previous year.

2. Understanding Foreign Direct Investment (FDI)

I. What is FDI?

- FDI is an investment made by a firm or individual in one country into business interests located in another country.
- In India, it generally involves establishing business operations or acquiring business assets, including establishing ownership or controlling interest in a foreign company.
- **Regulatory Framework:** Governed by the FDI Policy 2020 and FEMA rules, primarily **regulated by DPIIT. RBI** also plays a key role by enforcing the FDI Rules.
- **FDI Prohibition in India:** FDI is strictly prohibited in sectors like atomic energy generation, gambling and betting, lotteries, chit funds, real estate, and the tobacco industry.
- **FDI Trend:** The services sector emerged as the top recipient of FDI equity in FY 2024–25, attracting 19% of total inflows, followed by computer software and hardware (16%) and trading (8%).
 - Maharashtra accounted for the highest share (39%) of total FDI equity inflows in FY 2024–25, followed by Karnataka (13%) and Delhi (12%).

II. Routes of FDI in India:

1. **Automatic Route:** The non-resident investor or the Indian company does not require any prior approval from the Government of India or the RBI.
2. **Government Route:** Prior approval from the government is required. Proposals are considered by the respective Administrative Ministry/Department.

III. FDI vs. FPI: Key Differences

Feature	Foreign Direct Investment (FDI)	Foreign Portfolio Investment (FPI)
Definition	Investment in physical assets/infrastructure or significant stake in a company.	Investment in financial assets like stocks and bonds.
Control	Investor typically gains a degree of management control.	Investor has no direct control over the company's operations.
Nature	Long-term and stable ("Lasting Interest").	Short-term and volatile ("Hot Money").
Entry/Exit	Difficult to exit quickly (low liquidity).	Easy to enter and exit (high liquidity).
Impact	Leads to technology transfer, job creation, and infrastructure.	Enhances capital market liquidity but can lead to market volatility.
Threshold	In India, any investment of 10% or more of the post-issue paid-up equity capital is treated as FDI.	Any investment below 10% of the post-issue paid-up equity capital is treated as FPI.

IV. Some core Concepts

- **Greenfield FDI:** Greenfield Foreign Direct Investment (FDI) is a type of investment where a parent company creates a new subsidiary in a foreign country, constructing new facilities—such as offices, plants, or infrastructure—from scratch.
- **Brownfield FDI:** Brownfield Foreign Direct Investment (FDI) involves a foreign company investing in or acquiring existing, pre-built production facilities and infrastructure, rather than building from scratch. It is a popular, faster market-entry strategy offering lower setup costs,

existing supply chains, and trained staff. Common examples include mergers, acquisitions, or leasing existing plants.

- **Net FDI Formula:** $\text{Net FDI} = (\text{Gross Inflows}) - (\text{Repatriation/Disinvestment} + \text{Outward FDI by Indians})$.
- **Repatriation:** The process of converting foreign currency back into the currency of one's own country (e.g., foreign companies sending profits back home).

Q. Consider the following statements:

1. In India, an investment of 10% or more of the post-issue paid-up equity capital is classified as Foreign Direct Investment (FDI).
2. Greenfield Foreign Direct Investment involves acquiring or leasing existing production facilities in the host country.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Answer: A

Explanation:

Statement 1 is Correct: In the Indian context, an investment is classified as Foreign Direct Investment when a foreign investor acquires **10% or more of the post-issue paid-up equity capital** in an Indian company. This threshold reflects a **lasting interest and potential management influence**, distinguishing FDI from portfolio investment.

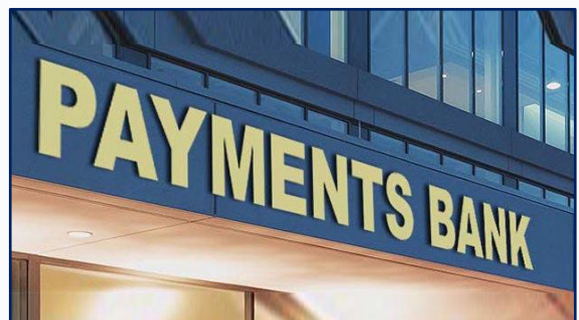
Statement 2 is Incorrect: Greenfield FDI refers to **establishing new business operations from the ground up**, such as building new factories or offices.

The statement incorrectly describes **Brownfield FDI**, which involves **acquiring or leasing existing facilities** for faster market entry.

3.6. PAYMENTS BANK

Context

- Recently, the Reserve Bank of India (RBI) has officially cancelled the banking license of **Paytm Payments Bank Limited (PPBL)** under **Section 22 (4)** of the **Banking Regulation Act, 1949**, effective from April 24, 2026.
- This action follows a series of regulatory non-compliance issues and persistent supervisory concerns observed over the last few years. The RBI has further initiated an application before the High Court for the winding up of the bank.



Regulatory Framework and RBI Powers

- **Section 22 of the Banking Regulation Act, 1949:** This section grants the RBI the authority to issue and cancel licenses to banking companies in India. A license can be cancelled if the company ceases to carry on banking business or fails to comply with conditions stipulated by the RBI.
- **Winding Up Process:** Unlike regular companies, the liquidation of a bank is a specialized process involving the High Court and a liquidator, ensuring that depositor interests are prioritized.
- **Deposit Insurance:** Even in a winding-up scenario, depositors are protected by the **Deposit Insurance and Credit Guarantee Corporation (DICGC)**, which provides insurance cover up to **₹5 lakh** per depositor per bank.

Integrated Guide to Payments Banks (PBs) in India

Payments Banks were established based on the recommendations of the **Nachiket Mor Committee** to further financial inclusion.

1. Key Objectives

- To provide small savings accounts and payments/remittance services to migrant labor workforce, low-income households, and small businesses.
- To enable high-volume, low-value transactions in a secured technology-driven environment.

2. Features and Scope of Activities

- **Registration:** Registered as a public limited company under the **Companies Act of 2013**.
- **Governance:** Governed by the provisions of **Banking Regulation Act of 1949**.
- **Acceptance of Deposits:** They can accept demand deposits (savings and current accounts). The maximum balance per individual customer is currently capped at **₹2 lakh**.
- **No Lending:** They are strictly **prohibited** from undertaking lending activities. They **cannot issue credit cards or provide loans**.
- **Remittance Services:** They can facilitate domestic remittances and act as BCs (Business Correspondents) for other banks.
- **Issuance of Instruments:** They can issue ATM/Debit cards but **not credit cards**.

3. Regulatory Requirements

- **Minimum Capital:** The minimum paid-up equity capital for PBs shall be **₹100 crore**.
- **Capital Adequacy Ratio (CAR):** They must maintain a minimum CAR of **15%** of its risk-weighted assets.
- **Statutory Liquidity Ratio (SLR):** They are required to invest minimum **75%** of their "demand deposit balances" in Government securities/Treasury Bills with maturity up to one year.
- **Cash Reserve Ratio (CRR):** payments banks in India are required to maintain a Cash Reserve Ratio (CRR) with the Reserve Bank of India (RBI).
- **FDI Limit:** The Foreign Direct Investment (FDI) limit for these banks is **74%** (consistent with other private sector banks).

4. Recent Developments and Policy Directions

- **Deposit limit raised from ₹1 lakh to ₹2 lakh (2023):** The RBI doubled the per-customer deposit ceiling to improve viability and encourage greater usage
- **Interoperability mandate:** All payment banks must be fully interoperable with UPI, IMPS, and ATM networks
- **CBDC (Central Bank Digital Currency) integration:** Payment banks are being considered as key distributors of the Digital Rupee (e-R) for retail use
- **Account Aggregator Framework:** Payment banks are being integrated into the Account Aggregator ecosystem to enable data-based credit access for their customers through partner lenders

Q. Consider the following statements regarding Payments Banks:

1. Payments Banks can accept demand deposits with a maximum balance limit of ₹2 lakh per individual customer.
2. Payments Banks are allowed to provide loans and issue credit cards to enhance financial inclusion.
3. Payments Banks are required to invest a minimum of 75% of their demand deposits in government securities with maturity up to one year.

Which of the statements given above are correct?

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

Answer: A

Explanation:

Statement 1 is correct: Initially, the limit for demand deposits was ₹1 lakh. However, the RBI increased this limit to **₹2 lakh per individual customer** in April 2021 to encourage more deposits and give these banks more flexibility in serving their customers.

Statement 2 is incorrect: This is a critical distinction for UPSC Prelims. Payments Banks are **strictly prohibited** from undertaking lending activities. They cannot provide loans of any kind, nor can they issue credit cards. They can, however, issue ATM/Debit cards.

Statement 3 is correct: Since Payments Banks cannot lend money to the public, they must maintain high liquidity. They are required to invest a minimum of **75% of their demand deposit balances** in Statutory Liquidity Ratio (SLR) eligible Government securities/Treasury Bills with a maturity of up to one year. The remaining 25% can be held in current and time/fixed deposits with other scheduled commercial banks for operational purposes.

4.1. HONEYBEES

Context

- The CSIR-Indian Institute of Integrative Medicine has developed a protocol enabling *Apis mellifera* to survive sub-zero winters in the Kashmir Valley.
- Earlier, beekeepers in Jammu and Kashmir had to migrate colonies to warmer northern plains (Punjab, Haryana, Rajasthan) for six months, incurring high costs and about 30% bee mortality.
- The intervention eliminates migration and has enabled the region's first mono-floral apple honey, advancing India's Sweet Revolution.



1. Who Lives in the Hive? (Social Structure)

A honeybee colony is like a well-organized city where everyone has a specific job:

- **The Queen:** There is only **one queen** per hive. She is the mother of all bees and her only job is to lay eggs to keep the colony growing.
- **The Workers:** These are all **females** but they do not lay eggs. They do all the hard work: cleaning the hive, feeding the babies, guarding the door, and flying out to collect nectar.
- **The Drones:** These are the **males**. They don't have stingers and they don't collect food. Their only job is to mate with a new queen.

2. How do Bees Talk? (The Dance)

Bees don't use words; they use "dances" to tell their friends where the flowers are:

- **Round Dance:** This means "Food is very close (less than 100 meters)!"
- **Waggle Dance:** This is for food that is far away. The bee shakes its body in a figure-eight pattern. The **angle** of the dance tells the other bees which direction to fly (using the sun as a map), and the **length** of the shake tells them how far to go.

3. Common Honeybees in India

- **Rock Bee (*Apis dorsata*):** Large, wild, and aggressive. They build huge single combs on tall trees or buildings.
- **Indian Bee (*Apis cerana*):** The most common local bee that farmers keep in boxes.
- **Italian Bee (*Apis mellifera*):** Brought from Europe because they are very calm and produce a lot of honey.
- **Stingless Bee:** Very tiny bees that don't sting. Their honey is used mostly as medicine.

4. Important Bee Related Facts

- **Shimmering:** When a predator (like a wasp) comes near a Rock Bee nest, thousands of bees move their wings together to create a "shimmer" effect to scare it away.
- **Pollination:** This is the most important job. While collecting food, bees move pollen from one flower to another. Without this, many of our favorite fruits and vegetables wouldn't grow.

- **Five Eyes:** Bees have two big eyes to see shapes and three tiny eyes on top of their head to help them navigate using light.

The Sweet Revolution (Mithi Kranti)

The "Sweet Revolution" is a strategic government initiative aimed at promoting apiculture to increase honey production and rural income.

- **Pollination Services:** Bees contribute to the pollination of approximately **75% of food crops**. Estimates suggest that bee pollination can increase crop yields by **15% to 20%**.
- **Mono-floral Honey:** This is honey sourced primarily from a single plant species (e.g., Apple, Litchi, or Mustard). It commands a premium price in the international market due to its specific flavor and medicinal properties.
- **Madhukranti Portal:** An online platform for the registration and **traceability** of honey sources to prevent adulteration and ensure quality for exports.

National Beekeeping and Honey Mission (NBHM)

- Launched in 2020 under the **Atmanirbhar Bharat** package, it is a **Central Sector Scheme** implemented by the National Bee Board (NBB).
- Focuses on production and productivity through scientific beekeeping and pollination.
- Focuses on post-harvest management, including processing, storage, and marketing.
- Focuses on Research & Development (R&D) for specific agro-climatic zones (like the Kashmir sub-zero protocol).

Global Standing

- India has risen to become the **second-largest exporter of honey** globally (as of 2024-25 data).
- Major honey-producing states include Uttar Pradesh, West Bengal, Punjab, and Bihar

Q. Consider the following statements regarding honeybees:

1. In a honeybee colony, the drones are males that have no stingers and do not collect nectar.
2. The "Round Dance" is used by bees to communicate the exact direction of food located far away.
3. The "Sweet Revolution" is a government initiative to promote the production of honey and related products.

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: (c)

Solution:

- **STATEMENT 1 IS CORRECT:** Drones are indeed males; they lack stingers and their only biological role is reproduction, not foraging.

- **STATEMENT 2 IS INCORRECT:** The **Round Dance** is only for food nearby and does not give direction. The **Waggle Dance** is the one used for distance and direction.
- **STATEMENT 3 IS CORRECT:** The **Sweet Revolution** is the official name for the government's drive to boost the apiculture (beekeeping) sector in India.

4.2. THE IMPACT OF CLIMATE CHANGE ON COASTAL DYNAMICS

Context

A recent study published in *Nature Climate Change* highlights a concerning trend: **global warming is weakening the sea-land breeze systems** in major coastal megacities. This "erosion" of coastal winds poses significant risks to urban health, temperature regulation, and air quality.



1. Basic Geography: The Sea-Breeze Mechanism

The sea-land breeze is a local wind system caused by the **differential heating** of land and water.

- **Sea Breeze (Daytime):** Land heats up faster than the sea. The air above the land rises (Low Pressure), and cooler air from the sea (High Pressure) blows toward the shore.
- **Land Breeze (Nighttime):** Land cools down faster than the sea. The air over the sea is now warmer and rises, causing cooler air from the land to blow toward the sea.

2. Why the Breezes are Weakening

The core driver of these winds is the **thermal contrast** (temperature difference) between land and sea.

- **Ocean Warming:** Global warming is heating the oceans significantly.
- **Reduced Gradient:** As sea surface temperatures rise, the temperature gap between the coastal land and the adjacent water shrinks.
- **The Result:** A weaker pressure gradient leads to less frequent and slower sea breezes.

3. Key Findings of the Study

- **Historical Decline:** Ocean warming has already reduced the number of "breeze days" by **3%** in most studied cities.
- **Affected Cities:** Mid-latitude cities like **London, New York, Shanghai, and Buenos Aires** have seen the most dramatic declines. Mumbai has also recorded a 3% reduction.
- **Future Projections (2050):** If carbon emissions remain high, these breezes could weaken **4.5 times faster** than historical rates.

4. Ecological and Urban Implications

The weakening of these breezes is considered an "overlooked threat" because:

- **Urban Heat Island (UHI) Effect:** Sea breezes are essential for cooling down coastal concrete jungles; without them, urban heat becomes more intense.
- **Air Quality:** Breezes help in the dispersion of pollutants. Weaker winds lead to stagnant air and **worsening air pollution** in coastal megacities.

- **Habitability:** The combination of higher heat and poor air quality threatens the long-term habitability of coastal hubs.

Quick Check for Prelims

Feature	Sea Breeze	Land Breeze
Occurrence	Daytime	Nighttime
Movement	Sea to Land	Land to Sea

Q. Which one of the following best explains the cause of sea breeze?

- Rotation of the Earth causing wind circulation
- Differential heating of land and sea creating pressure gradients
- Ocean currents influencing coastal winds
- Seasonal monsoon wind reversal

Answer: B

Explanation:

Mechanism: The Physics of Thermal Contrast

The fundamental cause of a sea breeze is the difference in **specific heat capacity** between land and water:

- **Differential Heating:** During the day, land heats up much faster than the ocean. This creates a sharp temperature contrast.
- **Pressure Gradient:**
 1. The air above the land becomes hot, expands, and rises, creating an area of **Low Pressure (LP)**.
 2. The air over the sea remains relatively cooler and denser, maintaining a **High Pressure (HP)** zone.
- **The Breeze:** Air naturally moves from areas of high pressure to low pressure. Therefore, a cool breeze blows from the sea toward the land during the day.

4.3. MICROPLASTICS IN BLUE CARBON ECOSYSTEMS

Context

Recently, researchers from the Indian Institute of Science Education and Research (IISER), Kolkata, published a study in the *Journal of Hazardous Materials Advances* revealing that microplastics in the Sundarbans are acting as a "novel carbon reservoir." The study highlights how plastic waste, breaking down into nanoplastics, leaches organic carbon into the water, which fuels unnatural bacterial growth and threatens to alter the delicate carbon budget of the world's largest contiguous mangrove forest.



1. The Sundarbans as a Blue Carbon Sink

- **Blue Carbon:** This refers to the carbon captured by the world's ocean and coastal ecosystems, such as mangroves, seagrasses, and salt marshes.

- **Sundarbans' Role:** The Sundarbans, situated at the confluence of the Ganga and Brahmaputra, is a highly efficient ecosystem for sequestering carbon dioxide from the atmosphere and storing it in biomass and soil.
- **Ecological Threat:** The influx of urban waste from upstream brings a high concentration of microplastics (ranging from 5 to 58 particles per liter), particularly during the monsoon due to surface runoff.

2. The "Novel Carbon Reservoir" Phenomenon

- **Leaching Carbon:** As microplastics (roughly 90% carbon) weather and break down, they release **dissolved organic carbon (DOC)** into the marine environment.
- **Biogenic Carbon:** Microbes living on the surface of plastic particles, known as **Plastispheres**, produce their own carbon, further complicating the natural carbon cycle.
- **Impact on Food Web:** This artificial carbon source allows bacteria to multiply faster than natural rates, which can disrupt the natural food web and reduce the efficiency of mangroves as carbon sinks.

3. Some Important concept

- **Plastisphere:** A term used to describe the ecosystems that have evolved to live in human-made plastic environments.
- **Microplastics:** Plastic particles less than 5mm in diameter.
- **Nanoplastics:** Extremely small particles (typically less than 1 micrometer) that can penetrate cellular membranes in marine life.

The Sundarbans

- **Geographic Confluence:** Formed by the delta of the **Ganges, Brahmaputra, and Meghna** rivers on the Bay of Bengal.
- **Largest Mangrove Forest:** It is the largest contiguous mangrove forest in the world, with roughly **40%** of its area in India (West Bengal) and the remaining in Bangladesh.
- **Flora and Fauna:**
 - **Sundari Tree (*Heritiera fomes*):** The dominant mangrove species that gives the forest its name.
 - **Pneumatophores:** Specialized "breathing roots" that grow vertically up from the mud to obtain oxygen in waterlogged soil.
 - **Royal Bengal Tiger:** The Sundarbans is the only mangrove habitat in the world inhabited by tigers.
 - **Other Species:** Estuarine crocodile, Indian Python, Irrawaddy dolphin, and Olive Ridley turtle.
- **International Recognition:**
 - **UNESCO World Heritage Site:** Designated in 1987 (India) and 1997 (Bangladesh).
 - **Ramsar Site:** The Indian Sundarban Wetland was recognized as a "Wetland of International Importance" in **January 2019**.
 - **Biosphere Reserve:** Designated under the Man and Biosphere (MAB) Programme.

Q. With reference to the Sundarbans ecosystem, consider the following statements:

Statement-I: Microplastics in the Sundarbans act as a "novel carbon reservoir" by leaching dissolved organic carbon that fuels rapid bacterial growth.

Statement-II: The Sundarbans is the only mangrove forest in the world recognized as a Ramsar site and inhabited by the Royal Bengal Tiger.

Which one of the following is correct in respect of the above statements?

- A) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I.
- B) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I.
- C) Statement-I is correct but Statement-II is incorrect.
- D) Statement-I is incorrect but Statement-II is correct.

Solution: B

- **STATEMENT-I IS CORRECT:** The research by IISER Kolkata confirms that microplastics release dissolved organic carbon as they break down, functioning as an artificial carbon reservoir.
- **STATEMENT-II IS CORRECT:** The Sundarbans is indeed unique for its tiger population within mangroves and holds the Ramsar status. However, the geographic/biological status of Statement-II does not explain the biochemical "carbon reservoir" mechanism described in Statement-I.

4.4. DRAFT RULES FOR THE E85 ROLLOUT

Context

The Government of India is set to notify draft rules for the introduction of **E85 fuel** (a high-ethanol blend) in response to global oil supply vulnerabilities and the need to reduce vehicular pollution. This move aligns with India's broader strategy of achieving energy security and meeting net-zero carbon targets.



1. Analysis of Ethanol Blends

- **E85:** E85 is a **high-octane, renewable fuel** blend containing **51% to 85% ethanol mixed** with gasoline, designed specifically for **Flex Fuel Vehicles (FFVs)**. It offers cleaner burning and higher performance (104+ octane) but results in lower fuel efficiency (roughly 20-30% lower MPG) compared to standard petrol.
- **E20 Fuel (20% Ethanol + 80% Petrol):**
 - The National Policy on Biofuels (2018, amended in 2022) advanced the 20% ethanol blending target from 2030 to 2025-26.
 - From April 1, 2026, all petrol vehicles in India must be compatible with E20 fuel (20% ethanol blend), requiring engines designed for higher ethanol compatibility, specifically with a minimum 95 RON (Research Octane Number) rating as per BIS standards.

- **E50 Fuel (50% Ethanol + 50% Petrol):** Requires Flex-Fuel Vehicles (FFVs) — specially designed engines capable of running on any petrol-ethanol blend from E20 to E85.

2. E-Fuel Quick Comparison Table

Feature	E20	E50	E60	E85
Ethanol %	20%	50%	60%	Up to 85%
Petrol %	80%	50%	40%	~15%
India Status	Mandatory (2023)	Transitional /Planned	Not notified separately	Draft rules being framed (2025-26)
Engine Needed	Standard/E20 compatible	FFV	FFV	Strictly FFV only
CO₂ Reduction (approx.)	~20%	~40%	~50%	~60–70%
Fuel Economy Impact	~1-2% lower	~10% lower	~15% lower	~20-25% lower
Octane Number Benefit	Moderate	High	High	Very High
Infra Changes Needed	Minimal	Moderate	Significant	Separate pumps & tanks
Global Examples	USA, India	Brazil	Sweden	USA (Midwest), Brazil

3. Key Institutions Involved

- **Ministry of Petroleum & Natural Gas (MoPNG):** Nodal ministry for EBP; issues blending mandates.
- **NITI Aayog:** Policy coordination; authored the Ethanol 100 roadmap.
- **Ministry of Road Transport (MoRTH):** Vehicle compatibility regulations; FFV mandate.
- **Ministry of Food & Agriculture:** Controls feedstock availability and pricing of sugarcane.
- **BIS (Bureau of Indian Standards):** Sets fuel quality standards for E20, E85 blends.
- **Oil Marketing Companies (OMCs):** IOCL, BPCL, HPCL — procure, blend, and distribute ethanol-blended fuel.

4. Comparison of Biofuel Generations

Feature	1st Generation (1G)	2nd Generation (2G)	3rd Generation (3G)	4th Generation (4G)
Feedstock	Edible Food Crops (Sugarcane, Corn, Wheat, Vegetable oils)	Non-Edible Waste (Rice straw, Corn stover, Wood chips etc.)	Algae (Microalgae & Seaweed)	Genetically Engineered Algae & Carbon Capture Tech
Technology	Conventional (Fermentation/ Distillation)	Advanced (Cellulosic ethanol, Gasification)	Biotechnological (Lipid extraction from Algae)	Synthetic Biology + Carbon Sequestration
Key Issues	" Food vs. Fuel " debate; high water usage.	High capital cost; complex pretreatment.	Currently expensive; mostly in R&D/Pilot stage.	Theoretical/Experimental; aiming for Carbon Negative .
GHG Reduction	Moderate (30–50%)	High (60–90%)	Very High (>90%)	Carbon Negative (Absorbs more than it emits)
Examples	Bioethanol, Biodiesel, Biogas	Cellulosic Ethanol, Bio-oil	Algal Biodiesel, Butanol	Photobiological Solar Fuels

4G –Microbes

- ❖ Fourth-generation (4G) biofuels primarily utilize genetically engineered or modified microorganisms—specifically **microalgae, cyanobacteria, fungi, and bacteria**—to enhance lipid/sugar production and directly synthesize fuels like biodiesel, biobutanol, and bioethanol.
- ❖ Key microbes include **Chlorella, Nannochloropsis, and engineered E. coli or Saccharomyces cerevisiae**, which are designed for high-efficiency photosynthesis or direct fuel secretion, often combined with carbon capture.

5. Flex-Fuel Vehicles (FFVs)

- **Definition:** Flex-Fuel Vehicles (FFVs) can operate on any mixture of petrol and ethanol, from pure petrol (E0) to high-ethanol blends (E85 or even E100).
- **Technology:** FFVs use sensors to detect the ethanol content and automatically adjust fuel injection, spark timing, and air-fuel ratio.
- **Key Fact:** **Brazil is the world's largest FFV market with over 30 million FFVs; USA is the second largest.**

Q. Consider the following statements regarding photobiological solar fuels:

1. They are produced using microorganisms like microalgae and cyanobacteria through photosynthesis.
2. They convert solar energy, water, and carbon dioxide into fuels such as hydrogen and hydrocarbons.
3. They act as a carbon-positive alternative to fossil fuels.

Which of the statements given above is/are correct?

Options:

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

Answer: A

Explanation:

Statement 1 → **Correct:** Uses **microorganisms** like microalgae and cyanobacteria.

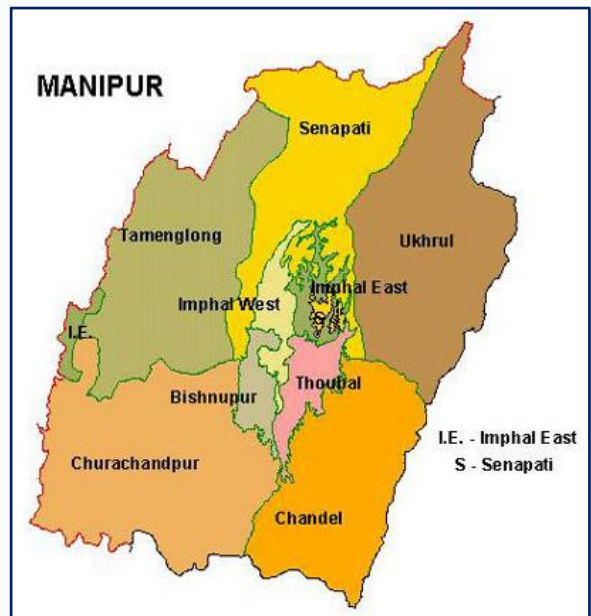
Statement 2 → **Correct:** Converts **solar energy + water + CO₂** → **fuels (H₂, hydrocarbons).**

Statement 3 → **Incorrect:** It is **carbon-neutral**, not carbon-positive.

4.5. MANIPUR - STATE PROFILE AND STRATEGIC IMPORTANCE

Context

Ethnic tensions have intensified in Manipur following clashes between Naga and Kuki communities in Kangpokpi and Senapati districts. The violence was triggered by the killing of two Tangkhul Naga civilians in Ukhrul on April 18, prompting the United Naga Council to impose a 72-hour shutdown across Naga-inhabited areas. The situation escalated when Kuki villagers attempted to remove roadblocks, leading to physical confrontations. These developments indicate a departure from the earlier neutrality of Naga groups in the Meitei-Kuki conflict and revive memories of the Naga-Kuki clashes of the 1990s.



1. Geography and Topography

- **Location:** Manipur is a "Landlocked State" in Northeast India, sharing international borders with **Myanmar** (Sagaing Region and Chin State) to the east and south.
- **Internal Borders:** It is bounded by **Nagaland** to the north, **Mizoram** to the south, and **Assam** to the west.

- **Terrain:** The state is physically divided into two distinct regions: the central **Imphal Valley** (occupying about 10% of the land) and the surrounding **Hill Ranges** (occupying 90% of the land).
- **River Systems:** The state is drained by the **Barak River** (flowing towards Assam/Bangladesh) and the **Manipur River** (a tributary of the Chindwin River in Myanmar).

2. Biodiversity and Environment

- **Loktak Lake:** It is the largest natural freshwater lake in Northeast India and is a designated **Ramsar Site**. It is also included in the **Montreux Record** due to ecological changes.
- **Phumdis:** These are heterogeneous masses of vegetation, soil, and organic matter at various stages of decomposition that float on the lake surface.
- **Keibul Lamjao National Park:** It is the **world's only floating national park**, located in the southern part of Loktak Lake.
- **Sangai Deer:** Also known as the "Dancing Deer," it is the **State Animal** of Manipur and is found exclusively in the Keibul Lamjao National Park. It is listed as "Endangered" in the IUCN Red List.

3. Demographic and Ethnic Profile

- **Meiteis:** They are the largest ethnic group (approx. 53%) and primarily inhabit the fertile Imphal Valley. They mostly practice Vaishnavism (Hinduism) and speak **Meiteilon** (Manipuri), which is an 8th Schedule language.
- **Tribal Communities:** The hill areas are inhabited by various tribes, broadly classified into **Nagas** and **Kuki-Zomi** groups. These tribes are protected under the **Fifth or Sixth Schedule** concepts (specifically Article 371C for Manipur).
- **Article 371C:** This special provision provides for a "Hill Areas Committee" in the Manipur Legislative Assembly to ensure the development and autonomy of the tribal regions.

4. Administrative and Historical Milestones

- **Integration:** Manipur was a Princely State that signed the Instrument of Accession in 1947 and officially merged with the Indian Union on **October 15, 1949**.
- **Statehood:** It became a full-fledged state on **January 21, 1972** (along with Meghalaya and Tripura) under the North-Eastern Areas (Reorganisation) Act, 1971.
- **Inner Line Permit (ILP):** Manipur was extended the ILP system in **December 2019** to protect the indigenous population from unregulated influx. It is the fourth state in the Northeast to have ILP after Arunachal Pradesh, Nagaland, and Mizoram.
- **AFSPA:** Large parts of the state have historically been under the **Armed Forces (Special Powers) Act**, though the "Disturbed Area" tag has been removed from several police station jurisdictions in the valley in recent years.

Q. With reference to the state of Manipur, consider the following statements:

- I. The Keibul Lamjao National Park is the only floating national park in the world and serves as the natural habitat for the Sangai deer.
- II. The state shares its international boundary with both Myanmar and Bangladesh.

III. Article 371C of the Constitution of India provides for special provisions with respect to the state of Manipur, including the creation of a Hill Areas Committee.

Which of the statements given above is/are correct?

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

Solution: B

- **STATEMENT I IS CORRECT:** Keibul Lamjao, located on Loktak Lake, is the only floating park globally and is the exclusive home of the endangered Sangai (dancing deer).
- **STATEMENT II IS INCORRECT:** Manipur shares its international border only with **Myanmar**. It does not share a border with Bangladesh; the state of Mizoram and Assam lie between Manipur and the Bangladesh border.
- **STATEMENT III IS CORRECT:** Article 371C was added by the 27th Amendment Act, 1971, to provide for the constitution of a committee of the Legislative Assembly consisting of members elected from the Hill Areas.

4.6. SAFER FIREWORKS ALTERNATIVES

Context

Recently, a major explosion at a firecracker manufacturing unit in Thrissur resulted in the death of 14 people and left over 40 injured, occurring just days before the Thrissur Pooram festival.

In the previous year, the same festival had already raised serious safety concerns when a fireworks display led to chaos after a disoriented elephant went on a rampage, injuring 42 individuals. Additionally, another elephant had attacked its handler a day prior to the incident.



1. Noise Pollution Standards in India

- **Regulatory Body:** Central Pollution Control Board (CPCB).
- **Noise Standards for Firecrackers:** Prohibits manufacture, sale, or use of firecrackers generating noise levels exceeding **125 decibels (dB)** at 4 metres distance from the point of bursting.
- **Ambient Noise Limits (National Ambient Noise Monitoring Network):**
 - **Residential Areas:** 45–55 dB.
 - **Silence Zones (Hospitals/Educational Institutions):** 40–50 dB.
- **Health Impact:** The WHO identifies noise pollution as the **third most hazardous environmental threat** to human health, following air and water pollution.

2. Cold Spark Technology (Noiseless Alternatives)

- **Mechanism:** Uses a chemical combustion reaction of fine granulated metal alloy powders (typically **Titanium and Zirconium**).
- **The "Cold Sparkular":** A device equipped with a heater and fan. The heater warms the alloy powder to increase activation energy, and the fan ejects the glowing particles.
- **Key Differences from Traditional Fireworks:**
 - **Temperature:** Traditional sparklers emit temperatures around 1,200°C. Cold sparklers/anars operate at significantly lower temperatures (**60–100°C**), reducing burn risks.
 - **Combustion:** Utilizes rapid exothermic reactions without explosive combustion, heavy smoke, or high-decibel noise.
 - **Deployment:** Can be arranged in arrays for sequential triggering to create visual effects like "cascading bursts" or "vertical expansion" without sound.

3. Ecological and Social Impact

- **Animal Welfare:** High decibel levels and specific sound frequencies disorient captive animals (e.g., festival elephants), leading to unpredictable behavior and public safety risks.
- **Vulnerable Populations:** High noise levels near hospitals pose significant risks to Neonatal Intensive Care Units (NICUs), potentially impacting infant brain development.
- **Economic Barriers:** Cold spark pyrotechnics remain expensive and are currently largely imported, though indigenous manufacturing is technologically feasible.

Q. With reference to noise pollution standards in India, consider the following statements:

- I. The Central Pollution Control Board regulates permissible noise levels for firecrackers.
- II. Firecrackers generating noise above 125 decibels at a distance of 4 metres are prohibited.
- III. Ambient noise limits in silence zones such as hospitals range between 70–80 dB.

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

Answer: A

Explanation:

- **Statement I is Correct:** The **Central Pollution Control Board (CPCB)** is the statutory body responsible for setting and regulating noise standards in India, including those for firecrackers and ambient noise levels.
- **Statement II is Correct:** According to the "Noise Standards for Firecrackers," the manufacture, sale, or use of firecrackers generating noise levels exceeding **125 decibels (dB)** at a distance of **4 metres** from the point of bursting is prohibited.

- **Statement III is Incorrect:** Ambient noise limits for **silence zones** (which include hospitals and educational institutions) are much lower than stated. The recommended limits are **50 dB during the day** and **40 dB at night**. A range of 70–80 dB would be closer to industrial area limits or high-traffic zones, which would be hazardous to a hospital environment.

4.7. TOXIC RAINFALL

Context

A long-burning fire at the **Tuapse oil refinery** (Russia) following a Ukrainian drone strike has highlighted significant environmental risks, specifically **toxic rainfall** and particulate matter pollution. This event serves as a case study for the intersection of geopolitical conflict, energy infrastructure, and environmental science.



1. Geographical Significance: Tuapse & The Black Sea

- **Location:** Tuapse is a major port city in **Krasnodar Krai, Russia**, situated on the northeast shore of the **Black Sea**.
- **Strategic Importance:** It is home to a massive oil refinery and terminal, serving as a primary hub for Russian energy exports.
- **UPSC Tip:** Map-based questions often focus on Black Sea port cities (e.g., Novorossiysk, Sevastopol, Odessa, Tuapse).

2. Environmental Impact: Toxic Rainfall & Air Quality

I. Toxic Rainfall (Black Rain)

- **Mechanism:** Large-scale combustion of hydrocarbons (oil) releases massive quantities of **Soot (Black Carbon)** and sulfur/nitrogen oxides into the atmosphere.
- **Precipitation:** When these particles interact with moisture in the clouds, they fall as "toxic rainfall," leaving a **carbonaceous black coating** on surfaces.
- **Impact:** This can lead to soil acidification, water contamination, and damage to local flora.
- **Comparison to Acid Rain:** While traditional acid rain involves sulfur and nitrogen oxides lowering the pH of precipitation, toxic "black rain" often refers to direct contamination from heavy pollution loads.

II. Particulate Matter (PM) & Emissions

- **Concentration:** Local authorities reported toxic particle levels **2–3 times higher** than permissible limits.
- **Health Hazards:** High concentrations of PM 2.5 penetrate deep into the lungs and enter the bloodstream.
- **Public Health Protocol:** Mitigation strategies include:
 - Staying indoors (Shelter-in-place).
 - Using **N95/Face masks** to filter out fine soot particles.
 - Sealing windows to prevent indoor infiltration of toxic plumes.

3. WHO Air Quality Guidelines (AQG)

The WHO significantly tightened limits in 2021 due to new evidence of health impacts at lower concentrations.

- **PM 2.5 Annual Mean:** Reduced from $10\mu\text{g}/\text{m}^3$ to $5\mu\text{g}/\text{m}^3$.
- **PM 10 Annual Mean:** Reduced from $20\mu\text{g}/\text{m}^3$ to $15\mu\text{g}/\text{m}^3$.

Note for Prelims: These guidelines are **not legally binding** for countries. They serve as a scientific template for nations to set their own national standards (like India's **NAAQS**).

Q. With reference to atmospheric pollution, consider the following statements:

- Acid rain is primarily caused by sulfur dioxide and nitrogen oxides reacting with water vapor, leading to a decrease in the pH of precipitation.
- "Black rain" refers to precipitation contaminated with high concentrations of particulate matter and toxic pollutants, often giving it a dark appearance.
- Both acid rain and black rain originate from identical chemical processes in the atmosphere.

Which of the statements given above is/are correct?

- I and II only
- II and III only
- I and III only
- I, II and III

Answer: A

Explanation:

Detailed Analysis of Statements

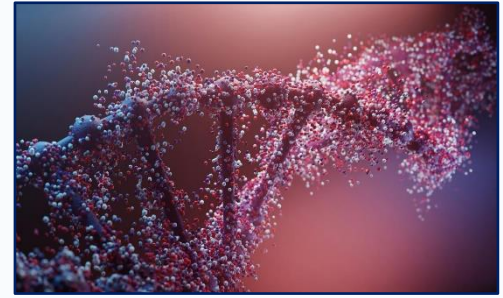
- **Statement I is Correct:** Acid rain is a result of **Sulfur Dioxide (SO₂)** and **Nitrogen Oxides (NO_x)** reacting with atmospheric water, oxygen, and other chemicals. This forms sulfuric and nitric acids, which lower the pH of rainwater typically to a range of **4.2 to 4.4**.
- **Statement II is Correct:** "Black rain" is distinct from standard acid rain. It occurs when rain scavenges large amounts of **Particulate Matter (PM)**, specifically **Soot or Black Carbon**, from the air. This usually follows high-intensity events like oil refinery fires (as seen in the Tuapse incident), volcanic eruptions, or nuclear explosions. The high concentration of carbonaceous particles gives the rain a literal dark or "black" appearance and leaves a residue on surfaces.
- **Statement III is Incorrect:** While both are forms of atmospheric deposition, their "chemical origin" is different:
 - **Acid Rain** is a **chemical transformation** process (gas-to-acid conversion).
 - **Black Rain** is primarily a **physical scavenging** process (wet deposition of solid particles).

While they often occur simultaneously (as burning oil releases both SO₂ and soot), the processes—acidification vs. particulate contamination—are scientifically distinct.

5.1. INHERITED PERIPHERAL NEUROPATHY (IPN) AND ARS MUTATIONS

Context

Recently, new scientific research has clarified a long-standing mystery regarding why specific genetic mutations lead to debilitating nerve diseases while other, seemingly more severe mutations, do not. By utilizing yeast models to simulate human genetic behavior, researchers discovered that certain faulty proteins possess a "dominant-negative" property. This means the mutated protein does not simply disappear; it actively interferes with the healthy version, causing a critical shortage of the components needed for protein synthesis. This discovery is significant for the medical field as it identifies a specific target for future gene-silencing therapies.



1. What is Peripheral Neuropathy?

Peripheral neuropathy refers to a condition where the peripheral nerves—the vast communications network that transmits signals between the central nervous system (brain and spinal cord) and all other parts of the body—are damaged.

- **Symptoms:** High foot arches, curled toes, muscle wasting (thin calves), loss of sensation, and coordination issues.
- **Prevalence:** Inherited versions (IPN) affect approximately **1 in 2,500 individuals**.

2. The Role of Aminoacyl-tRNA Synthetases (ARS)

ARS are essential enzymes dubbed "housekeeping" enzymes because they are critical for the very first step of protein synthesis in every cell.

- **Function:** They are responsible for "**charging**" tRNA. They attach specific amino acids (like alanine or asparagine) to their corresponding tRNA molecules.
- **The Process:**
 - DNA is copied into **mRNA**.
 - ARS enzymes ensure the correct amino acid is loaded onto the tRNA.
 - tRNA delivers these amino acids to the **ribosome** (the protein factory) to build a polypeptide chain.
- **Genetic Count:** Humans have 37 genes coding for ARS enzymes; mutations in at least 7 of these are known to cause IPN.

3. The "Dominant-Negative" Phenomenon

The core question of the research was why some people with a "null" mutation (one gene copy completely missing) remain healthy, while those with a specific "missense" mutation become ill.

- **Normal State:** Humans have two copies of every gene. One functional copy is usually enough to maintain health.
- **Dominant-Negative Property:** In certain mutations, the faulty protein produced by the mutated gene does not just "stop working." Instead, it **actively interferes** with the healthy protein produced by the normal gene copy.

- **Dimerization:** These proteins often work in pairs (dimers). A mutant protein can pair with a healthy one to create a "broken duo," effectively reducing the total pool of functional enzymes to levels far below 50%, leading to cellular failure.

4. Why are Long Nerves Sensitive?

- Peripheral nerves are unique because of their extreme length (e.g., from the spine to the toe). The cell body must supply proteins to the very end of the axon. Even a slight decrease in the efficiency of protein synthesis due to these "dominant-negative" mutations can cause these long-distance supply lines to fail, leading to nerve degeneration.

Q. With reference to Aminoacyl-tRNA synthetases (ARS), consider the following statements:

1. These enzymes are primarily responsible for the transcription of DNA into messenger RNA (mRNA).
2. Mutations in ARS genes are a known cause of inherited peripheral neuropathies.
3. A "dominant-negative" mutation refers to a condition where a faulty protein actively prevents a normal protein from functioning correctly.

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

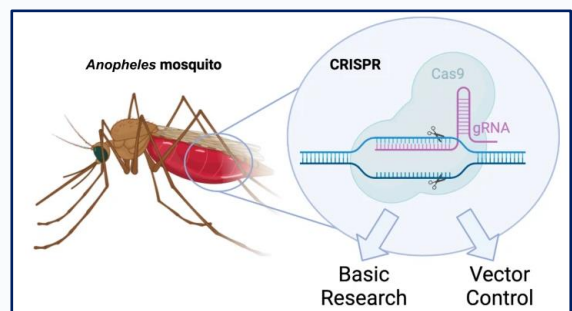
Answer: B

- **STATEMENT 1 IS INCORRECT:** ARS enzymes are involved in **translation**, specifically the charging of tRNA with amino acids, not the transcription of DNA into mRNA (which is handled by RNA polymerase).
- **STATEMENT 2 IS CORRECT:** As per recent medical research, mutations in several ARS genes (like GARS, YARS, etc.) are directly linked to inherited neuropathies like Charcot-Marie-Tooth disease.
- **STATEMENT 3 IS CORRECT:** The "dominant-negative" effect describes a situation where the product of a mutant allele interferes with the function of the wild-type (normal) gene product, often by forming non-functional complexes.

5.2. GENE DRIVE TECHNOLOGY & MALARIA CONTROL

Context

Recently, the "**Transmission Zero**" project—a collaboration between Imperial College London and the Ifakara Health Institute in **Tanzania**—achieved a breakthrough by demonstrating that genetically modified mosquitoes could block malaria parasite transmission in a real-world endemic setting. This marks a shift from laboratory-only success to potential field application of **Population Modification** using **CRISPR-Cas9 gene drives**.



1. Understanding Gene Drive Technology

- **Definition:** A genetic engineering technology that bypasses traditional **Mendelian inheritance** to ensure a specific trait is passed to almost **100% of offspring** (instead of the usual 50%).
- **Mechanism:** Uses the **CRISPR-Cas9** system to "copy and paste" a modified gene into the partner chromosome during reproduction.
- **Goal:** Rapidly spread a desired trait through an entire wild population over a few generations.

2. Highlights of the Tanzania Study

- **First for Africa:** It demonstrated that modified mosquitoes could suppress malaria parasites from **real-world infections**, not just laboratory cultures.
- **Localized Engineering:** Conducted in a high-containment insectary in **Bagamoyo, Tanzania**, using local **Anopheles gambiae** mosquitoes.
- **Effector Molecules:** Engineered mosquitoes produced two antimicrobial peptides in their midgut upon taking a blood meal, preventing the *Plasmodium* parasite from reaching the salivary glands.
- **Safety Features:** Researchers are exploring "**Self-limiting**" drives (which disappear over time) and "Off-switches" to reverse the spread if needed.

3. Key Approaches in CRISPR-Cas9 Malaria Control

- **Population Suppression (Gene Drives):** CRISPR-Cas9 disrupts essential female reproduction genes (e.g., AGAP005958, AGAP011377), leading to a drastic reduction in mosquito numbers and, consequently, reduced transmission.
- **Population Modification/Replacement:** Mosquitoes are engineered to be resistant to the malaria parasite, making them unable to transmit it, such as through the knockout of the FREP1 gene.
- **Precision-Guided Sterile Insect Technique (pgSIT):** A specialized CRISPR approach that releases sterile males to reduce the population without using a self-sustaining gene drive.

4. Comparative Analysis: Malaria vs. Dengue

Feature	Malaria	Dengue
Causative Agent	Protozoa (<i>Plasmodium</i> species like <i>P. falciparum</i> , <i>P. vivax</i>)	Virus (<i>Flavivirus</i> - DENV 1, 2, 3, 4)
Primary Vector	Anopheles Mosquito (Female)	Aedes aegypti (and <i>Aedes albopictus</i>)
Feeding Pattern	Mostly Night-biters (Dusk to Dawn)	Mostly Day-biters (Early morning/Late afternoon)
Breeding Habitat	Clean, stagnant water (Puddles, ponds, slow streams)	Artificial containers (Coolers, tires, pots, trays)
Incubation Period	Longer (Usually 10–15 days)	Shorter (Usually 3–14 days)

Key Symptoms	High fever with chills and rigors (shaking); cycling fever patterns.	High fever, severe "break-bone" joint/muscle pain , behind-the-eye pain, skin rash.
Major Complication	Cerebral Malaria, Severe Anemia.	Dengue Hemorrhagic Fever (DHF) , Platelet drop.
Diagnostic Test	Blood Smear (Microscopy) or RDT (Rapid Diagnostic Test).	NS1 Antigen test (early), IgM/IgG Antibody tests.
Vaccine Status	RTS,S and R21/Matrix-M (Approved for children).	Dengvaxia (limited use); Qdenga .

Some Key Facts

- World Malaria Day, observed on **25th April annually**, was established by the World Health Organization (WHO) in 2007 to raise awareness and drive action against malaria.
- Malaria is a life-threatening disease caused by the **Plasmodium parasite**, transmitted to humans by infected **female Anopheles mosquitoes**.
- **Treatment & Prevention:** Advanced with effective drugs like chloroquine and artemisinin, supported by tools like insecticide-treated nets (ITNs) and indoor spraying.
- **Vaccine:** In October 2021, the WHO recommended widespread use of the **RTS,S/AS01 (Mosquirix) vaccine** for children in sub-Saharan Africa and moderate-to-high malaria transmission areas.
- **WHO E-2025 initiative:** The World Health Organization (WHO) launched the E-2025 initiative in April 2021 to support 25 identified countries in eliminating malaria by 2025.

Q. Which one of the following statements best reflects the idea behind the Precision-Guided Sterile Insect Technique (pgSIT) often discussed in the context of malaria control?

- Genetically modified mosquitoes are released to directly kill malaria parasites inside the human body.
- Sterile male mosquitoes are released into the wild to mate with females, leading to no viable offspring.
- Mosquitoes are engineered to migrate away from human habitats permanently using genetic modification.
- Female mosquitoes are genetically modified to produce vaccines against malaria in their saliva.

Answer: B

Explanation:

pgSIT uses **CRISPR-based genetic engineering** to produce **sterile male mosquitoes**.

These males mate with wild females, but **no offspring survive**, reducing mosquito population over time.

It is **non-self-sustaining**, unlike gene drive systems.

5.3. LUNAR GOVERNANCE

Context

Recently, the global discourse on lunar governance has intensified following the **65th session of the Legal Subcommittee of the UN Committee on the Peaceful Uses of Outer Space (UNCOPUOS)** held in April 2026. The session focused on the urgent need for a transparent and sustainable framework to manage accelerating lunar activities, particularly concerning the extraction of resources like water ice in the Moon's South Pole.



1. The International Legal Framework

Lunar governance is primarily anchored in the "Five UN Treaties on Outer Space," with the following being most relevant:

- **Outer Space Treaty (1967):** Considered the "Magna Carta" of space law. It stipulates that space is the **"province of all mankind"** and prohibits national appropriation by claim of sovereignty. It forbids the placement of weapons of mass destruction (WMDs) on the Moon.
- **The Rescue Agreement (1968):** Mandates the rescue and return of astronauts (envoys of mankind) in distress.
- **Liability Convention (1972):** Established that launching states are "absolutely liable" to pay compensation for damage caused by their space objects.
- **Registration Convention (1975):** Requires states to maintain a registry of objects launched into space.
- **The Moon Agreement (1979):** Declares the Moon and its resources as the **"Common Heritage of Mankind."** It is controversial because it restricts commercial exploitation. **India has signed but not ratified** this agreement, while major powers like the USA, Russia, and China have not signed it at all.

2. Emerging Blocs: Artemis vs. ILRS

The modern "Space Race" has led to two distinct governance models:

- **Artemis Accords (US-led):** A non-binding set of principles for civil space exploration. India became a signatory in 2023. Key features include **"Safety Zones"** (to prevent harmful interference) and the affirmation that extracting lunar resources does not constitute national appropriation.
- **International Lunar Research Station (ILRS) (China-Russia led):** A rival mission aimed at building a permanent lunar base. It emphasizes a "multipolar" governance model and invites global partners, primarily from the Global South.

3. Key Governance Concepts for Prelims

- **In-Situ Resource Utilization (ISRU):** The practice of collecting, processing, and using materials found on the Moon (like water ice for oxygen/fuel) to support missions. Legal ambiguity exists whether ISRU violates the "non-appropriation" principle of the 1967 Treaty.

- **Safety Zones:** Areas established around lunar bases to prevent "harmful interference" from other nations' activities. Critics argue these could become "de facto" territorial claims.
- **Space Situational Awareness (SSA):** The monitoring of space debris and traffic. With the Moon becoming crowded, SSA is vital for "Lunar Traffic Management."

4. India's Lunar Roadmap

- **Indian Space Policy 2023:** Encourages **Non-Government Entities (NGEs)** to participate in end-to-end space activities, including lunar exploration.
- **Space Vision 2047:**
 - **Bharatiya Antariksh Station (BAS):** India's own space station by 2035.
 - **Crewed Moon Landing:** Targeted for 2040.
 - **Chandrayaan-4:** A mission designed to demonstrate docking/undocking and lunar sample return capabilities.

Q. With reference to International Lunar Governance, consider the following statements:

1. The Outer Space Treaty of 1967 explicitly permits nations to claim sovereignty over lunar regions rich in water ice.
2. India is a signatory to the Artemis Accords but has not ratified the Moon Agreement of 1979.
3. The "Safety Zones" concept under the Artemis Accords is a legally binding provision under the UN Office for Outer Space Affairs (UNOOSA).

Which of the statements given above is/are correct?

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

Correct Answer: B

Solution:

- **STATEMENT 1 IS INCORRECT:** The Outer Space Treaty (1967) prohibits national appropriation by claim of sovereignty, occupation, or any other means. No nation can claim ownership of the Moon or its regions.
- **STATEMENT 2 IS CORRECT:** India signed the Artemis Accords in June 2023. While India is a signatory to the Moon Agreement (1979), it has never ratified it, which allows India more flexibility regarding future lunar resource utilization.
- **STATEMENT 3 IS INCORRECT:** The Artemis Accords are a non-binding political commitment, not a legally binding treaty under UNOOSA. While they aim to implement OST principles, they do not have the status of international law.

HISTORY & CULTURE

6.1. ADI SHANKARACHARYA

Context:

Recently, the **1238th birth anniversary** of Jagadguru Adi Shankaracharya is being celebrated as **Sri Shankara Jayanti Mahotsav** on **April 21, 2026 (Vaishakha Shukla Panchami)**. Major celebrations are organized by the **Dakshinamnaya Sringeri Sharada Peetham** from April 18 to April 21, 2026, highlighting the rediscovery of his birthplace, **Kalady**, and his role in the national and dharmic integration of India.



1. Life and Background

- **Birthplace:** Born in **Kalady**, Kerala, on the banks of the **River Poorna** (Periyar) to **Aryamba** and **Shivaguru**.
- **Early Genius:** At age 8, he set out to find a Guru, eventually studying under **Sri Govinda Bhagavatpadacharya** on the banks of the Narmada.
- **The Rediscovery of Kalady:** His birthplace had faded from public memory for centuries until it was rediscovered in the late 19th century by **Sri Sacchidananda Shivabhinava Narasimha Bharati Mahaswamiji** (the 33rd Shankaracharya of Sringeri).
- **The Four Amnaya Peethams:** To unify India spiritually and geographically, he established four main monasteries (Mathas) based on the *Mathamnaya Stotra*.
 - **Jyotir Math (North):** Badrinath (Uttarakhand).
 - **Govardhan Math (East):** Puri (Odisha).
 - **Dwarka Sharada Peeth (West):** Dwarka (Gujarat).
 - **Sringeri Sharada Peeth (South):** Sringeri (Karnataka).

3. Philosophy: Advaita Vedanta

Adi Shankaracharya is the most famous exponent of **Advaita** (Non-dualism).

- **The Ultimate Reality:** He taught that **Brahman** is the only truth (*Satya*), while the world (*Jagat*) is an appearance (*Mithya*) caused by the power of **Maya**.
- **Concept of Liberation:** True liberation (*Moksha*) comes from realizing that the individual soul (**Atman**) is identical to Brahman.

3. Key Contributions to National Integration

- **Bridging Regional Identities:** He fostered a shared national identity by appointing priests from specific regions to serve in distant corners (e.g., **Kerala Nambudiri** priests to serve at Badrinath in the North, and **Maharashtra priests** to conduct worship at Rameswaram in the South).
- **Shanmata System:** He resolved sectarian conflicts by reviving the **Panchayatana Puja** (Shanmata), encouraging the simultaneous worship of Shiva, Vishnu, Shakti, Ganesha, and Surya.
- **Literary Gems:** Apart from philosophical texts, he composed soul-stirring hymns like the **Kanakadhara Stotram** (composed as a young boy to help a poor household) and **Bhaja Govindam**.

- **Role of Women:** He demonstrated the importance of women in the Vedic tradition, notably evidenced by the appointment of **Ubhaya Bharati** (Mandana Mishra's wife) to adjudicate his famous debate.
- **Dashanami Sampradaya:** He organized monks into ten orders to protect the Dharma: *Giri, Puri, Bharati, Vana, Aranya, Tirtha, Ashrama, Saraswati, Parvata, and Sagara.*

Comprehensive Literary Works

Shankaracharya's literary output is categorized into three distinct types, all written in Sanskrit.

1. Bhashyas (Commentaries)

These are his most scholarly works, interpreting the **Prasthanatrayi** (The three sources of authority):

- **Brahmasutrabhashya:** His commentary on the Brahma Sutras of Badarayana (the foundational text of Advaita).
- **Gita Bhashya:** Commentary on the Bhagavad Gita.
- **Upanishad Bhashyas:** Commentaries on the ten principal (*Mukhya*) Upanishads, including the **Brihadaranyaka, Chandogya, and Taittiriya.**

2. Prakarana Granthas (Introductory Treatises)

These texts simplify complex non-dualistic philosophy for students:

- **Vivekachudamani** (The Crest Jewel of Discrimination).
- **Upadesasahasri** (A Thousand Teachings).
- **Atma Bodha** (Self-Knowledge).
- **Tattva Bodha** (Knowledge of Truth).

3. Stotras (Devotional Hymns)

Though a philosopher of the "Abstract Brahman," he composed many emotional hymns:

- **Bhaja Govindam:** Highlighting the futility of worldly attachments.
- **Saundarya Lahari** and **Ananda Lahari:** Tantric and devotional hymns in praise of Shakti.
- **Nirvana Shatakam:** A six-verse summary of the identity of the soul with Shiva (Brahman).
- **Kanakadhara Stotram:** Composed in his childhood to bring a rain of golden amlas to a poor woman.

Q. With reference to Adi Shankaracharya, consider the following statements:

1. He established the Govardhan Math in the eastern part of India, which is associated with the Rigveda.
2. The "Kanakadhara Stotram" is a philosophical commentary written by him on the Brahma Sutras.
3. He promoted the "Shanmata" system to harmonize the worship of different Hindu deities.
4. His birthplace, Kalady, was rediscovered in the 19th century by the 33rd Shankaracharya of Sringeri.

How many of the statements given above are correct?

- A) Only one
- B) Only two
- C) Only three

D) All four

Answer: C) Only three

Solution:

- **STATEMENT 1 IS CORRECT:** The Govardhan Math in Puri (Odisha) is the eastern peetham and is traditionally associated with the Rigveda.
- **STATEMENT 2 IS INCORRECT:** The *Kanakadhara Stotram* is a devotional hymn (Stotra) requesting the Goddess of wealth for a poor woman; his commentary on the Brahma Sutras is titled *Brahma Sutra Bhashya*.
- **STATEMENT 3 IS CORRECT:** He introduced the Shanmata (six-fold) system and Panchayatana Puja to unify various sects.
- **STATEMENT 4 IS CORRECT:** According to recent historical records, Sri Sacchidananda Shivabhinava Narasimha Bharati Mahaswamiji was instrumental in identifying Kalady as the birth site.

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